Stormwater Management Pond Design Brief

Greely Village Centre
- Commercial Phase - Ultimate Conditions -
- City of Ottawa -

December 2008

JFSAinc. Ref: 647-07

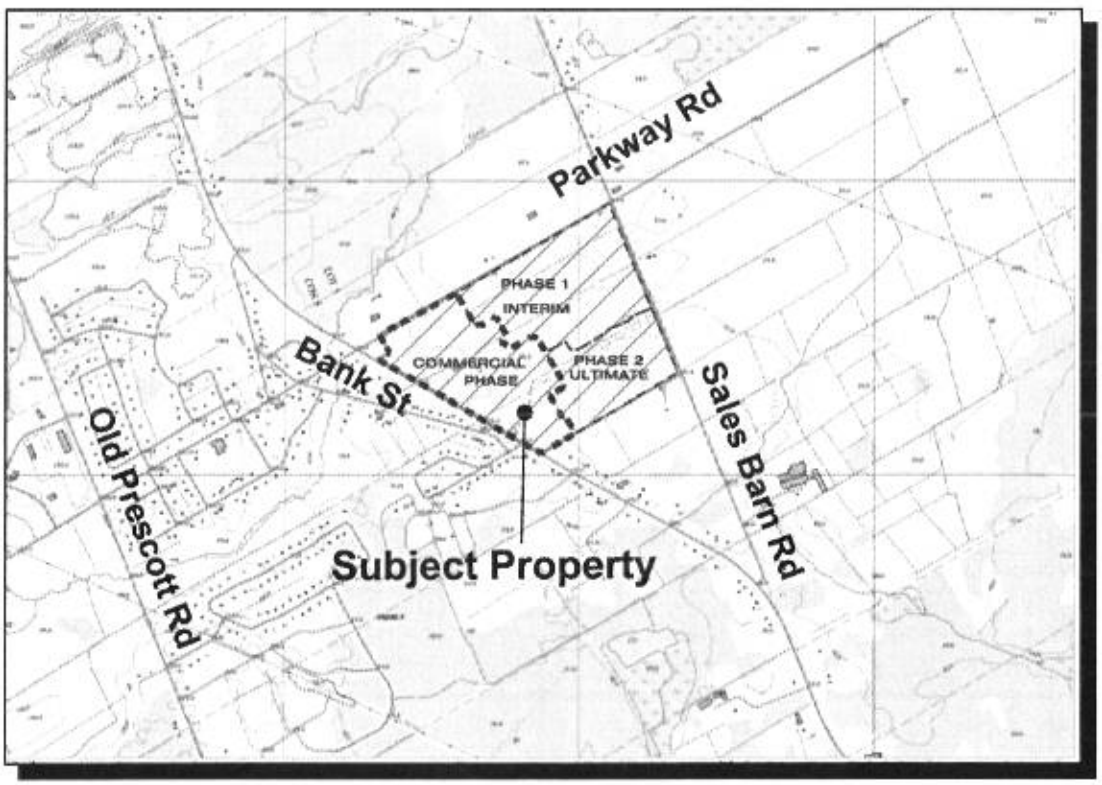

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Table of Contents

List of Figures:

List of Tables:

Appendices:

Stormwater Management Pond Design Brief
Greely Village Centre - Commercial Phase - Ultimate Conditions - City of Ottawa

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1.0 Introduction and Study Objectives

J.F. Sabourin and Associates Inc. (JFSA) were retained by Atrel Engineering Ltd (AEL) to assist with the design of the Stormwater Management Pond which will provide quantity and quality control, for the surface runoff from the proposed development of Greely Village Centre - Commercial Phase - Ultimate Conditions. The general location of the subject property is shown in Figure 1 and is situated between Bank Street and Sales Barn Road, just south of Parkway Road in the Village of Greely, City of Ottawa. It is noted that the main objective of the proposed SWM Pond is to provide a "Lake" feature within the development as in other nearby subdivisions.

The proposed SWM Pond will service a total drainage area of approximately 16.71 ha consisting of approximately 16.21 ha for the Greely Village Centre commercial subdivision, including 1.57 ha for the pond block and future septic beds, and an additional 0.50 ha from an existing external property located south-east of the intersection of Bank Street and Parkway.

Flows from the proposed pond will discharge to a new drainage channel that will be intercepted by a realigned portion of the McEnvoy Municipal Drain which then flows to the Shields Municipal Drain along Sales Barn Road until it reaches Shields Creek (see Figure 4a).

The purpose of the present design brief is: i) to document and evaluate the existing drainage conditions of the subject site and nearby watercourse, ii) to undertake and the document the necessary analyses to size the proposed wet pond and configure the outlet control structure to provide the required controls, and iii) to document the hydraulic operation of the pond.

The drainage of the proposed commercial Greely Village Centre development was designed by AEL.

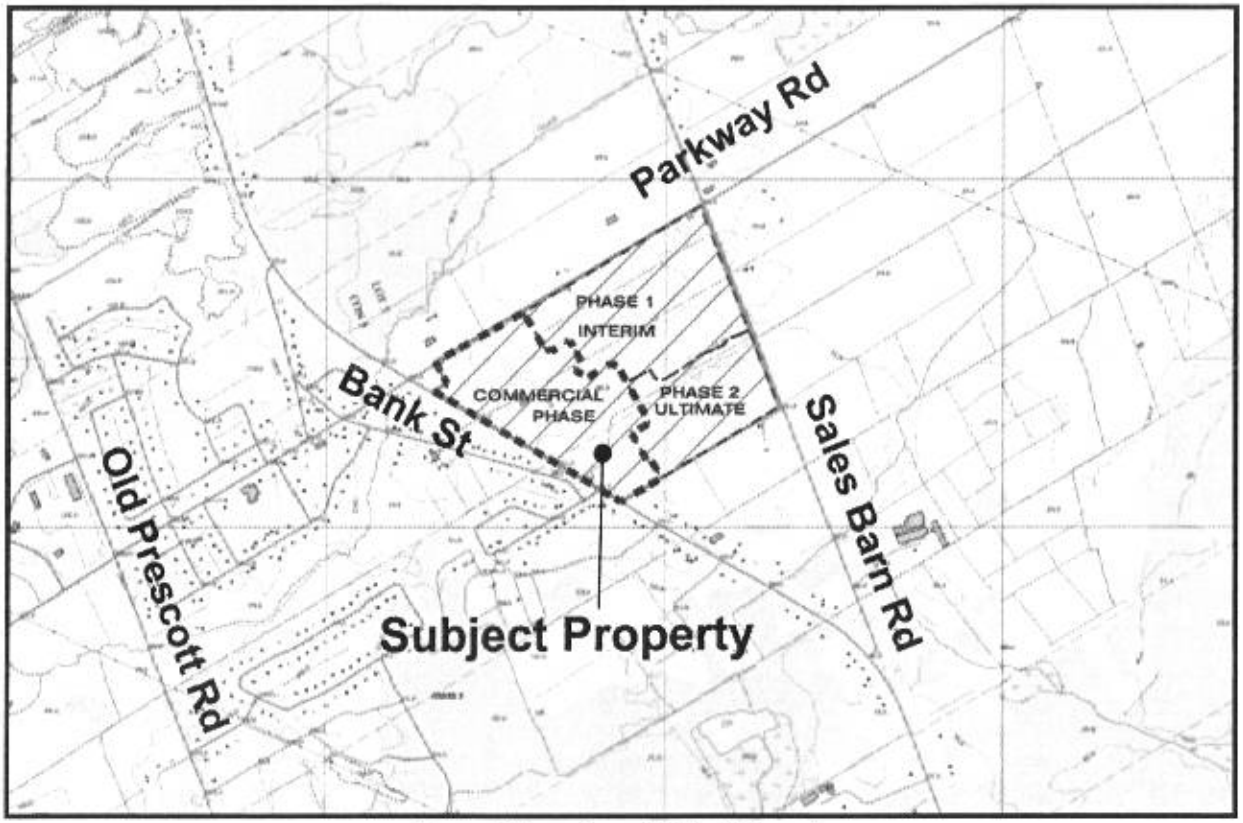


Figure 1: Location of Subject Property

2.0 Background Information and Assumptions

Relevant background information and assumptions used in this study / report are provided below.

2.1 Design Objectives and Criteria

- Summer design storms: 4 hour Chicago and 24 hour SCS Type II distributions for 2 to 100 year storms (for quantity control) based on the updated City of Ottawa Design Guideline IDF curves. The summer design storms are provided in Appendix A.
- Quantity control from the proposed SWM pond is to maintain future peak runoff flows, on the receiving watercourses, to existing levels or lower for the 2 year to 100 year design storms. Existing and proposed hydrological conditions are described in Sections 3.0 and 4.0 respectively.
- Quality control from the proposed SWM pond is to provide 80% long-term suspended sediment removal, described as "Enhanced" protection level. Estimated quality pond volume requirements are provided in Appendix C along with the stage-storage curves for the proposed pond cell.
- The pond's extended detention volume (for quality control purposes) is to be released over a period of 24 hours to 48 hours.

2.2 Drainage Areas, Time to Peak, CN Numbers and Imperviousness:

< ref: Plans, Profiles and Drainage Areas as provided by Atrel Engineering Ltd>
< ref: Stantec Consulting Ltd: " Greely/Shields Creek Stormwater and Drainage Study", 2002, + maps>
< ref: MTO Drainage Manual, Chapter H Volume 2. 1982>

- As per the design details provided by AEL, the total drainage area to the proposed commercial pond is 16.71 ha. This area consists of 8.30 ha of future commercial establishments (catchment C1 on Figure 4a), 6.34 ha of future recreational and industrial areas (catchment C2 on Figure 4a), and 0.50 ha from an existing external property located south-east of Parkway and Bank Street (catchment EX4 on Figure 4a).
- As per Stantec, the CN* values are 75 for the McEnvoy Branch (headwaters) upstream of Bank Street and 69 for the remaining area draining to Shields Creek. Unit hydrograph time to peak values for all rural areas were obtained with the Upland Method as per Stantec. The SWMHYMO model for existing conditions and associated input/output files are presented in Appendix D.
- Imperviousness ratios, in the SWMHYMO modelling were estimated from the proposed runoff coefficients on Figure B5 using the accepted relation C = 0.9 * imp + 0.2 * (1 - imp). For the commercial area, the XIMP parameter in the SWMHYMO model was set as equal to the TIMP value while for the downstream residential areas, the XIMP values were set to the TIMP value less 10% to account for the disconnection of roof top drainage. The SWMHYMO model for proposed conditions and associated input/output files are presented in Appendix D.
- The pervious areas within the commercial lots were assigned a CN* of 71 based on the standard CN values for urban grassed area.

2.3 Pond Inlet, Maximum Operating Level and Pond Outlet:

< ref: Plans and Profile as provided by Atrel Engineering Ltd >

- The inlet to the SWM Pond is a concrete pipe with a diameter of 1050 mm and an invert elevation set at 86.73 m.
- As per AEL, because the commercial development consist of slab on grade, the maximum allowable operating pond level was set to 88.00 m which corresponds to the top of the pond.
- The pond outlet will discharge to a new channel which will be intercepted by the realigned portion of the McEnvoy Drain which then drains to the Shields Municipal Drain some 770 m downstream. In order to prevent backflow from the watercourse from interfering with the pond's hydraulics, the pond's lowest weir outlet has been set at an elevation of 87.15 m, 54 cm higher than the channel bottom (86.61 m) at this location.

2.4 Inflows to Pond

- Inflows to the proposed SWM pond were simulated using SWMHYMO with various summer design storms.
- The drainage system for the proposed commercial development will be provided by means of storm sewers, roadside ditches, grass swales and overland sheet flow . The various inlet points to the SWM pond are shown in Figure 4b.

2.5 Confluence of Shields Municipal Drain with Shields Creek

- For existing conditions, as per Stantec's parameters (with some areas modified as per AEL drawings), the flow conveyance of Shields Municipal Drain at the confluence of Shields Creek was established for the 4 hour Chicago 2 year to 100 year and the 24 hour SCS Type II design storms. The peak design flows were also determined based on JFSA's updated SWMHYMO model. This allowed JFSA to obtain the flows at the Parkway Road culvert, which bounds the drainage outflow of the Greely Village Centre development more tightly. The peak flow results are presented in Table 1.
- For proposed conditions, the future peak design flows were controlled to existing levels or lower for the 2 to 100 year design storms at the confluence of Shields Creek as per the Stantec report.
- As per the Stantec study report, the 100 year surface water elevation on Shields Creek at the confluence with the Shields Municipal Drain is 84.30 m.

2.6 Parkway Road Culvert

- At the time when the present analysis was initiated, the Parkway Road culvert was a 1500 mm diameter CSP with an upstream invert elevation of approximately 83.11 m. The top of the road elevation at this location is approximately 85.15 m. Using the MTO nomograph (see Appendix E) the culvert's conveyance capacity was established for the maximum upstream water depth (before overtopping the road) at 2.04 m. On this basis, the maximum culvert capacity is found to be 4.4 m^3/s based on inlet control with MTO nomograph Chart D5-1G, (see Appendix E).
- Under existing conditions, the 25 year and 100 year design flows at the Parkway Road culvert have been estimated at 4.3 m^3/s and 5.7 m^3/s respectively.
- Under proposed conditions, the level of service provided by the Parkway Road culvert must be maintained or improved. Based on the quantity controls being proposed for both the residential and commercial areas, the anticipated 25 year and 100 year design flows at the Parkway Road culvert have been estimated at 2.9 m^3/s and 3.7 m^3/s respectively.

2.7 Twin Set of Culverts Under Proposed Street Upstream of Node N0

- For proposed conditions, a twin set of 900 mm diameter culverts will be installed under the proposed street located upstream of Node N0 to convey the flows from the commercial SWM pond and from the adjacent backyards (see Figure 4a and 4b). The culverts will be approximately 360 m downstream of the proposed commercial SWM pond, and will have upstream and downstream inverts set to 85.71 m 85.65 m respectively.
- In order to avoid submergence effects or hydraulic interference with the proposed SWM pond outlet structure and with the pond outflow, the culverts will have sufficient capacity to convey flows up to the 100 year event.

2.8 Proposed Channel, Downstream of Commercial SWM Pond

- The channel downstream of the proposed commercial SWM Pond will have a trapezoidal shape with a 1.0 m bottom width, 4H:1V side slopes, and a 0.25% longitudinal slope.
- The invert of the channel at the outlet of proposed commercial SWM Pond is 86.61 m.
- Based on the 100 yr SCS design flow of 1.336 m^3/s at the proposed pond outlet, the normal flow depth at the same location was estimated to be 0.54 m (elevation 87.15 m), which is also the elevation of the lowest pond outlet.

3.0 Existing Drainage Conditions

Existing peak design flows have been estimated at the location of the proposed commercial pond outlet (Node N-R2A as per Ultimate conditions model - see Figure 3), at the confluence of Shields Municipal Drain with Shields Creek and at the Parkway Road culvert (see Figure 2). Using the summer design storms presented in Appendix A, and based on the SWMHYMO model presented in Appendix D, Table 1 summarizes the computed design flows at these locations for both the 4 hr Chicago and 24 hr SCS Type II design storms for the 2 yr to 100 yr return periods.

Design peak flows for the existing conditions at the commercial pond outlet were assessed with the Ultimate model configuration instead of the Existing model configuration. This is because the existing flows at node N-R2A were reassessed to obtain more conservative results in the receiving channel of the commercial pond outlet. The existing model only accounts for the flows from the 3.13 ha draining at node N-R2A, while under the Ultimate conditions, the model accounts for more than 13 ha draining at the same node by including the area R1A upstream. By doing this, the flows from catchment R3A and R3B are excluded and compares favourably to the area drained by the proposed commercial development totalling 16.71 ha. Therefore the flows in the Ultimate conditions at the N-R2A node drain nearly the totality of the area to be developed as commercial land use but at the same time, produces target flows are more conservative.

The results presented in Table 1 shows that the SCS Type II design storm generates larger peak flows than the Chicago 4 hour storm, for all return periods. The results also show that the flows from the JFSA model generates higher flows than the model previously developed by Stantec's.

The flows determined by the Stantec model were chosen as target design flows as they are lower and more conservative than the updated JFSA results. However, the higher JFSA SWMHYMO peak flow results were used to insure that the culvert conveyance was not exceeded at the Parkway Road culvert.

Table 1: Existing Summer Peak Design Flows at Shields Creek Confluence, at Parkway Road Culvert and at the Pond Outlet

Summer Design Storms (derived from City of Ottawa IDF Curves)		Stantec Results[1]		JFSA Results					
		Peak Flows at Shields Creek Confluence (m^3/s)				Peak Flows at Parkway Road Culvert (m^3/s)		Peak Flows at Pond Outlet (node NR2A)[2] (m^3/s)	
4 hr - 25 mm Storm		0.481		0.499		0.537		0.119	
2 yr - 4 hr Chicago	2 yr - 24 hr SCS Type II	0.875	1.232	0.950	1.430	1.016	1.524	0.221	0.345
5 yr - 4 hr Chicago	5 yr - 24 hr SCS Type II	1.513	2.031	1.746	2.457	1.838	2.575	0.398	0.577
10 yr - 4 hr Chicago	10 yr - 24 hr SCS Type II	1.995	2.625	2.419	3.424	2.461	3.579	0.531	0.746
25 yr - 4 hr Chicago	25 yr - 24 hr SCS Type II	2.673	3.426	3.325	4.164	3.591	4.275	0.722	0.985
50 yr - 4 hr Chicago	50 yr - 24 hr SCS Type II	3.229	4.071	3.910	4.778	4.113	5.027	0.878	1.171
100 yr - 4 hr Chicago	100 yr - 24 hr SCS Type II	3.848	4.777	4.595	5.563	4.719	5.696	1.049	1.379
July 1st, 1979		5.460		6.786		6.294		1.32	

Notes: 1) Results obtained by JFSA using Stantec input data as per "Greely / Shields Creek Stormwater and Drainage Study" report.
2) Same location as pond outlet in Ultimate conditions model for upstream existing conditions. Does not account for flows generated from area R3A and R3B.

4.0 Future Drainage Conditions

As with the existing conditions, peak design flows for the proposed final drainage conditions (see Figure 4a and 4b) were simulated with the SWMHYMO model presented in Appendix D. Table 2, summarizes the commercial pond inflows and outflows, the total flows at the pond outlet , the total flows at the Parkway Road culvert and the total flows at the Shields Creek confluence.

All the proposed flows at the pond outlet, Shield Creek and the Parkway Road culvert are lower than the existing flows.

The possibility of submergence was assessed and considered to have no impact on the operation of the pond receiving the drainage from the commercial area. The maximum water

level in the channel will not be higher than the weir invert (87.15 m) and will cause no interference for all Chicago and SCS events. Similarly the twin set of culverts at the proposed road just upstream of Node N0 were assessed and will not create backwater to the pond outlet.

Table 2: Summer Peak Design Flows at Inlet / Outlet of Proposed SWM Pond and comparison of Peak Flows at Pond Outlet and at Shields Creek Confluence

Summer Design Storms (derived from City of Ottawa IDF Curves)	Pond Inflows (m^3/s)	Pond Outflows (m^3/s)	Peak Flows at Pond Outlet (m^3/s)	Existing Peak Flows at Pond Outlet (Node R2A)[1] (m^3/s)	Peak Flows at Parkway Culvert (m^3/s)	Existing Peak Flows at Parkway Culvert (m^3/s)	Peak Flows at Shields Creek Confluence (m^3/s)	Existing Peak Flows at Shields Creek Confluence as per Stantec (m^3/s)
SCENARIO 1								
4 hr - 25 mm storm	1.505	0.113	0.118	0.119	0.341	0.537	0.387	0.481
2 yr - 4 hr Chicago	2.120	0.207	0.218	0.221	0.651	1.016	0.737	0.875
5 yr - 4 hr Chicago	3.085	0.328	0.349	0.398	1.161	1.838	1.282	1.513
10 yr - 4 hr Chicago	3.588	0.449	0.479	0.531	1.575	2.461	1.731	1.995
25 yr - 4 hr Chicago	4.363	0.635	0.681	0.722	2.158	3.591	2.410	2.673
50 yr - 4 hr Chicago	4.931	0.792	0.850	0.878	2.771	4.113	2.955	3.229
100 yr - 4 hr Chicago	5.565	0.969	1.045	1.049	3.098	4.719	3.289	3.848
2 yr - 24 hr SCS Type II	1.760	0.277	0.296	0.345	0.954	1.524	1.039	1.232
5 yr - 24 hr SCS Type II	2.441	0.444	0.479	0.577	1.617	2.575	1.751	2.031
10 yr - 24 hr SCS Type II	2.913	0.599	0.654	0.746	2.137	3.579	2.342	2.625
25 yr - 24 hr SCS Type II	3.495	0.823	0.902	0.985	2.903	4.275	3.091	3.426
50 yr - 24 hr SCS Type II	3.952	1.009	1.109	1.171	3.202	5.027	3.639	4.071
100 yr - 24 hr SCS Type II	4.450	1.212	1.336	1.379	3.690	5.696	4.079	4.777
July 1st, 1979 Event	3.586	1.356	1.448	1.320	4.185	6.294	4.566	5.460

Note: [1] Same location as pond outlet in existing conditions as depicted in ultimate condition model. Does not account for flows generated from existing area R3A and R3B.

Both scenarios assessed for the SWM Pond of Phase 2 - Ultimate condition analysis were reviewed to insure that the residential pond operation was still working with the drainage modifications caused by the commercial phase of the development. The two SWM Pond operating Scenarios considered were; Scenario 1: The water levels in the channel at the outlet of the pond do not interfere with the operation of the pond; Scenario 2: The channel

water level at the outlet of the pond increases in such a way as to prevent water from the pond to be released until such time that the water level in the pond exceeds the water level along the channel. For the 100 year event, and under the Scenario 2 conditions, the pond starts to release when the pond water level exceeds an elevation of 85.36 m (water level in receiving channel 85.36 m).

5.0 Proposed SWM Pond

As previously indicated, the storm water requirements for this site include quality and quantity controls such as to i) remove 80% of suspended sediments from the locally collected surface stormwater runoff, ii) control post-development flows to pre-development levels for return periods of 2 years to 100 years.

A secondary objective of the proposed SWM Pond is to provide a "Lake" feature within the development. Because of this secondary objective, the propose SWM Pond provides substantially more (9 times) permanent pool volume than required. For this reason, the proposed SWM pond does not have a conventional configuration, in that it only has one cell, which can be considered as a large forebay.

The proposed SWM pond characteristics were defined through iterative hydrologic modelling and design discussions with AEL. The location of the pond was selected by AEL.

5.1 Description of Pond

As shown in the details of the AEL design drawings presented in Appendix B, the proposed commercial stormwater management facility will have one cell; 141 m long by approximately an average 28 m wide main pond cell, all measured at the bottom elevations. Designed in accordance with the requirements of the MOEE SWMPD Manual (March 2003), the pond will have the following components;

i) a large forebay cell,
ii) a water quality outlet control at the end of the pond,
iii) a quantity control outlet and overflow structure at the end of the pond.

Based on local site conditions, the overall size (length, width, and depth) of the pond was selected in order to provide the hydraulic characteristics required to achieve the necessary control. With respect to the quality storage requirements, the required pond permanent pool volume was estimated at 2,987 m^3 and the required extended detention volume was estimated at 668 m^3 (for a total area of 16.71 ha with an imperviousness of 67%, see Appendix C for details). The resulting design, which is discussed in the following sections, is presented in the AEL's design drawings provided in Appendix B.

5.2 Drainage Area and Design Inflows

As per the drawings provided by AEL (Appendix B), the total area which will drain to the pond during the ultimate is approximately 16.71 ha with a weighted average runoff coefficient of 0.67 which corresponds to an imperviousness of approximately 67% (based on the relation C= 0.9 x imp + 0.2 x (1 - imp)).

Using a detailed model of the proposed drainage area (see Figure 4a and 4b), design inflows to the pond were simulated with the SWMHYMO model and the selected summer events. Appendix D presents the input and output files of the hydrologic model.

Outflows from the SWM pond will then be conveyed by a new channel to a realigned portion of the McEnvoy Drain which then drains to the Shields Municipal Drain. The pond outflows will travel approximately 770 m before reaching the Shields Municipal Drain which then drains to Shields Creek some 1025 m further.

A summary of design peak pond inflows, outflows, operating levels and storage volumes used are provided in Tables 3 for the Chicago and SCS Type II design storms.

5.3 Pond Inlets

The inlet structure will consist of concrete pipe with a 1050 mm diameter as shown in Figure 4b. The pipe will convey the 5 year minor system runoff from 8.30 ha of commercial urban development. Flows in excess of the 5 year event will be temporarily stored over the parking lot areas and will drain to the pond as sheet flow. The maximum ponding depths over the parking areas will be limited to 0.30 m.

An additional 6.34 ha of development will drain to the pond through road side ditches, a swale and as sheet flow. In addition to this, 0.50 ha of existing commercial land will also drain to the pond. As depicted by the details shown in the AEL drawings (Appendix B), the invert of the pipe that drains to the pond will be set at an elevation of 86.73 m, some 0.42 m below the permanent pool level.

5.4 Pond Forebay / Main Pond Cell

As per the AEL drawings, with a permanent pool elevation of 87.15 m, the commercial SWM pond will cover an approximate area of 10,384 m^2 (176 m long by 59 m wide).

The side slope of the pond will be 3h:1v up to elevation 85.95 m and 7h:1v up to 87.15 m, the permanent pool water level, and 3h:1v above that elevation (see AEL drawings provided in Appendix B).

Based on a bottom elevation of 82.95 m which will provide an average water depth of 4.20 m, the permanent pool volume in the main pond cell is estimated at 26,882 m^3. The total permanent pool volume in the entire pond is nearly 9 times the minimum required volume of 2,987 m^3 as per by the MOE SWMPD Manual.

According to the SWMHYMO simulations provided in Appendix D, the maximum pond outflow during the quality event (25 mm 4 hr Chicago) will be 0.113 m^3/s (see Table 3). For such a flow, the following equation (1) (from the MOE SWMPD Manual) can be used to confirm that the distance to the pond outlet of 81 m is adequate. (This equation gives a required forebay length of 44 m). This adds to the argument that the pond even without a forebay is more than adequate to capture and retain the suspended particles.

$$Dist = \sqrt{\left(r \times Qp \div Vs\right)} \qquad (1)$$

Where,

	$Dist$	=	forebay length (m)
	r	=	length to width ratio of forebay, taken as 5.036 (141 m ÷ 28 m) for this facility
	Vs	=	settling velocity (m/s), taken as 0.0003 m/s
	Qp	=	peak discharge to pond during design quality storm, taken as 0.113 m^3/s for this facility

A check for the length between the pond inlet to the pond outlet can also be made to ascertain that it is long enough to disperse the velocity jet of the maximum design flow to the pond to a velocity less than 0.5 m/s. Using the equation (2), taken from the MOE SWMPD Manual, with the 5 year inflow of 1.383 m^3/s (1.366 m^3/s from area C1 + 0.17 m^3/s from area EX4 generated by the Chicago design storm, see SWMHYMO model of proposed conditions) and the permanent pool depth of 4.20 m, the required forebay dispersion length can be computed to be 5.3 m which is less than the 81 m provided.

$$Dist = \left(8 \times Q\right) \div \left(d \times V_f\right) \qquad (2)$$

Where,

$Dist$	=	forebay length (m)
Q	=	maximum inflow flow (5 year), taken as 1.383 m^3/s for this facility
d	=	depth of permanent pool in forebay, taken as 4.2 m for this facility
V_f	=	desired maximum velocity in forebay, taken as 0.5 m/s for this facility

A guideline for the minimum bottom width of the forebay section of the pond can be estimated with equation (3) provided below which yields a value of 10 m. The provided bottom width of the forebay is 28 m, greater than the required minimum.

$$Width = Dist \div 8 \qquad (3)$$

Where,

$Width$	=	the minimum required forebay bottom width (m)
$Dist$	=	the minimum forebay length, taken as 10 m for this facility

For a 100 year level of 87.76 m the flowing area provided by the pond cross-section is 170 m^2 and can accommodate the 100 year Chicago storm inflow of 5.57 m^3/s with a velocity of 0.033 m/s. This is well below the maximum recommended of 0.5 m/s at a forebay berm and to prevent erosion of the riprap.

5.5 Outlet Structures, Operating Pond Levels and Outlet Flows

The pond outlet structure will consist of four main components; i) a quality controlling outlet consisting of a rectangular broad crested weir 450 mm wide by 100 mm high with an invert set to 87.15 m; ii) a quantity controlling rectangular weir, 1.5 m wide by 200 mm high with an

invert set at 87.25 m; iii) a quantity controlling rectangular weir, 3.0 m wide by 0.31 m high with an invert set at 87.45 m; and iv) an overflow weir with an invert at 87.76 m to accommodate the flows in excess of the 100 year return period;

In a previous report, for the assessment of residential "Phase 2 Ultimate Development Conditions", it was recommended that a temporary metal plate be fitted and bolted on the side of the concrete outlet structure of the residential pond (see Figure 3 and Figure B4). The metal plate was to be modified to have different dimensions for each phase of development, and for the Commercial Ultimate Conditions the metal plate was to be removed entirely and rely on the concrete weir dimensions underlying it. Refer to report entitled: *Greely Village Centre; Phase 2 - Ultimate Conditions; City of Ottawa, September 2008* for specific dimensions. However, after the more detailed analysis of the Commercial Development, it was found that the metal plate, design for the residential Phase 2, should remain in place under the Commercial Ultimate Conditions. Refer to Appendix B for additional details.

With the quality control rectangular weir invert elevation of 87.15 m, the active storage volume in the Commercial SWM pond will have a depth of 100 mm and a corresponding volume of approximately 1,046 m^3. This is more than 1.5 times the minimum required volume of extended detention of 668 m^3 (40 m^3/ha x 16.71 ha). Based on the design characteristics of the rectangular weir, it can be estimated that the extended detention volume would take approximately 37 hours to be release at an average flow rate of 0.008 m^3/s. Refer to Appendix C for details.

Based on the pond's stage-storage characteristics and the main pond cell outlet stage-storage-outflow characteristics, all of which are presented in Appendix C, the SWMHYMO model was used to simulate the operation of the pond. For the results presented in Appendix D, Tables 3 summarizes, for the summer Chicago and SCS design storms respectively, the pond inflows and outflows and the maximum operating water levels and pond volumes.

From the results presented in Table 2, it can be seen that all future design peak flows will be controlled to less than the corresponding existing levels previously defined by Stantec, first; at the pond outlet corresponding to node N-R2A in the existing conditions as defined by the Residential Ultimate condition model, second at the Parkway culvert and third; at the confluence with Shields Creek.

Table 3: Summary of SWM Pond Design Inflows, Outflows, Operating Levels and Volumes

Design Storm	SWM Pond Peak Inflows (m^3/s)	SWM Pond Outflow (m^3/s)	Max. Water Level Reached in SWM Pond (m)	Max. Pond Volume Used above Permanent Pool (m^3)
25 mm - 4 hr Chicago	1.505	0.113	87.35	2,131
2 yr - 4 hr Chicago	2.120	0.207	87.42	2,811
5 yr - 4 hr Chicago	3.005	0.328	87.50	3,741
10 yr - 4 hr Chicago	3.588	0.449	87.55	4,325
25 yr - 4 hr Chicago	4.363	0.635	87.61	4,996
50 yr - 4 hr Chicago	4.931	0.792	87.66	5,494
100 yr - 4 hr Chicago	5.565	0.969	87.71	6,009
2 yr - 24 hr SCS Type II	1.760	0.277	87.46	3,292
5 yr - 24 hr SCS Type II	2.441	0.444	87.55	4,301
10 yr - 24 hr SCS Type II	2.913	0.599	87.61	4,887
25 yr - 24 hr SCS Type II	3.495	0.823	87.67	5,584
50 yr - 24 hr SCS Type II	3.952	1.009	87.71	6,110
100 yr - 24 hr SCS Type II	4.450	1.212	87.76	6,645
July 1st, 1979	3.586	1.356	87.81	7,237

From the results presented in Table 3, the simulated maximum pond water level reached during the 25 mm design storm is 87.35 m, 0.20 m over the permanent pool elevation while the maximum pond water levels for the 5 yr and 100 yr SCS Type II design events are 87.55 m and 87.76 m respectively, well below the maximum allowable operating level of 88.00 m.

The maximum accumulated stormwater volume in the SWM pond for the 100 year SCS Type II storm event is 6,645 m^3.

6.0 Summary and Conclusions

The general location of the subject property is shown in Figure 1 and is located between Bank Street and Sales Barn Road, just south of Parkway Road in the village of Greely, City of Ottawa. The drainage of the subject property, including upstream undeveloped lands, is conveyed by two unnamed watercourses and the McEnvoy Drain which discharge to Shields Municipal Drain along Sales Barn Road (from South to North). Shields Municipal Drain

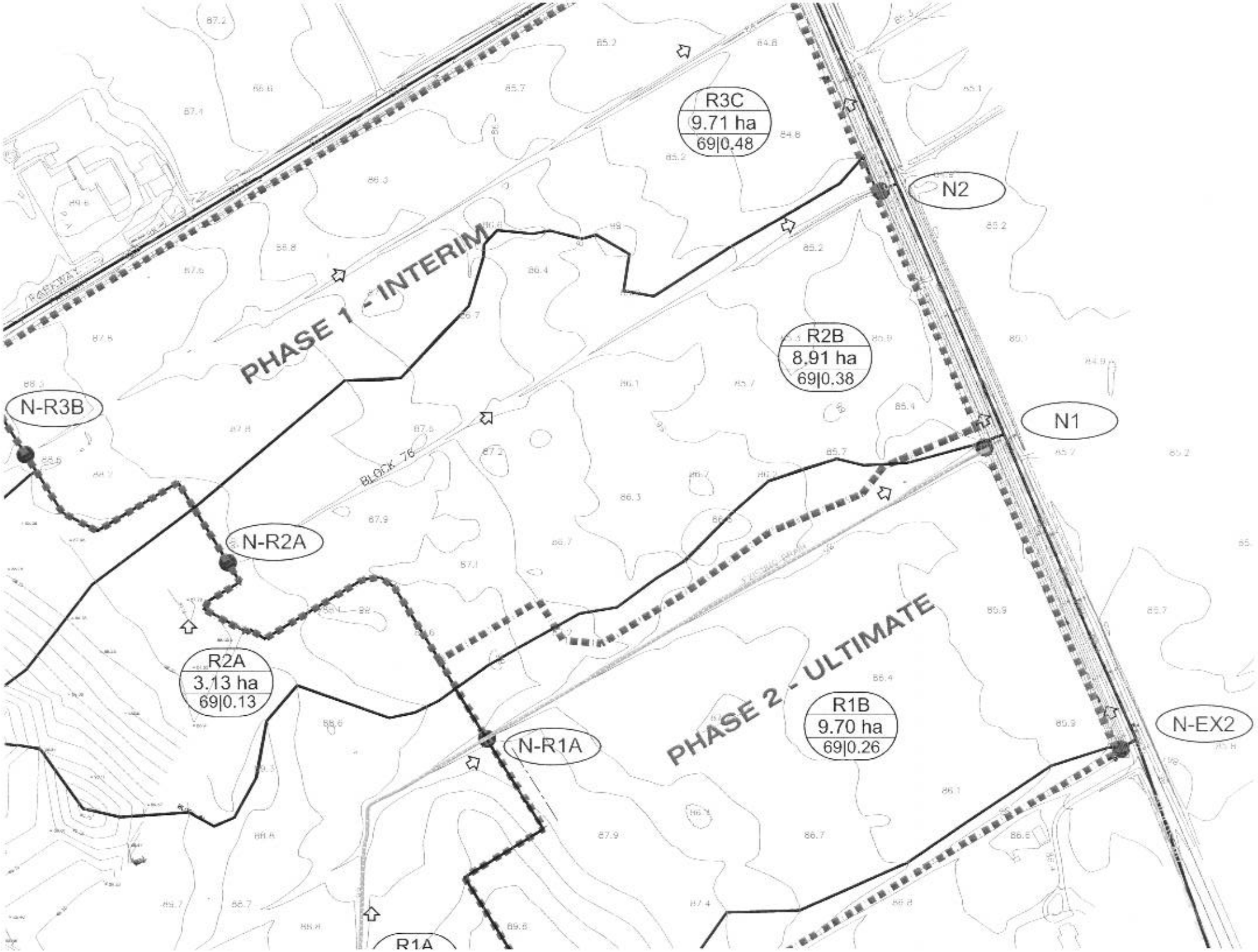
crosses through the Parkway Road culvert and then flows to Shields Creek. The total drainage area at the Parkway Road culvert is approximately 83 ha which increases to approximately 104 ha some 135 m downstream at the confluence with Shields Creek.

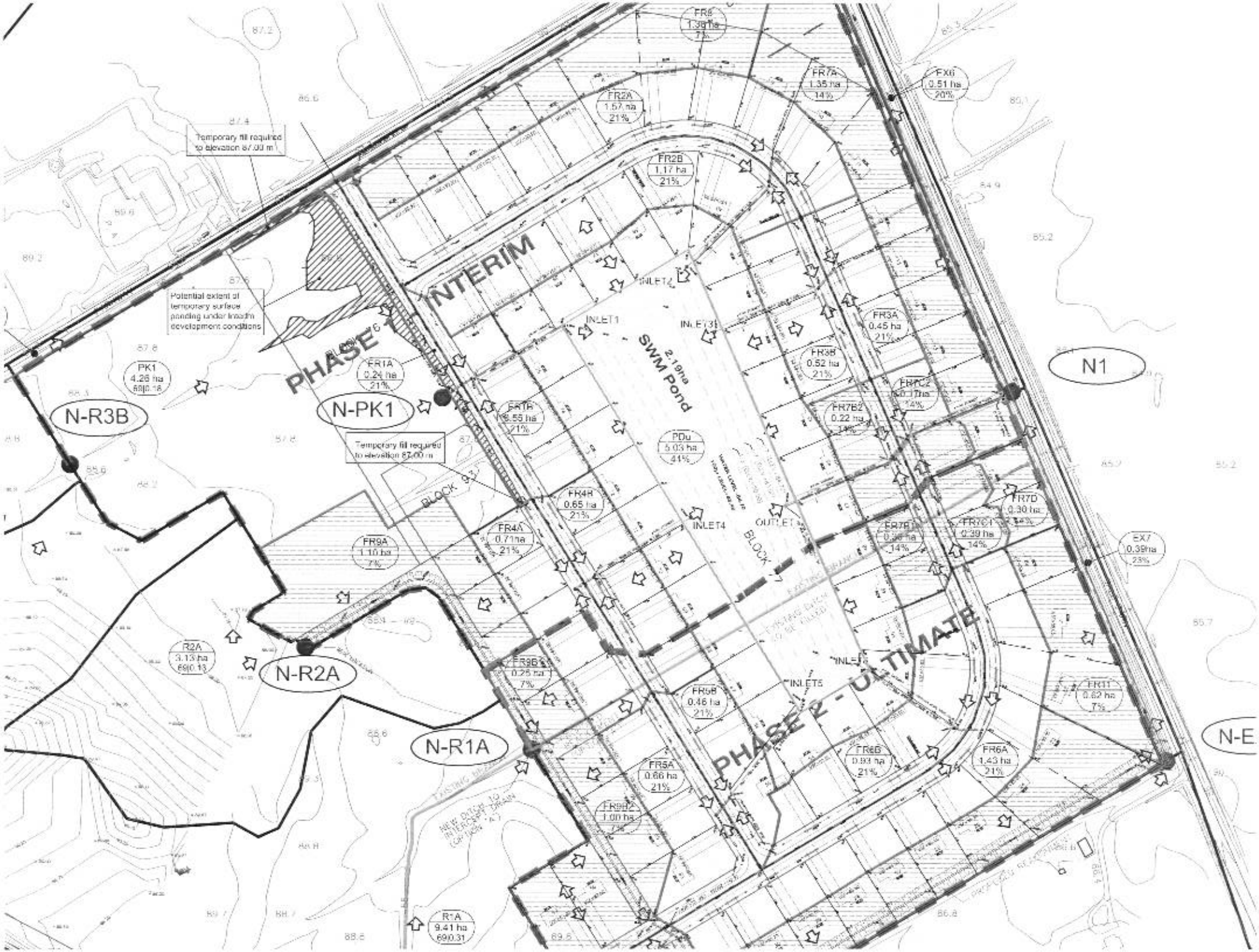
The proposed subdivision was designed by Atrel Engineering Ltd.

The capacity of the existing 1500 mm diameter culvert under Parkway Road is approximately 4.4 m^3/s with an upstream water level of 2.04 m (elevation 85.15 m) before overtopping the road. Based on the hydrologic simulations presented in this report, the existing capacity of the Parkway Road culvert is essentially equivalent to the existing 25 year design peak flow (4.3 m^3/s) as modelled by JFSA at the same location (see Table 1).

With the development of the Greely Village Centre - Commercial Phase and the proposed SWM Pond, the design peak flows at the receiving channel at the pond outlet will be maintained to existing conditions or lower. Additionally, the design peak flows at the Shields Creek confluence will be maintained to existing conditions or lower, and the Parkway Road culvert capacity will not be exceeded.

The proposed SWM Pond has been design to not only provide the necessary quantity control but also, as an added benefit, for some quality control.


R3C
9.71 ha
69|0.48
N2
PHASE 1 - INTERIM
R2B
8.91 ha
69|0.38
N-R3B
N1
BLOCK 76
N-R2A
R2A
3.13 ha
69|0.13
PHASE 2 - ULTIMATE
R1B
9.70 ha
69|0.26
N-EX2
N-R1A
R1A


Temporary fill required to elevation 87.00 m
Potential extent of temporary surface ponding under ineadm development conditions
PHASE 1 INTERIM
PHASE 2 - ULTIMATE
SWM Pond 2.19ha
INLET1
INLET2
INLET3
INLET4
INLET5
OUTLET
BLOCK 97
BLOCK
N-R3B
N-PK1
N-R2A
N-R1A
N1
N-E
PK1 4.26 ha 69|0.18
R2A 3.13 ha 69|0.13
R1A 9.41 ha 69|0.31
FR1A 0.24 ha 21%
FR1B 0.55 ha 21%
FR1C1 0.39 ha 14%
FR1C2 0.17ha 14%
FR2A 1.57 ha 21%
FR2B 1.17 ha 21%
FR3A 0.45 ha 21%
FR3B 0.52 ha 21%
FR4A 0.71ha 21%
FR4B 0.65 ha 21%
FR5A 0.66 ha 21%
FR5B 0.46 ha 21%
FR6A 1.43 ha 21%
FR6B 0.93 ha 21%
FR7A 1.35 ha 14%
FR7B 0.36 ha 14%
FR7B2 0.22 ha 14%
FR7D 0.30 ha
FR8 1.38 ha 7%
FR9A 1.10 ha 7%
FR9B 0.25 ha 7%
FR9B2 1.00 ha 7%
FR11 0.82 ha 7%
PDu 5.03 ha 41%
EX6 0.51 ha 20%
EX7 0.39ha 23%

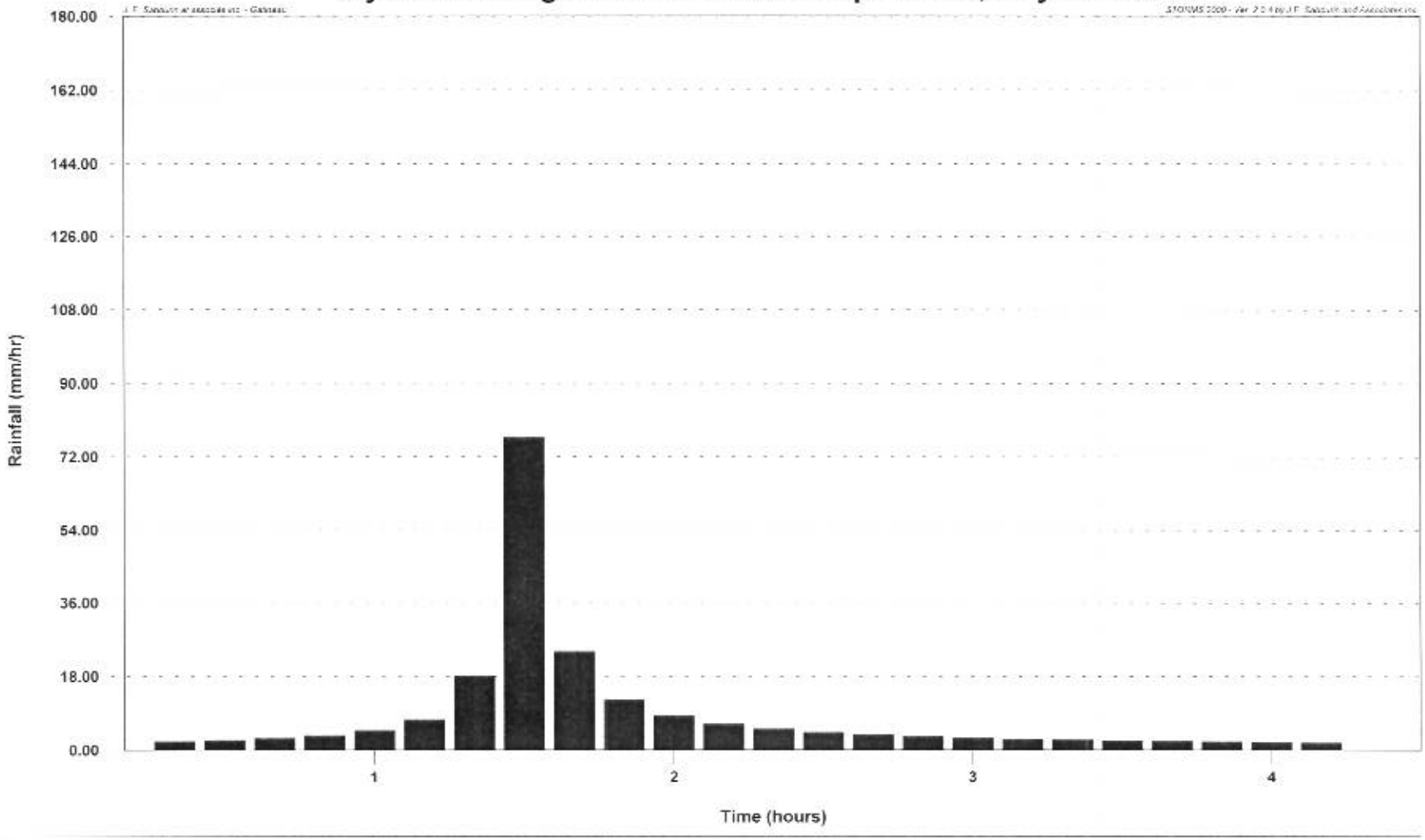

PHASE 1 - INTERIM
PHASE 2 - ULTIMATE
COMMERCIAL PHASE - FINAL
N-PK1
N1
N-EX2
SALES BARN
SWM Pond
2.19ha
INLET1
INLET2
INLET3
INLET4
INLET5
INLET6
OUTLET
BLOCK 40
BLOCK 7
BLOCK 2
BLOCK 4
BLOCK 6
BLOCK 8
PK1
4.26 ha
69|0.18
FR1A
0.24 ha
21%
FR1B
0.55 ha
21%
FR2A
1.67 ha
21%
FR2B
1.17 ha
21%
FR3A
0.45 ha
21%
FR3B
0.52 ha
21%
FR4A
0.71ha
21%
FR4B
0.65 ha
21%
FR5A
0.66 ha
21%
FR5B1
0.25 ha
7%
FR5B2
1.00 ha
7%
FR6A
1.43 ha
21%
FR6B
0.93 ha
21%
FR7A
1.35 ha
14%
FR7B1
0.39 ha
14%
FR7B2
0.22 ha
14%
FR7C1
0.39 ha
14%
FR7C2
0.47ha
14%
FR7D
0.30 ha
14%
FR8A
1.10 ha
7%
FR8B
0.46 ha
21%
FR11
0.62 ha
7%
PDb
5.03 ha
44%
PDc
1.97 ha
87%
C2
6.34 ha
79%
EX6
0.51 ha
20%
EX7
0.39ha
23%
1.38 ha
7%


COMMERCIAL PHASE - FINAL
PDc
1.57 ha
67%
FR9B
0.25 ha
7%
C2
6.34 ha
79%
WATER LEVEL=87.15
100yr LEVEL=87.76
1.04ha
SWM Pond
BUILDING 'A'
SEPTIC BED
450 m
(4,840 ft)
BUILDING 'C'
SEPTIC BED
200 m
(2,150 ft)
BUILDING 'C'
SEPTIC BED
200 m
(2,150 ft)
BLOCK 2
BLOCK 4
BLOCK 7
BLOCK 1
BLOCK 3
BLOCK 84
BLOCK 5
BLOCK 6
SEPTIC AREA
FF=91.35
FF=91.35
FF=91.35

Appendix A

City of Ottawa IDF Curves
and Design Storms
4 hour, 2 year Chicago storm
4 hour, 5 year Chicago storm
4 hour, 10 year Chicago storm
4 hour, 25 year Chicago storm
4 hour, 50 year Chicago storm
4 hour, 100 year Chicago storm
24 hour, 2 year SCS Type II storm
24 hour, 5 year SCS Type II storm
24 hour, 10 year SCS Type II storm
24 hour, 25 year SCS Type II storm
24 hour, 50 year SCS Type II storm
24 hour, 100 year SCS Type II storm

2 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

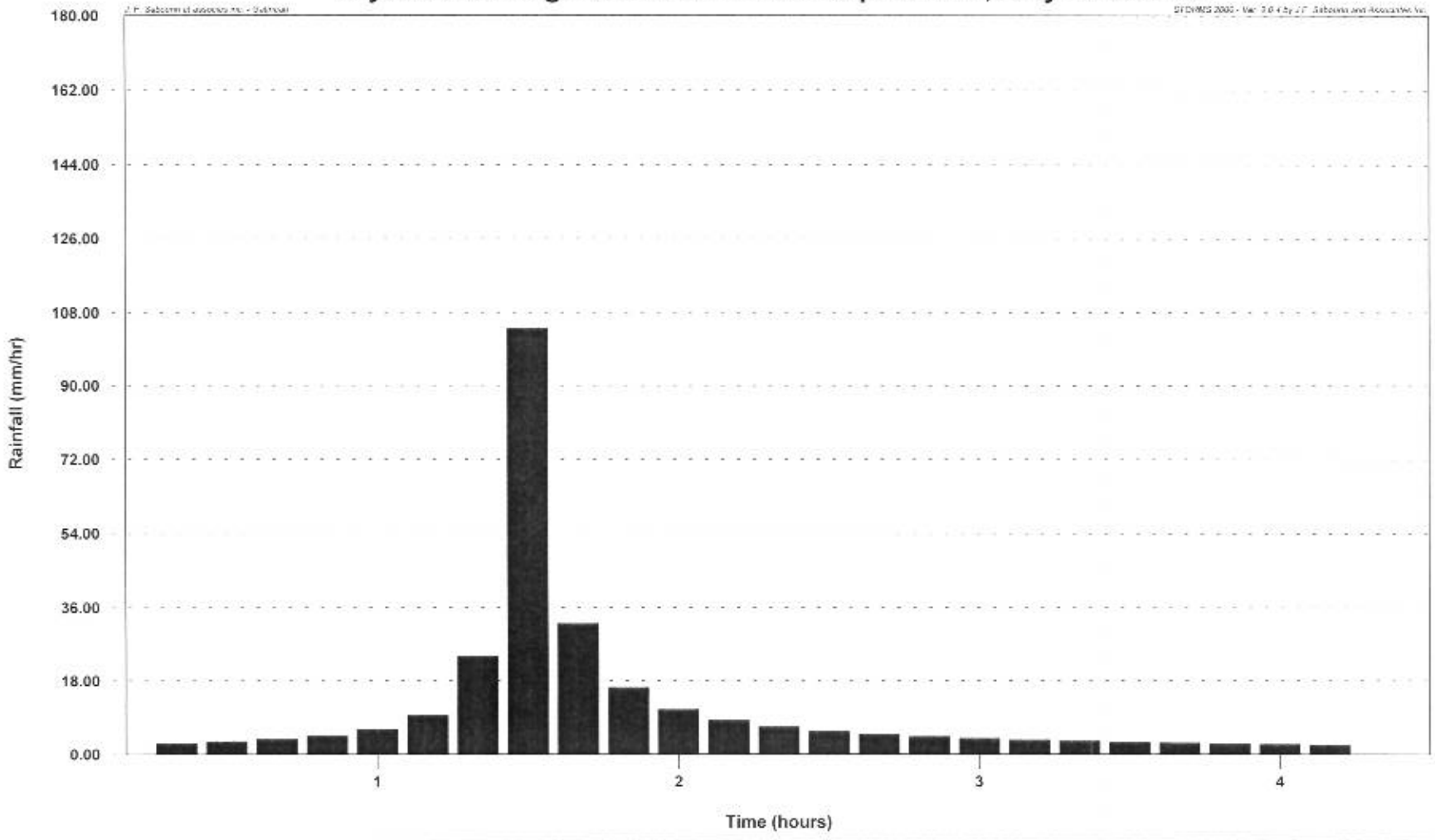
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H002x.stm
Storm File Comment: 2 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	33.89 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	8.47 (mm/hr)
Max. Intensity	=	76.81 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	76.81	76.81	59.23	39.70	24.52	14.56	10.63	5.65	2.82	1.41

5 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

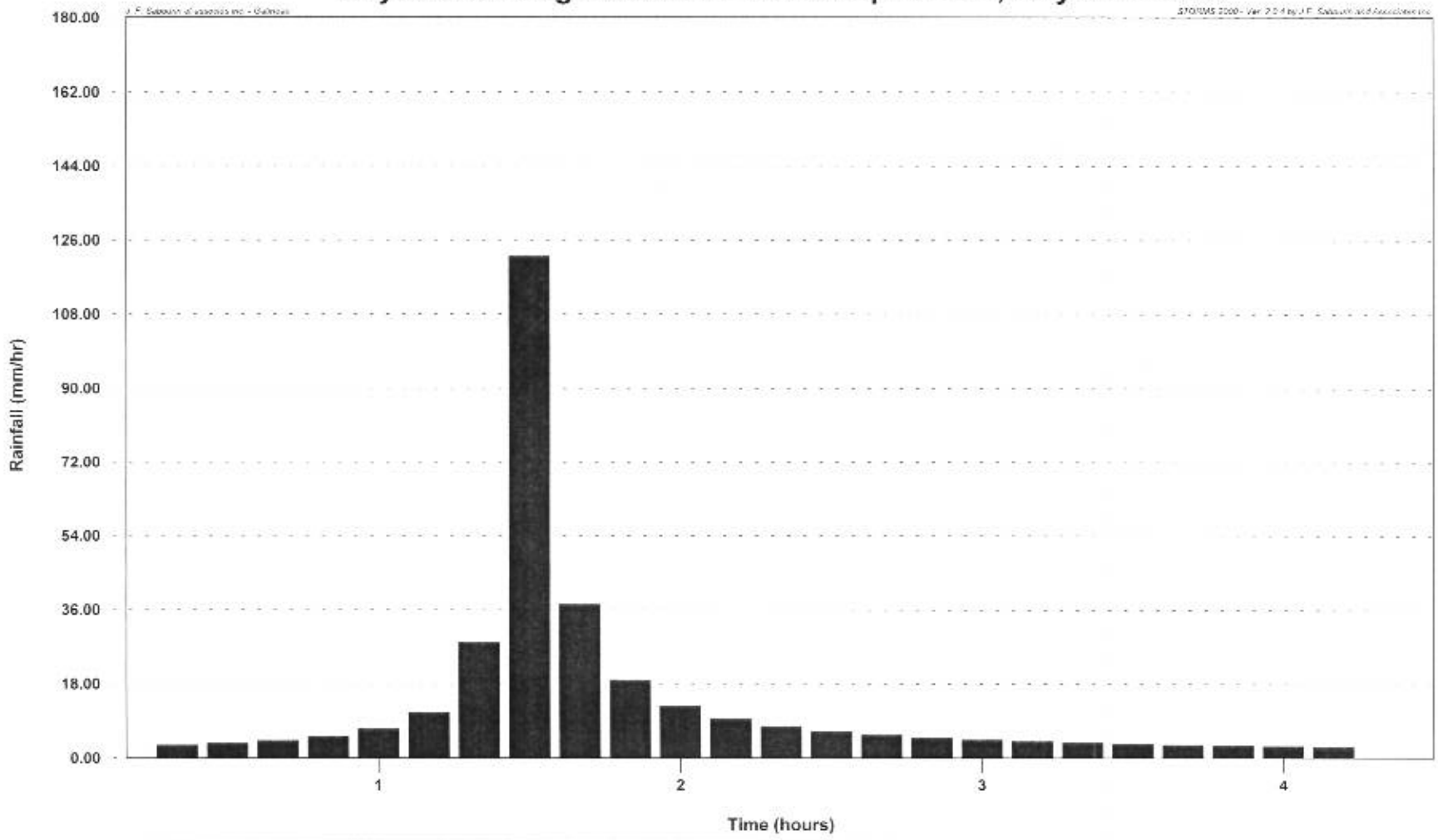
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H005x.stm
Storm File Comment: 5 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	45.17 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	11.29 (mm/hr)
Max. Intensity	=	104.19 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	104.19	104.19	80.14	53.47	32.89	19.46	14.18	7.53	3.76	1.88

10 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

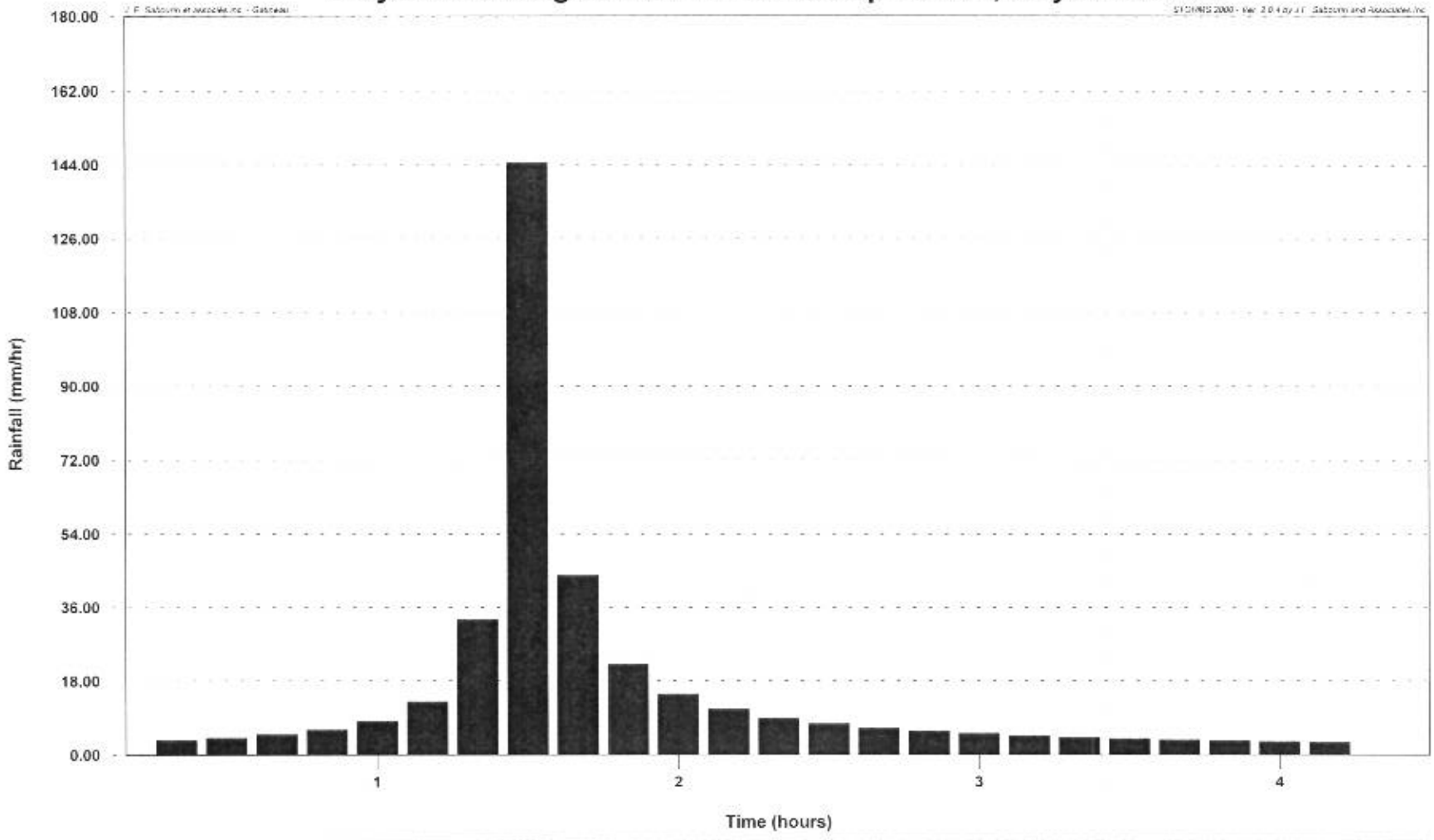
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H010x.stm
Storm File Comment: 10 years Chicago Storm 4 Hours step 10 min. City of Ottawa

Total Rain	=	52.56 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	13.14 (mm/hr)
Max. Intensity	=	122.14 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	122.14	122.14	93.85	62.51	38.39	22.68	16.51	8.76	4.38	2.19

25 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

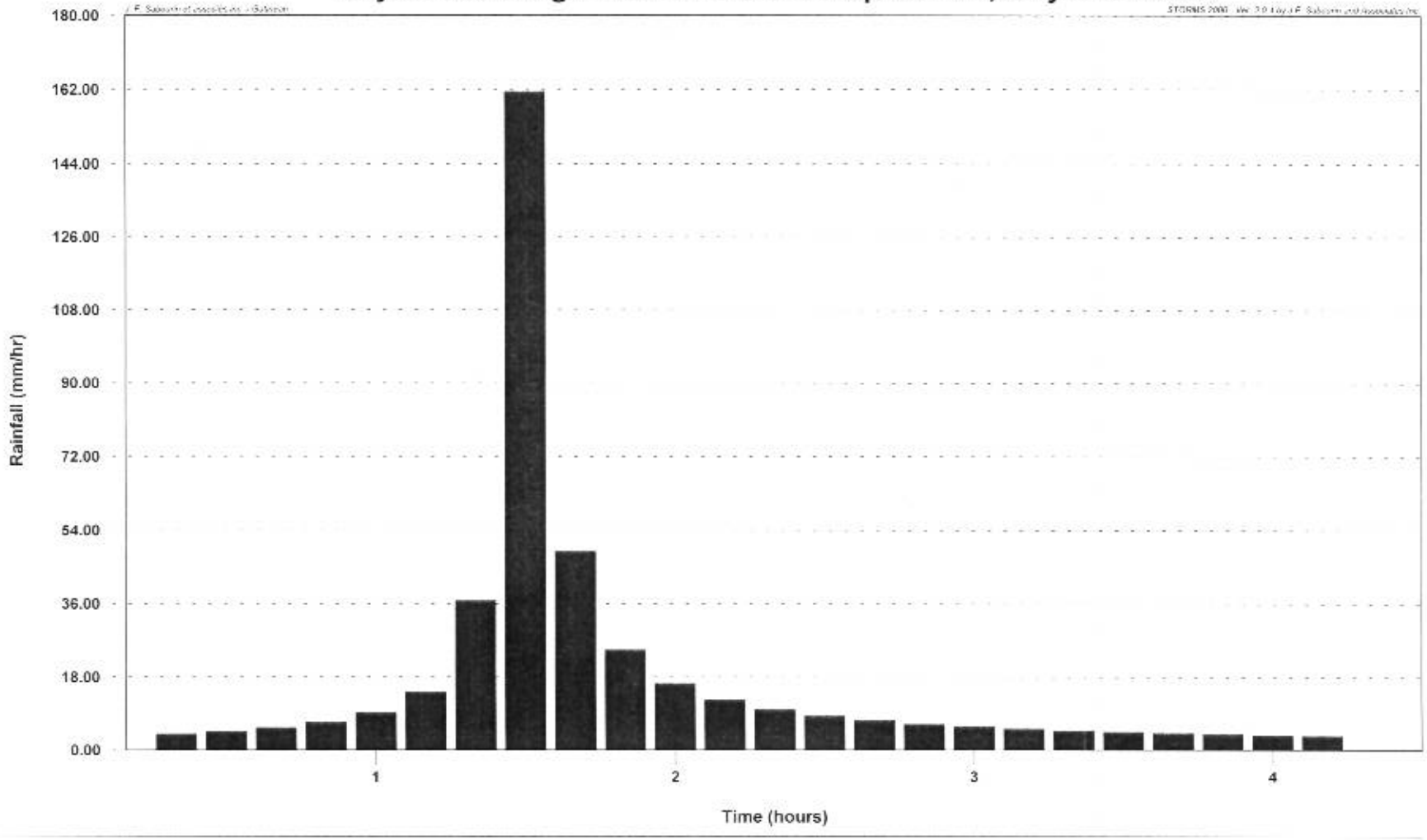
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H025x.stm
Storm File Comment: 25 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	61.77 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	15.44 (mm/hr)
Max. Intensity	=	144.69 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	144.69	144.69	111.09	73.88	45.29	26.71	19.42	10.29	5.15	2.57

50 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

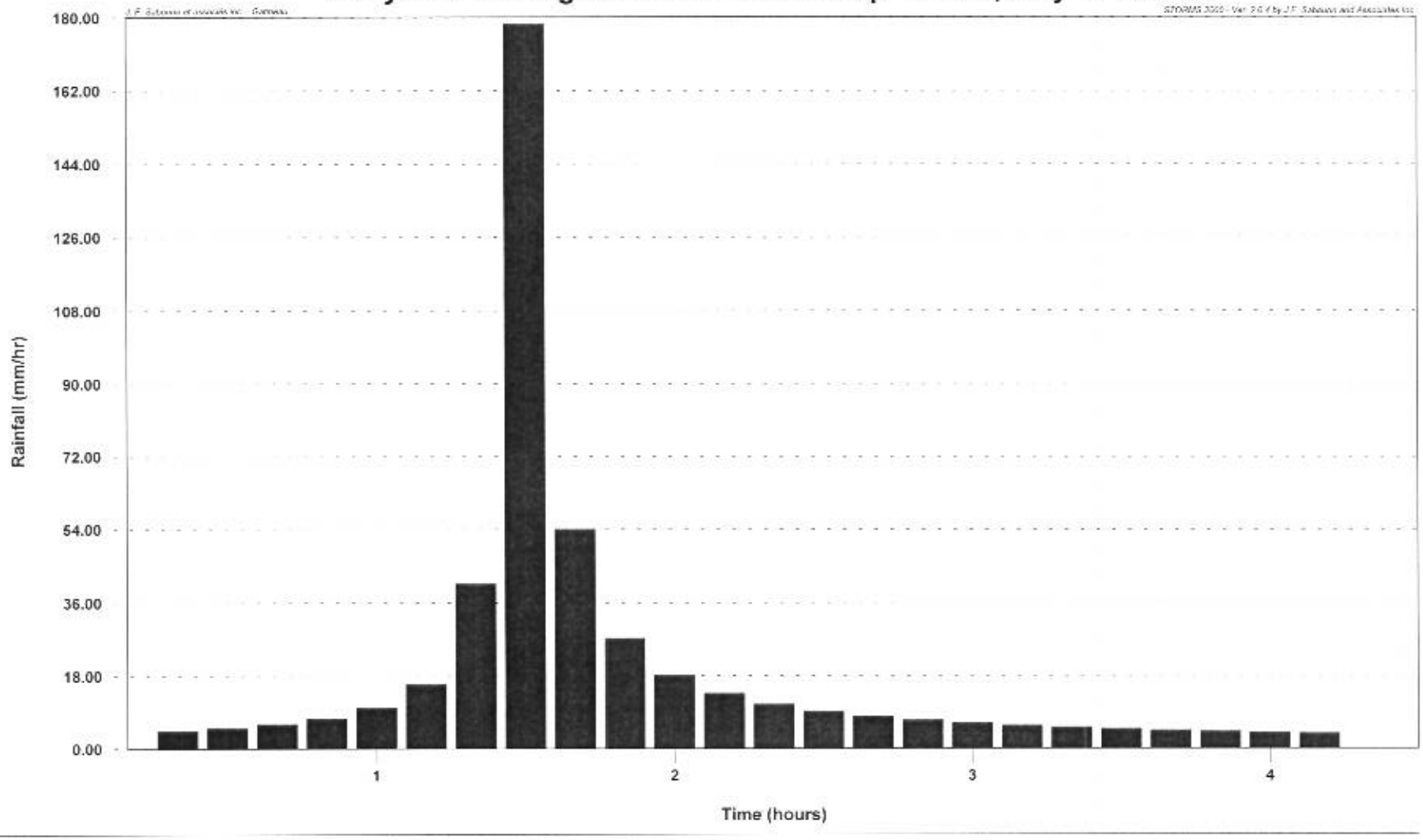
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H050x.stm
Storm File Comment: 50 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	68.73 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	17.18 (mm/hr)
Max. Intensity	=	161.47 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	161.47	161.47	123.94	82.37	50.46	29.74	21.61	11.45	5.73	2.86

100 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

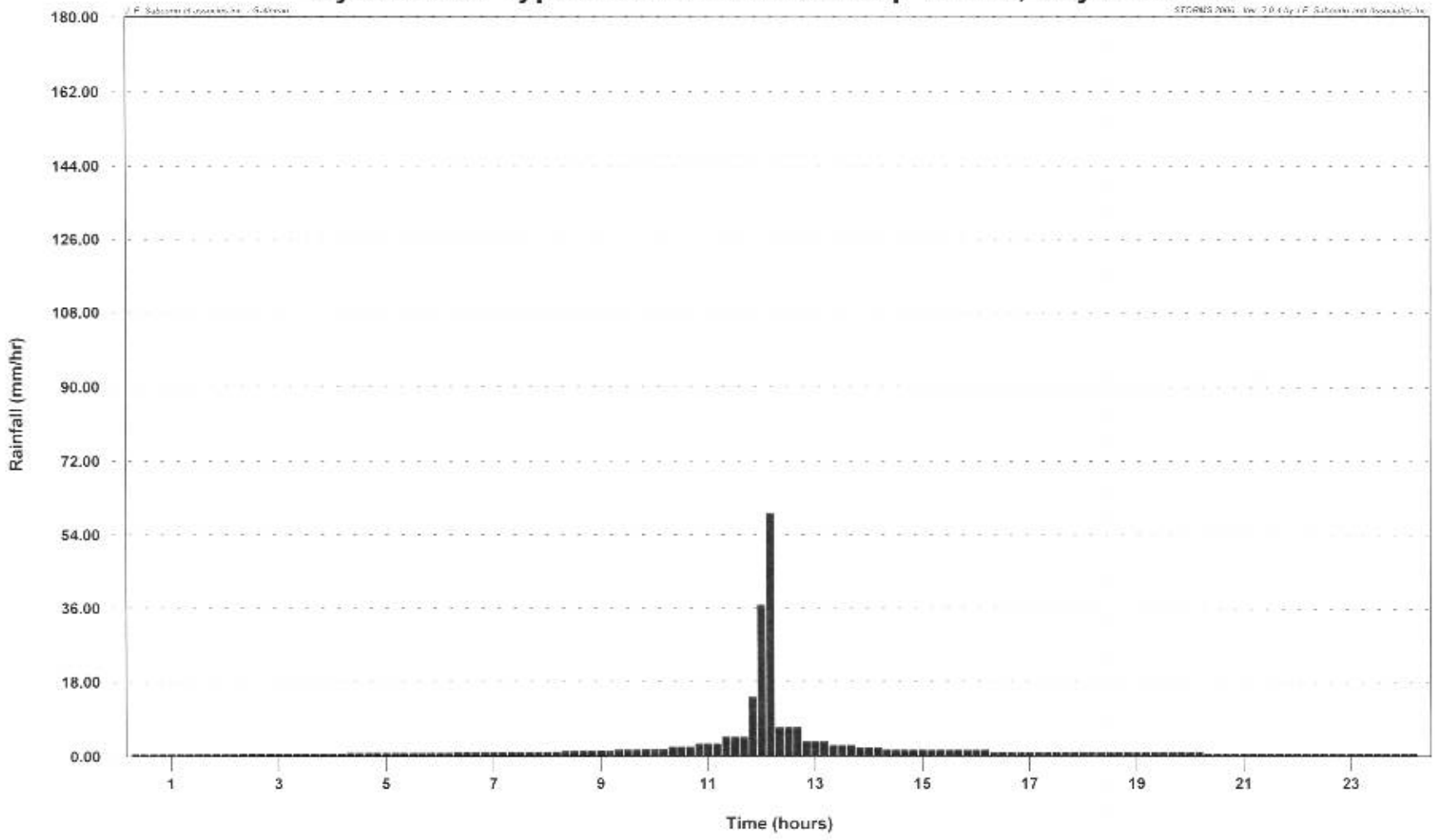
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H100x.stm
Storm File Comment: 100 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	76.00 (mm)
Storm Duration (hrs)	=	4:00:00
Ave. Intensity	=	19.00 (mm/hr)
Max. Intensity	=	178.56 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	178.56	178.56	137.05	91.09	55.80	32.88	23.90	12.67	6.33	3.17

2 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

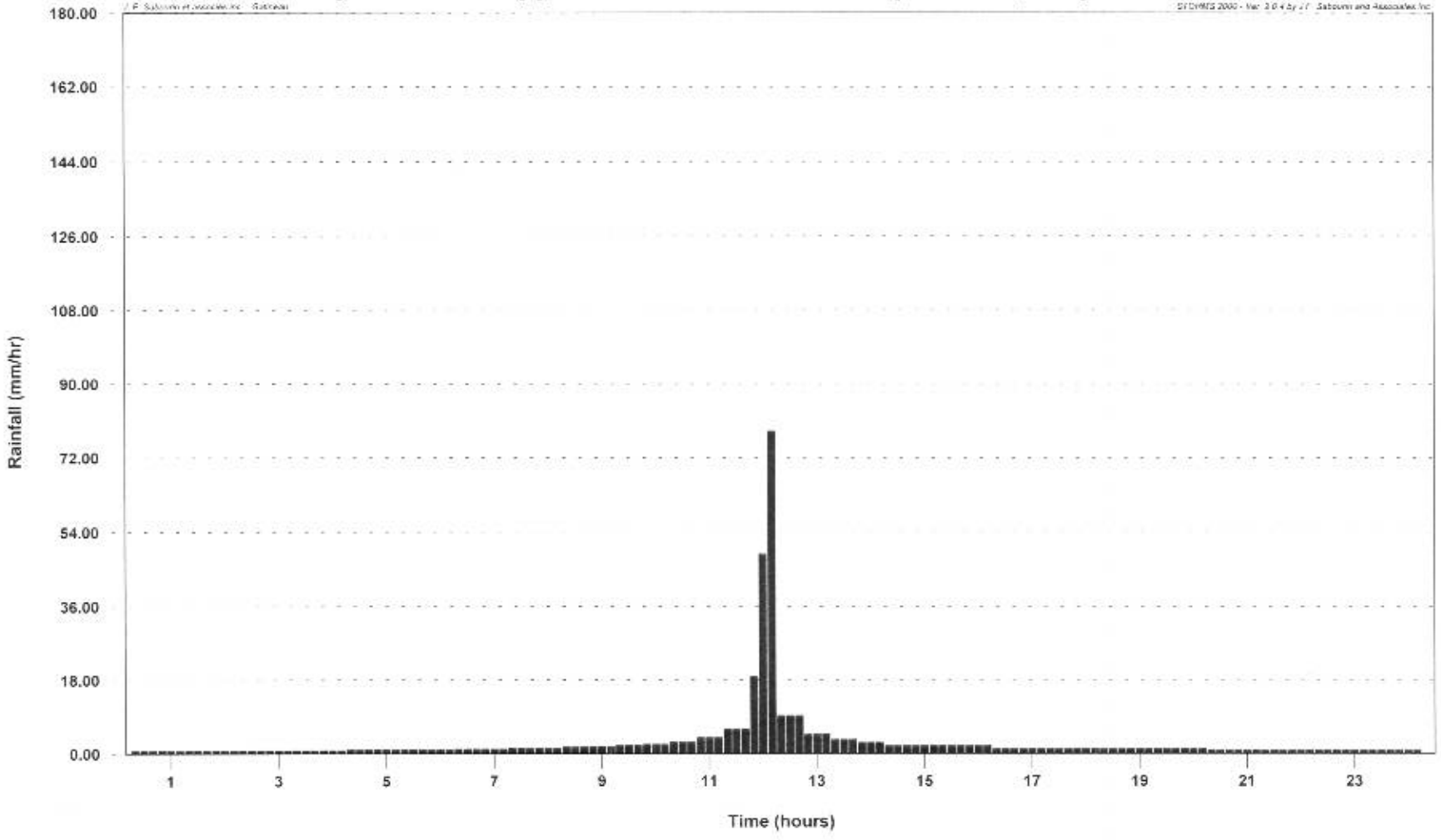
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24002x.stm
Storm File Comment: 2 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	48.46 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	2.02 (mm/hr)
Max. Intensity	=	59.33 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	59.33	59.33	51.83	36.84	21.91	13.02	9.61	5.68	3.38	2.02

5 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

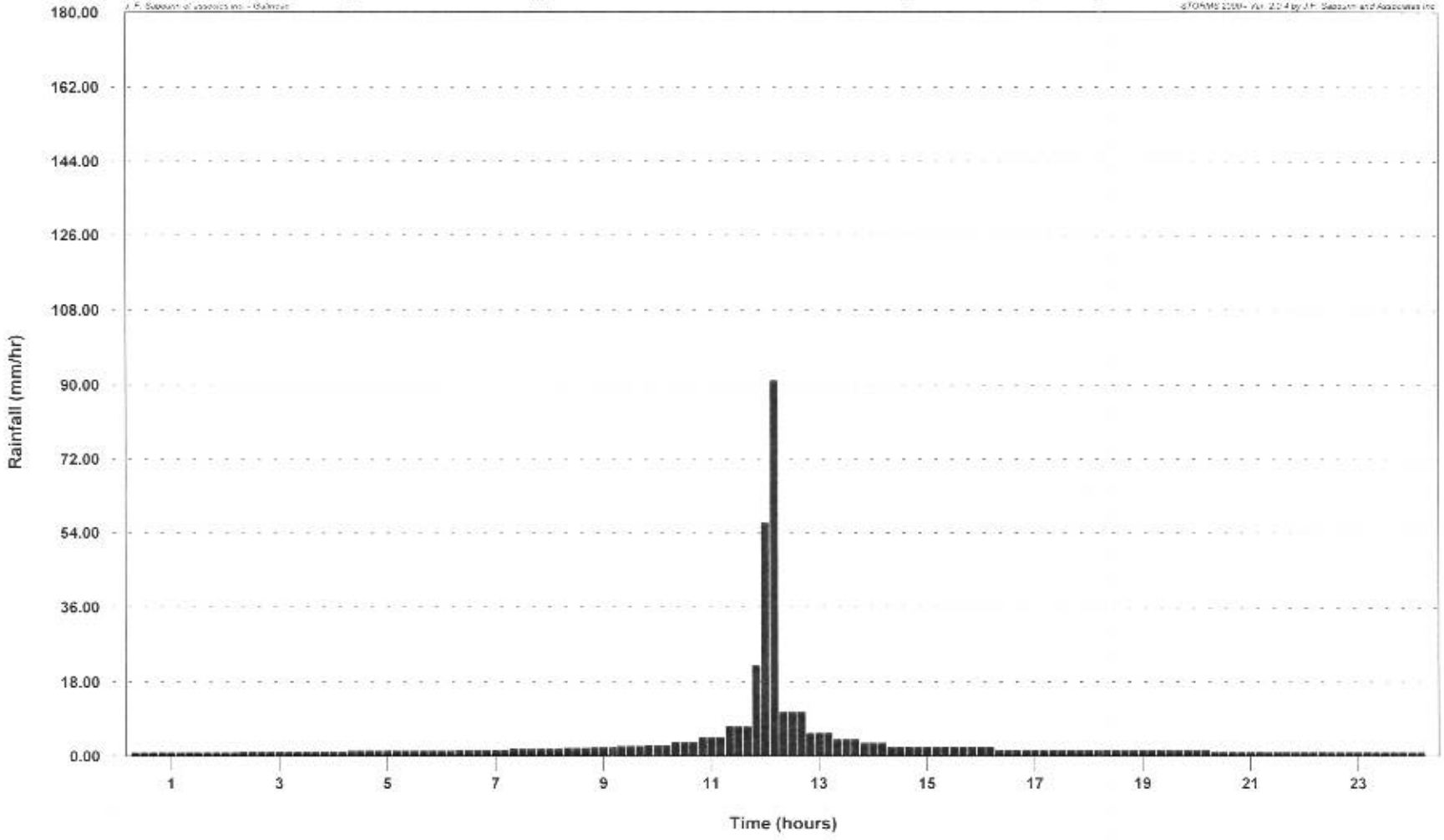
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24005x.stm
Storm File Comment: 5 years SCS Type 2 Storm 24 Hours step 10 min. City of Ottawa

Total Rain	=	64.11 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	2.67 (mm/hr)
Max. Intensity	=	78.48 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	78.48	78.48	68.56	48.73	28.98	17.22	12.72	7.51	4.47	2.67

10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



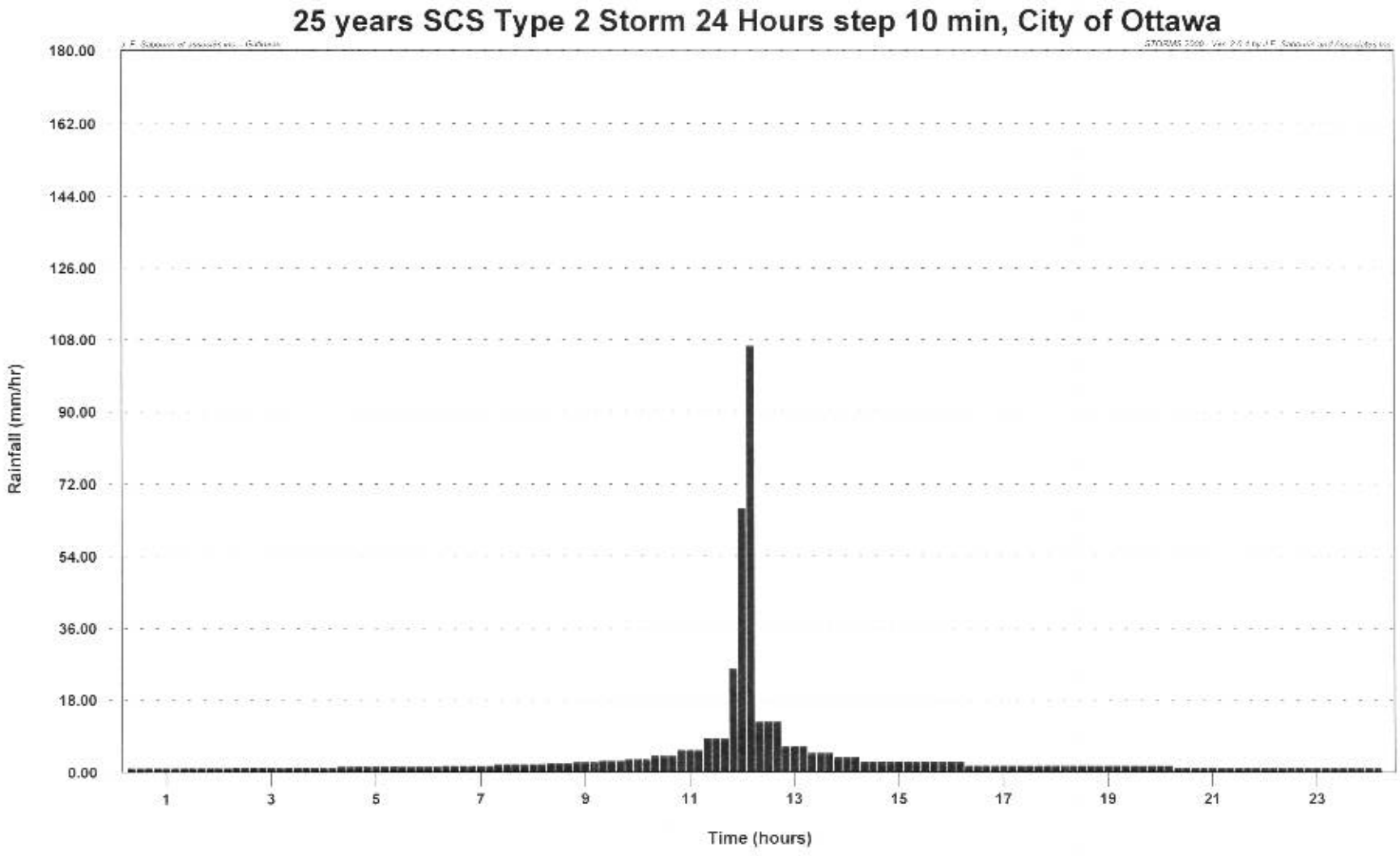
Storm Statistics:

Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24010x.stm
Storm File Comment: 10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	74.35 (mm)
Storm Duration (hrs)	=	24:00.00
Ave. Intensity	=	3.10 (mm/hr)
Max. Intensity	=	90.99 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	90.99	90.99	79.49	56.50	33.60	19.96	14.74	8.71	5.18	3.10



Storm Statistics:

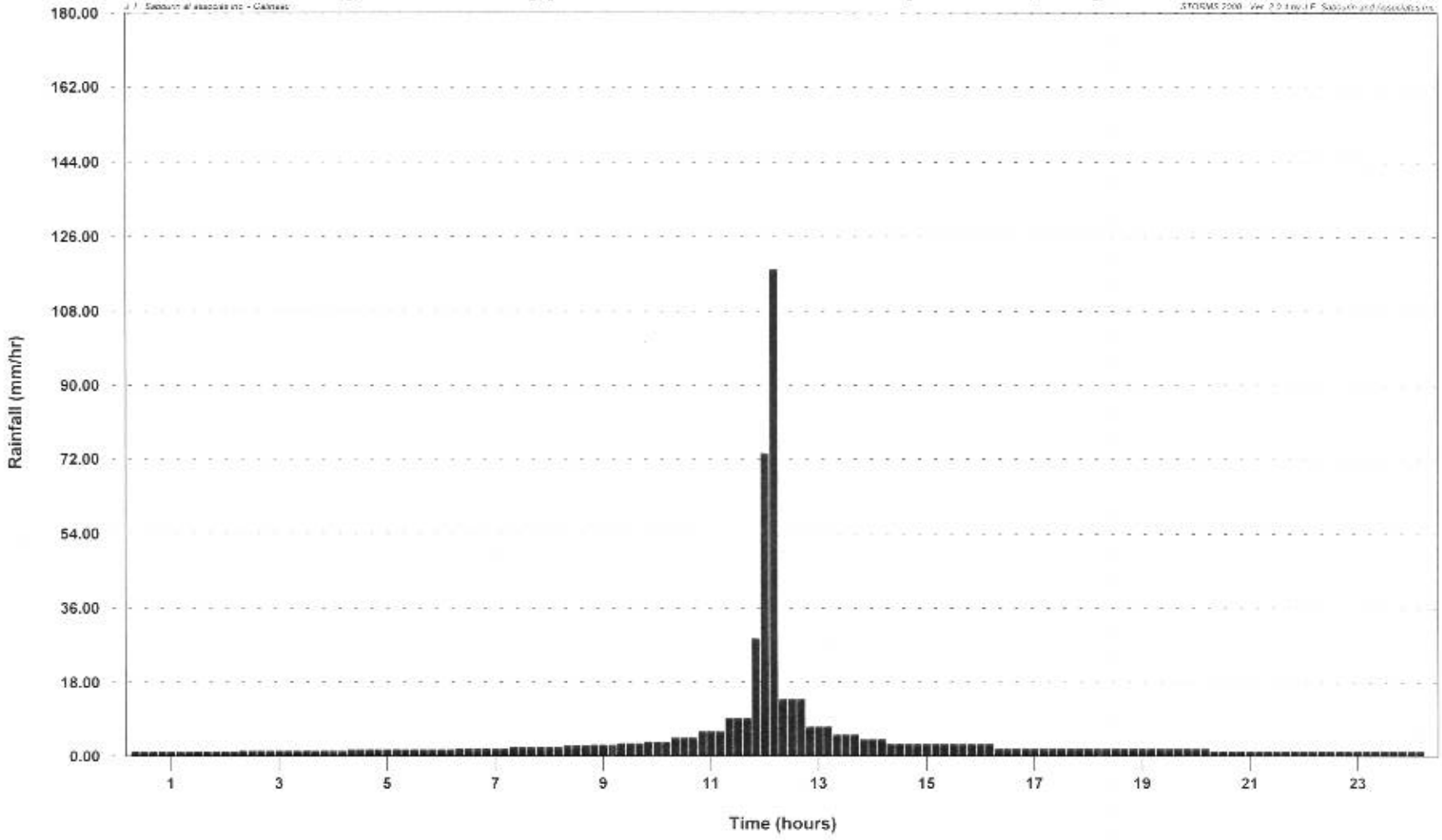
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24025x.stm
Storm File Comment: 25 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	86.89 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	3.62 (mm/hr)
Max. Intensity	=	106.38 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	106.38	106.38	92.94	66.05	39.29	23.34	17.24	10.18	6.05	3.62

50 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

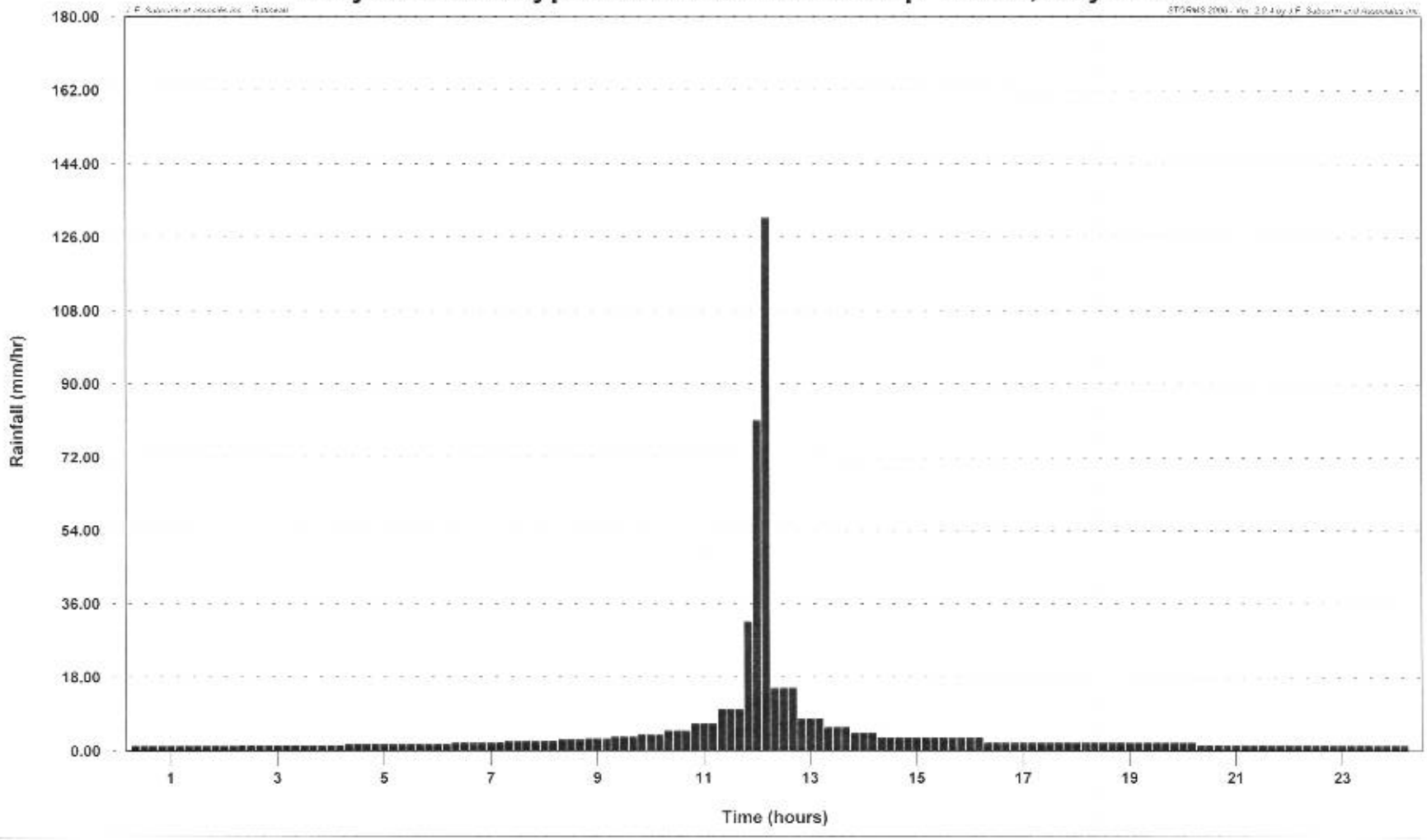
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24050x.stm
Storm File Comment: 50 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	96.53 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	4.02 (mm/hr)
Max. Intensity	=	118.15 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	118.15	118.15	103.22	73.36	43.63	25.92	19.14	11.31	6.73	4.02

100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24100x.stm
Storm File Comment: 100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

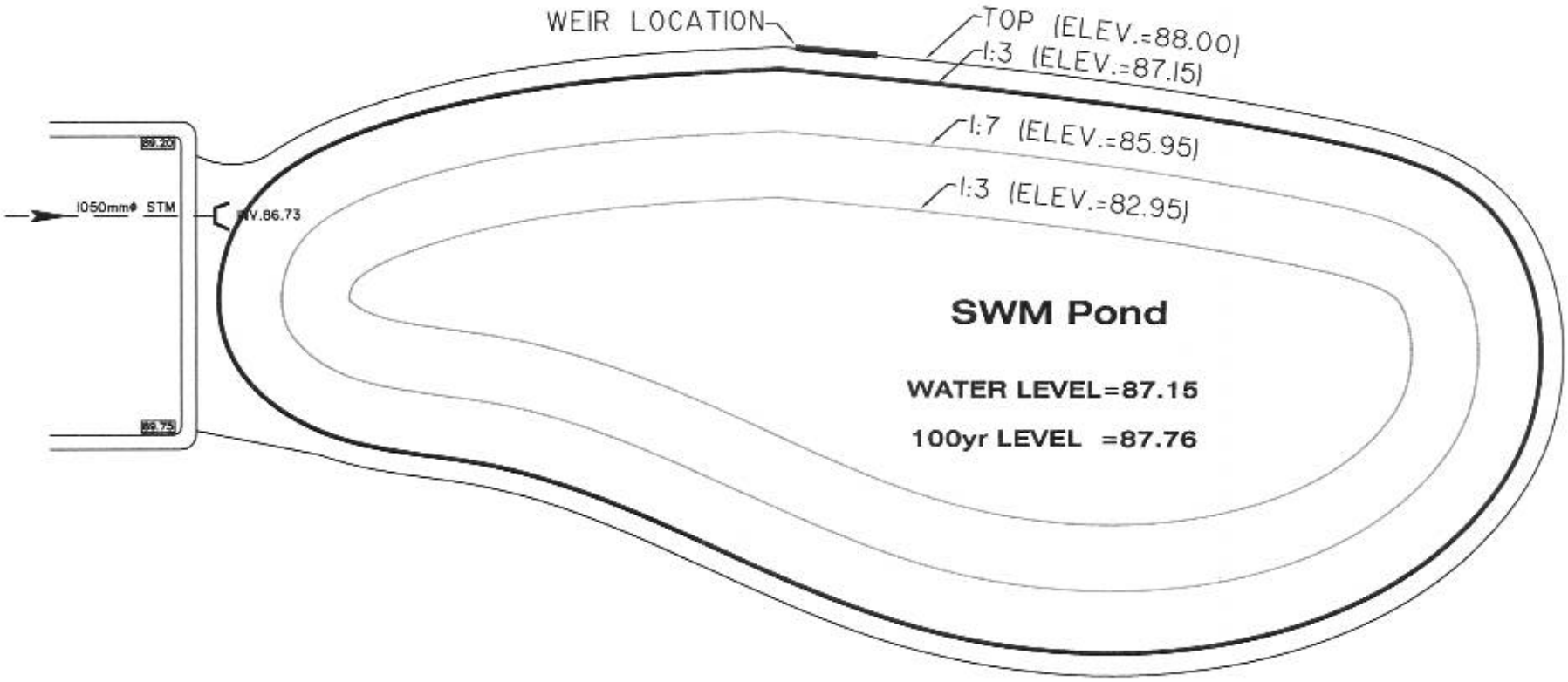
Total Rain	=	106.73 (mm)
Storm Duration (hrs):	=	24:00.00
Ave. Intensity	=	4.45 (mm/hr)
Max. Intensity	=	130.65 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

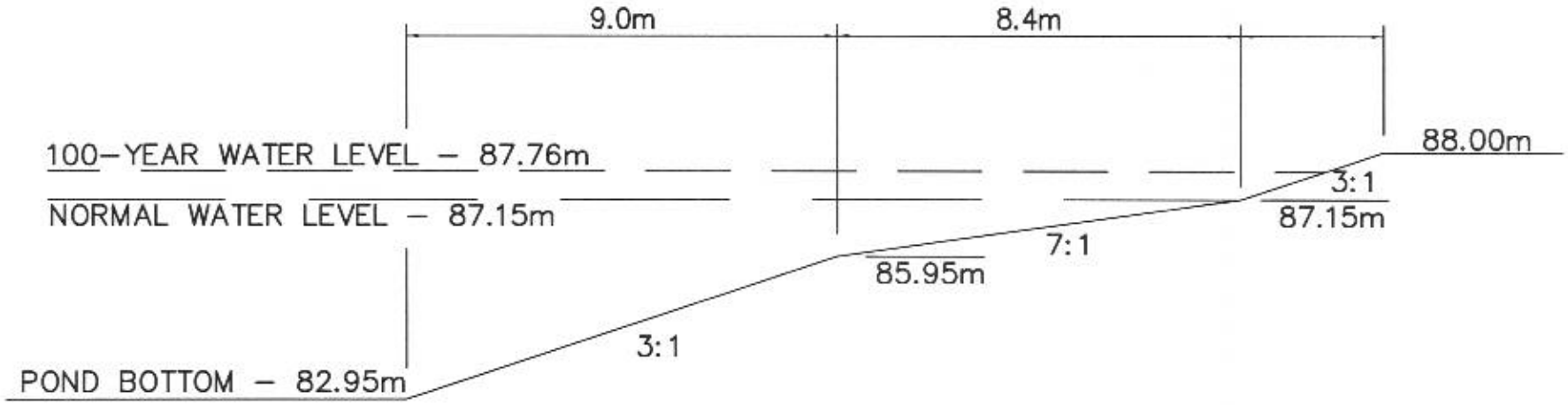
Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	130.65	130.65	114.14	81.12	48.25	28.66	21.17	12.51	7.44	4.45

Appendix B

Atrel Engineering Limited
Design Drawings



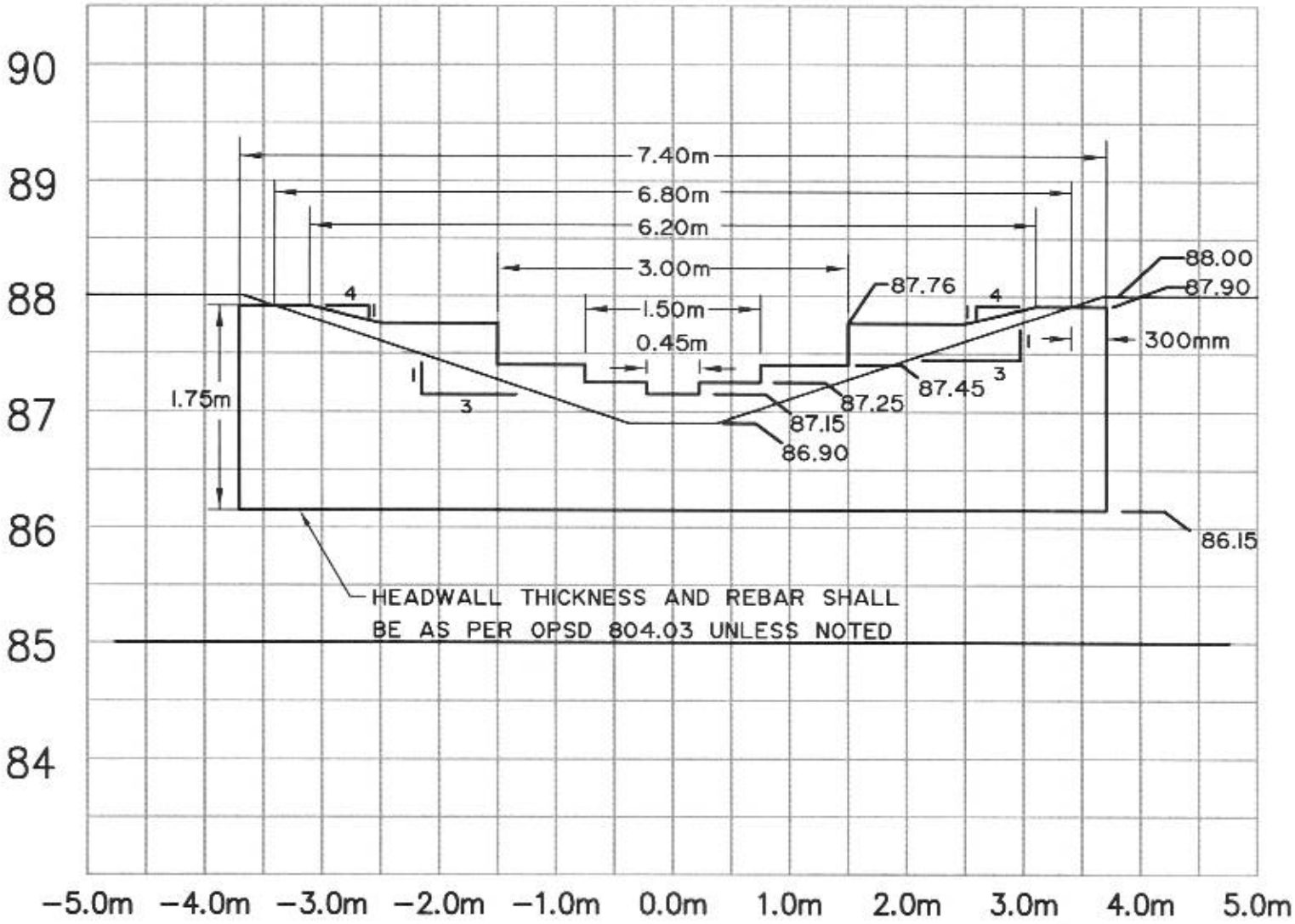
ATREL Engineering Ltd.
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



TYPICAL POND X-SECTION ELEVATION

(N.T.S)

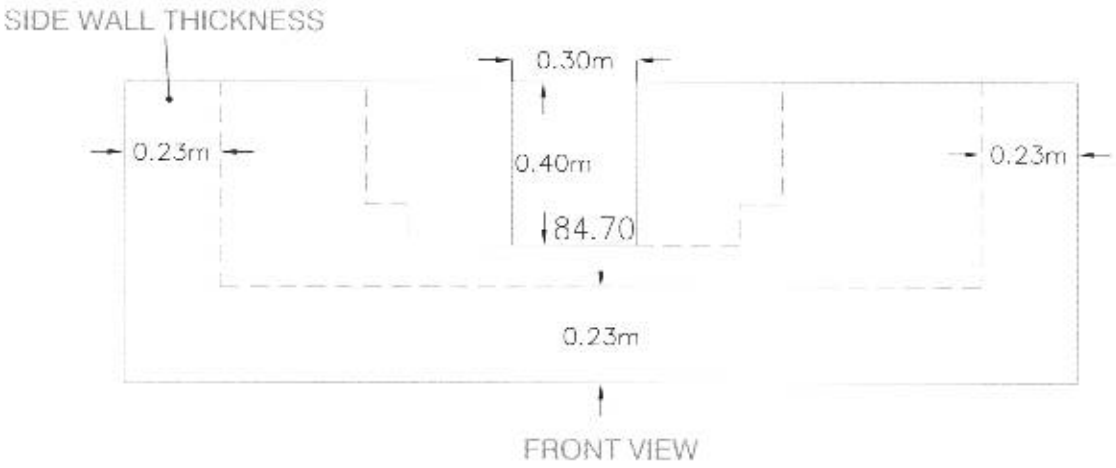
ATREL Engineering Ltd Ltée
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



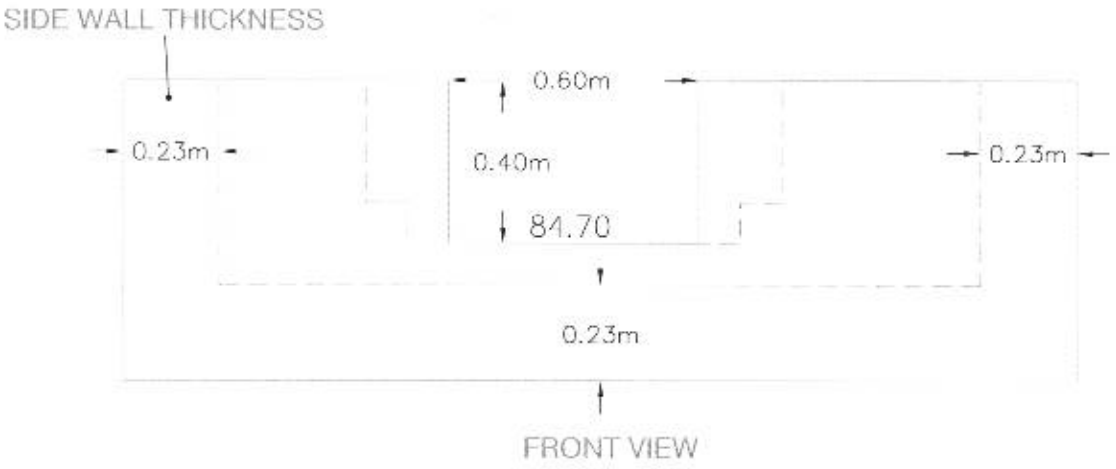
WEIR STRUCTURE

(N.T.S)

ATREL Engineering Ltd. Ltée.
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



INTERIM METAL PLATE



ULTIMATE METAL PLATE

LEGEND :

N.T.S.

J.F. Sabourin & Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
OTTAWA (613) 836-3884
GATINEAU (819) 243-6858

CLIENT : ATREL Engineering

380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425

PROJECT :

GREELY VILLAGE CENTRE
OTTAWA

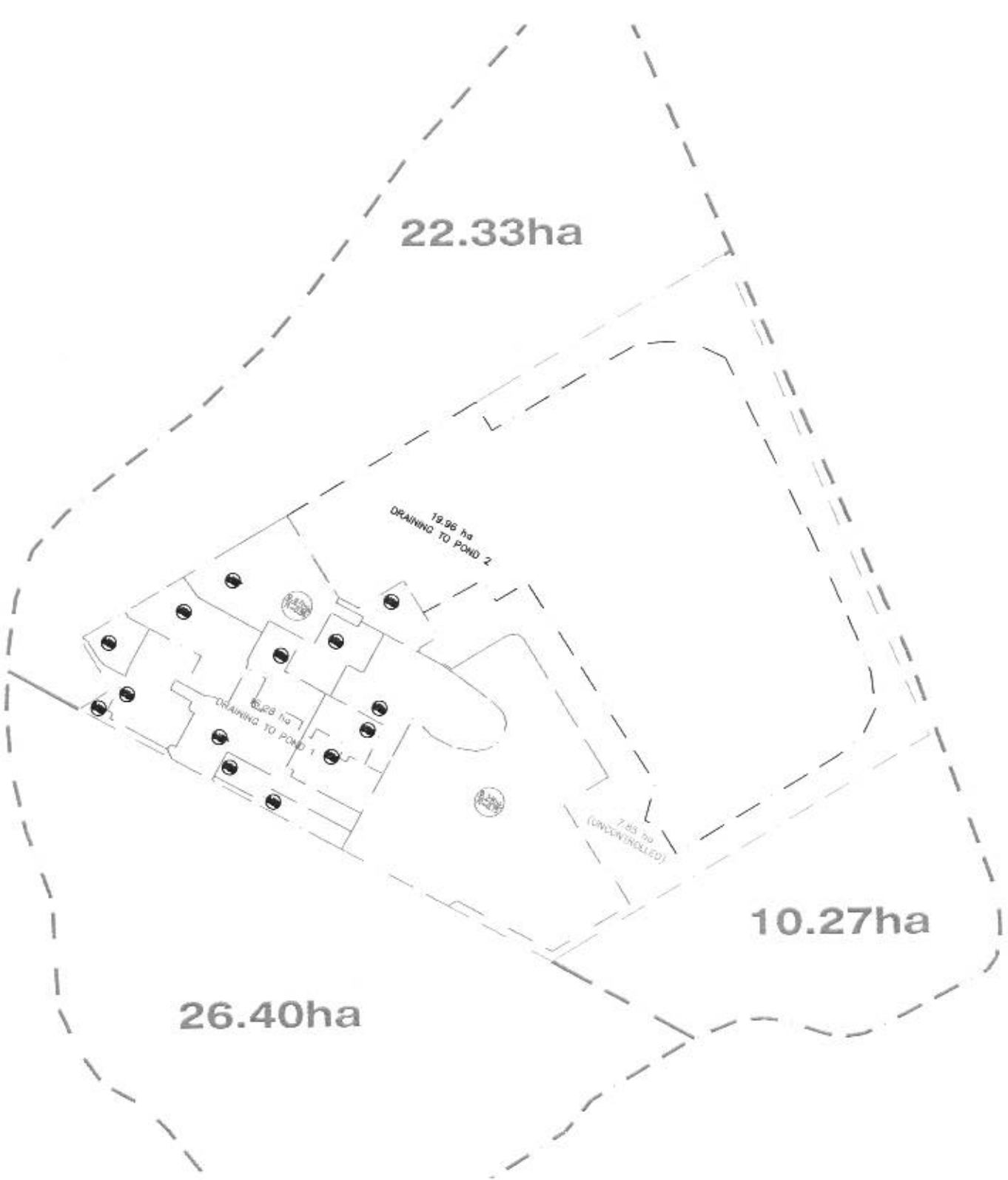
No.	BY	DATE	DESCRIPTION	BY

Weir Structure
Temporary Metal Plates

FIGURE B4

DESIGNED:	
DRAWN:	JHF
VERIFIED:	JFS
APPROVED:	
DATE:	Sept 2008
PROJECT No.	647-07

DRAWING REF: 647-07\Design\CAD\Bas...070803c Fig2.dwg



1.38ha
R=0.84

BY :

CLIENT :

PROJECT :

No.	BY

TITLE :

Appendix C

SWM Pond Sizing,
and Stage-Storage Curves

Project: Greely Village Centre - Commercial Phase
Project No.: 64707
Quality Pond Sizing

Date: May 28, 2008
By: JHF

POND CMRC
Lands to be developped
(Final Conditions)
(All land is developped)

Catchment No.	Description	Drainage Area (ha)	Imp. (%)		Area incl.	Area (ha)	Imp (ha)	
COM-1	Commercial lands	14.64	69		X	14.64	10.10	
RES-1	Residential lands (Phase 1)	5.83	21					
RES-2	Residential lands (Phase 2 incl. Phase 1)	9.34	21					
POND-1	Pond block (Phase 1)	3.57	48					
POND-2	Pond block (Phase 2)	5.03	47					
PK-1	Green space	4.26	0					
UND-1	Undevelopped Lands (Phase 1 & 2)	6.85	0					
EX4	Existing Residential (EX4)	0.50	22		X	0.50	0.11	
POND-C	Pond block (Commercial)	1.57	66		X	1.57	1.04	

Totals= 16.71 11.25

Avg Imp= 67.31 %

As per MOEE,

Req'd Pond Vol.=	219	cu.m/ha
Total Pond Volume	3655	cu.m
Permanent Pool=	2987	cu.m
Ext.Det. Volume=	668	cu.m

Commercial Pond

PP 2987
AS 668

10-Dec-08

	Quality and extended control based on 40 cu.m x 16.71 ha = 668 cu.m. Vol/24 hr/3600 x 2 =0.0155 cms		Quantity control weir (Broad)		Quantity control weir (Broad)		Overflow weir (Broad), Top		
	Rectangular broad crested weir		Length	1.50	Length	3.00	Length	6.2	
	Length	0.45	Height	0.2	Height	0.31	Height	0.24	
	Height	0.10					Top elevation	88	
	Cw (for the weir)	1.71	Cw (for the weir)	1.85	Cw (for the weir)	1.85	Cw	1.85	
	Contractions	2	Contractions	2	Contractions	2	Contractions	2	
	Invert elevation (m)	87.15	Invert elevation (m)	87.25	Invert elevation (m)	87.45	Invert elevation (m)	87.76	
	Q weir at H = Qtarget=	0.023	Q weir at H = Qtarget=	0.242	Q weir at H = Qtarget=	0.938	Q weir at H =	1.338	

elevation	Volume										Total
above P.P.	Total volume	above P.P.	Head (m)	Outflow (cms)		Outflow (cms)		Outflow (cms)	Head (m)	Outflow (cms)	Outflow (cms)
87.15	26882	0	weir behavior	0.000		0.000		0.000	0.00	0.000	0.000
87.20	27403	521		0.008		0.000		0.000	0.00	0.000	0.008
87.21	27550	668		0.012		0.000		0.000	0.00	0.000	0.012
87.25	27928	1046	quality vol.	0.023		0.000		0.000	0.00	0.000	0.023
87.30	28457	1575		0.023		0.031		0.000	0.00	0.000	0.054
87.35	28989	2108		0.023		0.087		0.000	0.00	0.000	0.110
87.40	29526	2644		0.023		0.158		0.000	0.00	0.000	0.181
87.45	30067	3185		0.023		0.242		0.000	0.00	0.000	0.265
87.50	30611	3729		0.023		0.242		0.052	0.00	0.000	0.327
87.55	31159	4278		0.023		0.242		0.174	0.00	0.000	0.439
87.60	31711	4830		0.023		0.242		0.319	0.00	0.000	0.584
87.65	32267	5386		0.023		0.242		0.490	0.00	0.000	0.755
87.70	32827	5945		0.023		0.242		0.682	0.00	0.000	0.947
87.75	33391	6509		0.023		0.242		0.894	0.00	0.000	1.159
87.76	33504	6622		0.023		0.242		0.938	0.00	0.000	1.203
87.80	33958	7076		0.023		0.242		0.938	0.04	0.092	1.295
87.85	34529	7647		0.023		0.242		0.938	0.09	0.309	1.512
88.00	36264	9382		0.023		0.242		0.938	0.24	1.338	2.541

Drawdown time

Volume (m^3)	Q (cms)	Time (hours)
0	0.0000	0
668.00	0.0121	30.7
1045.96	0.0233	5.9
		36.6

Commercial Pond Storage Area

Elev.	Depth	Area	Elev. Diff.	Total Volume	Comment
82.95	0.00	3985.85	0	0	
83.00	0.05	4032.78	0.05	200	
83.05	0.10	4079.86	0.05	403	
83.10	0.15	4127.11	0.05	608	
83.15	0.20	4174.51	0.05	816	
83.20	0.25	4222.06	0.05	1026	
83.25	0.30	4269.78	0.05	1238	
83.30	0.35	4317.65	0.05	1453	
83.35	0.40	4365.98	0.05	1670	
83.40	0.45	4413.87	0.05	1889	
83.45	0.50	4462.21	0.05	2111	
83.50	0.55	4510.72	0.05	2336	
83.55	0.60	4559.38	0.05	2562	
83.60	0.65	4608.19	0.05	2792	
83.65	0.70	4657.17	0.05	3023	
83.70	0.75	4706.30	0.05	3257	
83.75	0.80	4755.59	0.05	3494	
83.80	0.85	4805.04	0.05	3733	
83.85	0.90	4854.65	0.05	3974	
83.90	0.95	4904.41	0.05	4218	
83.95	1.00	4954.33	0.05	4465	
84.00	1.05	5004.41	0.05	4714	
84.05	1.10	5054.65	0.05	4965	
84.10	1.15	5105.04	0.05	5219	
84.15	1.20	5155.59	0.05	5476	
84.20	1.25	5206.30	0.05	5735	
84.25	1.30	5257.16	0.05	5996	
84.30	1.35	5308.19	0.05	6261	
84.35	1.40	5359.37	0.05	6527	
84.40	1.45	5410.71	0.05	6796	
84.45	1.50	5462.20	0.05	7068	
84.50	1.55	5513.86	0.05	7343	
84.55	1.60	5565.67	0.05	7620	
84.60	1.65	5617.64	0.05	7899	
84.65	1.70	5669.77	0.05	8181	
84.70	1.75	5722.05	0.05	8466	
84.75	1.80	5774.49	0.05	8754	
84.80	1.85	5827.09	0.05	9044	
84.85	1.90	5879.85	0.05	9336	
84.90	1.95	5932.76	0.05	9632	
84.95	2.00	5985.83	0.05	9930	
85.00	2.05	6039.06	0.05	10230	
85.05	2.10	6092.45	0.05	10534	
85.10	2.15	6145.99	0.05	10840	
85.15	2.20	6199.70	0.05	11148	
85.20	2.25	6253.56	0.05	11460	
85.25	2.30	6307.27	0.05	11774	
85.30	2.35	6361.75	0.05	12090	
85.35	2.40	6416.08	0.05	12410	
85.40	2.45	6470.57	0.05	12732	
85.45	2.50	6525.22	0.05	13057	
85.50	2.55	6580.02	0.05	13384	
85.55	2.60	6634.99	0.05	13715	
85.60	2.65	6690.11	0.05	14048	

Commercial Pond Storage Area

Elev.	Depth	Area	Elev. Diff.	Total Volume	Comment
85.65	2.70	6745.38	0.05	14384	
85.70	2.75	6800.82	0.05	14722	
85.75	2.80	6856.41	0.05	15064	
85.80	2.85	6912.16	0.05	15408	
85.85	2.90	6968.07	0.05	15755	
85.90	2.95	7024.14	0.05	16105	
85.95	3.00	7080.38	0.05	16457	
86.00	3.05	7207.47	0.05	16815	
86.05	3.10	7335.45	0.05	17178	
86.10	3.15	7464.35	0.05	17548	
86.15	3.20	7594.15	0.05	17925	
86.20	3.25	7724.86	0.05	18308	
86.25	3.30	7856.48	0.05	18697	
86.30	3.35	7989.00	0.05	19093	
86.35	3.40	8122.43	0.05	19496	
86.40	3.45	8256.77	0.05	19906	
86.45	3.50	8392.01	0.05	20322	
86.50	3.55	8528.16	0.05	20745	
86.55	3.60	8665.22	0.05	21175	
86.60	3.65	8803.19	0.05	21611	
86.65	3.70	8942.06	0.05	22055	
86.70	3.75	9081.84	0.05	22506	
86.75	3.80	9222.53	0.05	22963	
86.80	3.85	9364.12	0.05	23428	
86.85	3.90	9506.62	0.05	23900	
86.90	3.95	9650.03	0.05	24379	
86.95	4.00	9794.34	0.05	24865	
87.00	4.05	9939.57	0.05	25358	
87.05	4.10	10085.70	0.05	25859	
87.10	4.15	10232.73	0.05	26367	
87.15	**4.20**	**10380.68**	**0.05**	**26882**	**Permanent**
87.20	4.25	10459.64	0.05	27403	
87.25	4.30	10538.29	0.05	27928	
87.30	4.35	10616.63	0.05	28457	
87.35	4.40	10694.66	0.05	28989	
87.40	4.45	10772.38	0.05	29526	
87.45	4.50	10849.78	0.05	30067	
87.50	4.55	10926.87	0.05	30611	
87.55	4.60	11003.65	0.05	31159	
87.60	4.65	11080.12	0.05	31711	
87.65	4.70	11156.27	0.05	32267	
87.70	4.75	11232.11	0.05	32827	
87.76	4.81	11307.64	0.06	**33503**	**100 yr**
87.80	4.85	11382.86	0.04	33957	
87.85	4.90	11457.77	0.05	34528	
87.90	4.95	11532.36	0.05	35103	
87.95	5.00	11606.64	0.05	35681	
88.00	5.05	11680.61	0.05	36264	

STORM SEWER COMPUTATION FORM

DESIGNED BY: DRP
CHECKED BY:

Greely Village
Sunset Lakes Coporation
070903
ATREL ENGINEERING LTD
January 2009

STORM FREQUENCY: 5 YEAR
RATIONAL METHOD Q= 2.78 AIR
PVC/CONC N= 0.0130

LOCATION				AREA (ha.) RUNOFF COEFFICIENT									RATIONAL METHOD		5 YEAR TIME CONC.	RAINF. INTENS.	ACTUAL PIPE FLOW	PIPE	SEWER DATA								UpStream		DwStream	Number of Rends	MH Drop	Forced drop	Inv to Inv	DwStream	
FROM (Up)		TO (Down)		0.20	0.40	0.50	0.55	0.60	0.65	0.70	0.80	0.90	INDIV. 2.78AR	ACCUM. 2.78AR	(MIN)	(MM/HR)	(L/S)	TYPE	DIA. (NOM) (mm)	(ACT)	SLOPE (%)	LENGTH (M)	CAP. (L/S)	Remaining Capacity (%)	VEL. (M/S)	TIME OF FLOW (MIN)	Obv (M)	Inv. (M)	Sewer Band			(M)	(M)	Obv. (M)	Inv. (M)
MH	101	MH	102							0.30			0.58	0.58	10.00	104.19	**60.83**	PVC	375	368.4	0.35	85.5	97.52	38%	0.92	1.18	89.39	89.02	45	1			no	89.16	88.79
MH	102	MH	103									0.87	2.18	2.76	11.18	98.35	**271.60**	CONC	600	609.6	0.25	36.5	320.28	15%	1.10	0.55	89.16	88.53	45	1			no	89.07	88.47
MH	103	MH	104						1.12				2.02	4.78	11.73	95.84	**458.53**	CONC	750	762.0	0.20	119.0	519.40	12%	1.14	1.74	89.07	88.32	90	1		0.32	no	88.63	88.08
															13.46																		
MH	108	MH	104									0.47	1.18	1.18	10.00	104.19	**122.52**	PVC	375	366.4	1.20	42.0	180.57	32%	1.71	0.41	88.82	88.45				-0.19	no	88.32	87.95
															10.41																		
MH	109	MH	104									0.57	1.43	1.43	10.00	104.19	**148.59**	PVC	375	368.4	1.00	80.0	164.84	10%	1.56	0.85	89.54	89.17	90	1		0.23	no	88.74	88.37
															10.85																		
MH	104	MH	105											7.38	13.46	88.83	**656.14**	CONC	825	838.2	0.25	69.5	748.75	12%	1.36	0.85	88.51	87.89					no	88.34	87.52
															14.33																		
MH	110	MH	105									0.37	0.93	0.93	10.00	104.19	**96.45**	PVC	300	295.2	1.30	34.0	109.48	12%	1.56	0.36	88.78	88.48	90	1			no	88.34	88.04
															10.36																		
MH	111	MH	112			1.02							1.42	1.42	10.00	104.19	**147.72**	CONC	525	533.4	0.25	57.0	224.33	34%	1.03	0.55	88.42	87.50	45	1			no	88.26	87.76
MH	112	MH	105							0.55			1.07	2.49	10.95	99.45	**247.44**	CONC	600	609.6	0.25	85.5	320.28	23%	1.10	1.30	88.28	87.68	90	1		-0.27	no	88.07	87.47
															12.24																		
MH	105	MH	106											10.80	14.33	85.79	**926.56**	CONC	975	990.6	0.20	79.5	1045.58	11%	1.36	0.98	88.34	87.37	90	1		0.33	no	88.18	87.21
															15.31																		
MH	113	MH	114		1.49								1.66	1.66	10.00	104.19	**172.63**	CONC	600	609.6	0.15	125.5	248.09	30%	0.85	2.46	87.75	87.15	90	1			no	87.56	86.96
MH	114	MH	108								0.42		0.93	2.59	12.46	92.77	**240.36**	CONC	675	685.8	0.15	15.0	339.63	29%	0.92	0.27	87.56	86.88	90	1	0.06		1	87.54	86.86
															12.73																		
MH	108	MH	Pond				0.59						0.90	14.29	15.31	82.58	**1180.35**	CONC	1050	1066.8	0.20	33.0	1274.02	7%	1.43	0.39	87.85	86.80					no	87.78	**86.73**
															15.69																		

Appendix D

SWMHYMO Model,
Input and Output Files
for Existing and Proposed Conditions

NOTES:

Some warnings have appeared in the SWMHYMO output file for the proposed conditions. Therefore the warnings were reviewed to insure that there were no outstanding issues.

CALIB STANDHYD *** WARNING: For areas with impervious ratios below 20%, this routine may not be applicable.

This warning occurs when the STANDHYD routine is utilised for lower impervious ratios. However, because the areas analysed are large residential lots where the impervious areas are uniformly distributed, the routine is appropriate.

ROUTE PIPE -> *** WARNING: New pipe size used for routing.

This warning occurs when flow exceed the pipe's free flow capacity. Because the pipes in a residential development are sized for the 5 year event, the flows greater than the pipe capacity will generate this warning. However, the development will accommodate the excess flows though a set of swales (see Figure 3 for details).

Note that the time step was reduced to 1 min from 5 min in the propose commercial in order to eliminate the warnings caused by the time step. No significant change was observed relating to this measure.

```
00001> IO    Metric units / ID numbers OFF
00002> *#*****************************************************************
00003> *#  XMBEYXU Ver.5.02/Jan 2001 <BETA> /  INPUT DATA File
00004> *#*****************************************************************
00005> *#  Project Name: [Greely Village Center]     Project Number: [477-01]
00006> *#  Date        : 04-09-2008
00007> *#  Modeller    : [JFS]
00008> *#  Company     : JFSAinc.
00009> *#  License #   : 2647402
00010> *#*****************************************************************
00011> *#
00012> *# SWMMXMO model of the Greely Village Center - Residential Area - Phase 1
00013> *# Existing conditions.
00014> *# Filename stands for: GRP1Ec - Greely, Residential, Phase 1, Existing
00015> *#
00016> *# Feb 15, 2008
00017> *# Added July 1st 1979 event
00018> *#
00019> *# *E  EXISTING CONDITIONS ASSUMPTIONS:
00020> *#  CN*, XIMP, TIMP,
00021> *#  as per Stantec Report, Oct. 2002; Greely Shield Creek, Stormwater
00022> *#  and drainage study.
00023> *#  and as per Atrel drawing: Greely Village Area.dwg
00024> *#  as specified per subcatchment
00025> *#  Tp calculated using the Uplands Method as per Stantec: Tp = Tc * 2/3)
00026> *#
00027> *#*****************************************************************
00028> START               TITLE=[3,0],  METOUT=[2],  NSTORM [1],  IRECP [1]
00029> *                    ["C:\H2K25XMA.SIM"] <--Stats Filename>, one per line for NSTORM line
00030> *-------------------|-------------------------------------------------
00031> RAIN STORM          STORM_FILENAME ["Storm.dat"]
00032> *-------------------|-------------------------------------------------
00033> *#*****************************************************************
00034> *# Existing Flow - Mcevoy Branch of Shield Creek - Areas
00035> *# Area n/s of proposed development (residential)
00036> *# CN*=75, Slope = 0.8, Tp=0.6, XIMP=-, TIMP=5, see SC002 as per Stantec
00037> *# Area partially adjusted based on Atrel drawings.
00038> *#*****************************************************************
00039> *# n/s of Bank St.as per Atrel - with modified boundaries And Tp
00040> DESIGN HASHYD        HYD=["EX1"], DT=[5]min, AREA=[26.69]ha,
00041>                      DWF [0]cms; CN/C=[75] , TP=[0.73]hrs,
00042>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END= 1
00043> *-------------------|-------------------------------------------------
00044> *#*****************************************************************
00045> *# Existing Flow - McEvoy Branch of Shield Creek (s/s of Bank St.)
00046> *# CN* 69, as per Stantec see SC1.0.
00047> *# Area partially adjusted based on Atrel drawings.
00048> *#*****************************************************************
00049> *# Areas External to development.
00050> DESIGN HASHYD        SHYD=["EX2"], DT=[5]min, AREA=[10.94]ha,
00051>                      DWF=[0]cms; CN/C [69], TP=[0.67]hrs,
00052>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END=-1
00053> *-------------------|-------------------------------------------------
00054> DESIGN HASHYD        SHYD=["EX3"], DT=[5]min, AREA=[1.30]ha,
00055>                      DWF [0]cms); CN/C=[69], TP=[0.22]hrs,
00056>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr); END =1
00057> *-------------------|-------------------------------------------------
00058> *# Slope, Ximp, Timp, Area from Atrel Drawing
00059> *# CN from Stantec (SC002)
00060> *# Ximp   Timp = Tc
00061> DESIGN STANDHYD      NHYD=["EX4"], DT=[5]min, AREA=[0.50](ha),
00062>                      X.IMP=[...1], TIMP [0.22], DWF [0]cms), LOSS=[ ', CN=[69] ,
00063>                      SLO.E=[1]:), RAINFALL [ , , , , ]mm/hr), END=-1
00064> *-------------------|-------------------------------------------------
00065> *# Areas to be occupied by commercial development
00066> DESIGN HASHYD        NHYD=["EA"], DT=[5]min, AREA=[9.08](ha),
00067>                      DWF=[0 cms); CN/C=[59], TP=[0.81]hrs,
00068>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END =1
00069> *-------------------|-------------------------------------------------
00070> DESIGN HASHYD        NHYD=["EZA"], DT [5]min, AREA [3.13](ha),
00071>                      DWF=[0](cms), CN/C [59], TP=[0.19]hrs,
00072>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END= 1
00073> *-------------------|-------------------------------------------------
00074> DESIGN HASHYD        NHYD=["EA"], DT=[5]min, AREA=[4.14](ha),
00075>                      DWF=[0](cms), CN/C=[69], TP=[0.21]hrs,
00076>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END =1
00077> *-------------------|-------------------------------------------------
00078> DESIGN HASHYD        SHYD=["EZB"], DT [5]min, AREA [3.21](ha),
00079>                      DWF=[0](cms), CN/C=[69], TP=[0.22]hrs,
00080>                      RAINFALL=[ ,  ,  ,  ,  ](mm/hr), END =1
00081> *-------------------|-------------------------------------------------
00082> *# Areas to be occupied by residential development
00083> DESIGN HASHYD        SHYD=["EB"], DT [5]min, AREA [8.70](ha),
00084>                      DWF=[0](cms), CN/C [69], TP=[0.59]hrs,
00085>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END =1
00086> *-------------------|-------------------------------------------------
00087> DESIGN HASHYD        SHYD= "EZB"], DT=[5]min, AREA=[8.91](ha),
00088>                      DWF=[0](cms), CN/C=[69], TP=[0.38]hrs,
00089>                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END =1
00090> *-------------------|-------------------------------------------------
00091> DESIGN HASHYD        SHYD ["EC"], DT=[5]min, AREA=[8.71](ha),
00092>                      DWF=[0](cms), CN/C=[69], TP=[0.48]hrs,
00093>                      RAINFALL=[ ,  ,  ,  ,  ]YD/hr), END=-1
00094> *-------------------|-------------------------------------------------
00095> *#*****************************************************************
00096> *# EXISTING Flow - Total Flow to Shield Creek (Stantec Node hc128)
00097> *#*****************************************************************
00098> *# McEvoy Drain, c/s of residential area
00099> ADD HYD             HYDNum=["Nlet"], HYDs to add ["EX1"+"EA"
00100> *-------------------|-------------------------------------------------
00101> *# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
00102> *# provided by Atrel
00103> *# Manning's n is Channel not maintained, light brush on banks
00104> *# Route Nlet to d/s node N
00105> *# Slope = .4 as per Atrel drawing
00106> ROUTE CHANNEL        RSVRout=["RP.out"] ,NHYDline=["Nlet"] ,
00107>                      RDT=[5](min),
00108>                      CHLGTH=[370](m),  CHSLOPE=[1.00](%),
00109>                                        FPSLOPE [2.00](%),
00110>                       NSECNUM=[01],        NSEG=[1]
00111>                      ( SELECTION, SEGDIST (m)) (0.000,45.00  NSEG times
00112>                      ( DISTANCE (m), ELEVATION (m))-[0,     45.00]
00113>                                                    [ 3.00,  43.80]
00114>                                                    [ 4.61,  44.50]
00115>                                                    [ 9.41,  45.00]
00116>                                                    [93.80,  45.90]
00117> *-------------------|-------------------------------------------------
00118> *# Typical Section based on Shields MH Vee ditch 2:1 banks
00119> *# provided by Atrel
00120> *# Manning's n is Channel not maintained, light brush on banks
00121> *# Route EA2 to d/s Node N.
00122> *# Slope = 0.02% as per plan provided by Atrel.
00123> ROUTE CHANNEL        RSVRout=["RSA1" ,NHYD=n=["EX"] ,
00124>                      RDT=[5 (min),
00125>                     CHLGTH=[324.(m),  CHSLOPE=[0.05](%),
00126>                                       FPSLOPE=[3.00](%),
00127>                       SECNUM= 0.1,        NSEG=[3]
00128>                      ( SHAPEOLGH, SEGDIST (m))-[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
00129>                      ( DISTANCE (m), ELEVATION (m)) [0,     85.57]
00130>                                                    [6.0, 83.53]
00131>                                                    [6.30, 83.47]
00132>                                                    [6.60, 83.53]
00133>                                                    [10.50, 84.13]
00134>                                                    [12.40, 85.00]
00135>                                                    [51.40, 85.00]
00136> *-------------------|-------------------------------------------------
00137> *# McEnvoy Drain, c/s of residential area along Galex Dath Rd
00138> ADD HYD             HYDtoAdd=["N"], HYDs to add=["RSA2"+"Nline"+"N1B"]
00139> *-------------------|-------------------------------------------------
00140> *# Route Node N. to Node N2
00141> *# Typical section based on Shields MH Vee Ditch 2:1 banks
00142> *# provided by Atrel
00143> *# Manning's n is Channel not maintained, light brush on banks
00144> *# Slope = 0.05% as per plan provided by Atrel.
00145> ROUTE CHANNEL        SRSVout ["RP1"] ,NHYDin ["N"] ,
00146>                      RDT=[5](min),
00147>                     CHLGTH=[184](m),  CHSLOPE=[0.05](%),
00148>                                       FPSLOPE=[0.05](%),
00149>                       NSECNUM=[3] ,       NSEG=[3]
00150>                      ( SHAPEOLGH, SEGDIST (m))-[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
00151>                      ( DISTANCE (m), ELEVATION (m))-[0,     85.57]
00152>                                                    [6.0, 83.53]
00153>                                                    [6.30, 83.47]
00154>                                                    [6.60, 83.53]
00155>                                                    [10.50, 84.13]
00156>                                                    [12.40, 85.00]
00157>                                                    [51.40, 85.00]
00158> *-------------------|-------------------------------------------------
00159> *# Typical Section based on Atrel Drawing Dwgs. c/s of N2
00160> *# Manning's n is Channel not maintained, light brush on banks
00161> *# Route Node N2 to d/s node N2
00162> *# Slope = (88-84.3)/487
00163> ROUTE CHANNEL        SRSVout=["NRSA"] ,NHYDin=["N2A"] ,
00164>                      RDT=[5](min),
00165>                     CHLGTH=[487](m),  CHSLOPE [0.72](%),
00166>                                       FPSLOPE [0.72](%),
00167>                       NSECNUM=[3] ,       NSEG=[3]
00168>                      ( SHAPEOLGH, SEGDIST (m))-[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
00169>                      ( DISTANCE (m), ELEVATION (m))-[0,     85.57]
00170>                                                    [6.0, 83.53]
00171>                                                    [6.30, 83.47]
00172>                                                    [6.60, 83.53]
00173>                                                    [10.50, 84.13]
00174>                                                    [12.40, 85.00]
00175>                                                    [51.40, 85.00]
00176> *-------------------|-------------------------------------------------
00177> *# Typical Section based on Shields MH Vee Ditch 2:1 banks
00178> *# provided by Atrel
00179> *# Manning's n is Channel not maintained, light brush on banks
00180> *# Route Node N2 to d/s Node N3
00181> *# Slope = 0.05% as per plan provided by Atrel.
00182> ROUTE CHANNEL        SRSVout ["RP2"] ,NHYDin ["N2"] ,
00183>                      RDT=[5](min),
00184>                     CHLGTH=[184](m),  CHSLOPE=[0.05](%),
00185>                                       FPSLOPE=[0.05](%),
00186>                       NSECNUM=[3] ,       NSEG=[3]
00187>                      ( SHAPEOLGH, SEGDIST (m))-[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
00188>                      ( DISTANCE (m), ELEVATION (m))-[0,     85.57]
00189>                                                    [6.0, 83.53]
00190>                                                    [6.30, 83.47]
00191>                                                    [6.60, 83.53]
00192>                                                    [10.50, 84.13]
00193>                                                    [12.40, 85.00]
00194>                                                    [51.40, 85.00]
```

```
                     SECNUM=[01],       NSEG=[1]
                     ( SEGROUGH, SEGDIST (m))=[0.050,30] NSEG lines
                     ( DISTANCE (m), ELEVATION (m))=[0,      86.55]
                                                [12.72,   86.50]
                                                [14.80,   86.01]
                                                [16.76,   86.00]
                                                [15.15,   86.50]
                                                [30.00,   86.55]
*%-----------------|--------------------------------------------------------|
*# Drain 2, d/s of residential area
ADD HYD              NHYDsum=["N2"], NHYDs to add=["RN1"+"RR2A"+"R2B"]
*%-----------------|--------------------------------------------------------|
*# ROUTE N2 to N4
*# Typical Section based on Shields NE Vee Ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL        NHYDout=["RN2"],NHYDin=["N2"],
                     RDT=[5](min),
                    CHLGTH=[218](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE=[0.05](%),
                     SECNUM=[01],       NSEG=[3]
                     ( SEGROUGH, SEGDIST (m))=[0.05,6.0  0.035,6.6 0.05,51.80] NSEG lines
                     ( DISTANCE (m), ELEVATION (m))=[0,    85.53]
                                                [6.0, 83.53]
                                                [6.30, 83.03]
                                                [6.60, 83.53]
                                                [10.50, 84.93]
                                                [17.40, 85.00]
                                                [51.80, 85.50]
*%-----------------|--------------------------------------------------------|
*# Add Drain 3 d/s of residential area
ADD HYD              NHYDsum=["N3us"], NHYDs to add=["R3A"+"R3B"+"RN4"]
*%-----------------|--------------------------------------------------------|
*# Typical Section based on Atrel Drawing drain NEW u/s of N3
*# Manning's n is Channel not maintained, light brush on banks
*# Route to d/s area
*# Slope = (88 84)/882
ROUTE CHANNEL        NHYDout=["RN3us"],NHYDin=["N3us"],
                     RDT=[5](min),
                    CHLGTH=[600](m),  CHSLOPE=[0.60](%),
                                      FPSLOPE=[0.60](%),
                     SECNUM=[01],       NSEG=[1]
                     ( SEGROUGH, SEGDIST (m))=[0.050,30] NSEG lines
                     ( DISTANCE (m), ELEVATION (m))=[0,       86.55]
                                                [12.72,   86.50]
                                                [14.84,   86.01]
                                                [16.96,   86.00]
                                                [19.13,   86.50]
                                                [30.06,   86.55]
*%-----------------|--------------------------------------------------------|
*# Drain 4, d/s of residential area
ADD HYD              NHYDsum=["N3"], NHYDs to add=["RN2"+"RN3us"+"R3C"]
*%-----------------|--------------------------------------------------------|
*# ROUTE N3 to NCR128
*# Typical Section based on Shields N3 Vee Ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL        NHYDout=["RN3"],NHYDin=["N3"],
                     RDT=[5](min),
                    CHLGTH=[415](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE=[0.05](%),
                     SECNUM=[01],       NSEG=[3]
                     ( SEGROUGH, SEGDIST (m))=[0.05,6.0  0.035,6.6 0.05,51.80] NSEG lines
                     ( DISTANCE (m), ELEVATION (m))=[0,     85.53]
                                                [6.0, 83.53]
                                                [6.30, 83.43]
                                                [6.60, 83.53]
                                                [10.50, 84.93]
                                                [12.40, 85.00]
                                                [51.80, 85.50]
*%-----------------|--------------------------------------------------------
*# Flow at Stantec node NCR128 for comparison
*# Routed N3 plus EX3
ADD HYD              NHYDsum=["NCR128"], NHYDs to add ["RN3"+"EX3"]
*%-----------------|--------------------------------------------------------|
*# Flow from Stantec at node NCR128 for comparison
DESIGN NASHYD        NHYD ["SCUCI"], DT=[5]min, AREA=[74.11](ha),
                     DWF=[0](cms), CN/C=[69], TP=[0.93]hrs,
                     RAINFALL=[ ,  ,  ,  ,  ](mm/hr), END=-1
*%-----------------|--------------------------------------------------------|
*# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
*# provided by Atrel
*# Route from N-EX3 to NCR128
*# Manning's n is Channel not maintained, light brush on banks
*# Invert at NCR128 as per Atrel bottom of ditch points = 82.52 m
*# Slope = (89.70-82.52)/1517
ROUTE CHANNEL        NHYDout=["REXIST"],NHYDin=["EXIST"],
                     RDT=[5](min),
                     CHLGTH=[1517](m),  CHSLOPE=[0.47](%),
                                        FPSLOPE=[0.47](%),
                     SECNUM=[01],       NSEG=[1]
                     ( SEGROUGH, SEGDIST (m))=[0.035,48.80] NSEG lines
                     ( DISTANCE (m), ELEVATION (m))=[0,       85.00]
                                                [ 7.08,   83.00]
                                                [ 7.41,   84.50]
                                                [ 8.41,   85.00]
                                                [48.80,   85.30]
*%-----------------|--------------------------------------------------------
ADD HYD              NHYDsum=["StnTot"], NHYDs to add=["SCUCI"+"REXIST"]
*%-----------------|--------------------------------------------------------
*%********************************************************************************
*%-----------------|--------------------------------------------------------|
*# Simulations with 4 hour Chicago from City of Ottawa
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[2]
*%                     ["CH4HC02x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[5]
*%                    ["CH4HC05x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[10]
*%                    ["CH4HC10x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[25]
*%                    ["CH4HC25x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[50]
*%                    ["CH4HC50x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[100]
*%                    ["CH4H100x.stm"] <--storm filename, one per line for NSTORM time
*%                 |--------------------------------------------------------
*# SCS 24 hours type 2, from City of Ottawa
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[202]
*%                    ["SC24002x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[205]
*%                    ["SC24005x.stm"] <--storm filename, one per line for NSTORM time
*%                 |--------------------------------------------------------
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[210]
*%                    ["SC24010x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[225]
*%                    ["SC24025x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[250]
*%                    ["SC24050x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[299]
*%                    ["SC24100x.stm"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
*# Simulations with July 1, 1979 Historical Event, City of Ottawa
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[301]
*%                    ["19790701.STM"] <--storm filename, one per line for NSTORM time
*%-----------------|--------------------------------------------------------|
FINISH
FINISH
```

```
00001> ------------------------------------------------------------------------
00002>
00003>  SSSSS  W   W  X   X  M   M  H   H  Y   Y  M   M  DDD        999     999  ---------
00004>  S      W   W   X X   MM MM  H   H   Y Y   MM MM  D  D      9   9   9   9
00005>  SSSSS  W W W    X    M M M  HHHHH    Y    M M M  D  D  ---  9999     9999 Ver: 2000
00006>      S  WW WW   X X   M   M  H   H    Y    M   M  D  D          9        9 Rel: 2008
00007>  SSSSS  W   W  X   X  M   M  H   H    Y    M   M  DDD           9        9 ---------
00008>                                                                  999     999  2547402
00009>        Stormwater Management and Hydrologic Model
00010>
00011> ------------------------------------------------------------------------
00012> ************************** SWMHYMO Ver/> Data ****************************
00013> ******* A single event and continuous hydrologic simulation model  *******
00014> *******     based on the principles of HYMO and its successors     *******
00015> *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
00016> ------------------------------------------------------------------------
00017> ******* Distributed by: J.F. Sabourin and Associates Inc.           *******
00018> *******                 Ottawa, Ontario: (613) 727-5.0e             *******
00019> *******                 Gatineau, Quebec: (819) 243-6558            *******
00020> *******                 E-Mail: swmhymo@jfsa.com                    *******
00021> ************************************************************************
00022>
00023> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024> ******* Licensed to: JFSAinc.                                      *******
00025> *******                 In any City              SNN:A1A:2547402    *******
00026> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>
00029> ************************************************************************
00030> *******            (c) 1991 PROGRAM AREAS LIMENSIONS ++++++          *******
00031> *******          Max.dim value for ID numbers :     10              *******
00032> *******          Max. number of rainfall points:  5270              *******
00033> *******          Max. number of flow points    :  5270              *******
00034> ************************************************************************
00035>
00036> *** RESTRICTION SUMMARY TABLE HEADERS (units depend on METOUT in STANDT) ***
00037> ***  ------------------------------------------------------------------  ***
00038> ***    ID: Hydrograph Identification numbers, (1-10).                    ***
00039> ***  [HYD]: Hydrograph reference numbers, (6 digits or characters).      ***
00040> ***  AREA: Drainage area associated with hydrograph, (ac.) or (ha.).     ***
00041> *** QPEAK: Peak flow of simulated hydrograph, (i.e./s) or (m**3/s).      ***
00042> *** TpeakDate_hhmm is the date and time of the peak flow.                ***
00043> ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).         ***
00044> ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).         ***
00045> ***    *:   see WARNING or NOTE message printed at end of run.           ***
00046> ***   **:   see ERROR message printed at end of run.                     ***
00047> ************************************************************************
00048> ************************************************************************
00049>
00050>
00051> ------------------------------------------------------------------------
00052>
00053> ----------------------  S U M M A R Y   O U T P U T  ---------------------
00054> ------------------------------------------------------------------------
00055> *      DATE: 2008-12-17     TIME: 09:33:17     RUN COUNTER: 001391      *
00056> ************************************************************************
00057> * Input  filename: A:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP1Ec.dat     *
00058> * Output filename: A:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP1Ec.sum     *
00059> * Summary filename: A:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP1Ec.sum    *
00060> * User comments:                                                        *
00061> * 1: ___________________________________________________________________ *
00062> * 2: ___________________________________________________________________ *
00063> * 3: ___________________________________________________________________ *
00064> ************************************************************************
00065>
00066>
00067> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00068> *  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE                    *
00069> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00070> *  Project Name: [Greely Village Center]     Project Number: [647-07]
00071> *  Date       : 01-09-2008
00072> *  Modeller   : [JFS]
00073> *  Company    : JFSAinc.
00074> *  License #  : 2547402
00075> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00076> *
00077> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00078> * Existing conditions
00079> * Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
00080> *
00081> * Dec 15, 2008
00082> * Added July 1st 15Y% event
00083> *
00084> * *** EXISTING CONDITIONS ARMOR/Rocks:
00085> * CN*, XIMP, T.R%,
00086> * as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
00087> * and Drainage study.
00088> * and as per Attal Drawing: Greely Village Area.dwg
00089> * as specified per Schweterzeed
00090> * Tp calculated using the Eplans Method as per Stantec. (Tp = 2L * 2/3)
00091> *
00092> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00093> RUN:COMMAND#
00094> 01:0001-------------------------------------------------------------------
00095>     START
00096>       (2886)      .00 hrs on        0)
00097>       METOUT=   2    [1=imperial, 2=metric output]
00098>       NSTORM=   .]
00099>       NRUN   =   .]
00100> CB:1:002-----------------------------------------------------------------
00101>     READ STORM
00102>       Filename= ..\Storm.001
00103>       Comment = 25 mm 4 Hours Chicago 10 min. City of Ottawa
00104>       ISTY=1.0.0:SUMM=   4.00:TOTP=  25.00]
00105> *************************************************************************
00106> * Existing flow - McEvoy Branch of Shield Creek - Areas
00107> * Area c/o of projected development (residential)
00108> * CN*=75, Slope = 0.8, Tp 0.16, XIMP=0, TIMP=0, Swm 20000 as per Stantec
00109> * Area partially adjusted based on Attal drawings.
00110> *************************************************************************
00111> * c/o of Back 57.ws per Attal - with modified boundaries and Tp.
00112> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00113>     DESIGN HASHYD      01:EX1       24.62      .736 No date    1:35     5.11 .204
00114>       (CN= 75.0: N= 3.00]
00115>       Tp=  .16:UD= 5.00]
00116> *************************************************************************
00117> # Existing flow - McEvoy Branch of Shield Creek (c/o of Park 2L.)
00118> # CN*=69, as per Stantec 3oc 30001
00119> # Area partially adjusted based on Attal drawings.
00120> *************************************************************************
00121> * Areas External to development
00122> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00123>     DESIGN HASHYD      01:EX2       10.90      .460 No date    1:30     4.01 .161
00124>       (CN= 69.0: N= 3.00]
00125>       (Tp=  .47:UD= 5.00]
00126> 001:0005-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00127>     DESIGN HASHYD      01:EX3       21.30      .192 No date    2:25     4.01 .161
00128>       (CN= 69.0: N= 3.00]
00129>       (Tp=  .83:UD= 5.00]
00130> # slope, Ximp, Timp Area from Attal Drawing
00131> # CN from Stantec (SCDH)
00132> # Ximp = Timp = 10
00133> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00134>     DESIGN STANDBYE    01:EX4        .50      .009 No date    1:20     4.01 .268
00135>       (XIMP=.1:TIMP=.32]
00136>       (ZLP=1.00:SL=  5.00]
00137>       (LOSS=  2 :CN=  68.0]
00138> # Areas to be occupied by commercial development
00139> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00140>     DESIGN HASHYD      01:EX5        2.63      .098 No date    1:40     4.01 .161
00141>       (CN= 69.0: N= 3.00]
00142>       (Tp=  .37:UD= 5.00]
00143> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00144>     DESIGN HASHYD      01:EX6        3.13      .046 No date    1:15     4.01 .161
00145>       (CN= 69.0: N= 3.00]
00146>       (Tp=  .11:UD= 5.00]
00147> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00148>     DESIGN HASHYD      01:EX7        6.14      .140 No date    1:30     4.01 .161
00149>       (CN= 69.0: N= 3.00]
00150>       (Tp=  .21:UD= 5.00]
00151> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00152>     DESIGN HASHYD      01:EX8        2.21      .024 No date    1:55     4.01 .161
00153>       (CN= 69.0: N= 3.00]
00154>       (Tp=  .25:UD= 5.00]
00155> * Areas to be occupied by residential developments
00156> 001:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00157>     DESIGN HASHYD      01:EX9        9.70      .099 No date    1:30     4.01 .161
00158>       (CN= 69.0: N= 3.00]
00159>       (Tp=  .16:UD= 5.00]
00160> CB:0001-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00161>     DESIGN HASHYD      01:EX10       4.03      .052 No date    1:45     4.01 .161
00162>       (CN= 69.0: N= 3.00]
00163>       (Tp=  .38:UD= 5.00]
00164> 001:0003-----------          ID:NHYD------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
00165>     DESIGN HASHYD      01:EX11       9.71      .140 No date    1:55     4.01 .161
00166>       (CN= 69.0: N= 3.00]
```

```
00167>       [Tp= .98:RT= 5.00]
00168> *****************************************************************************
00169> * Existing Flow - Total Flow to Shield Creek (Stantec Node NCR28)
00170> *****************************************************************************
00171> *  McEvoy Drain, d/s of residential area
00172>  001:0c0 ----------------ID:MEV1-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00173>      ADD HYD                01:MEV1      21.62     .716 No_date    1:15    5.17  n/a
00174>                           + 03:R1A       1.85     .084 No_date    1:40    4.81  n/a
00175>      [RT= 5.00]  SUM=  01:R1aa      23.47     .427 No_date    1:20    4.82  n/a
00176> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
00177> * provided by Atrel
00178> * Manning's n is Channel not maintained, light brush on banks
00179> * Route Plus to d/s node N1
00180> * Slope = 1% as per Atrel drawing
00181>  001:0c15----------ID:MEV2-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00182>      ROUTE CHANNEL   -> 02:R.aa      33.73     .427 No_date    1:50    4.81  n/a
00183>        [RD= 5.00] out<- 01:R1aa      33.73     .385 No_date    1:00    4.81  n/a
00184>        [L/S/n= 375/1.0000/.050]
00185>        [Vmax= .786:Dmax=  .599]
00186> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00187> * provided by Atrel
00188> * Manning's n is Channel not maintained, light brush on banks
00189> * Route FX2 to d/s Node N1
00190> * Slope = 0.5% as per plan provided by Atrel.
00191>  001:0c15----------ID:EX2-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00192>      ROUTE CHANNEL   -> 02:EX2       10.98      .861 No_date    2:10    4.01  n/a
00193>        [RD= 5.00] out<- 01:REX2      10.98      .855 No_date    2:05    4.01  n/a
00194>        [L/S/n= 1794/.0500/.035]
00195>        [Vmax= .5:Dc:Dmax=  .329]
00196> *  McEvoy Drain, d/s of residential area along Soles Barn Rd
00197>  001:0c17----------ID:EX3-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00198>      ADD HYD                02:REX2      10.98      .855 No_date    2:05    4.01  n/a
00199>                           + 03:RP1aa     23.76      .859 No_date    1:40    4.61  n/a
00200>                           + 04:R1E       9.76      .699 No_date    1:35    4.01  n/a
00201>      [RT= 5.00]  SUM=  01:N1      34.54     .002 No_date    1:40    4.51  n/a
00202> * Route Node N1 to Node N2
00203> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00204> * provided by Atrel
00205> * Manning's n is Channel not maintained, light brush on banks
00206> * Slope = 0.5% as per plan provided by Atrel.
00207>  001:0c15----------ID:EN1-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00208>      ROUTE CHANNEL   -> 02:N1        54.34     .002 No_date    1:40    4.51  n/a
00209>        [RD= 5.00] out<- 01:EN1       54.34     .422 No_date    1:10    4.51  n/a
00210>        [L/S/n=  384/.0500/.035]
00211>        [Vmax=  .981:Dmax=  .679]
00212> * Typical Section based on Atrel Drawing drain d/s of N1
00213> * Manning's n is Channel not maintained, light brush on banks
00214> * Route node N1a to d/s node N2
00215> * Slope = (83.84-82.5)/680
00216>  001:0c.9----------ID:EN1E-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00217>      ROUTE CHANNEL   -> 02:N2A       3.13      .043 No_date    1:25    4.01  n/a
00218>        [RD= 5.00] out<- 01:RE2A      3.13      .015 No_date    1:15    4.01  n/a
00219>        [L/S/n=  487/ .720/.050]
00220>        [Vmax=  .291:Dmax=  .085]
00221> *  Drain 1, d/s of residential area
00222>  001:0c.8----------ID:N1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00223>      ADD HYD                02:RN1       54.34     .422 No_date    1:50    4.51  n/a
00224>                           - 03:RE2A      3.13      .015 No_date    1:45    4.01  n/a
00225>                           - 04:R2E       8.51      .072 No_date    1:45    4.47  n/a
00226>      [RT= 5.00]  SUM=  01:N2       42.71     .341 No_date    1:50    4.47  n/a
00227> * ROUTE N2 to N3
00228> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00229> * provided by Atrel
00230> * Manning's n is Channel not maintained, light brush on banks
00231> * Slope = 0.5% as per plan provided by Atrel
00232>  001:0c21----------ID:N2Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00233>      ROUTE CHANNEL   -> 02:N2        42.71     .341 No_date    1:50    4.47  n/a
00234>        [RD= 5.00] out<- 01:RN2       68.28     .443 No_date    1:55    4.43  n/a
00235>        [L/S/n=  918/ .050/.035]
00236>        [Vmax=  .282:Dmax=  .185]
00237> * Add Drain 2 d/s of residential area
00238>  001:0c22----------ID:N2Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00239>      ADD HYD                02:RN2       68.28     .443 No_date    1:55    4.43  n/a
00240>                           - 03:R2E       2.21      .021 No_date    1:35    4.01  n/a
00241>                           - 04:EX4       .70       .004 No_date    1:20    4.79  n/a
00242>      [RT= 5.00]  SUM=  01:R3aa      6.35      .074 No_date    1:30    4.31  n/a
00243> * Typical Section based on Atrel Drawing drain btw d/s of N2
00244> * Manning's n is Channel not maintained, light brush on banks
00245> * Route to d/s area
00246> * Slope = (78-84)/360
00247>  001:0c27----------ID:R3Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00248>      ROUTE CHANNEL   -> 02:R3aa      6.35      .074 No_date    1:30    4.31  n/a
00249>        [RD= 5.00] out<- 01:RR3aa     6.35      .038 No_date    1:55    4.21  n/a
00250>        [T/S/n=  664/ .0200/.050]
00251>        [Vmax=  .310:Dmax=  .120]
00252> *  Drain 3, d/s of residential area
00253>  001:0c24----------ID:RN3-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00254>      ADD HYD                01:RN3       66.43     .441 No_date    1:55    4.47  n/a
00255>                           + 02:R3aa      6.85      .038 No_date    1:55    4.21  n/a
00256>                           + 04:R3C       5.71      .040 No_date    1:50    4.21  n/a
00257>      [RT= 5.00]  SUM=  01:N3       82.61     .517 No_date    1:55    4.35  n/a
00258> * ROUTE N3 to NCR28
00259> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00260> * provided by Atrel
00261> * Manning's n is Channel not maintained, light brush on banks
00262> * Slope = 0.65% as per plan provided by Atrel.
00263>  001:0c22----------ID:RN3Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00264>      ROUTE CHANNEL   -> 02:N3        82.61     .517 No_date    1:55    4.35  n/a
00265>        [RT= 5.00] out<- 01:RN3       82.61     .517 No_date    1:55    4.35  n/a
00266>        [L/S/n=  715/ .050/.035]
00267>        [Vmax=  .785:Dmax=  .580]
00268> * Flow at Stantec Node NCR.28 for comparison
00269> * Routes N3 plus EX3
00270>  001:0c28----------ID:RN3Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00271>      ADD HYD                02:RN3       82.96     .597 No_date    2:15    4.32  n/a
00272>                           + 03:EX3       21.30     .102 No_date    2:25    4.01  n/a
00273>      [RT= 5.00]  SUM=  01:NCR128   104.26     .699 No_date    2:15    4.28  n/a
00274> * Flow from Stantec at node NCR127 for comparison
00275>  001:0c31----------ID:NCY1-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00276>      DESIGN MANNYE       01:SC3C1      78.11     .554 No_date    2:30    4.01  .101
00277>        [QN= 69.0: N= 3.0C]
00278>        [Tp=  .91:DC= 5.0C]
00279> * Typical Section Based on McEvoy Branch Vee Ditch 1.5:1 slopes
00280> * provided by Atrel
00281> * Route from R-EX1 to NCR 28
00282> * Manning's n is Channel not maintained, light brush on banks
00283> * Invert at N.4128 as per Atrel bottom of ditch points = 82.52 m
00284> * Slope = (89.70-82.52)/1217
00285>  001:0c28----------ID:EX1C-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00286>      ROUTE CHANNEL   -> 02:EX1       24.62     .106 No_date    1:35    5.11  n/a
00287>        [RD= 5.00] out<- 01:REX1B     24.62     .106 No_date    2:00    5.11  n/a
00288>        [L/S/n= 15.7/ .4+07.050]
00289>        [Vmax=  .586:Dmax=  .647]
00290>  001:0c29----------ID:RN1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00291>      ADD HYD                02:SC01      78.11     .553 No_date    2:30    4.01  n/a
00292>                           + 03:REX1B     24.62     .106 No_date    2:00    5.11  n/a
00293>      [RT= 5.00]  SUM=  01:StnCot   102.73     .681 No_date    2:20    4.27  n/a
00294> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00295> * Simulation ends with 6 hour Chicago from City of Ottawa
00296>   ** END OF RUN :
00297>
00298> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00299>
00300>
00301>
00302>
00303>
00304>  RUN:COMMENCE
00305>  CW:NCR ------------------------------------------------------------------------
00306>      START
00307>        [TZERO =     .00 hrs on        ]
00308>        [NRUN  =    2     (1-imperial, 2-metric output)]
00309>        [NSTORM    = 1 ]
00310>        [IDUR  =    1 ]
00311> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00312> *  SWMHYMO Version.00/Jan 2001 (METAL) / INPUT DATA FILE
00313> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00314> *  Project Name: [Greely Village Center]    Project Number: [647-07]
00315> *  Date         : 01-05-2008
00316> *  Modeller     : TEE]
00317> *  Company      : JFSAinc.
00318> *  License #    : 2554/A0
00319> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00320> *
00321> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00322> * Existing conditions.
00323> * Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
00324> *
00325> * Dec 15, 2008
00326> * Added July 1st 1979 event
00327> *
00328> * *E  EXISTING CONDITIONS ASSUMPTIONS:
00329> *  CN=, XIMP, TIMP,
00330> *  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
00331> *  and Drainage Study.
00332> *  and as per Atrel drawing: Greely Village Area.dwg
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00334> *  as specified per subwatershed
00335> *  tp calculated using the Upland Method as per Standard. (Tp = Tc * 2/3)
00336> *
00337> *************************************************************************
00338> 002:0002----------------------------------------------------------------
00339>       REAL STORM
00340>        Filename = storm.dat
00341>        Comment   2 years Chicago Storm / Unure step is min, City of Ottawa
00342>        [SET I0.00:RECES=   4.00:PTCT=  62.83]
00343> *************************************************************************
00344> * Existing Flow - McEvoy Branch of Shield Creek - Areas
00345> * Area d/s of proposed development (residential)
00346> * CN=98, slope = 0.8, Ia=0.16, Ximp=0, Timp 15, per MOHE as per Standard
00347> * Area partially adjusted based on Atrel drawings.
00348> *************************************************************************
00349> * d/s of Each Drive per Acre  - with modified boundaries and Ia.
00350> 002:0001----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00351>       DESIGN NASHYD       01:EX1        26.82      .620 No_date    1:35    8.96  .264
00352>        [CN= 76.0: N= 3.00]
00353>        [Ia=  .23:ST=  5.00]
00354> *************************************************************************
00355> * Existing flow - McEvoy Branch or Shield Creek (d/s of Bank St.)
00356> * CN=98, as per Standard see SCH01.
00357> * Area partially adjusted based on Atrel drawings.
00358> *************************************************************************
00359> * Areas External to Development
00360> 002:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00361>       DESIGN NASHYD       01:EX2        18.94      .438 No_date    1:10    7.16  .211
00362>        [CN= 65.0: N= 3.00]
00363>        [Ia=  .67:ST=  5.00]
00364> 002:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00365>       DESIGN NASHYD       01:EX3        21.30      .385 No_date    1:20    7.16  .211
00366>        [CN= 67.0: N= 3.00]
00367>        [Ia=  .63:ST=  5.00]
00368> * slope, Ximp, Timp, Area from Atrel Drawing
00369> * CN from Standard (67+01)
00370> * Ximp = Timp = 15%
00371> 002:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00372>  *    DESIGN STANDYD      01:EX4         .50      .014 No_date    1:10   10.76  .319
00373>        [AIMP=.1.:IIMP=.22]
00374>        [SLP= 1.00:DT=  5.00]
00375>        [L=55  2 :CN=  65.0
00376> * Areas to be occupied by commercial development
00377> 002:0007----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00378>       DESIGN NASHYD       01:EX5A       9.05      .152 No_date    1:40    7.16  .211
00379>        [CN= 89.0: N= 3.00]
00380>        [Ia=  .31:ST=  5.00]
00381> 002:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00382>  *    DESIGN NASHYD       01:EX6A       1.58      .026 No_date    1:05    7.16  .211
00383>        [CN= 89.0: N= 3.00]
00384>        [Ia=  .31:ST=  5.00]
00385> 002:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00386>       DESIGN NASHYD       01:EX7B       1.10      .018 No_date    1:00    7.16  .211
00387>        [CN= 89.0: N= 3.00]
00388>        [Ia=  .31:ST=  5.00]
00389> 002:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00390>       DESIGN NASHYD       01:EX8B       2.21      .046 No_date    1:00    7.16  .211
00391>        [CN= 89.0: N= 3.00]
00392>        [Ia=  .23:ST=  5.00]
00393> * Areas to be occupied by residential development
00394> 002:0011----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00395>       DESIGN NASHYD       01:EX9B       9.38      .184 No_date    1:35    7.16  .211
00396>        [CN= 89.0: N= 3.00]
00397>        [Ia=  .23:ST=  5.00]
00398> 002:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00399>       DESIGN NASHYD       01:EX10       5.01      .121 No_date    1:40    7.16  .211
00400>        [CN= 89.0: N= 3.00]
00401>        [Ia=  .23:ST=  5.00]
00402> 002:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00403>       DESIGN NASHYD       02:EX11       8.71      .123 No_date    1:55    7.16  .211
00404>        [CN= 69.0: N= 3.00]
00405>        [Ia=  .68:ST=  5.00]
00406> *************************************************************************
00407> * EXISTING flow - Total Flow to Shield Creek (Channel Node NC125)
00408> *************************************************************************
00409> *  McEvoy Fields, d/s of residential area
00410> 002:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00411>       ADD HYD             02:EX1        26.82      .620 No_date    1:35    8.96  n/a
00412>                         + 03:EX2        18.94      .438 No_date    1:10    7.16  n/a
00413>                         + 04:EX3        21.30      .385 No_date    1:20    8.48  n/a
00414>        [TP= 5.00   SUM=  01:EX4        68.06     1.443 No_date    1:20    8.06  n/a
00415> * Typical Section based on McEvoy Branch Vee Ditch 3.5:1 slopes
00416> * provided by Atrel
00417> * Manning's n is Channel not maintained, light brush on banks
00418> * Route EX4 to d/s node EX5
00419> * Slope = 1.0% as per Atrel drawing
00420> 002:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00421>       ROUTE CHANNEL    -> 02:EX4        68.06     1.443 No_date    1:20    8.06  n/a
00422>         [RDT= 5.00] DLTs= 01:EX5A       9.05      .152 No_date    1:40    7.16  n/a
00423>          [L/S/n=  375./1.000/.050]
00424>          [Vmax=  .916:Tmax=  .740]
00425> * Typical Section based on Shields MD Vee Ditch 3:1 Banks
00426> * provided by Atrel
00427> * Manning's n is Channel not maintained, light brush on banks
00428> * Route EX5 to d/s node EX6
00429> 002:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00430>       ROUTE CHANNEL    -> 02:EX5        10.96      .179 No_date    1:55    7.16  n/a
00431>         [RDT= 5.00] DLTs= 01:EX6        10.96      .867 No_date    1:55    7.16  n/a
00432>          [L/S/n=  225./ .050/.035]
00433>          [Vmax=  .780:Tmax=  .672]
00434> *  McEvoy Drain, d/s of residential area along Sales Barn Rd
00435> 002:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00436>       ADD HYD             02:EX2        10.96      .867 No_date    1:55    7.16  n/a
00437>                         + 03:EX3        21.30      .385 No_date    1:20    8.48  n/a
00438>                         - 04:EX8B        9.70      .181 No_date    1:35    7.16  n/a
00439>        [TP= 5.00]  STO=  01:EX1        68.06     1.443 No_date    1:20    8.06  n/a
00440> * Route Node EX1 to Node EX2
00441> * Typical Section based on Shields MD Vee Ditch 3:1 Banks
00442> * provided by Atrel
00443> * Manning's n is Channel not maintained, light brush on banks
00444> * Slope = 0.05% as per plan provided by Atrel.
00445> 002:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00446>       ROUTE CHANNEL    -> 02:EX1        54.34      .962 No_date    1:30    7.96  n/a
00447>  *    [RDT= 5.00] DLTs= 01:EX2        54.34     1.043 No_date    1:45    7.96  n/a
00448>          [L/S/n=  114./ .050/.035]
00449>          [Vmax=  .819:Tmax=  .998]
00450> * Typical Section based on Atrel Drawing drain d/s of N2
00451> * Manning's n is Channel not maintained, light brush on banks
00452> * Route node D2cs to d/s node N2
00453> * Slope   (98-84.51/400
00454> 002:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00455>       ROUTE CHANNEL    -> 02:EX2A       3.13      .084 No_date    1:05    7.16  n/a
00456>         [RDT= 5.00] DLTs= 01:EX2A       3.13      .084 No_date    1:40    7.16  n/a
00457>          [/S/n=  483./ .050/.050]
00458>          [Vmax=  .154:Tmax=  .121]
00459> *  Drain 2, d/s of residential area
00460> 002:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00461>       ADD HYD             02:EX1        54.34      .962 No_date    1:45    7.96  n/a
00462>                         + 03:EX2A        3.13      .041 No_date    1:40    7.16  n/a
00463>                         + 04:EX5         1.03      .111 No_date    1:45    7.16  n/a
00464>        [TP= 5.00   SUM=  01:N2        58.51     1.065 No_date    1:45    7.83  n/a
00465> * ROUTE N2 to N3
00466> * Typical Section based on Shields MD Vee Ditch 3:1 Banks
00467> * provided by Atrel
00468> * Manning's n is Channel not maintained, light brush on banks
00469> * Slope = 0.0% as per plan provided by Atrel.
00470> 002:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00471>       ROUTE CHANNEL    -> 02:N2         58.38      .955 No_date    1:45    7.83  n/a
00472>  *    [RDT= 5.00] DLTs= 01:EX2         58.38      .816 No_date    2:00    7.83  n/a
00473>          [L/S/n=  210./ .050/.035]
00474>          [Vmax=  .722:Tmax= 1.01]
00475> * Add Drain 1 d/s of residential area
00476> 002:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00477>       ADD HYD             02:EX4         4.24      .057 No_date    1:30    7.16  n/a
00478>                         + 03:EX6         2.21      .044 No_date    1:35    7.16  n/a
00479>                         + 04:EX9          .50      .014 No_date    1:20   10.76  n/a
00480>        [TP= 5.00]  SUM=  01:EX10       65.33     1.140 No_date    1:30    7.83  n/a
00481> * Typical Section based on Shield Drawing Drain btw c/s of N2
00482> * Manning's n is Channel not maintained, light brush on banks
00483> * Route to d/s area
00484> * Slope   (88-84)/660
00485> 002:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00486>       ROUTE CHANNEL    -> 02:EX10       65.33     1.140 No_date    1:30    7.83  n/a
00487>         [RDT= 5.00] DLTs= 01:EX11       8.71      .123 No_date    1:55    7.16  n/a
00488>          [L/S/n=  660./ .050/.035]
00489>          [Vmax=  .373:Tmax=  .686]
00490> *  Drain 3, d/s of residential area
00491> 002:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00492>       ADD HYD             03:EX7         68.06     1.516 No_date    1:50    7.83  n/a
00493>                         + 01:EX11        73.05     1.639 No_date    1:50    7.83  n/a
00494>                         + 04:EX12         9.71      .229 No_date    1:55    7.16  n/a
00495>        [TP= 5.00]  SUM=  01:N3         82.94     1.915 No_date    1:50    7.72  n/a
00496> * ROUTE N3 to NC125
00497> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00498> * provided by Atrel
00499> * Manning's n is Channel not maintained, light brush on banks
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00499> * Slope = 0.69  as per plan provided by Atrel.
00500  002:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00501>      MOUTH CHANNEL   -> 02:EX1       17.94     .616 No data     1:50    7.72  n/a
00502>        [EXI  5.0] out<- 01:EX2       10.84     .771 No_data     2:10    7.72  n/a
00503>        [L/S/n=  675./ .036/.045]
00504>        [Vmax=  .170:Dmax= 1.03].
00505> * Flow at Stantec node NCH128 for comparison
00506> * Routed EX3 plus EX4
00507  002:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00508>      ARD HYD         02:EX3       82.64     .771 No_date     2:10    7.72  n/a
00509>                    + 03:EX4       21.30     .195 No_date     2:20    7.16  n/a
00510>      [J2= 5.0C]  SUM   01:NCH126  104.27     .950 No_date     2:10    7.60  n/a
00511> * Flow from stantec at node NCH128 for comparison
00512  002:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00513>      DESIGN NASHYD   01:EC001     78.11     .634 No_date     2:50    7.16  .271
00514>        [Ch= 69.0: R= 3.00]
00515>        [Tp=  .51:DT= 5.00]
00516> * Typical Section based on McEvoy Branch Yee Ditch 1.5:1 slopes
00517> * provided by Atrel
00518> * Route from R-EX1 to NCH128
00519> * Manning's n is Channel not maintained, light brush on banks
00520> * Invert at NCH128 as per Atrel bottom of ditch points = 82.52 m
00521> * Slope = (89.70-82.52)/1517
00522  002:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00523>      ROUTE CHANNEL   -> 02:EX1       77.18     .620 No date     1:45    6.96  n/a
00524>        [SC=  5.00  out<- 01:ROUTE     24.62     .289 No_date     1:55    6.96  n/a
00525>        [L/S/n= 1517./ .040/.050]
00526>        [Vmax=  .650:Dmax=  .791]
00527  002:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00528>      ARD HYD         02:EC001     78.11     .634 No date     2:50    7.16  n/a
00529>                    + 03:EX3       21.62     .251 No date     1:55    6.96  n/a
00530>      [EC  5.00]  SUM   01:EndTot   [99.73     .885 No date     2:50    7.50  n/a
00531> *----------------------------------------------------------------------------
00532> * Simulations with 4 hour Chicago from City of Ottawa
00533>   ** END OF RUN :  4
00534>
00535> ------------------------------------------------------------------------------
00536>
00537>
00538>
00539>
00540>
00541>  RUN:COMMAND#
00542>  001:0001----------------------------------------------------------------------
00543>      START
00544>        [TFRO =    .00 hrs on      ]
00545>        [METOUT=    2    (1=Imperial, 2=metric output)]
00546>        [NSTORM=    1 ]
00547>        [NRUN  =    1 ]
00548> *******************************************************************************
00549> *  SWMHYMO Ver:5.02/Jun 2001 <BETA> / INPUT DATA FILE
00550> *******************************************************************************
00551> *  Project Name: (Greely Village Center)    Project Number: (647-07)
00552> *  Date        : 04-06-2008
00553> *  Modeller    : (JSA)
00554> *  Company     : JFSAinc.
00555> *  License #   : 20475e02
00556> *******************************************************************************
00557> *
00558> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00559> * Existing conditions
00560> * Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
00561> *
00562> * Dec 15, 2008
00563> * Added July 1st 1979 2year
00564> *
00565> * *** EXISTING CONDITIONS ASSUMPTIONS:
00566> *  CN*, R'VP, TIMP,
00567> *  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
00568> *  and drainage study.
00569> *  and as per Atrel Drawing: Greely Village Area.dwg
00570> *  as specified per assumptions
00571> *  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
00572> *
00573> *******************************************************************************
00574  001:0007----------
00575>      READ STORM
00576>        Filename = storm.dat
00577>        Comment  = 5 years Chicago Storm 4 Hours step 10 min. City of Ottawa
00578>        [5.07=10.00:2000=   4.63:2107=  45.17]
00579> *******************************************************************************
00580> * Existing flow - McEvoy branch of Shield Creek - Areas
00581> * Area a/s of proposed development (residential)
00582> * CN= 75, slope = 0.0, Tp=0.16, TIMP=n, TIMP=n, see S:\07 as per Stantec
00583> * Area partially adjusted based on Atrel drawings.
00584> *******************************************************************************
00585> * a/s at Bank St.as per Atrel - with modified boundaries and Tp.
00586  003:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00587>      DesIGN NASHYD   01:EX1       24.62    1.062 No_date     1:30   10.56  .329
00588>        [Ch= 75.0: R= 3.00]
00589>        [Tp=  .73:DT= 5.00]
00590> *******************************************************************************
00591> * Existing flow - McEvoy branch of Shield Creek (a/s of Bank St.)
00592> * CN*=89, as per Stantec Dec 2003.
00593> * Area partially adjusted based on Atrel drawings.
00594> *******************************************************************************
00595> * Areas External  to development
00596  005:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00597>      DESIGN NASHYD   01:EX2       10.84     .199 No_date     2:10   12.08  .268
00598>        [Ch= 89.0: R= 3.00]
00599>        [Tp=  .67:DT= 5.00]
00600  005:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00601>      DESIGN NASHYD   01:EX3       21.30     .318 No_date     2:10   12.08  .268
00602>        [CN= 89.0: R= 3.00]
00603>        [Tp=  .61:DT= 5.00]
00604> * Slope, Xsxp, Ysxp, Area from Atrel Drawing
00605> * CN from Stantec (2003)
00606> * Xsxp = Ysxp = 10
00607  005:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00608>    * DESIGN STANDHYD  01:EX5        1.50     .023 No date     1:30   10.76  .321
00609>        [XIMP=.10:TIMP=.22]
00610>        [SLP=1.0:DT= 5.00]
00611>        [AMUSE= 2 :CN= 89.0]
00612> * Areas to be occupied by Commercial Development
00613  005:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00614>      DESIGN NASHYD   01:EX1A      9.08     .284 No_date     1:40   12.08  .268
00615>        [Ch= 89.0: R= 3.00]
00616>        [Tp=  .31:DT= 5.00]
00617  005:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00618>    * DESIGN NASHYD   01:EX2A      3.13     .097 No_date     1:25   12.08  .268
00619>        [CN= 89.0: R= 3.00]
00620>        [Tp=  .13:DT= 5.00]
00621  005:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00622>      DESIGN NASHYD   01:EX3A      4.14     .152 No_date     1:30   12.08  .288
00623>        [CN= 88.0  R= 3.00]
00624>        [Tp=  .21:DT= 5.00]
00625  005:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00626>      DESIGN NASHYD   01:EX4       2.01     .075 No_date     1:25   12.08  .288
00627>        [CN= 89.0: R= 3.00]
00628>        [Tp=  .23:DT= 5.00]
00629> * Areas to be occupied by residential development
00630  005:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00631>      DESIGN NASHYD   01:R1A       5.70     .315 No_date     1:35   12.08  .268
00632>        [CN= 89.0  R= 3.00]
00633>        [Tp=  .16:DT= 5.00]
00634  005:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00635>      DESIGN NASHYD   01:R2A       8.91     .228 No_date     1:45   12.08  .268
00636>        [CN= 89.0: R= 3.00]
00637>        [Tp=  .38:DT= 5.00]
00638  005:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00639>      DESIGN NASHYD   01:R3C       9.71     .212 No_date     1:55   12.08  .268
00640>        [CN= 89.0  R= 3.00]
00641>        [Tp=  .18:DT= 5.00]
00642> *******************************************************************************
00643> * EXISTING flow - Total Flow to Shield Creek (Stantec Node NCH2a)
00644> *******************************************************************************
00645> *  McEvoy Drain, a/s of residential area
00646  003:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00647>      ADD HYD         02:EX1       24.62    1.062 No_date     1:30   10.56  n/a
00648>                    + 03:R1A       9.08     .284 No_date     1:40   12.08  n/a
00649>      [07= 5.0C]  SUM=  01:R1a      33.70    1.317 No date     1:35   10.77  n/a
00650> * Typical Section based on McEvoy Branch Yee Ditch 1.5:1 slopes
00651> * provided by Atrel
00652> * Manning's n is Channel not maintained, light brush on banks
00653> * Route R1a to s/s node N
00654> * Slope = 1% as per Atrel drawing
00655  003:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00656>      ROUTE CHANNEL   -> 02:R1a      33.70    1.317 No date     1:35   10.77  n/a
00657>        [SC1= 5.00] out<- 01:R1Rte    33.70    1.284 No_date     1:40   10.11  n/a
00658>        [L/S/n= 375./1.063/.050]
00659>        [Vmax= 1.046:Dmax=  .9.2]
00660> * Typical Section based on Shields NE Yee Ditch 3:1 banks
00661> * provided by Atrel
00662> * Manning's n is Channel not maintained, light brush on banks
00663> * Route EX2 to s/s Node N1
00664> * Slope =  0.01% as per plan provided by Atrel.
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00665> COMBINE---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm----R.V.-R.C.-
00666>      ROUTE CHANNEL   -> 01:EX2        10.04     .150 No_date    2:10   12.08  n/a
00667>    + [EX2  5.00] out<- 01:EX3        10.04     .138 No_date    2:20   12.08  n/a
00668>      [I/O/n= .074:/ .0507.015]
00669>      [Vmax= .735:Tmax= .527]
00670> #  McEvoy Drain, d/s of residential area along Sales Barn Rd
00671> SUBSHED---------------ID:NHYD-------AREA    QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00672>      ADD HYD           02:NEX1     20.04     .288 No_date    2:00   12.00  n/a
00673>                      + 03:EX1.1    33.76     .474 No date    1:40   14.11  n/a
00674>                      + 01:EX1S     12.72     .315 No_date    1:35   12.08  n/a
00675>      [D/S= 5.00]  SUM= 01:NH       54.54    1.028 No_date    1:40   13.34  n/a
00676> # Route Node N1 to Node N2
00677> # Typical Section based on Shields RD Vee Ditch 3:1 sides
00678> # provided by Atkel
00679> # Manning's n is Channel not maintained, light brush on banks
00680> # Slope = 0.05: as per plan provided by Atkel.
00681> RCH:N1-N2--------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm----R.V.-R.C.-
00682>      ROUTE CHANNEL   -> 02:N       54.54    1.828 No_date    1:50   13.34  n/a
00683>    * [RIT  5.00] out<- 01:NH1      54.54    1.411 No_date    1:45   13.34  n/a
00684>      [I/O/n= 136./ .050/.035]
00685>      [Vmax= .500:Tmax= 1.245]
00686> # Typical Section based on Atkel Drawing drain e/s of N2
00687> # Manning's n is Channel not maintained, light brush on banks
00688> # Route node N2nd to d/s node N2
00689> # Slope = .08-84.5:/467
00690> SUBSHED---------------ID:NHYD-------AREA    QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00691>      ROUTE CHANNEL   -> 02:N2A       3.13     .147 No_date    1:25   12.08  n/a
00692>        [RIT= 5.00] out<- 01:EX2A     3.13     .089 No_date    1:45   12.08  n/a
00693>        [I/O/n= 457./ .720/.050]
00694>        [Vmax= .493:Tmax= .767]
00695> #  Drain 2, d/s of residential area
00696> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00697>      ADD HYD           02:EX1      24.54    1.413 No_date    1:45   13.34  n/a
00698>                      + 03:EX2A     3.13     .089 No date     1:45   12.08  n/a
00699>                      + 01:EX2B     8.9      .278 No date     1:45   12.08  n/a
00700>      [D/ 5.00   SUM= 01:NH       36.58    1.715 No_date    1:45   13.11  n/a
00701> # ROUTE N2 to N3
00702> # Typical Section based on Shields RD Vee Ditch 3:1 sides
00703> # provided by Atkel
00704> # Manning's n is Channel not maintained, light brush on banks
00705> # Slope = 0.05: as per plan provided by Atkel.
00706> RCH:N2-N3--------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00707>      ROUTE CHANNEL   -> 02:N2       65.38    1.715 No_date    1:45   13.11  n/a
00708>    * [RIT= 5.00] out<- 01:NH2      65.38    1.478 No_date    1:50   13.11  n/a
00709>      [I/O/n= 2.0:/ .050//.035]
00710>      [Vmax= .656:Tmax= 1.271]
00711> # Add Drn N 3 d/s of residential area
00712> COMBINE---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00713>      ADD HYD           02:N3A      4.04      .152 No_date    1:30   13.08  n/a
00714>                      - 03:EX1B     3.71     .076 No date     1:55   12.08  n/a
00715>                      - 04:EX3      .33      .007 No date     1:20   10.75  n/a
00716>      [RT  5.00]  SUM= 01:N3a       6.95     .249 No_date     1:30   12.48  n/a
00717> # Typical Section based on Atkel Drawing drain btw e/s of N2
00718> # Manning's n is Channel not maintained, light brush on banks
00719> # Route to d/s area
00720> # Slope = .08 84/363
00721> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00722>      ROUTE CHANNEL   -> 02:N3a      6.95     .249 No date     1:30   12.48  n/a
00723>        [RIT  5.00] out<- 01:NH3a     6.95     .148 No date     1:50   12.48  n/a
00724>        [I/O/n= 661./ .100/.050]
00725>        [Vmax= .440:Tmax= .322]
00726> #  Drain 4, d/s of residential area
00727> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00728>      ADD HYD           02:NH3      65.38    1.478 No_date    1:50   13.11  n/a
00729>                      + 03:NH3a     6.95     .148 No date     1:50   12.48  n/a
00730>                      + 04:EX4      9.71     .212 No_date     1:55   12.08  n/a
00731>      [TC= 5.00   SUM= 01:N4       82.04    1.838 No_date    1:50   12.94  n/a
00732> # ROUTE N3 to N3a
00733> # Typical Section based on Shields RD Vee Ditch 3:1 sides
00734> # provided by Atkel
00735> # Manning's n is Channel not maintained, light brush on banks
00736> # Slope = 0.05: as per plan provided by Atkel.
00737> RCH:N3-N3a--------------ID:NHYD-------AREA    QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00738>      ROUTE CHANNEL   -> 02:N4       82.04    1.838 No_date    1:50   12.94  n/a
00739>    * [RIT  5.00] out<- 01:NH3      82.04    1.447 No_date    2:05   12.94  n/a
00740>      [I/O/n= 4.8:/ .060/.035]
00741>      [Vmax= .359:Tmax= 1.303]
00742> # Flow at Stantec node NCR128 for comparison
00743> # Added N5 plus EX5
00744> COMBINE---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00745>      ADD HYD           02:NH3      82.04    1.447 No_date    2:05   12.94  n/a
00746>                      - 03:EX5      22.30     .318 No_date    2:20   12.08  n/a
00747>      [01= 5.00]  SUM   01:NCR128   104.34    1.765 No_date    2:05   12.76  n/a
00748> # Flow from Stantec at node NCR128 for comparison
00749> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00750>      JESSICA SMITH     01:SC301    78.11    1.050 No date    2:15   12.08  .285
00751>        [CN= 69.0: Ia  3.00]
00752>        [Tp    .51:TC  5.00]
00753> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
00754> # provided by Atkel
00755> # Route from N-Ex1 to NCR128
00756> # Manning's n is Channel not maintained, light brush on banks
00757> # Invert at NCR128 as per Atkel Bottom of ditch points - 82.52 a
00758> # Slope = (89.70-82.52)/1517
00759> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00760>      ROUTE CHANNEL   -> 01:EX1      24.62     1.062 No_date    1:30   14.46  n/a
00761>        [EDC  5.00] out<- 01:EX1S     24.62     .542 No_date    1:55   14.46  n/a
00762>        [I/S/n= 1517./ .470/.050]
00763>        [Vmax= .768:Tmax= .370]
00764> SUBSHED---------------ID:NHYD-------AREA----QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00765>      ADD HYD           02:SC30     78.11    1.050 No_date    2:15   12.08  n/a
00766>                      + C3:MEA1a    24.62     .542 No_date     1:55   14.46  n/a
00767>      [DC= 5.00]  SUM=  C1:station   102.73    1.513 No_date    2:15   12.75  n/a
00768> #*************************************************************************
00769> # simulations with 4 hour Chicago from City of Ottawa
00770>   ** END OF RUN :  8
00771>
00772> ************************************************************************
00773>
00774>
00775>
00776>
00777>
00778>  RTN:CONVRGN
00779>  R:TN:NCR1--------------------------------------------------------------
00780>      START
00781>        [TZERO =     .00 hrs on        0]
00782>        [NRUN  =    2    [1:Imperial, 2:metric output]
00783>        [NSTORM=    1 ]
00784>        [NHOUR =   10 ]
00785> #*************************************************************************
00786> #  SWMHYMO Ver:5.02/Jan 2001 <ENTER> / INPUT DATA FILE
00787> #*************************************************************************
00788> #  Project Name: [Greely Village Center]     Project Number: [07-01]
00789> #  Date        : 01-/4-2008
00790> #  Modeller    : [MF]
00791> #  Company     : JFSAinc.
00792> #  License #   :  254/402
00793> #*************************************************************************
00794> #
00795> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00796> # Existing Conditions.
00797> # Filename stands for: CRE1E - Greely, Residential, Phase 1, Existing
00798> #
00799> # Dec 10, 2008
00800> # Added July 1st 1979 event
00801> #
00802> # *E  EXISTING CONDITIONS ASSUMPTIONS:
00803> #  CN=, XIMP, TIMP.
00804> #  as per Stantec Report, Oct. 2003: Greely subdivision, stormwater
00805> #  and Drainage Study.
00806> #  and as per Atkl drawing: Greely Village Area.dwg
00807> #  As specified per subwatershed
00808> #  Tp calculated using the Upland Method as per Stantec. (Tp = 2L * 2/3)
00809> #
00810> #*************************************************************************
00811> 010:0C02-----------------------------------------------------------------
00812>      READ STORM
00813>        Filename = storm.dat
00814>        Comment  = 10 years Chicago Storm 4 Hours ated 10 min, Time of Occurs
00815>        [PTFM= 0.00:CFM=   4.00:FTOT=  52.58]
00816> #*************************************************************************
00817> # Existing Flow - McEvoy Branch of Shield Creek - Area5
00818> # Area u/s of proposed development (residential)
00819> # CN=75, ia:pc  = 3.0, Cp 0.16, XIMP 5, TIMP 15, see sc302 as per Stantec
00820> # Area partially adjusted based on Atkl Drawings.
00821> #*************************************************************************
00822> # u/s of Bank St.as per Atkl - with modified boundaries and Tp
00823> SUBSHED---------------ID:NHYD-------AREA    QPEAK-Tpeak Date hh:mm-----R.V.-R.C.-
00824>      DRAINAGE AREA HYD   C1:EX1      24.62     1.401 No_date    1:30   14.21  .565
00825>        [CN= 75.0: N=  3.0]
00826>        [Tp=  .51:Tc=  5.00]
00827> #*************************************************************************
00828> # Existing Flow - McEvoy Branch of Shield Creek (u/s of Bank St.)
00829> # CN=69, as per Stantec Sec.SC01.
00830> # Area partially adjusted based on Atkl Drawings
```

```
* Areas Internal to development
 10:0004----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN EXISTD      01:EX2        10.94     .250 No date    1:05    5.78 .100
       [CN= 69.0: K= 1.0]
       [Tp= .17:ID= 5.00]
 10:0005----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3        21.96     .419 No date    1:10    5.78 .100
       [CN= 69.0: K= 1.00]
       [Tp= .19:ID= 5.00]
* Slope, Xlag, Tlag, Area from Atrel Drawing
* CN from Scatter (60NCE)
* Xlag = Tlag = 10
 10:0006----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN STANHYD     01:EX4         .50     .025 No date    1:20   21.14 .602
       [XIMP .10:TIMP .02]
       [SLP 1.00:DT= 5.00]
       [LOSS= 2 :CN= 69.0
* Areas to be occupied by commercial development
 10:0007----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX5        9.08     .350 No date    1:00   15.78 .900
       [CN= 98.0: N= 3.00]
       [Tp= .13:DT= 5.00]
 10:0008----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX6        5.13     .198 No date    1:00   15.78 .900
       [CN= 98.0: N= 3.00]
       [Tp= .11:DT= 5.00]
 10:0009----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX7        2.21     .101 No date    1:00   15.78 .900
       [CN= 98.0: N= 3.00]
       [Tp= .07:DT= 5.00]
* Areas to be occupied by residential development
 10:0010----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX8        3.98     .201 No date    1:00   15.78 .900
       [CN= 98.0: N= 3.00]
       [Tp= .08:DT= 5.00]
 10:0011----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX9        8.81     .361 No date    1:05   15.78 .900
       [CN= 69.0: N= 3.00]
       [Tp= .19:DT= 5.00]
 10:0012----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX10       9.71     .380 No date    1:00   15.78 .900
       [CN= 69.0: N= 3.00]
       [Tp= .19:DT= 5.00]
*------------------------------------------------------------------------
* EXISTING Flow  Total flow to Shields Creek [Station Node EX1.08]
*------------------------------------------------------------------------
*  McEnvoy Drain, d/s of residential area
 10:0014----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:EX1        71.67    3.401 No date    1:55   19.21 n/a
                       + 01:EX4         9.08     .350 No date    1:40   15.78 n/a
                       + 01:EX5        55.96    1.710 No date    1:45   18.38 n/a
       [DT= 5.00]  SUM= 01:EX1        71.67    3.401 No date    1:55   19.21 n/a
* Typical Section Based on McEnvoy Branch Vee Ditch .05:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route Flow to d/s Node EX1
* Slope - 1% as per Atrel Drawing
 10:0015----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:EX1        71.70    1.712 No date    1:55   19.20 n/a
       [RT= 5.00] outs= 01:RT1x       71.06    .659 No date    1:40   18.38 n/a
       [.05/n= .167:.040/.c5n]
       [Vmax= 1.2:tmax= 1.11]
* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to d/s Node E1
* Slope = 0.05  as per plan provided by Atrel.
 10:0016----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:EX2        10.94     .250 No date    1:05   15.78 n/a
   *   [RT= 5.00] outs= 01:RX2        10.94     .249 No date    1:10    5.78 n/a
       [.05/n= .074:/ .050/.035]
       [Vmax= .284:tmax= .387]
*  McEnvoy Drain, d/s of residential area along Sales Barn Rd
 10:0017----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:EX2        10.94     .250 No date    1:10   15.78 n/a
                       + 01:RX2x       39.76    1.065 No date    1:40   18.38 n/a
                       + 01:EX3        23.96     .417 No date    1:15   15.78 n/a
       [DT= 5.00]  SUM= 01:E1         94.34    1.566 No date    1:40   17.61 n/a
* Route Node E1 to Node E2
* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atrel.
 10:0018----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:E1         94.34    1.566 No date    1:40   17.61 n/a
   *   [RT= 5.00] outs= 01:RT1        94.34    1.471 No date    1:50   17.13 n/a
       [.05/n= .184:/ .050/.035]
       [Vmax= .315:tmax= 1.290]
* Typical Section Based on Atrel Drawing Drain s/s of E2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2x1 to d/s node E2
* Slope = (98-84.0)/487
 10:0019----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:P2A        3.13     .196 No_date    1:20   21.14 .602
   *   [RT= 5.00] outs= 01:RT2        3.13     .113 No_date    1:35   15.78 n/a
       [.05/n= .107:/ .070/.050]
       [Vmax= .458:tmax= .183]
*  Drain S, d/s of residential area
 10:0020----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:RM1        54.34    1.675 No_date    1:40   17.33 n/a
                       + 07:PB2A        3.13     .112 No_date    1:30   15.78 n/a
                       + 09:RX5         3.91     .301 No_date    1:45   15.78 n/a
       [DT= 5.00]  SUM= 01:E2         61.37    2.079 No_date    1:40   17.05 n/a
* ROUTE E2 to E3
* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atrel.
 10:0021----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 07:E2         61.38    2.079 No_date    1:40   17.05 n/a
   *   [RT= 5.00] outs= 01:RT2        61.38    1.987 No_date    1:45   17.05 n/a
       [.05/n= .212:/ .050/.035]
       [Vmax= .387:tmax= 1.423]
* Add Drain S d/s of residential area
 10:0022----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:P3A        6.14     .202 No_date    1:30   15.78 n/a
                       + 03:P3B        2.21     .101 No_date    1:30   15.78 n/a
                       + 04:EX6         .50     .028 No_date    1:20   21.14 n/a
       [DT= 5.00]  SUM= 01:P3x         8.85     .331 No_date    1:30   16.17 n/a
* Typical Section Based on Atrel Drawing drain s/s of E2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (88-83)/660
 10:0023----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3x        6.65     .331 No date    1:50   16.17 n/a
       [RT= 5.00] outs= 01:R3Sub       6.65     .203 No date    1:05   16.17 n/a
       [L/S/n= 653:/ .060/.050]
       [Vmax= .477:tmax= .226]
*  Drain 1, d/s of residential area
 10:0024----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RM2        56.38    1.667 No_date    1:45   17.05 n/a
                       + 23:RX3Sub      8.65     .203 No_date    1:45   16.17 n/a
                       + 04:EX5         9.71     .380 No_date    1:00   15.78 n/a
       [DT= 5.00]  SUM= 01:E3         82.94    2.491 No_date    1:45   16.83 n/a
* ROUTE E3 to E3'2B
* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atrel.
 10:0025----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:E3         82.94    2.481 No date    1:45   16.83 n/a
       [RT= 5.00] outs= 01:E3         82.94    2.024 No date    2:05   16.83 n/a
       [L/S/n=  415:/ .060/.035]
       [Vmax= .394:tmax= 1.460]
* Flow at Station Code DCR128 for comparison
* Routed E3 plus EX3
 10:0026----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:E3         82.94    2.024 No_date    2:05   16.83 n/a
                       + 04:EX3         23.96     .415 No_date    1:20   15.78 n/a
       [DT= 5.00]  SUM= 01:DCR128      106.89    2.419 No date    2:05   16.02 n/a
* Flow from Station at node DCR128 for comparison
 10:0027----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC001      78.11    2.435 No_date    2:25   15.78 .900
       [CN= 69.0: N= 3.00]
       [Tp= .21:DT= 5.00]
* Typical Section Based on McEnvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atrel
* Route from P-EX1 to DCR128
* Manning's n is channel not maintained, light brush on banks
* Invert at DCR128 as per Atrel bottom of ditch points - 82.50 a
* Slope = (85.74-82.50)/(15*)
 10:0028----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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00795>       ROUTE CHANNEL    -> 02:EX1        27.62     1.861 No_data     1:50   19.21  n/a
00796>         [RDC= 5.00] out<- 01:RSW1       24.82      .74: No_data     1:50   19.21  n/a
00797>         [L/S/n= 1517./  .070/.050]
00798>         (Vmax=   7.83:Tmax= 1.082]
00799> C10:0020----------------ID:NrYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00800>       RDS NYD            02:SC001     78.11    1.436 No_date     2:25   16.80  n/a
00801>                      -  03:Rwalk      21.62      .741 No_date     1:50   19.21  n/a
00802>         [ID  5.00]  SUM=  01:Grnfld    105.73    1.999 No_date     2:15   16.80  n/a
00803> #*****************************************************************************
00804> # Simulations with 4 hour Chicago from City of Ottawa
00805>   ** END OF RUN : 24
00806>
00807> #*****************************************************************************
00808>
00809>
00810>
00811>
00812>
00813>
00814>
00815>  RUN:SWMHYMO4
00816>  0:5:0001 ----------------------------------------------------------------------
00817>       START
00818>         [TZERO=       .00 hrs on        0]
00819>         [METOUT=    2     (1=imperial, 2=metric output)]
00820>         [NSTORM=    1 ]
00821>         [DFTM =   5.00]
00822> #*****************************************************************************
00823> #  SWMHYMO Ver:5.02/Jan 2001 <RETAV / INPUT DATA FILE
00824> #*****************************************************************************
00825> #  Project Name: [Greely Village Center]    Project Number: [407-09]
00826> #  Date        : 04-09-2008
00827> #  Modeller    : [JHE
00828> #  Company     : JFSAinc.
00829> #  License #   : [7547/07
00830> #*****************************************************************************
00831> #
00832> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00833> # Existing Conditions.
00834> # Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
00835> #
00836> # Dec 15, 2008
00837> # Added July 1st 1979 event
00838> #
00839> # **  EXISTING CONDITIONS ASSUMPTIONS:
00840> #  CN=, XIMP=, TIMP=,
00841> #  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
00842> #  and Drainage Study:
00843> #  and as per Atrel drawing  Greely Village Area.dwg
00844> #  is specific per subwatershed
00845> #  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 0.6)
00846> #
00847> #*****************************************************************************
00848>  0:5:0020----------------------------------------------------------------------
00849>       REAL STORM
00850>         Filename = storm.001
00851>         Comment  = 25 years Chicago storm 4 Hours step 10 min, City of Ottawa
00852>         [SRT=10.00:IDF    5.00:STOT   61.77]
00853> #*****************************************************************************
00854> # Existing flow - McEvoy Branch of Shield Creek - Areas
00855> # Area c/s of proposed development (residential)
00856> # CN=75, slope = 0.0, Tp=0.6, XIMP=5, TIMP=5, see SC001 as per Stantec
00857> # Area partially adjusted based on Atrel drawings.
00858> #*****************************************************************************
00859> # c/s at Bank St..as per Atrel - with modified boundaries and Tp.
00860>  C10:0020----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00861>       DESIGN NASHYD      01:EX1        27.62     1.861 No_date     1:50   19.21  n/a
00862>         [CN= 75.0: N= 3.00]
00863>         [Tp=  .22:IA= 5.00]
00864> #*****************************************************************************
00865> # Existing flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
00866> # CN= 69, as per Stantec see SC001.
00867> # Area partially adjusted based on Atrel drawings.
00868> #*****************************************************************************
00869> # Areas External to development
00870>  C20:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00871>       DESIGN NASHYD      01:SC2        10.04      .835 No_date     2:05   20.83  .337
00872>         [CN= 69.0: N= 3.00]
00873>         [Tp=  .67:IA= 5.00]
00874>  C20:0040----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00875>       DESIGN NASHYD      01:EX2        71.58      .868 No_date     2:05   20.83  .337
00876>         [CN= 69.0: N= 3.00]
00877>         [Tp=  .73:IA= 5.00]
00878> #*****************************************************************************
00879> # Existing flow - McEvoy Branch of Shield Creek - Areas
00880> # Area c/s of proposed development (residential)
00881> # CN=75, slope = 0.0, Tp=0.6, XIMP=5, TIMP=5, see SC001 as per Stantec
00882> # Area partially adjusted based on Atrel drawings.
00883> #*****************************************************************************
00884>  C20:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00885>       DESIGN NASHYD      01:RSA        4.14      .272 No_date     1:30   20.83  .337
00886>         [CN= 69.0: N= 3.00]
00887>         [Tp=  .21:IA= 5.00]
00888> #*****************************************************************************
00889> # Areas to be occupied by residential development
00890>  C20:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00891>       DESIGN NASHYD      01:RSB        2.21      .145 No_date     1:30   20.83  .337
00892>         [CN= 69.0: N= 3.00]
00893>         [Tp=  .23:IA= 5.00]
00894> #*****************************************************************************
00895> # Areas to be occupied by residential development
00896>  C20:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00897>       DESIGN NASHYD      01:RSC        5.73      .561 No_date     1:30   20.83  .337
00898>         [CN= 69.0: N= 3.00]
00899>         [Tp=  .18:IA= 5.00]
00900>  C20:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00901>       DESIGN NASHYD      01:RSD        8.91      .584 No_date     1:30   20.83  .337
00902>         [CN= 69.0: N= 3.00]
00903>         [Tp=  .38:IA= 5.00]
00904>  C20:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00905>       DESIGN NASHYD      01:RSE        9.11      .596 No_date     1:30   20.83  .337
00906>         [CN= 69.0: N= 3.00]
00907>         [Tp=  .48:IA= 5.00]
00908> #*****************************************************************************
00909> # EXISTING flow - Total Flow to Shield Creek (Reaches Node NC17)
00910> #*****************************************************************************
00911> #  McEvoy Drain, c/s of residential area
00912>  C20:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00913>       ADD HYD            02:EX1       26.62     1.867 No_date     1:50   21.06  n/a
00914>                      -  03:R2A        9.98      .468 No_date     1:40   20.83  n/a
00915>         [DT  5.00]  SUM=  01:Rlus      73.70     1.704 No_date     1:55   21.42  n/a
00916> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
00917> # provided by Atrel
00918> # Manning's n is Channel not maintained, light brush on banks
00919> # Route 2A2 to d/s node N1
00920> # Slope = 0.05% as per plan provided by Atrel.
00921>  C25:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00922>       ROUTE CHANNEL    -> 02:EX2       10.54      .335 No_date     2:05   20.83  n/a
00923>         [RDC  5.00] out<- 01:PEX2      10.54      .297 No_date     2:15   20.83  n/a
00924>         [L/S/n=  324./ .050/.035]
00925>         (Vmax=  .67:Tmax=  .661]
00926> #  McEvoy Drain, d/s of residential area along Bells Bush Rd
00927>  C25:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00928>       ADD HYD            02:PEX2       10.54      .297 No_date     2:15   20.83  n/a
00929>                      +  03:PR1ns      43.10     2.182 No_date     1:40   20.92  n/a
00930>                      +  04:R1A        9.98      .468 No_date     1:40   20.83  n/a
00931>         [DT= 5.00]  SUM=  01:N1        64.54     2.855 No_date     1:40   20.75  n/a
00932> # Route Node N1 to Node N2
00933> # Typical Section based on Shields MB Vee Ditch 3:1 banks
00934> # provided by Atrel
00935> # Manning's n is Channel not maintained, light brush on banks
00936> # Slope = 0.05% as per plan provided by Atrel.
00937>  R75:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00938>       ROUTE CHANNEL    -> 02:N2        64.54     2.855 No_date     1:40   20.75  n/a
00939>         [RDT= 5.00] out<- 01:RN1       64.54     2.662 No_date     1:40   20.75  n/a
00940>         [L/S/n=  186./ .050/.035]
00941>         (Vmax=  .875:Tmax= 1.001]
00942> # Typical Section based on Atrel drawing drain d/s of N2
00943> # Manning's n is channel not maintained, light brush on banks
00944> # Route node N1us to d/s node N2
01030> # Ximp = Timp = 0.
01031>  R75:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01032>   *   DESIGN STANDHYD    01:EX4        .20      .038 No_date     1:30   20.90  .337
01033>         [Xi/Yi=-1.1:1.0/-.22]
01034>         [SLO=1.00:IA= 5.00]
01035>         [Lu/Su= 2  1.0  65.0]
01036> # Areas to be occupied by commercial development
01037>  R75:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01038>       DESIGN NASHYD      01:RSA        9.08      .469 No_date     1:40   20.83  .337
01039>         [CN= 69.0: N= 3.00]
01040>         [Tp=  .13:IA= 5.00]
01041>  R75:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01042>   *   DESIGN NASHYD      01:RSA        3.13      .204 No_date     1:25   20.83  .337
01043>         [CN= 69.0: N= 3.00]
01044>         [Tp=  .13:IA= 5.00]
01045>  R25:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01046>       DESIGN NASHYD      01:RSA        4.14      .272 No_date     1:30   20.83  .337
01047>         [CN= 69.0: N= 3.00]
01048>         [Tp=  .21:IA= 5.00]
01049>  C25:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01050>       DESIGN NASHYD      01:RSB        2.21      .145 No_date     1:30   20.83  .337
01051>         [CN= 69.0: N= 3.00]
01052>         [Tp=  .23:IA= 5.00]
01053> # Areas to be occupied by residential development
01054>  C25:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01055>       DESIGN NASHYD      01:RSC        5.73      .561 No_date     1:30   20.83  .337
01056>         [CN= 69.0: N= 3.00]
01057>         [Tp=  .18:IA= 5.00]
01058>  C25:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01059>       DESIGN NASHYD      01:RSD        8.91      .584 No_date     1:30   20.83  .337
01060>         [CN= 69.0: N= 3.00]
01061>         [Tp=  .38:IA= 5.00]
01062>  C25:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01063>       DESIGN NASHYD      01:RSE        9.11      .596 No_date     1:30   20.83  .337
01064>         [CN= 69.0: N= 3.00]
01065>         [Tp=  .48:IA= 5.00]
01066> #*****************************************************************************
01067> # EXISTING flow - Total Flow to Shield Creek (Reaches Node NC17)
01068> #*****************************************************************************
01069> #  McEvoy Drain, c/s of residential area
01070>  R25:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01071>       ADD HYD            02:EX1       26.62     1.867 No_date     1:50   21.06  n/a
01072>                      -  03:R2A        9.98      .468 No_date     1:40   20.83  n/a
01073>         [DT  5.00]  SUM=  01:Rlus      73.70     1.704 No_date     1:55   21.42  n/a
01074> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
01075> # provided by Atrel
01076> # Manning's n is Channel not maintained, light brush on banks
01077> # Route 2A2 to d/s node N1
01078> # Slope = 1% as per Atrel drawing
01079>  C25:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01080>       ROUTE CHANNEL    -> 01:Rlus      73.70     1.704 No_date     1:55   21.42  n/a
01081>         [RDC  5.00] out<- 01:PRlus     73.70     1.704 No_date     1:55   21.42  n/a
01082>         [L/S/n=  375./1.000/.050]
01083>         (Vmax=  1.73:Tmax= 1.166]
01084> # Typical Section based on Shields MB Vee Ditch 3:1 banks
01085> # provided by Atrel
01086> # Manning's n is Channel not maintained, light brush on banks
01087> # Route 2A2 to d/s Node N1
01088> # Slope = 0.05% as per plan provided by Atrel.
01089>  C25:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01090>       ROUTE CHANNEL    -> 02:EX2       10.54      .335 No_date     2:05   20.83  n/a
01091>   *     [RDT  5.00] out<- 01:PEX2      10.54      .297 No_date     2:15   20.83  n/a
01092>         [L/S/n=  324./ .050/.035]
01093>         (Vmax=  .67:Tmax=  .661]
01094> #  McEvoy Drain, d/s of residential area along Bells Bush Rd
01095>  C25:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01096>       ADD HYD            02:PEX2       10.54      .297 No_date     2:15   20.83  n/a
01097>                      +  03:PR1ns      43.10     2.182 No_date     1:40   20.92  n/a
01098>                      +  04:R1A        9.98      .468 No_date     1:40   20.83  n/a
01099>         [DT= 5.00]  SUM=  01:N1        64.54     2.855 No_date     1:40   20.75  n/a
01100> # Route Node N1 to Node N2
01101> # Typical Section based on Shields MB Vee Ditch 3:1 banks
01102> # provided by Atrel
01103> # Manning's n is Channel not maintained, light brush on banks
01104> # Slope = 0.05% as per plan provided by Atrel.
01105>  R75:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01106>       ROUTE CHANNEL    -> 02:N2        64.54     2.855 No_date     1:40   20.75  n/a
01107>         [RDT= 5.00] out<- 01:RN1       64.54     2.662 No_date     1:40   20.75  n/a
01108>         [L/S/n=  186./ .050/.035]
01109>         (Vmax=  .875:Tmax= 1.001]
01110> # Typical Section based on Atrel drawing drain d/s of N2
01111> # Manning's n is channel not maintained, light brush on banks
01112> # Route node N1us to d/s node N2
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01162> * slope   (88-84)/763
01163>  01*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01164>       ROUTE CHANNEL   -> 02:R2A        3.13       .264 No_data     1:35   26.83  n/a
01165>         [xII  5.00] xsx<- 01:RT8        3.13       .190 No_data     1:35   26.83  n/a
01166>         [L/S/n  (80./ .120/.050)
01167>         [Vmax=  .47]:Tmax=  .21]
01168> *  Drain 2, d/s of residential area
01169>  01*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01170>       AED HYD          01:RK1       54.44     2.682 No_data     1:40   22.75  n/a
01171>                      + 03:RK2A       3.13       .156 No_data     1:35   26.83  n/a
01172>                      + 04:R2A        8.91       .404 No_data     1:45   26.83  n/a
01173>         [xI= 5.00]  sum=  01:R2       68.38     3.232 No_data     1:00   22.42  n/a
01174> * ROUTE R2 TO R3
01175> * Typical Section based on Shields RD Vee Ditch 3:1 Banks
01176> * provided by Atrel
01177> * Manning's n is Channel not maintained, light brush or banks
01178> * Slope = 8.0% as per plan provided by Atrel.
01179>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01180>       ROUTE CHANNEL   -> 02:R2        68.38     3.232 No_data     1:40   22.42  n/a
01181>  *    [xx= 5.00] xsx<- 01:R42        68.38     2.945 No_data     1:45   21.10  n/a
01182>         [L/S/n=  210./ .050/.035]
01183>         [Vmax=  .35]:Tmax=  1.690]
01184> * Add Drain 3 d/s of residential area
01185>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01186>       ADD HYD          02:R3A        6.14       .272 No_data     1:30   20.68  n/a
01187>                      + 03:R3E        2.21       .136 No_data     1:30   23.83  n/a
01188>                      + 04:EX4         .50       .039 No_data     1:30   26.98  n/a
01189>         [IT  5.00]  SUM=  01:R3x=     8.85       .417 No_data     1:30   21.58  n/a
01190> * Typical Section based on Atrel Drawing drain bow d/s of R3
01191> * Manning's n is Channel not maintained, light brush on banks
01192> * Route to d/s area
01193> * Slope =  (88-84.7)63
01194>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01195>       ROUTE CHANNEL   -> 01:R3xx       6.85       .447 No_data     1:30   21.28  n/a
01196>         [RT= 5.00] sum<- 01:R3+R4       6.85       .556 No_data     1:45   21.28  n/a
01197>         [.03/n=  363./ .060/.050]
01198>         [Vmax=  .51]:Tmax=  .29]
01199> *  Drain 3, d/s of residential Area
01200>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01201>       ADD HYD          02:R3        68.38     3.041 No_data     1:45   22.42  n/a
01202>                      + 03:R4B        6.85       .375 No_data     1:50   20.83  n/a
01203>                      + 04:EX5        9.71       .375 No_data     1:50   20.83  n/a
01204>         [IT= 5.00]  SUM=  01:R4   82.94     3.091 No_data     1:45   22.12  n/a
01205> * ROUTE R3 to RC128
01206> * Typical section based on Shields RD Vee Ditch 3:1 Banks
01207> * provided by Atrel
01208> * Manning's n is Channel not maintained, light brush on banks
01209> * slope   5.0% as per plan provided by Atrel.
01210>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01211>       ROUTE CHANNEL   -> 02:R4        82.94     3.091 No_data     1:45   22.12  n/a
01212>  *    [RT= 5.00] sum<- 01:RK3        82.94     3.630 No_data     1:50   22.12  n/a
01213>         [L/2/n=  415./ .050/.035]
01214>         [Vmax=  .58]:Tmax=  1.76]
01215> * flow at stantec node RC8128 for comparison
01216> * routed R3 plus R4
01217>  01*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01218>       ADD HYD          03:RK3       82.94     3.630 No_data     1:50   22.12  n/a
01219>                      + 04:EX3        27.33      .958 No_data     2:00   20.83  n/a
01220>         [xI= 5.00]  sum=  01:RC8128  104.24     3.932 No_data     1:50   21.88  n/a
01221> * flow from stantec at node RC8128 for comparison
01222>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01223>       DESIGN HASHYD    01:SC8d       71.71     1.917 No_data     2:05   20.83  .737
01224>         [CN= 69.0: N= 3.00]
01225>         [Tp=  .01:IT= 5.00]
01226> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 Slopes
01227> * provided by Atrel
01228> * Route from R-EX1 to RC8128
01229> * Manning's n is Channel not maintained, light brush on banks
01230> * Invert at RC8128 as per Atrel cotton of pitch points   82.52 a
01231> * Slope = (89.78-87.51)/215
01232>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01233>       ROUTE CHANNEL   -> 02:EX1       24.52     1.561 No_data     1:30   25.08  n/a
01234>         [RT= 5.00] sum<- 01:RC8C8      96.82     1.561 No_data     1:30   25.08  n/a
01235>         [.05/n= 1517./ .147/.050]
01236>         [Vmax=  .76]:Tmax=  1.71]
01237>  02*00:00.0----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01238>       ADD HYD          02:RC8C1     78.11     1.919 No_data     2:05   20.83  n/a
01239>                      + 03:RBW15      18.62     1.010 No_data     1:50   25.08  n/a
01240>         [IT  5.00]  SUM=  01:StnTot=  102.73     2.673 No_data     2:10   21.13  n/a
01241> *****************************************************************************
01242> * Simulations with 6 hour Chicago from City of Ottawa
01243>  ** END OF RUN :  96
01244>
01245>
01246> -----------------------------------------------------------------------------
01247>
01248>
01249>
01250>
01251>
01252>  RUN:COMMANDS
01253>  C56:00:00.0----------------------------------------------------------------------
01254>       START
01255>         [ISTAD =    0] hrs or        0]
01256>         [METOUT    2    (1=Imperial, 2=Metric output)]
01257>         [NSTORM=    1]
01258>         [NRUN  =   96 ]
01259> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01260> *  SWMHYMO Version 5.02/Jan 2001 (BETA) / INPUT DATA FILE
01261> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01262> *  Project Name: Greely Village Center    Project Number: [847-07]
01263> *  Date         : 04-09-2008
01264> *  Modified     : [DRE]
01265> *  Company      : [FSAinc.]
01266> *  License #    : [250]001
01267> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01268> *
01269> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
01270> * Existing conditions.
01271> * Filename Stands for: GRP1E - Greely, Residential, Phase 1, Existing
01272> *
01273> * Dec 15, 2008
01274> * Added July 1st 1979 event
01275> *
01276> * *E  EXISTING CONDITIONS ASSUMPTIONS
01277> *  CN=, XIMP, TIMP,
01278> *  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
01279> *  and drainage Study.
01280> *  and as per Atrel drawing: Greely Village Area.dwg
01281> *  as specified per subcatchment
01282> *  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
01283> *
01284> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01285>  C56:00:00.0----------------------------------------------------------------------
01286>       READ STORM
01287>         Filename = storm.001
01288>         Comment  = 50 years Chicago Storm 6 Hours step 10 min, City of Ottawa
01289>         [MUI=16.96:SumM=   4.60:PIUI=  88.73]
01290> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01291> * Existing flow - McEvoy Branch of Shield Creek - Areas
01292> * Area d/s of proposed development (residential)
01293> * CN=75, slope   0.8, Cp 0.16, XIMP 5, TIMP 15, see RC002 as per Stantec
01294> * Area partially adjusted based on Atrel drawings.
01295> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01296> * d/s of Bank St.as per Atrel - with modified boundaries and Tp.
01297>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01298>       DESIGN HASHYD    01:EX.       24.52     2.142 No_data     1:30   23.63  .431
01299>         [CN= 75.0  N= 3.00]
01300>         [Tp=  .23 IT= 5.00]
01301> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01302> * Existing flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
01303> * CN=-69, as per Stantec see RC001.
01304> * Area partially adjusted based on Atrel drawings.
01305> *++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01306> * Areas Entering to development
01307>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01308>       DESIGN HASHYD    01:EX2       10.56      .403 No_data     2:00   24.92  .363
01309>         [CN= 69.0: N= 3.00
01310>         [Tp=  .67:IT= 5.00
01311>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01312>       DESIGN HASHYD    01:EX2       21.10      .803 No_data     2:00   24.92  .363
01313>         [CN= 69.0: N= 3.00]
01314>         [Tp=  .83:IT= 5.00]
01315> * Slope, Ximp, Timp, Area from Atrel Drawing
01316> * CN from Stantec (RC001)
01317> * Ximp = Timp  15
01318>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01319>  *    [CN=84.0]+[IMP=70.0]    01:EX1          1.00      .047 No_data     1:20   31.67  .763
01320>         [XIMP=.15 :TIMP=.70]
01321>         [2L=-1.00:2C=  5.96]
01322>         [Loss=  2 :CN=  69.0]
01323> * Areas to be occupied by commercial development
01324>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
01325>       DESIGN HASHYD    01:EX        9.38      .596 No_data     1:40   24.92  .363
01326>         [CN= 69.0: N= 3.00]
01327>         [Tp=  .31:IT= 5.00]
01328>  C56:00:01----------                ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
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01329>    *  DESIGN HASHYD      01:HSA        3.12      .328 No_date    1:25   20.97  .763
01330>         [CN= 69.0: N= 3.00]
01331>         [Tp=  .13:DT= 5.00]
01332>  050:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01333>      DESIGN HASHYD      01:xSA        4.14      .329 No_date    1:30   24.92  .763
01334>         [CN= 69.0: N= 3.00]
01335>         [Tp=  .21:DT= 5.00]
01336>  050:0015----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01337>      DESIGN HASHYD      01:X9A        7.97      .645 No_date    1:30   24.92  .763
01338>         [CN= 69.0: N= 3.00]
01339>         [Tp=  .29:DT= 5.00]
01340> * Areas to be occupied by residential development
01341>  050:0015----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01342>      DESIGN HASHYD      01:R1A        6.72      .629 No_date    1:15   24.97  .763
01343>         [CN= 69.0: N= 3.00]
01344>         [Tp=  .20:DT= 5.00]
01345>  050:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01346>      DESIGN HASHYD      01:R2A        8.51      .487 No_date    1:45   24.92  .763
01347>         [CN= 69.0: N= 3.00]
01348>         [Tp=  .35:DT= 5.00]
01349>  050:0035----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01350>      DESIGN HASHYD      01:R3C        9.71      .492 No_date    1:50   24.92  .763
01351>         [CN= 69.0: N= 3.00]
01352>         [Tp=  .46:DT= 5.00]
01353> *********************************************************************
01354> * EXISTING Flow - Total Flow to Shields Creek (Starter Node NC118)
01355> *********************************************************************
01356> *  McEvoy Drain, d/a of residential area
01357>  060:0014----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01358>      ADD HYD            02:EX1        24.62     2.249 No_date    1:30   29.75  n/a
01359>                       + 03:R3A        9.08      .556 No_date    1:40   26.92  n/a
01360>         [IT= 5.00]  SUM   01:R1us      33.70     2.700 No_date    1:35   28.15  n/a
01361> # Typical section based on McEvoy Branch Vee Ditch 1.5:1 slopes
01362> # provided by Ertl
01363> # Manning's n is Channel not maintained, light brush on banks
01364> # Route R1us to d/a node N1
01365> # Slope = 0.0% as per Ariel drawing
01366>  060:0015----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01367>      ROUTE CHANNEL   -> 02:R1us      33.70     2.794 No_date    1:55   28.45  n/a
01368>         [RouT= 5.0%] out<- 01:SR1us    33.70     2.606 No_date    1:40   28.45  n/a
01369>         [L/S/n=  375./1.000/.050]
01370>         [Vmax= 1.21:Tmax= 1.04]
01371> * Typical Section based on Shields ND Vee Ditch 3:1 banks
01372> * provided by Ariel
01373> * Manning's n is Channel not maintained, light brush on banks
01374> * Route EX2 to d/s node N1
01375> * Slope = 0.0% as per plan provided by Arre :
01376>  060:0016----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01377>      ROUTE CHANNEL   -> 02:EX2        10.84      .433 No_date    2:05   24.92  n/a
01378>    *   [RouT= 5.0%] out<- 01:sEX2     10.84      .361 No_date    2:15   24.92  n/a
01379>         [L/S/n=  224./ .050/.035]
01380>         [Vmax=  .269:Tmax=  .231]
01381> *  McEvoy Drain, d/s of residential area along Salex Barn Rd
01382>  060:0017----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01383>      ADD HYD            02:EX2        10.84      .361 No_date    2:15   24.92  n/a
01384>                       + 03:sR1us      33.70     2.606 No_date    1:40   28.45  n/a
01385>                       + 04:R1b        9.70      .677 No_date    1:35   24.92  n/a
01386>         [D2= 5.0%]  SUM   01:D1        54.24     3.422 No_date    1:40   27.11  n/a
01387> # Route Node N1 to Node D2
01388> # Typical section based on Shields ND Vee Ditch 3:1 banks
01389> # provided by Ariel
01390> # Manning's n is Channel not maintained, light brush on banks
01391> # Slope = 0.0% as per plan provided by Ariel.
01392>  060:0018----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01393>      ROUTE CHANNEL   -> 02:D1        54.24     3.422 No_date    1:40   27.11  n/a
01394>    *   [sR1= 5.0%] out<- 01:sD1       54.24     3.185 No_date    1:45   27.11  n/a
01395>         [L/S/n=  184./ .050/.035]
01396>         [Vmax=  .356:Tmax=  1.771]
01397> * Typical section based on Ariel Drawing drain d/s of R7
01398> * Manning's n is Channel not maintained, light brush on banks
01399> * Route node N1sm to d/s node N2
01400> * Slope = (85-84.5)/465
01401>  060:0019----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01402>      ROUTE CHANNEL   -> 02:R2A        3.13      .316 No_date    1:20   24.92  n/a
01403>         [RouT= 5.0%] out<- 01:R2A      3.13      .198 No_date    1:30   24.92  n/a
01404>         [L/S/n=  467./ .075/.050]
01405>         [Vmax=  .506:Tmax=  .343]
01406> *  Drain 3, d/s of residential area
01407>  060:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01408>      ADD HYD            02:RM1        54.24     3.185 No_date    1:45   27.11  n/a
01409>                       + 03:R3A        3.13      .198 No_date    1:30   24.92  n/a
01410>                       + 04:R2B        5.51      .487 No_date    1:45   24.92  n/a
01411>         [D1= 5.0%]  SUM=  01:R2        68.38     3.841 No_date    1:45   26.71  n/a
01412> * ROUTE R2 to R3
01413> * Typical Section based on Shields ND Vee Ditch 3:1 banks
01414> * provided by Ariel
01415> * Manning's n is Channel not maintained, light brush on banks
01416> * Slope = 0.0% as per plan provided by Arre:.
01417>  060:0021----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01418>      ROUTE CHANNEL   -> 02:R2        68.38     3.841 No_date    1:45   26.71  n/a
01419>    *   [RU2= 5.0%] out<- 01:sR2       68.38     3.315 No_date    1:50   26.71  n/a
01420>         [L/S/n=  210./ .050/.035]
01421>         [Vmax=  .351:Tmax=  1.798]
01422> # Add Drain 3 d/s of residential area
01423>  050:0022----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01424>      ADD HYD            02:R3A        3.13      .329 No_date    1:30   24.92  n/a
01425>                       + 03:R3C        3.27      .165 No_date    1:40   24.92  n/a
01426>                       + 04:DX4        .50       .051 No_date    1:20   21.83  n/a
01427>         [D1= 5.0%]  SUM=  01:R3us      6.85      .545 No_date    1:30   23.41  n/a
01428> # Typical section based on Ariel Drawing dated btw d/s of R2
01429> # Manning's n is Channel not maintained, light brush on banks
01430> # Route to d/s area
01431> # Slope = (88.84)/465
01432>  050:0023----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01433>      ROUTE CHANNEL   -> 02:R3us      6.85      .545 No_date    1:30   25.01  n/a
01434>         [RUT  5.0%] out<- 01:SR3us     6.85      .359 No_date    1:45   25.01  n/a
01435>         [L/S/n=  661./ .080/.050]
01436>         [Vmax=  .565:Tmax=  .327]
01437> #  Drain 4, d/s of residential area
01438>  060:0024----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01439>      ADD HYD            02:PR2        66.38     3.316 No_date    1:50   26.71  n/a
01440>                       + 03:R4Bus      6.85      .359 No_date    1:45   25.41  n/a
01441>                       + 04:R3C        9.71      .422 No_date    1:50   24.92  n/a
01442>         [OC  5.0%]  SUM   01:R3        82.94     4.113 No_date    1:50   26.40  n/a
01443> * ROUTE R3 to EC120
01444> * Typical Section based on Shields ND Vee Ditch 3:1 banks
01445> * provided by Ariel
01446> * Manning's n is Channel not maintained, light brush on banks
01447> * Slope = 0.05% as per plan provided by Ariel.
01448>  050:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01449>      ROUTE CHANNEL   -> 02:R3        82.94     4.113 No_date    1:50   26.40  n/a
01450>    *   [sR1= 5.0%] out<- 01:sR3       82.94     3.271 No_date    2:05   26.40  n/a
01451>         [L/S/n=  415./ .020/.035]
01452>         [Vmax=  .351:Tmax=  1.813]
01453> * Flow at Starter node NC8120 for comparison
01454> * Routed R3 plus EX3
01455>  050:0026----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01456>      ADD HYD            02:sR3        82.94     3.271 No_date    2:05   26.40  n/a
01457>                       + 03:EX3        21.90      .977 No_date    2:20   21.62  n/a
01458>         [DT= 5.0%]  SUM=  01:DCE120   104.84     4.016 No_date    2:05   26.10  n/a
01459> * Flow from Starter at node NC8120 for comparison
01460>  050:0027----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01461>      DESIGN HASHYD      01:DC031      78.11     2.120 No_date    2:25   24.03  .763
01462>         [CN= 69.0: N= 3.00]
01463>         [Tp=  .51:DT= 5.00]
01464> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
01465> * provided by Arre
01466> * Route from N-EX1 to NCE120
01467> * Manning's n is Channel not maintained, light brush on banks
01468> * Invert at NC8.38 as per Ariel bottom of ditch points = 87.50 +
01469> * Slope = (89.70-82.52)/1517
01470>  050:0028----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01471>      ROUTE CHANNEL   -> 02:EX1        24.62     2.249 No_date    1:30   29.75  n/a
01472>         [EC  5.0%] out<- 01:SEX1G      24.62     1.251 No_date    1:50   29.75  n/a
01473>         [L/S/n= 1517./ .050/.050]
01474>         [Vmax=  .578:Tmax=  1.310]
01475>  CHANNEL----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01476>      ADD HYD            01:SCC031     78.11     2.120 No_date    2:25   24.03  n/a
01477>                       + 03:SEX1G      24.62     1.251 No_date    1:50   29.75  n/a
01478>         [I1= 5.0%]  SUM=  01:SLC31     92.73     3.225 No_date    2:10   26.08  n/a
01479> *********************************************************************
01480> * Simulations with 6 hour Chicago from City of Ottawa
01481>  ** END OF RUN :  59
01482>
01483> ---------------------------------------------------------------------
01484>
01485>
01486>
01487>
01488>
01489>  RUN:COMMAND4
01490>  ID:COMMENT---------------------------------------------------------------------
01491>      START
01492>       [TZERO =    .00 hrs on        0]
01493>       [METOUT=    2   (1=Imperial, 2=metric output)]
01494>       [NSTORM=    1 ]
```

```
[NRUN  = 100 ]
*****************************************************************************
*  SWMM5000 Ver 5.0(Jan 2001 CRTAB / INPUT DATA file
*****************************************************************************
*  Project Name: [Greely Village Centre]    Project Number: [407-07]
*  Date        : 04-09-2008
*  Modelled    : [JHF]
*  Company     : JFSAinc.
*  Timenas #   : 264/402
*****************************************************************************
* SWMMHYM model of the Greely Village Centre - Residential Area - Phase 1
* Existing conditions.
* Filename example for: GBGIE - Greely, Residential, Phase 1, Existing
*
* Dec 15, 2008
* Added only 1st 1979 event
*
* *  EXISTING CONDITIONS ASSUMPTIONS:
*  Ch?, AIME, 1:2yr.
*  as per Stantec Report, Oct 2002: Greely Shield Creek, Stormwater
*  and drainage study.
*  and as per Attel drawing: Greely Village Area.dwg
*  as specified per snowstorehed
*  Tp calculated using the Dp and Method as per Stantec: Tp = Tc * 2/3)
*
*****************************************************************************
;;Subcatch------------------------------------------------------------------------
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------
      REAL STORM
       Filename    storm.031
       Comment     100 years Chicago Start @ 7hours step 10 min, City of Ottawa
       ;SUM= 0.00;STORM=   4.80;TOT= 78.60]
*****************************************************************************
* Existing Flow - McEvoy Branch of Shield Creek - Areas
* Area b/s of proposed development (residential)
* CN?=75, < Ape = 0.8, Tp=0.16, X1%=5, TIMP=15, Awe SCS02 as per Stantec
* Area partially adjusted based on Attel drawings.
*****************************************************************************
* a/s of bank St.as per Attel - With modified boundaries and Tp
  100:0002----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1        26.62     2.651 No date    1:30   34.57 .469
        [CN= 75.0; N= 5.00]
        [Tp=  .16:00= 5.00]
*****************************************************************************
* Existing Flow - McEvoy Branch of Shield Creek (b/s of bank st.)
* CN?=69, as per Stantec Sec SC001
* Area partially adjusted based on Attel drawings
*****************************************************************************
* Areas Subtract to development
  100:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2        18.94      .478 No date    2:05   29.42 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .47:11= 5.00]
  100:0005----------ID:SHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3        21.36      .795 No_date     2:20   29.42 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .82:00= 5.00]
* Slope, Xlag, Ymg, Area from Attel Drawing
* CN from Stantec (SC001)
* Xlag = Tlag = .5Tc
  100:0006----------ID:SHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    + DESIGN STANDHYD    01:EX4         .52      .068 No_date    1:20   36.69 .581
        [XIMP=.11;TIMP=.22]
        [S=5.00;CN= 5.00]
        [L=95. 2 ;N= 65.0
* Areas to be occupied by commercial development
  100:0017----------ID:SHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SUA        9.08      .672 No_date    1:10   29.47 .387
        [CN= 85.0; N= 5.00]
        [Tp=  .73:00= 5.00]
  100:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    + DESIGN NASHYD      01:SUA        5.13      .380 No_date    1:25   29.43 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .11:00= 5.00]
  100:0009----------ID:SHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SUA        4.14      .306 No date    1:30   29.43 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .23:00= 5.00]
  100:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SUA        7.91      .586 No date    1:30   29.42 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .33:00= 5.00]
* Areas to be occupied by residential development

  100:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX5        9.79      .805 No_date    1:35   28.42 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .58:00= 5.00]
  100:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX6        8.91      .519 No date    1:45   28.43 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .48:00= 5.00]
  100:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX7        9.11      .537 No date    1:50   28.43 .387
        [CN= 69.0; N= 5.00]
        [Tp=  .48:00= 5.00]
*****************************************************************************
* Existing Flow - Total Flow to Shield Creek (Stantec Node EC128)
*****************************************************************************
* McEvoy Drain, c/s of residential area
  100:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.
      ADD HYD            02:TOT       24.62     1.185 No date    1:30   34.57  n/a
                       + 01:EX1       26.62     1.469 No date    1:30   34.57  n/a
                       + 01:EX2       18.94     1.027 No date    1:30   34.57  n/a
        [I= 5.00]  SUM=  01:EX3       88.70     3.264 No_date    1:30   33.40  n/a
* Typical Section based on McEvoy stanca Ver Ditch 1.5:1 slopes
* provided by Attel
* Manning's n is Channel not maintained, light brush on banks
* Route EX3 to d/s node N1
* Slope   1% as per Attel drawing
  100:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.
      ROUTE CHANNEL    -> 02:EX3       88.70     3.264 No_date    1:30   33.40  n/a
        [RTT= 5.00] outs- 01:EX3       88.70     3.074 No_date    1:40   33.40  n/a
          [.5/n=  .05/.035:0.035]
          [Vmax=  1.336:Qmax= 1.317]
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Attel
* Manning's n is Channel not maintained, light brush on banks
* Route EX4 to d/s node N1
* Slope = 0.5% as per plan provided by Attel.
  100:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:EX2       18.94      .478 No_date    2:05   29.42  n/a
    + [RDT= 5.00] outs- 01:EX4        0.52      .068 No_date    1:15   29.47  n/a
          [L/S/n=  .25/.2 :.05/0.035]
          [Vmax=  .478:Qmax=  .284]
*  McEvoy Drain, c/s of residential area along Sales Barn Rd
  100:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:ex2        19.94      .428 No_date    2:15   29.42  n/a
                       + 03:ERics      35.70     3.074 No_date    1:40   33.40  n/a
                       + 04:EX8         8.70      .805 No_date    1:35   28.43  n/a
        [DT= 5.00]  SUM=  01:EX5       64.34     4.018 No_date    1:40   31.89  n/a
* Route Node EX5 to Node N2
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Attel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Attel.
  100:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:ex5       64.34     4.018 No_date    1:40   31.89  n/a
    + [RDT= 5.00] outs- 01:EX5        64.34     3.983 No_date    1:50   31.89  n/a
          [L/S/n=  154./ .050/.035]
          [Vmax=  .5:Qmax= 1.424]
* Typical Section based on Attel Drawing drain n/s of N
* Manning's n is Channel not maintained, light brush on banks
* Route node N2to to d/s node N2
* slope = (98-84.5)/467
  100:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N2A        7.17      .583 No_date    1:25   29.43  n/a
        [RDT= 5.00] outs- 01:NR2A       7.17      .291 No_date    1:35   29.42  n/a
          [L/S/n=  467./ .029/.050]
          [Vmax=  .5:Qmax=  .262]
*  Drain 2, c/s of residential area
  100:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:EX1        54.34     3.983 No_date    1:50   31.89  n/a
                       + 03:NR2A        7.17      .583 No_date    1:25   29.43  n/a
                       + 04:EX8         8.91      .675 No_date    1:45   29.43  n/a
        [DT= 5.00]  SUM=  01:N2        69.39     4.516 No_date    1:50   31.44  n/a
* Route N2 to N3
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Attel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Attel.
  100:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.-
      ROUTE CHANNEL    -> 02:N2        69.39     4.516 No_date    1:50   31.44  n/a
    + [RDT= 5.00] outs- 01:N3        69.39     4.361 No_date    2:00   31.44  n/a
          [L/S/n=  210./ .050/.035]
          [Vmax=  .5:Qmax= 1.859]
* Add Drain 3 c/s of residential area
  100:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.-
```

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0165:       ADD HYD           02:RSA        0.14      391 No_Date    1:30   29.42  n/a
0166:                       + 03:R3E        2.11     .136 No_Date    1:30   29.02  n/a
0167:                       + 04:EX4         .50     .048 No_Date    1:20   76.69  n/a
0168:         DT= 5.00  SUM=  01:R3us       6.85     .642 No_Date    1:45   29.06  n/a
0169: # Typical Section based on Atrel Drawing Xsls-Dtw-Lro-01 Rd
0170: # Manning's n is Channel, not maintained, light brush on banks
0171: # Route to D/s area
0172: # Slope = (98-84)/567
0173:  190:0.21---------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0174:       ROUTE CHANNEL     -> 01:R3us       6.85      .642 No_Date    1:45   29.06  n/a
0175:         [L/S/n= 5.00] ou:-> 01:RR3ds     6.85      .32  No_Date    1:45   29.06  n/a
0176:         [L/S/n=  683./ .0030/.030]
0177:         (Vmax=  .571:Dmax=  .352)
0178: # Route to D/s of residential area
0179:  190:0.24---------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0180:       ADD HYD           02:R4Z       66.38    3.851 No_date    7:00   31.41  n/a
0181:                       + 03:RR3ds      6.85     .422 No_date    1:45   29.06  n/a
0182:                         04:R1C        2.41     .537 No_date    1:50   29.45  n/a
0183:         [ai= 5.00]  SUM=  01:R1        67.69    4.719 No_date    2:00   31.08  n/a
0184: # ROUTE R3 to R.128
0185: # Typical Section based on Shields Rd Ww Ditch 3:1 Banks
0186: # provided by Atrel
0187: # Manning's n is Channel not maintained, light brush on banks
0188: # Slope = 0.05  as per plan provided by Atrel.
0189:  190:0.25---------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0190:       ROUTE CHANNEL     -> 02:R3         8.04     4.719 No_date    2:00   31.08  n/a
0191:   *     [RT=  5.00]  out-> 01:RR3        82.04     5.310 No_date    2:00   31.08  n/a
0192:         [L/S/n=  975./ .050/.075]
0193:         (Vmax=  .549:Tmax=  1.365)
0194: # Flow at Stanley node RCR/98 for comparison
0195: # routed R3 plus RR3
0196:  100:0.6---------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0197:       ADD HYD           02:RR3          82.04     5.310 No_date    2:05   31.08  n/a
0198:                       + 03:EX3         21.30     .795 No_date    2:10   25.33  n/a
0199:         [DT= 5.00]  SUM=  01:RCR128    104.24    6.086 No_date    2:05   30.75  n/a
0200: # Flow from Stanley at node RCR/98 for comparison
0201:  100:0.27--------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0202:       DESIGN RASHYD     01:SC09          78.1     5.729 No_date    2:15   29.41  .281
0203:         [CN= 65.0  R=  3.00]
0204:         [Tp=  .9:ST= 5.00]
0205: # Typical Section based on McEvoy Branch Ww Ditch 1.5:1 slopes
0206: # provided by Atrel
0207: # Route from R-RCR to RCR/28
0208: # Manning's n is Channel not maintained, light brush on banks
0209: # Invert at RCR.28 as per Atrel bottom of ditch points  82.02 m
0210: # Slope = (89.70-82.02)/1217
0211:  100:0.29--------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0212:       ROUTE CHANNEL     -> 01:EX1        24.82     2.651 No_date    1:55   31.87  n/a
0213:         [RT=  5.00] out-> 01:RER28       24.82     1.484 No_date    1:55   31.87  n/a
0214:         [L/S/n= 1517./ .030/.050]
0215:         (Vmax=  .795:Tmax=  .190)
0216:  190:0.229--------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0217:       ADD HYD           02:SC001         78.1     5.729 No_date    2:20   29.48  n/a
0218:                       + 03:RER28       24.82     1.484 No_date    1:55   31.87  n/a
0219:         [ai= 5.00]  SUM=  01:StnTyr    102.73    6.848 No_date    2:10   30.73  n/a
0220: *****************************************************************************
0221: # simulation with 4 hour Chicago from City of Ottawa
0222: # 90% 24 hours Type 2, from City of Ottawa
0223:   ** END OF RUN   101
0224:
0225: *****************************************************************************
0226:
0227:
0228:
0229:
0230:
0231:  RUN COMMANDS
0232:  ***:0001---------------------------------------------------------------------
0233:       START
0234:       [TSTEP= .    :Cb hrs on      2]
0235:       [METOUT=  2     (1=Imperial, 2=metric output)]
0236:       [NSTORM=  1 ]
0237:       [NRUN  = 101 ]
0238: *****************************************************************************
0239: *  HAMMOND Version 2.20 Jan 2001 <BETA> / INPUT DATA FILE
0240: *****************************************************************************
0241: *  Project Name: [Greely Village Center      Project Number: [647-07]
0242: *  Date        : 04-08-2008
0243: *  Modeller    : [RBF]
0244: *  Company     : JFSAinc
0245: *  License #   : [7567102
0246: *****************************************************************************
0247:
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0248: * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
0249: * Existing Conditions.
0250: * Filename stands for: GR(1)E - Greely, Raw Centre, Phase 1, Existing
0251: *
0252: * Dec 15, 2008
0253: * Added July 1st 1979 event
0254: *
0255: *** EXISTING CONDITIONS ASSUMPTIONS:
0256: *  CN=, XIMP, TIMP,
0257: *  as per Stantec Report, Oct. 2002 "Greely Shield Creek, Stormwater
0258: *  and Drainage Study.
0259: *  and as per Atrel drawing: Greely Village Area.dwg
0260: *  as specified per subwatershed
0261: *  Tp calculated using the Upland Method as per Stantec. (Lp = Ua * L/S)
0262: *
0263: *****************************************************************************
0264:  ***:0002---------------------------------------------------------------------
0265:       START STORM
0266:         Filename = storm.001
0267:         Comment  = 2 years SCS Type 2 Storm 24 hours step .5 min, City of Ottaw
0268:         [SPI=12.00:SUM=  .5:METOUT=  2:NRUN=  1]
0269: *****************************************************************************
0270: * Existing flow - McEvoy Branch at Shield Creek - Areas
0271: * Area n/a of proposed development (residential)
0272: * CN*=n/a, slope = 0.5, Tp 0.10, XIMP=0, TIMP=n/a, see SC002 as per Stantec
0273: * Area partially adjusted based on Atrel drawings.
0274: *****************************************************************************
0275: * n/a of Rural SL.xls per Atrel - with modified boundaries and Tp.
0276:  ***:0.01----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0277:       DESIGN RASHYD     01:EX.           84.60     .971 No_date    12:05   .8.18 .340
0278:         CN= 75.0  R=  3.00]
0279:         [Tp=  .3:ST= 5.00]
0280: *****************************************************************************
0281: * Existing flow - McEvoy Branch at Shield Creek (n/a of Rural SL.)
0282: * CN* 68, as per Stantec see SC001.
0283: * Area partially adjusted based on Atrel drawings.
0284: *****************************************************************************
0285: * Areas External to development
0286:  202:0.04----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0287:       DESIGN RASHYD     01:EX2           10.94     .055 No_date    12:35   13.69 .282
0288:         [CN= 59.0: R= 3.00]
0289:         [Tp=  .67:ST= 5.00]
0290:  202:0.05----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0291:       DESIGN RASHYD     01:EX3           21.90     .258 No_date    12:45   13.69 .282
0292:         [CN= 59.0: R= 3.00]
0293:         [Tp=  .80:ST= 5.00]
0294: * Slope, Ximp, Timp, Area from Atrel Drawing
0295: * CN from Stantec (SC001)
0296: * Ximp = Timp = 0.
0297:  202:0.06----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0298:       * DESIGN STANDHYD    01:EX4            .50     .017 No_date    12:00   10.69 .386
0299:         [XIMP= 10:TIMP=  20]
0300:         [SPI=1.00:SCI=  5.00]
0301:         [Lcode= 2 :CN= 66.0]
0302: * Areas to be occupied by commercial development
0303:  202:0.07----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0304:       DESIGN RASHYD     01:R1A           9.08     .229 No_date    12:10   11.65 .282
0305:         [CN= 69.0: R=  3.00]
0306:         [Tp=  .12:ST= 5.00]
0307:  202:0.08----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0308:       * DESIGN RASHYD     01:R2A           3.38     .113 No_date    12:00   13.69 .282
0309:         [CN= 69.0: R= 3.00]
0310:         [Tp=  .12:ST= 5.00]
0311:  202:0.09----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0312:       DESIGN RASHYD     01:R3A           4.05     .133 No_date    12:05   13.69 .282
0313:         [CN= 69.0: R=  3.00]
0314:         [Tp=  .21:ST= 5.00]
0315:  202:0.10----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0316:       DESIGN RASHYD     01:R3B           2.21     .061 No_date    12:00   13.69 .282
0317:         [CN= 69.0: R= 3.00]
0318:         [Tp=  .23:ST= 5.00]
0319: * Areas to be occupied by residential development
0320:  202:0.11----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0321:       DESIGN RASHYD     01:R1B           5.70     .265 No_date    12:10   13.69 .282
0322:         [CN= 69.0: R= 3.00]
0323:         [Tp=  .16:ST= 5.00]
0324:  202:0.12----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0325:       DESIGN RASHYD     01:R2B           8.9      .109 No_date    12:15   13.69 .282
0326:         [CN= 69.0: R= 3.00]
0327:         [Tp=  .18:ST= 5.00]
0328:  202:0.13----------------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0329:       DESIGN RASHYD     01:R3C           8.27     .174 No_date    12:20   13.69 .282
0330:         [CN= 69.0: R= 3.00]
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0:0A/>       [Tp=  .48:Ml= 1.02]
0:0B/>#*************************************************************************
0:0C/># Existing Flow - Total Flow to Shields Creek (Stantec Node SC128)
0:0D/>#*************************************************************************
0:0E/># McEnvoy Drain, c/s of residential area
0:0F/> 200:0014--------------ID:EX1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:10/>      ADD HYD           02:EX1       14.62     .931 No date   12:05    6.75  n/a
0:11/>                      + 03:R1A        8.08     .263 No_date   12:10   3.89  n/a
0:12/>       [ID= 5.00]  SUM=  01:R1a      22.70    1.129 No_date   12:05   10.83  n/a
0:13/># Typical Section Based on McEvoy Branch Veg Ditch 1.5:1 slopes
0:14/># provided by Atrel
0:15/># Manning's n is Channel not maintained, light brush on banks
0:16/># Route flow to 3/4 node N1
0:17/># Slope = 1% as per Atrel drawing
0:18/> 200:0015--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:19/>      ROUTE CHANNEL   -> 02:R1c5       33.70    1.125 No_date   12:05   15.83  n/a
0:1A/>       [RT= 5.00] Outs= 01:RE1a       33.70    1.074 No_date   12:10   15.83  n/a
0:1B/>       [L/S/m=  379.2/1.000/.050]
0:1C/>       [Vmax=  1.081:Tmax=  .16:]
0:1D/># Typical Section Based on Shields MD Veg Ditch 3:1 banks
0:1E/># provided by Atrel
0:1F/># Manning's n is Channel not maintained, light brush on banks
0:20/># Route EX2 to d/s Node N1
0:21/># Slope = 0.5% as per plan provided by Atrel.
0:22/> 200:0016--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:23/>      ROUTE CHANNEL   -> 02:EX2       10.84     .195 No_date   12:05   13.69  n/a
0:24/>       [RT= 5.00] Outs= 01:RE1a       10.84     .195 No_date   12:05   13.69  n/a
0:25/>       [L/S/m=  226.7/ .900/.035]
0:26/>       [Vmax=  .222:Tmax=  .682]
0:27/># McEnvoy Drain, c/s of Residential area a org Ta as Part N4
0:28/> 200:0017--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:29/>      ADD HYD           02:R1c2       1.16     .146 No_date   12:40   11.89  n/a
0:2A/>                      + 03:R1dx     31.70    1.048 No_date   12:10   15.83  n/a
0:2B/>                      + 04:R1B       5.78     .265 No_date   12:10   13.89  n/a
0:2C/>       [ID= 5.00]  SUM=  01:R1      54.34    1.373 No_date   12:10   15.08  n/a
0:2D/># Route Node N1 to Node N2
0:2E/># Typical Section Based on Shields MD Veg Ditch 3:1 banks
0:2F/># provided by Atrel
0:30/># Manning's n is Channel not maintained, light brush on banks
0:31/># Slope = 0.8%  as per plan provided by Atrel.
0:32/> 200:0018--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:33/>      ROUTE CHANNEL   -> 02:R1        54.34    1.373 No_date   12:10   15.08  n/a
0:34/>       [RT= 5.00] Outs= 01:RN1        54.34    1.189 No_date   12:15   15.08  n/a
0:35/>       [L/S/m=  184.2/ .650/.035]
0:36/>       [Vmax=  .157:Tmax=  .174]
0:37/># Typical Section Based on Atrel Drawing Drain c/s at N2
0:38/># Manning's n is Channel not maintained, light brush on banks
0:39/># Route Node N2cs to d/s Node N2
0:3A/># Slope =  .68-84.51/487
0:3B/> 200:0019--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:3C/>      ROUTE CHANNEL   -> 02:RN1        5.13     .133 No_date   12:10   3.89  n/a
0:3D/>       [RT= 5.00] Outs= 01:RN2A       5.13     .070 No_date   12:10   3.89  n/a
0:3E/>       [L/S/m=  487./ .720/.050]
0:3F/>       [Vmax=  .391:Tmax=  .204]
0:40/># Drain 2, c/s of residential area
0:41/> 200:0020--------------ID:RN2>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:42/>      ADD HYD           02:RN1       54.34    1.373 No_date   12:15   15.08  n/a
0:43/>                      + 03:RN2A       5.13     .070 No_date   12:10   3.89  n/a
0:44/>                      + 04:R2B        8.91     .139 No_date   12:15   3.89  n/a
0:45/>       [ID= 5.00]  SUM=  01:N2      68.38    1.446 No_date   12:15   14.82  n/a
0:46/># ROUTE N2 to N3
0:47/># Typical Section Based on Shields MD Veg Ditch 3:1 banks
0:48/># provided by Atrel
0:49/># Manning's n is Channel not maintained, light brush on banks
0:4A/># Slope = 0.6%  as per plan provided by Atrel.
0:4B/> 200:0021--------------ID:RN2>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:4C/>      ROUTE CHANNEL   -> 02:N2        68.38    1.314 No_date   12:15   14.82  n/a
0:4D/>       [RT= 5.00] Outs= 01:RN3        68.38    1.294 No_date   12:10   14.82  n/a
0:4E/>       [L/S/m=  376./ .650/.035]
0:4F/>       [Vmax=  .15:Tmax= 1.88]
0:50/># Add Trib 3 c/s of residential area
0:51/> 200:0022--------------ID:NR3>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:52/>      ADD HYD           02:R3A        4.14     .153 No_date   12:05   13.69  n/a
0:53/>                      + 03:R3B        9.71     .067 No_date   12:05   13.69  n/a
0:54/>                      + 04:RXA         .80     .013 No_date   12:10   18.63  n/a
0:55/>       [ID= 5.00]  SUM=  01:R3c      6.85     .212 No_date   12:05   14.05  n/a
0:56/># Typical Section Based on Atrel Drawing Drain Dta c/s of N2
0:57/># Manning's n is Channel not maintained, light brush on banks
0:58/># Route to d/s area
0:59/># Slope = 188-841/663
0:5A/> 200:0023--------------ID:NR3>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:5B/>      ROUTE CHANNEL   -> 02:R3dx     6.85     .212 No_date   12:05   14.05  n/a
0:5C/>       [RT= 5.00] Outs= 01:RR3ot      6.85     .122 No_date   12:20   14.05  n/a
0:5D/>       [L/S/m=  693./ .600/.050]
0:5E/>       [Vmax=  .421 Tmax=  .275]
0:5F/># Drain 3, c/s of residential area
0:60/> 200:0024--------------ID:NR3>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:61/>      ADD HYD           02:NR3       86.38    1.229 No_date   12:20   14.82  n/a
0:62/>                      + 03:RX3dx     6.85     .122 No_date   12:20   14.05  n/a
0:63/>                      + 04:R3C       9.71     .174 No_date   12:20   13.69  n/a
0:64/>       [ID= 5.00]  SUM=  01:R3      93.94    1.574 No_date   12:20   14.55  n/a
0:65/># ROUTE N3 to NC128
0:66/># Typical Section Based on Shields MD Veg Ditch 3:1 banks
0:67/># provided by Atrel
0:68/># Manning's n is Channel not maintained, light brush on banks
0:69/># Slope = 0.05% as per plan provided by Atrel.
0:6A/> 200:0025--------------ID:NR3>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:6B/>      ROUTE CHANNEL   -> 02:R3        87.94    1.504 No_date   12:20   14.55  n/a
0:6C/>       [RT= 5.00] Outs= 01:RN3        87.94    1.183 No_date   12:45   14.55  n/a
0:6D/>       [L/S/m=  415./ .650/.035]
0:6E/>       [Vmax=  .359:Tmax= 1.211]
0:6F/># Flow at Stantec Node NCR128 for comparison
0:70/># Route N3 plus EX3
0:71/> 200:0026--------------ID:NR3>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:72/>      ADD HYD           02:RN3       87.94    1.183 No_date   12:45   14.55  n/a
0:73/>                      + 03:EX3       9.30     .252 No_date   12:05   13.69  n/a
0:74/>       [RT= 5.00] Outs= 01:NC128     97.24    1.435 No_date   12:45   14.44  n/a
0:75/># Flow from Stantec at node NCR128 for comparison
0:76/> 200:0027--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:77/>      DBS128 RR3NR1     03:NC128      97.24    1.435 No_date   12:45   14.44  n/a
0:78/>       [DT= 60.0; DM= 5.0]
0:79/>       [Tp=  .79:LT= 5.0]
0:7A/># Typical Section Based on McEvoy Branch Veg Ditch 1.5:1 slopes
0:7B/># provided by Atrel
0:7C/># Route from N-EX1 to NCR128
0:7D/># Manning's n is Channel not maintained, light brush on banks
0:7E/># Invert at NCR128 as per Atrel bottom of ditch points   82.52 m
0:7F/># Slope = 189.70-82.52/1517
0:80/> 200:0028--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:81/>      ROUTE CHANNEL   -> 02:EX1       26.62     .921 No_date   12:05   16.75  n/a
0:82/>       [RT= 5.00] Outs= 01:RE1c       26.62     .916 No_date   12:10   16.75  n/a
0:83/>       [L/S/m=  357.7/ .650/.035]
0:84/>       [Vmax=  .270:Tmax=  .093]
0:85/> 200:0029--------------ID:NR1>-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0:86/>      ADD HYD           02:NC9c1      78.11     .858 No_date   12:55   11.63  n/a
0:87/>                      + 03:RX3dx.2    26.62     .446 No_date   12:10   16.75  n/a
0:88/>       [ID= 5.00]  SUM=  01:StnDot   102.73    1.232 No_date   12:40   14.41  n/a
0:89/>#*************************************************************************
0:8A/># Simulations with 4 hour Chicago from City of Ottawa
0:8B/># SCS 24 hours type 2, from City of Ottawa
0:8C/>  ** END OF FILE : 204
0:8D/>
0:8E/>*************************************************************************
0:8F/>
0:90/>
0:91/>
0:92/>
0:93/>
0:94/>
0:95/> #78:C:\EMP\RDT
0:96/> 205:0001--------------------------------------------------------------------
0:97/>      START
0:98/>       [TZONE =    .00 hrs or        0
0:99/>       [METCNT=   2    (1=Imperial, 2=Metric output)
0:9A/>       [NUNIT=    1 ]
0:9B/>       [NRUN  = 205 ]
0:9C/>*************************************************************************
0:9D/># SWMHYMO Ver:5.02/Jun 2008, <EXE2> / INPUT DATA FILE
0:9E/>*************************************************************************
0:9F/># Project Name: [Greely Village Center]    Project Number: [647-07]
0:A0/># Date       : 04-09-2008
0:A1/># Modeller   : [JMF]
0:A2/># Company    : JFSAinc.
0:A3/># License #  :  1547402
0:A4/>*************************************************************************
0:A5/>r
0:A6/># SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
0:A7/># Ex xisting conditions.
0:A8/># Filename example for: GRP1Ec - Greely, Residential, Phase 1, Existing
0:A9/>#
0:AA/># Dec 15, 2008
0:AB/># Added July 1st 1979 Event
0:AC/>#
0:AD/># *# EXISTING CONDITIONS ASSUMPTIONS:
0:AE/># CN*, AIMP, IA%,
0:AF/># as per Stantec Report, Oct. 2002: Greely Shields Creek, Stormwater
0:B0/># and Drainage Study.
```

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* And as per Atrel drawing: Greely Village Area.dwg
*  as specified per subwatershed
*  Tp values used being the Upland Method as per Standard. (Tp = Tc * 2/3)
*
*****************************************************************************
 205:0002----------                                                          -----
      RAND 50+5M
       Filename = sromn.dat
       Comment  - 5 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa
       [SDT=10.00;SDR=  24.00;PRC%=  64.11]
*****************************************************************************
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development (residential)
* CN= 77; slope = 0.5; Ia=0.15, SIMP=5, TIMP=15, see SCS02 as per Stantec
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* n/a at Bank St as per Atrel - with modified boundaries and Tp.
 205:0005---------------ID:3MYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN MASMYD      01:EX5        24.62     3.450 No_Date   12:05   70.47  .615
       [CN= 75.0; N= 3.00]
       [Ia=  .2;SI=  5.00]
*****************************************************************************
* Entering flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
* CN*=80, as per Stantec see SCS01.
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas optional to development
 205:0006---------------ID:8MYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN EXSEYD      01:EX2        10.94     .250 No_Date   12:35   22.18  .306
       [CN= 69.0; N= 3.00]
       [Ia=  .6;SI=  5.00]
 205:0005---------------ID:EXYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN EXSEYD      01:EX3        21.30     .422 No_date   12:45   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .93;SI=  5.00]
* Storm, Xinp, Tinp, Area from Atrel Drawing
* CN from Stantec [SCS07]
* Also - Vinp  10:
 205:0006---------------ID:EXYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
   *  DESIGN STANDARD    01:EX4         .58       931 No_date   12:00   25.62  .445
       [XIMP=.1;TIMP  .22]
       [SCP= .60;SCT= 5.00]
       [Ia2SW = .2 CN= 69.0]
* Areas to be occupied by commercial development
 205:0007---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN SHARED      01:EX.A       0.87     .366 No_date   12:10   70.14  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .7;SI=  5.00]
 205:0008---------------ID:SHYE-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
   *  DESIGN MASMYD      01:EX7A       3.13     .218 No_date   12:00   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .11;SI=  5.00]
 205:0009---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN MASMYD      01:EX8A       4.14     .317 No_date   12:05   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .21;SI=  5.00]
 205:0010---------------ID:SHYE-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN EXSEYD      01:EX8        2.21     .109 No_date   12:05   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .2;SI=  5.00]
* Areas to be occupied by residential development
 205:0011---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN MASHYE      01:EX8        9.48     .725 No_date   12:05   22.18  .306
       [CN= 69.0; N= 3.00]
       [Ia=  .6;SI=  5.00]
 205:0012---------------ID:EXYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN MASHYE      01:EX9        7.91     .611 No_date   12:15   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .5;SI=  5.00]
 205:0013---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      DESIGN MASHYE      01:EX10       9.71     .749 No_date   12:20   22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .6;SI=  5.00]
*****************************************************************************
* EXISTING flow - Total Flow to Shield Creek (Stantec Node SCT1N)
*****************************************************************************
* McEvoy Drain, c/a of residential area
 205:0014---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ADD HYD            02:EX1        34.43    3.180 No_date   12:05   20.63  n/a
                       + 03:RIA         1.87     .765 No_date   12:10   23.11  n/a
      [DT  5.00]  SUM=  01:R1a        36.30    3.621 No_date   12:05   20.47  n/a
* Typical Section based on McEvoy Branch Vee Ditch 1:3:1 slopes
* provided by Atrel
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* Manning's n is Channel not maintained, light brush on banks
* Route R1a to c/a node R:
* Slope   1: as per Atrel drawing
 205:0015---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1aa       33.70    1.317 No_date   12:10   20.42  n/a
       [RSI= 5.00] outs- 01:R81aa      33.70    1.317 No_date   12:10   20.42  n/a
       [L/S/n=  575./1.000/.050]
       [Vmax=  1.137;tmax= 1.921]
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to c/a node R1
* Slope   0.05: as per plan provided by Atrel
 205:0016---------------ID:8MYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2        10.94     .250 No_date   12:35   22.18  n/a
       [RSI= 5.00] outs- 01:REX2       10.94     .125 No_date   12:15   22.18  n/a
       [L/S/n=  284./ .050/.035]
       [Vmax=  .246;tmax=  .59]
* McEvoy Drain, c/a of residential area along Bales Road
 205:0017---------------ID:8MYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ADD HYD            02:EX2        10.94     .725 No_date   12:40   22.18  n/a
                       + 03:RR1aa      33.70    1.317 No_date   12:10   20.42  n/a
                       + 04:R1E         5.70     .438 No_date   12:05   22.18  n/a
      [DT= 5.00]  SUM=  01:R1         54.34    2.481 No_date   12:10   24.19  n/a
* Route Node R1 to Node N:
* Typical section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope   0.05: as per plan provided by Atrel.
 205:0018---------------ID:8MYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2A        54.34    2.481 No_date   12:10   24.19  n/a
       [RSI= 5.00] outs- 01:R81        54.34    1.049 No_date   12:15   24.19  n/a
       [L/S/n=  184./ .050/.035]
       [Vmax=  .387;tmax= 1.4 6]
* Typical section based on Atrel drawing drain c/a of R2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2aa to c/a node E2
* Slope - 100 84.5)/480)
 205:0019---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2A        54.34    2.481 No_date   12:10   24.19  n/a
       [RSI= 5.00] outs- 01:R82A       54.34    1.049 No_date   12:15   24.19  n/a
       [L/S/n=  184./ .050/.035]
       [Vmax=  .387;tmax= 1.4 6]
* Drain 2, c/a of residential area
 205:0020---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ADD HYD            01:R8        54.34    1.979 No_date   12:10   20.19  n/a
                       + 03:RR2A        .13     .125 No_date   12:10   22.18  n/a
                       + 04:R2E         .93     .311 No_date   12:15   22.18  n/a
      [DT= 5.00]  SUM=  01:R2         55.40    2.002 No_date   12:10   21.47  n/a
* ROUTE R2 to N!
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel, not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 205:0021---------------ID:EYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:R2          66.38    2.439 No_date   12:10   23.82  n/a
   *  [RSI= 5.00] out- 01:RR2          66.38    2.079 No_date   12:20   23.82  n/a
       [L/S/n=  210./ .050/.035]
       [Vmax=  .382;tmax=  .456]
* Add Drain 3 c/a of residential area
 205:0022---------------ID:EXYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ADD HYD            01:R3A        4.14     .317 No_date   12:05   22.18  n/a
                       + 02:E3B         2.21     .109 No_date   12:05   22.18  n/a
                       + 04:EX4          .58     .031 No_date   12:00   22.62  n/a
      [DT= 5.00]  SUM=  01:R2aa        6.95     .352 No_date   12:05   22.61  n/a
* Typical Section based on Atrel drawing drain new c/a of R2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope - 100-84)/650
 205:0023---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2aa       6.95     .352 No_date   12:05   20.64  n/a
       [RSI= 5.00] outs- C1:RR2aa      6.95     .215 No_date   12:15   22.64  n/a
       [L/S/n=  663./ .060/.050]
       [Vmax=  .1.05;tmax=  .263]
* Drain 4, c/a of residential area
 205:0024---------------ID:NEYD-------AREA----QPEAK-TpeakDate h:mn----R.V.-R.C.-
      ADD HYD            02:R6        86.36    2.079 No_date   12:20   23.62  n/a
                       + 03:RR1aa      6.95     .215 No_date   12:15   22.64  n/a
                       + 04:R3E        9.71     .285 No_date   12:20   22.18  n/a
      [DT= 5.00]  SUM=  01:R3         82.96    2.079 No_date   12:20   23.22  n/a
* ROUTE R3 to NC1E
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
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02150> # Manning's n is Channel not maintained, light brush on banks
02160> # Slope - 0.5% as per plan provided by Aire..
02161> 205:0025----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02162>      ROUTE CHANNEL    -> 02:N2        81.64    2.075 No_date   12:30   27.53  n/a
02163>        [RD= 6.0] sub= 01:sb3         82.64    2.069 No_date   12:30   24.51  n/a
02164>        [L/S/n= 4.5/.7 .050/.035]
02165>        [Vmax   =5.91*Qmax= 1.56*]
02166> * Flow at Stantec node HCR.28 for comparison
02167> * Routed Ns plus 4%:
02168> 205:0026----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm    R.V.-R.C.-
02169>      ADD HYD          02:NN3        82.95    2.067 No_date   12:30   24.83  n/a
02170>                       03:EX5         2.33     .422 No_date   12:45   22.18  n/a
02171>      [DT= 5.00]  SUM= 01:NCR16b    104.24    2.457 No_date   12:30   23.26  n/a
02172> * Flow from Stantec at node HCR128 for comparison
02173> 205:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02174>      DESIGN HASHYD    01:HC001     79.11    1.916 No_date   12:30   23.14  n/a
02175>        [CN= 89.2: N= 3.00]
02176>        [Tp=  .61:DT= 5.00]
02177> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
02178> * provided by Aire1
02179> * Route flow N-EX1 to HCR.28
02180> * Manning's n is Channel not maintained, light brush on banks
02181> * Invert at HCR.28 as per Aire1 bottom of ditch points - 82.52 m
02182> * Slope - [89.70-82.02]/1017
02183> 205:0028----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm    R.V. R.C.
02184>      ROUTE CHANNEL    -> 02:EX1       24.62     .777 No_date   12:20   26.61  n/a
02185>        [RD= 6.0] sub= 01:EX1E        24.62     .777 No_date   12:20   26.61  n/a
02186>        [L/S/n= 1317.7 .470/.050]
02187>        [Vmax=  .777:Rmax= 1.122]
02188> 205:0029----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02189>      ADD HYD          02:EX2/3      28.71     .914 No_date   12:30   22.18  n/a
02190>                       03:EX1E       24.62     .777 No_date   12:20   26.61  n/a
02191>      [DT= 5.00]  SUM= 01:EX1Out    53.33    1.691 No_date   12:40   23.24  n/a
02192> *--------------------------------------------------------------------------
02193> * Simulations with 4 hour Chicago from City of Ottawa
02194> * 3hr 24 hours type 2, from City of Ottawa
02195>   ** END OF RUN : 2c9
02196>
02197> ----------------------------------------------------------------------
02198>
02199>
02200>
02201>
02202>
02203>  READ COMMANDS
02204>  T1:0:0.0 ----------------------------------------------------------------
02205>       START          [TZERO =    .00 hrs on        0]
02206>                      [METOUT=   2     (1=Imperial, 2=Metric output)]
02207>                      [NSTORM=   1 ]
02208>                      [NRUN=   210 ]
02209> *--------------------------------------------------------------------------
02210> *  SWMHYMO Version 3.07/Jan 2001 (METRIC) / INPUT DATA FILE
02211> *--------------------------------------------------------------------------
02212> *  Project Name: [Greely Village Center]    Project Number: [667-07]
02213> *  Date        : 04-08-2008
02214> *  Modeller    : [JHE]
02215> *  Company     : JFSAinc.
02216> *  Licence #   : 5547402
02217> *--------------------------------------------------------------------------
02218> *
02219> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
02220> * Existing conditions.
02221> * Filename extension used: GRPIE - Area y, Residential , Phase , Xx zoning
02222> *
02223> * Dec 15, 2008
02224> * Added Only 1st 210 event
02225> *
02226> *  ASSUMPTIONS / EXISTING CONDITIONS ASSUMPTIONS:
02227> *  Ch=, XIMP, I.A.,
02228> *  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
02229> *  and Drainage Study.
02230> *  and as per Aire1 Drawing  Greely Village Area.dwg
02231> *  As specified per Subwatershed
02232> *  Tp Calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
02233> *
02234> *--------------------------------------------------------------------------
02235>  T1:0:0.2 ----------------------------------------------------------------
02236>       REAL STORM
02237>       [Filename = Storm.001
02238>       [Comment  = 10 years 90% Type 2 Storm 24 Hours Step 10 min, City of Ott
02239>       [SIT 17.00:[TOT=  90.00:PTOT=  24.15]
02240> *--------------------------------------------------------------------------
02241>
02242> * Existing flow - McEvoy Branch of Shield Creek   Areas
02243> * Rear y/s of Proposed development (residential)
02244> * CN*=69, a ops = 2.5, Tp=0.15, XIMP=0, I.A.=15. Use 0.002 as per Stantec
02245> * Area partially adjusted based on Aire1 drawings.
02246> *--------------------------------------------------------------------------
02247> * u/s of Bank St.es per Aire1 - with modified boundaries and Tp.
02248>  210:0060----------T:NHYD-------AREA----QPEAK-Tpeak<Date hhmm----R.V.-R.C.-
02249>       DESIGN HASHYD    01:EX1       24.62    1.884 No_date   12:05   33.68  .453
02250>         [CN= 75.0: N= 3.00]
02251>         [Tp=  .23:DT= 5.00]
02252> *--------------------------------------------------------------------------
02253> * Existing flow - McEvoy Branch of Shield Creek u/s of Bank St.;
02254> * CN*=69, as per Stantec Rep ECCO .
02255> * Area partially adjusted based on Aire1 drawings.
02256> *--------------------------------------------------------------------------
02257> * Areas External to development
02258>  210:0064----------ID:NHYD-------AREA----QPEAK-Tpeak<Date hhmm----R.V.-R.C.-
02259>       DESIGN HASHYD    01:EX2       10.94     .327 No_date   12:15   28.09  .382
02260>         [CN= 69.0: N= 3.00]
02261>         [Tp=  .67:DT= 5.00]
02262>  210:0065----------ID:NHYD-------AREA----QPEAK-Tpeak<Date hhmm----R.V.-R.C.-
02263>       DESIGN HASHYD    01:EX3       11.58     .364 No_date   12:05   28.47  .382
02264>         [CN= 69.0: N= 3.00]
02265>         [Tp=  .81:DT= 5.00]
02266> * Slope, Ximp, Timp, Area flow Aire1 Drawing
02267> * CN flow Stantec (SC062)
02268> * Ximp = Timp = 10
02269>  210:0066----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02270>   *  DESIGN STANDHYD   01:EX4        1.50     .053 No_date   12:00   35.03  .474
02271>       [XIMP=.1:TIMP=.2]
02272>       [S.P=1.0:S:I= 5.0]
02273>       [LOSS= 2 :Ch= 68.0]
02274> * Areas to be occupied by commercial development
02275>  210:0067----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02276>       DESIGN HASHYD    01:EX1A      5.08     .147 No_date   12:10   28.19  .382
02277>         [CN= 89.0: N= 3.00]
02278>         [Tp=  .31:DT= 5.00]
02279>  210:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02280>   *  DESIGN HASHYD    01:P2A       3.13     .282 No_date   12:00   35.38  .382
02281>         [CN= 69.0  I= 5.00]
02282>         [Tp=  .13:DT= 5.00]
02283>  210:0069----------T:NHYD-------AREA----QPEAK-Tpeak<Date hhmm----R.V.-R.C.-
02284>       DESIGN HASHYD    01:P1A       4.16     .374 No_date   12:05   28.38  .382
02285>         [CN= 69.0: N= 3.00]
02286>         [Tp=  .23:DT= 5.00]
02287>  210:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V. R.C.-
02288>       DESIGN HASHYD    01:P3A       2.21     .141 No_date   12:05   28.38  .382
02289>         [CN= 69.0: N= 3.00]
02290>         [Tp=  .23:DT= 5.00]
02291> * Areas to be occupied by residential development
02292>  210:0071----------T:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02293>       DESIGN HASHYD    01:P.5       9.38     .598 No_date   12:05   28.38  .382
02294>         [CN= 69.0: N= 3.00]
02295>         [Tp=  .26:DT= 5.00]
02296>  210:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02297>       DESIGN HASHYD    01:P2B       4.91     .308 No_date   12:15   28.35  .382
02298>         [CN= 69.0: N= 3.00]
02299>         [Tp=  .32:DT= 5.00]
02300>  210:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02301>       DESIGN HASHYD    01:P3C       5.71     .368 No_date   12:20   28.38  .382
02302>         [CN= 69.0: N= 3.00]
02303>         [Tp=  .49:DT= 5.00]
02304> *--------------------------------------------------------------------------
02305> * EXISTING flow - Total Flow to Shield Creek (Stantec Node HCR.0)
02306> *--------------------------------------------------------------------------
02307> *  McEvoy Branch, u/s of residential area
02308>  210:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V. R.C.-
02309>       ADD HYD          02:EX1       24.62     .884 No_date   12:05   33.69  n/a
02310>                        03:N1A        9.08     .471 No_date   12:10   28.19  n/a
02311>       [01= 3.00]  SUM= 01:N1Out     33.70    2.325 No_date   12:05   32.26  n/a
02312> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
02313> * provided by Aire1
02314> * Manning's n is Channel not maintained, light brush on banks
02315> * Route Flow to d/s Node N1
02316> * Slope - 1% as per Aire1 Drawing
02317>  210:0.15----------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02318>       ROUTE CHANNEL    -> 01:N1Out     33.70    2.325 No_date   12:05   32.26  n/a
02319>         [RD= 6.0] sub= 01:SB1.a       33.70    2.161 No_date   12:10   32.26  n/a
02320>         [L/S/n= 375./1.0/.050]
02321>         [Vmax= 1.122:Rmax= 1.164]
02322> * Typical Section based on Shields SD Vee Ditch 3:1 banks
02323> * provided by Aire1
02324> * Manning's n is Channel not maintained, light brush on banks
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02325> * Route EX2 to D/S Node 31
02326> * Slope = 0.05% as per plan provided by Atrel.
02327> 210:0031----------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02328>      ROUTE CHANNEL    -> 00:EX2        10.61      .327 No_date    12:55   28.38  n/a
02329>        [RET= 5.00] outs= 01:REX2       10.61      .290 No_date    12:40   28.38  n/a
02330>        [I/O/n= .074/ .05o/ .015]
02331>        [Vmax= .295:Tmax= .055]
02332> *  McEvoy Branch, D/S of residential area e.org Swales Part Rd
02333> 210:0027----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02334>      ADD HYD          02:REX2        10.61      .290 No_date    12:40   28.38  n/a
02335>                     + 03:RP1ex       37.73     2.163 No_date    12:10   32.28  n/a
02336>                     + 04:R1C         5.33      .560 No_date    12:05   28.28  n/a
02337>        [DI= 5.00]  SUM= 01:R1         54.1*     2.160 No_date    12:10   30.79  n/a
02338> * Route Node R1 to Node R2
02339> * Typical section based on Shields RD Vee Ditch 3:1 banks
02340> * provided by Atrel
02341> * Manning's n is Channel not maintained, light brush on banks
02342> * Slope = 0.05% as per plan provided by Atrel.
02343> 210:0018----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02344>      ROUTE CHANNEL    -> 02:R1         54.34     2.867 No_date    12:10   30.79  n/a
02345>    *   [RET= 5.00] outs= 01:RR1        54.34     2.722 No_date    12:15   30.79  n/a
02346>        [I/O/n= .084/ .05o/ .03]
02347>        [Vmax= .134:Tmax= 1.40]
02348> * Typical Section based on Atrel Drawing drain D/S of R1
02349> * Manning's n is Channel not maintained, light brush on banks
02350> * Route Node R1to to D/S node R2
02351> * Slope = [84-81.5]/[87
02352> 210:0019----------ID:NHYT-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02353>      ROUTE CHANNEL    -> 02:R2A        3.13      .286 No_date    12:10   28.38  n/a
02354>        [RET= 5.00] outs= 01:RP1A       3.13      .166 No_date    12:10   28.38  n/a
02355>        [I/O/n= +87./ .02o/ .05o]
02356>        [Vmax= .488:Tmax= ..25]
02357> *  Drain 2, D/S of residential area
02358> 210:0020----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02359>      ADD HYD          02:R2C        54.34     2.722 No_date    12:15   30.79  n/a
02360>                     + 03:RP1A        3.13      .166 No_date    12:10   28.38  n/a
02361>                     + 04:R2B         8.91      .430 No_date    12:15   28.38  n/a
02362>        [DC= 5.00]  SUM= 01:R2         66.38     3.270 No_date    12:15   30.36  n/a
02363> * ROUTE R2 to R3
02364> * Typical Section based on Shields RD Vee Ditch 3:1 banks
02365> * provided by Atrel
02366> * Manning's n is Channel not maintained, light brush on banks
02367> * Slope = 0.05% as per plan provided by Atrel.
02368> 210:0021----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02369>      ROUTE CHANNEL    -> 02:R2         66.38     3.270 No_date    12:15   30.36  n/a
02370>    *   [RET= 5.00] outs= 01:RR2        66.38     2.928 No_date    12:30   30.36  n/a
02371>        [I/O/n= .110/ .05o/ .03]
02372>        [Vmax= .158:Tmax= 1.08]
02373> * Add Drain 4 D/S of residential area
02374> 210:0022----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02375>      ADD HYD          02:R2A        3.13      .166 No_date    12:10   28.38  n/a
02376>                     + 03:R2B         8.91      .430 No_date    12:15   28.38  n/a
02377>                     + 04:R2C4         .96      .029 No_date    12:00   35.53  n/a
02378>        [DC= 5.00]  SUM= 01:R2C         6.85      .464 No_date    12:05   28.91  n/a
02379> * Typical Section based on Atrel Drawing drain D/S D/S of R2
02380> * Manning's n is Channel not maintained, light brush on banks
02381> * Route to d/s area
02382> * Slope = [88.84]/[8
02383> 210:0023----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02384>      ROUTE CHANNEL    -> 02:R2A        6.85      .471 No_date    12:05   28.91  n/a
02385>        [RET= 5.00] outs= 01:RR2A       6.85      .230 No_date    12:10   28.91  n/a
02386>        [I/O/n= .063/ .o8o/ .05o]
02387>        [Vmax= .151:Tmax= .07o]
02388> *  Drain 3, D/S of residential area
02389> 210:0024----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02390>      ADD HYD          02:R3D        58.38     2.928 No_date    12:20   30.36  n/a
02391>                     + 03:RP3ex       8.85      .288 No_date    12:15   29.91  n/a
02392>                     + 04:R3C         9.71      .368 No_date    12:20   28.29  n/a
02393>        [DI= 5.00]  SUM= 01:R3         82.64     3.579 No_date    12:20   30.01  n/a
02394> * ROUTE R3 to R128
02395> * Typical section based on Shields RD Vee Ditch 3:1 Banks
02396> * provided by Atrel
02397> * Manning's n is Channel not maintained, light brush on banks
02398> * slope = 0.05% as per plan provided by Atrel.
02399> 210:0025----------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02400>      ROUTE CHANNEL    -> 02:R3         82.64     3.579 No_date    12:20   30.01  n/a
02401>    *   [RET= 5.00] outs= 01:RR3        82.64     2.980 No_date    12:35   30.01  n/a
02402>        [I/S/n= .015./ .05o/ .035]
02403>        [Vmax= .354:Tmax= 1.72]
02404> * Flow at Starter node DCR128 for comparison
02405> * Routed DS plus RX1
02406> 210:0026----------ID:NHYT-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02407>      ADD HYD          03:RR1        82.64     2.980 No_date    12:35   30.01  n/a
02408>                     + C3:EX3         3.19      .548 No_date    12:45   28.39  n/a
02409>        [DC= 5.00]  SUM= C1:R.R128    104.24    3.424 No_date    13:15   29.68  n/a
02410> * Flow from Starter at node DCR128 for comparison
02411> 210:0027----------ID:NHYT-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02412>      DVERSION KRSHYD  C1:SC001        79.11     1.662 No_date    12:40   28.49  .780
02413>        [CN= 60.0] N= 5.00
02414>        [Tp= .91:ET= 5.00]
02415> * System Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
02416> * provided by Atrel
02417> * Route from D-EX1 to DCR128
02418> * Manning's n is Channel not maintained, light brush or banks
02419> * Invert at DCR128 as per Atrel Bottom of Ditch Grade = 82.5' m
02420> * Slope = [85.5-82.5]/1917
02421> 210:0028----------ID:NHYT-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02422>      ROUTE CHANNEL    -> 02:XX         24.62     1.480 No_date    12:40   33.89  n/a
02423>        [EX2  5.00] outs= 01:REX2       24.62     1.075 No_date    12:20   33.89  n/a
02424>        [I/S/n= 1217./ .o7o/ .05o]
02425>        [Vmax= .760:Tmax= 1.26]
02426> 210:0029----------ID:NHYT-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02427>      ADD HYD          02:DCC01        78.11     1.662 No_date    12:50   28.39  n/a
02428>                     + 03:DCX1E       24.62     1.075 No_date    12:20   33.89  n/a
02429>        [DI= 5.00]  SUM= 01:DCX1L       82.73     1.675 No_date    12:35   29.66  n/a
02430> *------------------------------------------------------------------------
02431> * Runs arrive with 0 hour Chicago from City of Ottawa
02432> * NOW 24 hours type 2, from City of Ottawa
02433> ** END OF RUN : 1/4
02434>
02435> *------------------------------------------------------------------------
02436>
02437>
02438>
02439>
02440>
02441>
02442>  RUN:COMMAND#
02443> 2/RUNCO ------------------------------------------------------------------
02444>      START
02445>       [YYXXMO =    .0o Yrs or       0]
02446>       [METUOUT=  2    [1=imperial, 2=metric output]
02447>       [NPYPSH=   1 ]
02448>       [NRUN   = 225 ]
02449> *------------------------------------------------------------------------
02450> *  SWMM5/MO Version 5.0/Jan 2008 <BETA> / INPUT DATA FILE
02451> *------------------------------------------------------------------------
02452> *  Project Name: [Greely Village Center      Project Number: [647.07]
02453> *  Date       : 04-09-2008
02454> *  Modeller   : [CHP]
02455> *  Company    : JFSAinc.
02456> *  License #  :  154/402
02457> *------------------------------------------------------------------------
02458> *
02459> * SWMM5/MO model of the Greely Village Center - Residential Area - Phase
02460> * Existing conditions.
02461> * Filename stands for: GRv1E - Greely, Residential, Phase 1, Existing
02462> *
02463> * Dec 15, 2008
02464> *
02465> * *  Existing Conditions Assumptions
02466> *  CN*, Xi%, Timp,
02467> *  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
02468> *  and Drainage Study.
02469> *  and as per Atrel Drawing: Greely Village Area.dwg
02470> *  as specified per scenario-ened
02471> *  Tp (calculated using Izz Iqbal Verhoe as per Stantec. (Tp = Tc * 2/3)
02472> *
02473> *------------------------------------------------------------------------
02474> [OPTIONS]-------------------------------------------------------------------
02475>      READ STORM
02476>       Filename = storm.dat
02477>       Comment  - 25 years SCS Type I Storm 24 Hours Step 10 min, City of Ott
02478>       [EDT 10.00;SIUR=  24.00;YUT=  86.4]
02479> *------------------------------------------------------------------------
02480> * Existing  - McEvoy Branch of Shield Creek - Areas
02481> * Area C/s of proposed development (residential)
02482> * CN*-72, Slope = 0.5, Tp=0.6h, XIMP=5, TIMP 15. See SC002 as per Stantec
02483> * Area partially adjusted based on Atrel drawings.
02484> *------------------------------------------------------------------------
02485> * n/s of Bank St.as per Atrel - with modified boundaries and Tp
02486> [SUBCAT]----------------ID:NHYI-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02487>      DRN:SB EX3HYD    C1:EX1         24.62     2.4.1 No_date    12:05   12.87 .493
02488>        [CN= 75.0; N= 5.00
02489>        [Ips= .22:LT= 5.00]
02490> *------------------------------------------------------------------------
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* Remaining flow - McEvoy Branch of Shields Creek (d/s of Bank St.)
* CN=~89, as per Stantec sec 3C001.
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas External to Development
 [Tp:0.04]----------ID:EXTD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      Lag(CN NASHYD      01:EX2        0.94      .470 No date   12:05   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .31:DT= 5.00]
 225:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      Lag(CN NASHYD      01:EX3       21.78     7.05 No date   12:45   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .4:DT= 5.00]
* Slope, Ximp, Timp, Area from Atrel Drawing
* CN from Stantec (SC001)
* Ximp = Timp - 10:
 225:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * DESIGN STANDBYD    01:EX1        .56      .268 No date   12:10   44.56 .511
       [XIMP= 11.TIMP= 22]
       [SLP=1.00:STP= 5.00]
       [CN0= 0 xCN= 89.0]
* Areas to be occupied by commercial development
 225:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC1A       9.08      .611 No_date   12:10   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .11:DT= 5.00]
 225:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC2A       1.11      .062 No_date   12:05   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .2:DT= 5.00]
 225:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC2B       3.51      .382 No_date   12:05   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .2:DT= 5.00]
* Areas to be occupied by residential development
 225:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC3B       9.71      .727 No_date   12:05   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .2:DT= 5.00]
 225:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC3A       3.51      .263 No_date   12:05   36.55 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .2:DT= 5.00]
 225:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC3C       9.71      .477 No_date   12:20   36.05 .421
       [CN= 89.0: N= 3.00]
       [Tp=  .4:DT= 5.00]
*****************************************************************************
* EXISTING Flow - Total Flow to Shield Creek (Stantec Node SC120)
*****************************************************************************
* McEvoy Drain, d/s of residential area
 225:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            03:EX1       24.62     8.401 No_date   12:05   41.17 n/a
                       + 03:R.A        9.08      .611 No_date   12:10   36.55 n/a
       [01= 3.63]  SUM=  01:R.1a      33.70     2.985 No_date   12:05   41.17 n/a
* Typical Section based on McEvoy Branch Ves Ditch 1.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route flow to d/s node E1
* Slope = 1% as per Atrel drawing
 225:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R1a      33.70     2.985 No_date   12:05   41.17 n/a
       [RCC= 5.00] outs= 01:RR1a      33.70     2.729 No_date   12:10   41.17 n/a
       [1/2/n=  87.5/1.000/.050]
       [Vmax=  1.1:Tmax=  .730]
* Typical Section Based on Shields NE Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to d/s Node N1
* Slope = 0.05% as per plan provided by Atrel.
 225:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:EX2       19.04     .424 No_date   12:45   36.55 n/a
       [RCC= 5.00] outs= 01:RR2       19.04     .379 No_date   12:45   36.55 n/a
       [1/2/n=  224./ .050/.035]
       [Vmax=  .272:Tmax=  .730]
* McEvoy Drain, d/s of residential area along Suite Barn Rd
 225:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            03:RR1a       33.70     2.729 No_date   12:10   41.17 n/a
                       + 03:RR2a       19.04      .379 No_date   12:45   36.55 n/a
                       + 03:EX3        21.30      .705 No_date   12:45   36.52 n/a
       [01= 5.00]  SUM=  01:N1        74.04     3.813 No_date   12:10   39.41 n/a
* Route Node N1 to Node N2
* Typical Section based on Shields NE Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 225:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N1        74.04     3.618 No_date   12:10   39.41 n/a
   *  [RCC= 5.00] outs= 01:RN1       64.54     3.301 No_date   12:30   39.41 n/a
       [1/2/n=  180./ .050/.035]
       [Vmax=  .955:Tmax=  .778]
* Typical Section based on Atrel drawing Drain d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2 to d/s Lodge N2
* Slope = 0.5% as per plan provided by Atrel.
 225:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 01:N2A       3.13      .162 No_date   12:00   36.55 n/a
       [RCC= 5.00] outs= 01:NR2A      3.13      .121 No_date   12:10   36.52 n/a
       [1/2/n=  87./ .5 01/.050]
       [Vmax=  .85:Tmax=  .168]
* Drain 2, d/s of residential area
 225:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:SC4A       54.34     3.301 No_date   12:20   37.41 n/a
                       + 03:SC2A       3.13      .221 No_date   12:10   36.55 n/a
                       + 01:SC2B       9.51      .519 No_date   12:15   36.55 n/a
       [01= 5.00]  SUM=  01:N2        66.98     3.963 No_date   12:20   37.09 n/a
* POINTS N2 to N3
* Typical Section based on Shields NE Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 225:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N2        66.98     3.963 No_date   12:20   37.09 n/a
   *  [RCC= 5.00] outs= 01:NR2       66.98     3.804 No_date   12:30   37.09 n/a
       [1/2/n=  210./ .050/.035]
       [Vmax=  .951:Tmax=  1.813]
* End Drain 2 d/s of residential area
 225:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:R1A        4.19      .364 No_date   12:05   36.55 n/a
                       + 03:R3B        2.21      .138 No_date   12:05   36.55 n/a
                       + 04:EX4         .60      .060 No_date   12:00   46.59 n/a
       [01= 5.00]  SUM=  01:R3a        8.85      .561 No_date   12:05   37.13 n/a
* Typical Section based on Atrel Drawing Drain btw d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (98-86)/865
 225:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R3aa        8.85      .561 No_date   12:05   37.13 n/a
       [RCC= 5.00] outs= 01:RR3aa       8.85      .388 No_date   12:15   37.13 n/a
       [1/2/n=  86./ .080/.035]
       [Vmax=  .958:Tmax=  .33]
* Drain 3, d/s of residential area
 225:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:N2          66.98     3.804 No_date   12:20   38.09 n/a
                       + 03:RR3aa       8.85      .388 No_date   12:15   37.13 n/a
                       + 04:R3C         9.71      .477 No_date   12:20   36.05 n/a
       [03= 5.00]  SUM=  01:N3        85.54     4.275 No_date   12:30   38.47 n/a
* ROUTE N3 to KC1 E
* Typical Section based on Shields NE Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 225:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N3        85.54     4.275 No_date   12:30   38.47 n/a
   *  [RCC= 5.00] outs= 01:RN3       80.54     3.969 No_date   12:35   38.47 n/a
       [1/2/n=  415./ .080/.035]
       [Vmax=  .959:Tmax=  1.803]
* Flow at Stantec node DUB125 for comparison
* Routed EX pipe EX7
 225:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RN3         82.90     3.969 No_date   12:35   38.47 n/a
                       + 03:EX5         21.30      .705 No_date   12:45   36.52 n/a
       [02= 5.00]  SUM=  01:NCR 2B     104.74     4.160 No_date   12:35   38.08 n/a
* Flow from Stantec at node NCR125 for comparison
 225:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:SC4C1      78.11     2.415 No_date   12:50   34.03 .421
       [CN= 82.0: N= 3.00]
       [Tp=  .9:DT= 5.00]
* Typical Section based on McEvoy Branch Ves Ditch 1.5:1 slopes
* provided by Atrel
* Route from N-EX1 to NCR125
* Manning's n is Channel not maintained, light brush on banks
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02657> * Invert at OCB124 as per Atrel bottom of ditch points = 82.62 m
02658> * S ope = [86.70-82.62]/.517
02659> *********-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02660>      ROUTE CHANNEL   -> 02:EX1       24.62     2.411 No_date   12:05   62.69  n/a
02661>       [adj= 0.60] outc= 01:REX16     24.62     1.731 No_date   12:20   62.69  n/a
02662>       [L/S/n= 1517./ .170/.050]
02663>       [Vmax=  .78 <Tmax= 1.95]
02664> *********-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02665>      ADD HYD         + 02:EX2       78.11     2.412 No_date   12:20   58.52  n/a
02666>                      + 05:REX15     24.62     1.731 No_date   12:20   62.69  n/a
02667>       [DT= 5.00]  SUM= 01:SumTot    102.73    4.424 No_date   12:20   59.84  n/a
02668> *****************************************************************************
02669> * Simulations with 4 hour Chicago from City of Ottawa
02670> * SCS 24 hours type 2, from City of Ottawa
02671> *  ** RKS OF RUN : 249
02672>
02673> ------------------------------------------------------------------------------
02674>
02675>
02676>
02677>
02678>
02679>  RUN:COMMANDS
02680>  250:0001-----------------------------------------------------------------------
02681>      START                 [TZERO =    .00 hrs on      0]
02682>       [METOUT=   2    (1-Imperial, 2-metric output)]
02683>       [NSTORM=   1 ]
02684>       [NRUN    250 ]
02685> ******************************************************************************
02686> *  SWMHYMO Verth.0f/Jan 2003 (KEIKO / INPUT DATA 71.0
02687> ******************************************************************************
02688> *  Project Name: [Greely Village Center]    Project Number: [867-07]
02689> *  Date        : 04-08-2008
02690> *  Modeller    : [CHP]
02691> *  Company     : JFSAinc.
02692> *  License #   :  [54/4/2
02693> ******************************************************************************
02694> *
02695> * SWMHYMO model of the Greely Village Center - Residential Area   Phase 1
02696> * Existing conditions.
02697> * Filename stands for: OBR1E - Greely, Residential, Phase 1, Existing
02698> *
02699> * Dec 15, 2008
02700> * Added July 1st 1979 event
02701> *
02702> * !# EXISTING CONDITIONS ASSUMPTIONS:
02703> *  CN*, XIMP, TIMP,
02704> *  as per Stantec Report, Oct. 2002. Greely Shield Creek, Stormwater
02705> *  and Drainage study.
02706> *  and as per Atrel drawing: Greely Village Area.dwg
02707> *  as specified per subwatershed
02708> *  Tc calculated using the Celuno Method as per Stantec. (Tp = Tc * 2/3)
02709> *
02710> ******************************************************************************
02711>  250:0010-----------------------------------------------------------------------
02712>      READ STORM
02713>       Filename = storm.001
02714>       Comment  = 50 years SCS Type 2 Storm 24 hours step 10 min, City of Otta
02715>       [Ptot=100.00:Itot=  24.00:Pinc=  26.52]
02716> ******************************************************************************
02717> * Existing flow - McEvoy Branch of Shield Creek - Areas
02718> * Area c/a of proposed development (residential)
02719> * CN*=75, Ximp = 0.5, Tp=0.6, XIMP=0, TIMP=0, see SC802 as per Stantec
02720> * Area partially adjusted based on Atrel drawings.
02721> ******************************************************************************
02722> * c/a of Bank 21.as per Atrel - with modified boundaries and Tc.
02723>  250:0020-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02724>      DESIGN HASHYD       01:EX1       24.62     2.833 No_date   12:05   58.05  n/a
02725>       [CN= 75.0: N= 3.00]
02726>       [Ia=  .25:S1= 5.00]
02727> ******************************************************************************
02728> * Existing flow - McEvoy Branch of Shield Creek (c/a of Bank 21.)
02729> * CN*=69, as per Stantec see SC801.
02730> * Area partially adjusted based on Atrel drawings.
02731> ******************************************************************************
02732> * Areas External to development
02733>  250:0030-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02734>      DESIGN HASHYD       01:EX2       10.94      .503 No_date   12:05   42.18  .647
02735>       [CN= 69.0: N= 3.00]
02736>       [Ia=  .67:S1= 5.00]
02737> ----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02738>      DESIGN HASHYD       01:EX3       3.34      .153 No_date   12:05   44.18  .647
02739>       [CN= 69.0: N= 3.00]
02740>       [Ia=  .67:S1= 5.00]
02741> # Slope, Ximp, Timp, Area from Atrel Drawing
02742> # CN from Stantec (SC801)
02743> # Ximp = Timp = 10
02744> *********-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02745>  *   DESIGN STANDBYL     01:EX4       .60       .027 No_date   12:05   51.66  .697
02746>       [Ximp=.10:Timp=.22]
02747>       [Slp=1.00:S1= 5.00]
02748>       [Tc50= 3 :CN= 69.0]
02749> ******************************************************************************
02750> # Areas to be occupied by commercial development
02751> *********-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02752>      DESIGN HASHYD       01:EX5       0.00      .000 No_date   12:05   11.18  .200
02753>       [CN= 85.0: N= 3.00]
02754>       [Ia=  .31:S1= 5.00]
02755> 250:0040-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02756>  *   DESIGN HASHYD       01:EX6       3.13      .429 No_date   12:05   43.18  .647
02757>       [CN= 69.0: N= 3.00]
02758>       [Ia=  .13:S1= 5.00]
02759> 250:0050-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02760>      DESIGN HASHYD       01:EX7       4.77      .654 No_date   12:05   43.18  .647
02761>       [CN= 85.0: N= 3.00]
02762>       [Ia=  .22:S1= 5.00]
02763> 250:0060-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02764>      DESIGN HASHYD       01:EX8       5.03      .276 No_date   12:05   11.18  .200
02765>       [CN= 85.0: N= 3.00]
02766>       [Ia=  .22:S1= 5.00]
02767> # Areas to be occupied by residential development
02768> 250:0070-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02769>      DESIGN HASHYD       01:EX9       9.70      .862 No_date   12:05   43.18  .647
02770>       [CN= 69.0: N= 3.00]
02771>       [Ia=  .28:S1= 5.00]
02772> 250:0080-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02773>      DESIGN HASHYD       01:EX10      8.91      .616 No_date   12:05   43.18  .647
02774>       [CN= 69.0: N= 3.00]
02775>       [Ia=  .28:S1= 5.00]
02776> 250:0090-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02777>      DESIGN HASHYD       01:EX11      9.71      .586 No_date   12:20   43.18  .647
02778>       [CN= 69.0: N= 3.00]
02779>       [Ia=  .28:S1= 5.00]
02780> ******************************************************************************
02781> * EXISTING Flow - Total Flow to Shield Creek (Stantec Node KC13E)
02782> ******************************************************************************
02783> *  McEvoy Drain, c/a of residential area
02784>  250:0010-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02785>      ADD HYD             02:EX1       24.62     2.833 No_date   12:05   58.05  n/a
02786>                        + 03:EX2       10.94      .725 No_date   12:10   42.18  n/a
02787>       [DT= 5.00]  SUM=  01:Ptot      35.56     3.535 No_date   12:05   54.34  n/a
02788> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
02789> * provided by Atrel
02790> * Manning's n is Channel not maintained, light brush on banks
02791> * Route P as c/a node N1
02792> * Slope = 1% as per Atrel drawing
02793>  250:0015-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02794>      ROUTE CHANNEL   -> 02:Ntot      35.56     3.535 No_date   12:05   58.05  n/a
02795>       [PDT= 5.00] outc= 01:NTot      35.56     3.527 No_date   12:10   58.05  n/a
02796>       [L/S/n= 375./1.000/.050]
02797>       [Vmax= 1.145 Tmax= 1.951]
02798> * Typical Section based on Shields MH Vee Ditch 3:1 banks
02799> * provided by Atrel
02800> * Manning's n is Channel, not maintained, light brush on banks
02801> * Route TN2 to c/a Node N.
02802> * Slope = 0.05% as per plan provided by Atrel.
02803>  250:0016-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02804>      ROUTE CHANNEL   -> 02:EX2       10.94      .503 No_date   12:35   42.18  n/a
02805>       [PDT= 5.00] outc= 01:REX2      10.94      .453 No_date   12:40   42.18  n/a
02806>       [L/S/n=  254 / .050/.035]
02807>       [Vmax=  .251<Tmax=  .676]
02808> *  McEvoy Drain, c/a of residential area along Sales Barn Rd
02809>  250:0017-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02810>      ADD HYD             01:REX2      10.94      .453 No_date   12:40   42.18  n/a
02811>                        + 02:Ntot      35.56     3.527 No_date   12:10   58.05  n/a
02812>                        + 04:N1E       9.76      .467 No_date   12:05   41.71  n/a
02813>       [DT= 5.00]  SUM=  01:N1        54.34     4.231 No_date   12:10   46.18  n/a
02814> * Route Node N1 to Node N2
02815> * Typical Section based on Shields MH Vee Ditch 3:1 banks
02816> * provided by Atrel
02817> * Manning's n is Channel not maintained, light brush on banks
02818> * Slope = 0.05% as per plan provided by Atrel.
02819>  250:0018-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02820>      ROUTE CHANNEL   -> 02:N1        54.34     4.227 No_date   12:10   46.18  n/a
02821>  *    [EDT= 5.00] outc= 01:EN1       54.34     3.864 No_date   12:20   46.18  n/a
02822>       [L/S/n=  184./ .050/.035]
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                [Vmax=  .05:Qmax= 1.65]
* Typical Section based on Atkel Drawing drain s/s of R2
* Manning's n is Channel not maintained, light brush on banks
* Route node R1a2 to d/s node R2
* slope = (88-84.5)/487
 220.0018------------T:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R/A        3.13     .267 No_data   12:30   43.18  n/a
       [RT= 5.00] out<- 01:R1A2        3.13     .267 No_data   12:30   43.18  n/a
       [L/S/n=  487./ .720/.050]
       [Vmax=  .5461:Qmax=  .277]
* Drain 2, d/s of residential area
 220:0019------------ID:NHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD         02:RA1       54.34    3.664 No_data   12:20   45.35  n/a
                    + 03:R82A       7.15     .267 No_date   12:30   43.18  n/a
                    + 04:R2A        4.63     .171 No_date   12:15   41.74  n/a
       [VT= 5.00]  SUM= 01:R2       66.12    4.845 No_date   12:20   45.80  n/a
* ROUTE R2 to R3
* Typical Section based on Shields RD Vee Ditch 3:1 banks
* provided by Atkel
* Manning's n is Channel  not maintained, light brush on banks
* Slope = 0.8%  as per plan provided by Atkel.
 240:0020------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2         66.38    4.649 No_date   12:20   45.80  n/a
       [RT= 5.00] out<- 01:R3A         66.38    4.602 No_date   12:25   45.80  n/a
       [L/S/n=  210./ .050/.035]
       [Vmax=  .3951:Qmax= 1.838]
* Add Drain 3 d/s of residential area
 240:0021------------ID:NHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD         02:R3A        4.14     .429 No_date   12:05   45.18  n/a
                    + 03:R3E        2.21     .236 No_date   12:05   45.18  n/a
                    + 04:EA4         .30     .071 No_date   12:00   51.66  n/a
       [VT= 5.00]  SUM= 01:R3       6.85     .701 No_date   12:05   45.81  n/a
* Typical Section Based on Atkel Drawing drain btw c/s of R2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (88-84)/800
 240:0022------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3A        6.85     .701 No_date   12:05   45.81  n/a
       [RT= 5.00] out<- 01:R3Aa        6.85     .467 No_date   12:15   43.81  n/a
       [L/S/n=  661./ .050/.050]
       [Vmax=  .5844:Qmax=  .263]
* Drain 4, d/s of residential area
 250:0024------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ADD HYD         02:R4A       66.38    4.602 No_date   12:25   45.80  n/a
                    + 03:R3Aa       6.85     .467 No_date   12:15   43.81  n/a
                    + 04:R4F        6.77     .566 No_date   12:20   53.39  n/a
       [VT= 5.00]  SUM= 01:R4       67.94    4.697 No_date   12:25   45.33  n/a
* ROUTE R4 to R5:R
* Typical Section based on Shields RD Vee Ditch 3:1 banks
* provided by Atkel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atkel.
 250:0025------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R4         67.94    4.697 No_date   12:25   45.33  n/a
       [RT= 5.00] out<- 01:R5          67.94    4.668 No_date   12:35   45.33  n/a
       [L/S/n=  415./ .050/.035]
       [Vmax=  .2482:Qmax= 1.885]
* Flow at Stantec node NCR128 for comparison
* Routed R3 plus R4F
 250:0026------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ADD HYD         02:R4F       62.84    3.969 No_date   12:35   45.33  n/a
                    + 03:R5         21.30     .836 No_date   12:45   43.18  n/a
       [VT= 5.00]  SUM= 01:NCR128   84.14    4.778 No_date   12:35   44.89  n/a
* Flow from Stantec at node NCR128 for comparison
 260:0027------------ID:NHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      DESIGN PAVED    01:SC01       78.11    3.863 No_data   12:30   43.18 .643
       [CN= 98.0: R= 3.00]
       [Tp=  .41:DT= 5.00]
* Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atkel
* Route from N-EX1 to NEX12:
* Manning's n is Channel not maintained, light brush on banks
* Invert at NEX12 as per Atkel bottom of ditch points = 92.52 m
* slope = (89.79-82.52)/.517
 250:0028------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX1        24.62    2.331 No_data   12:05   50.25  n/a
       [RT= 5.00] out<- 01:NEX12       24.62    1.563 No_data   12:30   50.25  n/a
       [L/S/n= 517./ .070/.050]
       [Vmax=  .2012:Qmax= 1.413]
 260:0029------------ID:NHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD         02:SC01      78.11    3.863 No_data   12:30   43.18  n/a
                    + 03:NEX12     24.62    1.536 No_data   12:20   50.25  n/a
       [VT= 5.00]  SUM= 01:Outlet  102.73    4.071 No_data   12:30   44.87  n/a

* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours type 2, from City of Ottawa
   ** END OF RUN : 7of
*
*
*
 READ COMMAND4
 29:0001------------------------------------------------------------------------
      START
       [TIME =    .0: n/a on        0]
       [METOUT=   2    (1=Imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN    29 ]
*
*  SWMMHYD Version.07/Jan /001 (METAR / INPUT DATA FILE
*
*  Project Name: [Greely Village Center]    Project Number: [47/-07]
*  Date        : 04-07-2008
*  Modules     : [Dms]
*  Company     : JFSAinc.
*  License #   : 2007002
*
*
*  SWMMHYD model of the Greely Village Center - Residential Area - Phase 1
*  Existing conditions.
*  Filename should be: GRP1E - Greely, Residential, Phase 1, Existing
*
*  Jan 10, 2008
*  Added July 1st 1979 event
*
*  *#  EXISTING CONDITIONS ASSUMPTIONS:
*  CN*, Xinc, Timp,
*  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
*  and Drainage Study.
*  and as per Atkel drawing: Greely Village Area.dwg
*  as specified per subwatershed
*  Tp calculated using the Upland Method as per Stantec.  (Tp = Tc * 2/3)
*
*
 299:0002------------------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ott
       [SDT 10.00 SDUR   24.00 PINC= 136.73]
*
*  Existing Flow - McEvoy Branch of Shield Creek - Areas
*  Area s/s of proposed development (residential)
*  CN*=76, a:Ia = 0.2, Tp=8.10, XIMP=0, TIMP=0, see SC001 as per Stantec
*  Area partially adjusted based on Atkel  drawings.
*
*  d/s of Back St as per Atkel - with modified boundaries due to.
 299:0001------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RAINYD     01:EX1        24.62    3.284 No_data   12:00   58.31 .526
       [CN= 65.0: R= 3.00]
       [Tp=  .65:DT= 5.00]
*
*  Existing Flow  McEvoy Branch of Shield Creek (d/s of Bank St.)
*  CN*=39, as per Stantec see SC001.
*  Area partially adjusted based on Atkel drawings.
*
*  Areas Potential to development
 299:0004------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RAINYD     01:EX2        16.04     .490 No_data   12:35   50.48 .473
       [CN= 59.0: R= 3.00]
       [Tp=  .67:DT= 5.00]
 299:0005------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RAINYD     01:EX3        21.30     .902 No_data   12:40   50.48 .473
       [CN= 65.0: R= 3.00]
       [Tp=  .65:DT= 5.00]
* Slope, Xinc, Timp, Area from Atkel Drawing
* CN from Stantec (SC001)
* Ximp = Timp = 10
 299:0006------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
  *   DESIGN SCRAMEYD   01:EX4         .30     .083 No_data   12:00   59.80 .586
       [XIMP=.10:TIMP=.22]
       [SLP=1.00:DT= 5.00]
       [TOSM= 2 :CN= 69.0]
* Areas to be occupied by commercial development
```

```
02979>  259:0007----------ID:KHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
02980>      DESIGN KHYD       01:K1A        0.08     .851 No_date   12:10   50.48 .473
02981>        [CN= 69.0: N= 3.00]
02982>        [Tp=  .15:ET= 5.00]
02983>  259:0008----------ID:KH2D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
02984>   *  DESIGN KH2D       01:K2A        0.14     .504 No_date   12:10   50.48 .473
02985>        [CN= 69.0: N= 3.00]
02986>        [Tp=  .11:ET= 5.00]
02987>  259:0009----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
02988>      DESIGN KH3D       01:K3A        4.14     .504 No_date   12:10   50.48 .473
02989>        [CN= 69.0: N= 3.00]
02990>        [Tp=  .21:ET= 5.00]
02991>  259:0010----------ID:KH31-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
02992>      DESIGN KH31D      01:K3C        2.22     .254 No_date   12:05   50.48 .473
02993>        [CN= 69.0: N= 3.00]
02994>        [Tp=  .23:ET= 5.00]
02995> * Areas to be developed by residential development
02996>  259:0011----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
02997>      DESIGN KH3D       01:K3A        5.73     1.013 No_date   12:00   50.48 .473
02998>        [CN= 69.0: N= 3.00]
02999>        [Tp=  .28:ET= 5.00]
03000>  259:0012----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03001>      DESIGN KH3D       01:K3A        0.51     .171 No_date   12:15   50.48 .473
03002>        [CN= 69.0: N= 3.00]
03003>        [Tp=  .15:ET= 5.00]
03004>  259:0013----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03005>      DESIGN KH3D       01:K3C        9.71     1.665 No_date   12:20   50.48 .473
03006>        [CN= 69.0: N= 3.00]
03007>        [Tp=  .45:ET= 5.00]
03008> *----------------------------------------------------------------------
03009> * EXISTING Flow - Total Flow to Shields Creek (Subarea Node EC.28)
03010> *----------------------------------------------------------------------
03011> *  McEvoy Drain, 65% of residential area
03012>  259:0014----------ID:KEVD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03013>      ADD EVD           01:EV1        2.82     3.072 No_date   12:05   50.31  n/a
03014>                      + 01:K.A        0.08     .851 No_date   12:10   50.48  n/a
03015>        [I%= 5.00]  SUM= 01:K1D       33.70    4.109 No_date   12:05   56.20  n/a
03016> * Typical section based on McEvoy Branch Vee Ditch 1.5:1 slopes
03017> * provided by Aztec
03018> * Manning's n is Channel, not maintained, light brush on banks
03019> * Route flow to d/s node K1
03020> * Slope = 1% as per Aztec drawing
03021>  259:0015----------ID:K1YD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03022>      ROUTE CHANNEL   -> 02:K1D       33.70    4.109 No_date   12:05   56.20  n/a
03023>        [R/D= 5.00] outs= 01:K1LD      33.70    3.788 No_date   12:10   56.20  n/a
03024>        [L/S/n=  372./1.030/.050]
03025>        [Vmax=  3.165 Imax=  1.414]
03026> * Typical Section based on Shields MD Vee Ditch 3:1 banks
03027> * provided by Aztec
03028> * Manning's n is Channel, not maintained, light brush on banks
03029> * Route EX2 to d/s node K1
03030> * Slope = 0.05% as per plan provided by Aztec.
03031>  259:0016----------ID:K1YD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03032>      ROUTE CHANNEL   -> 02:EX2       10.94     .599 No_date   12:35   50.48  n/a
03033>        [R/D= 5.00] outs= 01:K1EX      10.94     .535 No_date   12:40   50.48  n/a
03034>        [L/S/n=  584./ .050/.035]
03035>        [Vmax=  .747:Imax=  .833]
03036> *  McEvoy Drain, d/s of residential area along Sales Barn Rd
03037>  259:0017----------ID:KH1D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03038>      ADD H1D           02:EX2       10.94     .535 No_date   12:40   50.48  n/a
03039>                      + 03:EX1S      33.70    3.788 No_date   12:10   56.20  n/a
03040>                      + 04:K1B        4.70     .613 No_date   12:05   50.78  n/a
03041>        [I%= 5.00]  SUM= 01:H1        54.34    5.069 No_date   12:10   54.03  n/a
03042> * Route Node H1 to Node H2
03043> * Typical Section based on Shields MD Vee Ditch 3:1 banks
03044> * provided by Aztec
03045> * Manning's n is Channel not maintained, light brush on banks
03046> * Slope = 0.05% as per plan provided by Aztec.
03047>  259:0018----------ID:KH2Y-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03048>      ROUTE CHANNEL   -> 03:H1        54.34    5.069 No_date   12:10   54.03  n/a
03049>   *  [R/D= 5.00] outs= 01:H2N       54.34    4.447 No_date   12:15   54.03  n/a
03050>        [L/S/n=  184./ .050/.035]
03051>        [Vmax=  .747:Imax=  1.848]
03052> * Typical Section based on Aztec Drawing drain d/s of H2
03053> * Manning's n is Channel not maintained, light brush on banks
03054> * Route node H2 to d/s node H'
03055> * Slope = (88-80.5)/100
03056>  259:0019----------ID:HEYI-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03057>      ROUTE CHANNEL   -> 02:R2A       3.13     .320 No_date   12:00   56.48  n/a
03058>        [R/D=  5.00] outs= 01:RR2A     3.13     .320 No_date   12:05   56.48  n/a
03059>        [L/S/n=  487./ .720/.050]
03060>        [Vmax=  .571:Imax=  .759]
03061> *  Drain 2, d/s of residential area
03062>  259:0020----------ID:KH2D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03063>      ADD H2D           01:R4I        54.34    5.069 No_date   12:15   54.03  n/a
03064>                      + 02:R4A        8.13     .896 No_date   12:05   50.48  n/a
03065>                      + 03:R2A        3.13     .320 No_date   12:05   50.48  n/a
03066>        [I%= 5.00]  SUM= 01:H2        66.38    5.342 No_date   12:10   51.39  n/a
03067> * ROUTE H2 to H3
03068> * Typical Section based on Shields MD Vee Ditch 3:1 banks
03069> * provided by Aztec
03070> * Manning's n is Channel not maintained, light brush on banks
03071> * Slope = 0.05% as per plan provided by Aztec.
03072>  259:0021----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03073>      ROUTE CHANNEL   -> 02:H2        66.38    5.342 No_date   12:10   51.39  n/a
03074>   *  [R/D= 5.00] outs= 01:H3         66.38    5.342 No_date   12:15   51.39  n/a
03075>        [L/S/n=  710./ .050/.035]
03076>        [Vmax=  .150:Imax=  1.768]
03077> * Add Drain 3 d/s of residential area
03078>  259:0022----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03079>      ADD H3D           02:R3A        4.14     .503 No_date   12:00   50.48  n/a
03080>                      + 03:R3B        2.21     .254 No_date   12:05   50.48  n/a
03081>                      + 04:EX1        .50      .081 No_date   12:00   59.60  n/a
03082>        [I%= 5.00]  SUM= 01:H3        6.85     .615 No_date   12:05   51.16  n/a
03083> * Typical Section based on Aztec Drawing drain brw d/s of H3
03084> * Manning's n is Channel not maintained, light brush on banks
03085> * Route to d/s area
03086> * Slope = (88-84)/650
03087>  259:0023----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03088>      MOVE CHANNEL    -> 02:R3AB       6.85     .823 No_date   12:05   51.16  n/a
03089>        [R/D=  5.00] outs= 01:RR3C     6.85     .508 No_date   12:15   51.16  n/a
03090>        [L/S/n=  663./ .080/.050]
03091>        [Vmax=  .431:Imax=  .595]
03092> *  Drain 3, d/s of residential area
03093>  259:0024----------ID:KH3D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03094>      ADD H3D           02:RR2        66.38    4.002 No_date   12:20   58.39  n/a
03095>                      + 03:RR3C       6.85     .508 No_date   12:15   51.16  n/a
03096>                      + 04:R3C        8.71     .665 No_date   12:20   50.48  n/a
03097>        [I%= 5.00]  SUM= 01:H3        82.04    5.696 No_date   12:20   57.06  n/a
03098> * ROUTE H3 to DC.28
03099> * Typical section used on Shields MD Vee Ditch 3:1 banks
03100> * provided by Aztec
03101> * Manning's n is Channel not maintained, light brush on banks
03102> * Slope = 0.05% as per plan provided by Aztec.
03103>  259:0025----------ID:KHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03104>      ROUTE CHANNEL   -> 02:K3        82.04    5.696 No_date   12:30   52.86  n/a
03105>   *  [R/D= 5.00] outs= 01:HH3        82.04    4.712 No_date   12:35   57.06  n/a
03106>        [L/S/n=  4.5./ .080/.035]
03107>        [Vmax=  .839:Imax=  1.995]
03108> * Flow at storm node NCH128 for comparison
03109> * Routed H3 plus EX3
03110>  259:0026----------ID:KHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03111>      ADD EVD           01:EV3        82.94    5.713 No_data  12:25   52.88  n/a
03112>                      + 02:EX3        11.90     .692 No_date   12:15   50.48  n/a
03113>        [I%= 5.00]  SUM= 01:NCH.28    106.24   6.663 No_date   12:25   52.37  n/a
03114> * Flow from Branch at node NCH126 for comparison
03115>  259:0027----------ID:KH1D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03116>      DESIGN KH3H1      01:EC001      78.11     5.163 No_date   12:00   50.48  .473
03117>        [CN= 69.0: N= 3.00]
03118>        [Tp=  .51:ET= 5.00]
03119> * Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
03120> * provided by Aztec
03121> * Route from H EX1 to NCH.28
03122> * Manning's n is Channel not maintained, light brush on banks
03123> * Invert at NC128 as per Aztec Bottom of Ditch points = 80.82 s
03124> * Slope = (88.70-82.12)/1217
03125>  259:0028----------ID:KHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03126>      ROUTE CHANNEL   -> 02:EX1       24.62     3.288 No_date   12:00   58.31  n/a
03127>        [PD= 5.00  out= 01:RRX1B      24.62     3.288 No_date   12:20   58.31  n/a
03128>        [L/S/n= 1512./ .040/.050]
03129>        [Vmax=  .822:Imax=  1.454]
03130>  259:0029----------ID:KH1D-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
03131>      ADD EVD           02:EC001      78.11     5.163 No_date   12:50   50.48  n/a
03132>                      + 03:EEA1B      24.62     3.780 No_date   12:20   58.31  n/a
03133>        [I%= 5.00]  SUM= 01:H1TOT     102.73   6.717 No_date   12:05   52.36  n/a
03134> *----------------------------------------------------------------------
03135> * Simulations with 4 hour Chicago from City of Ottawa
03136> * SCS 24 hours type 2, from City of Ottawa
03137> * Simulations with July 1, 1979 Historical Event, City of Ottawa
03138>  ** END OF RUN : 302
03139>
03140> *----------------------------------------------------------------------
03141>
03142>
03143>
03144>
```

```
03154>
03155>  RUN:COMMAND#
03156>  3C1:0001----------------------------------------------------------------------
03157>       START                                                                    
03158>         [TZERO=    .00 hrs on      0]                                         
03159>         [METRIC=   5    (1=Imperial, 5=Metric output)]                         
03160>         [NSTORM=   1                                                           
03161>         [UNITS  = SI ]                                                         
03162> *------------------------------------------------------------------------------
03163> *  SWMHYMO Ver:5.01;Jan 2001 (DETAIL / INPUT DATA FILE)                        
03164> *------------------------------------------------------------------------------
03165> *  Project Name: [Greely Village Center]    Project Number: [647-07]           
03166> *  Date        : 04-09-2008                                                    
03167> *  Modeller    : [JAE]                                                         
03168> *  Company     : JFSA.Inc.                                                     
03169> *  License #   :  2987902                                                      
03170> *------------------------------------------------------------------------------
03171>
03172> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
03173> * Existing conditions.
03174> * Filename stands for: GRp1E - Greely, Residential, Phase 1, Existing
03175> *
03176> * Dec 15, 2008
03177> * Based July '04 event
03178> *
03179> * 'A  EXISTING CONDITIONS ASSUMPTIONS:
03180> *  CN*, XIMP, TIMP,
03181> *  as per Stantec Report, Oct. 2003: Greely Shield Creek, Stormwater
03182> *  and Drainage Study.
03183> *  And as per Attel drawings Greely Village Area.dwg
03184> *  as specified per subwatershed
03185> *  Tc Calculated using the Uplnd Method as per Stantec. (Tp = Tc * 2/3)
03186> *
03187> *------------------------------------------------------------------------------
03188> *
03189>  3G1:0002----------------------------------------------------------------------
03190>       READ STORM                                                               
03191>         Filename = storm.001                                                   
03192>         Comment  = July 4th, 1979 Storm (SI) - Ottawa International Airport Ste
03193>         [PTSI= 5.00:12hr=   5.00:PTOT=  82.99]                                 
03194> *------------------------------------------------------------------------------
03195> * Existing Flow - McEvoy Branch of Shield Creek - Areas
03196> * Area c/s of proposed development (residential)
03197> * CN= 71, slope   0.5, Ip 0.16, XIMP= 5, TIMP=15, see SC.02 as per Stantec
03198> * Area partially adjusted based on Attel drawings.
03199> *------------------------------------------------------------------------------
03200> * c/s at Bank St.ex per Attel  with modified boundaries and Ip.
03201>  3G1:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03202>       DESIGN HASHYD      01:EX1       21.42     5.079 No_data    1:40   40.71 .485
03203>         [CN= 75.0: N= 3.00]                                                    
03204>         [Ip=  .71:TP= 5.00]                                                    
03205> *------------------------------------------------------------------------------
03206> * Existing Flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
03207> * CN*=69, as per Stantec Dec 30.01.
03208> * Area partially adjusted based on Attel drawings.
03209> *------------------------------------------------------------------------------
03210> * Areas External to development
03211>  3G1:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03212>       DESIGN HASHYD      01:EX2       10.54      .671 No_data    2:10   34.61 .412
03213>         [CN= 69.0: N= 3.00]                                                    
03214>         [Ip=  .67:TP= 5.00]                                                    
03215>  3G1:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03216>       DESIGN HASHYD      01:EX3       21.70     1.110 No_data    2:20   34.61 .412
03217>         [CN= 69.0: N= 3.00]                                                    
03218>         [Tp=  .81:TP= 5.00]                                                    
03219> * Slope, Ximp, Timp, Area from Attel Drawing
03220> * Ch from Stantec (2006)
03221> * Ximp = Timp = 10.
03222>  3G1:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03223>   *   DESIGN STANDARD    01:EX4        .59      .064 No_data    1:40   42.45 .509
03224>         [XIMP=.11:TIMP=.22]                                                    
03225>         [SLP=1.60:IP=  5.00]                                                   
03226>         [LAG= 3 :CN= 69.0]                                                     
03227> * Areas to be occupied by commercial development
03228>  3G1:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03229>       DESIGN HASHYD      01:BOA        9.08      .820 No_data    1:50   34.61 .412
03230>         [CN= 69.0: N= 3.00]                                                    
03231>         [Tp=  .81:TP= 5.00]                                                    
03232>  3G1:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03233>   *   DESIGN HASHYD      01:BOA        1.13      .102 No_data    1:45   34.61 .412
03234>         [CN= 69.0: N= 3.00]                                                    
03235>         [Tp=  .15:TP= 5.00]                                                    
03236>  3G1:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03237>       DES OR HASHYD      01:BOA        4.14      .450 No_data    1:45   34.61 .412
03238>         [CN= 69.0  N  3.00]                                                    
03239>         [Tp=  .31:TP= 5.00]                                                    
03240>  3G1:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03241>       DESIGN HASHYD      01:BOB        2.24      .235 No_data    1:40   34.61 .412
03242>         [CN= 69.0: N= 3.00]                                                    
03243>         [Ip=  .23:TP= 5.00]                                                    
03244> * Areas to be occupied by residential development
03245>  3G1:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03246>       DESIGN HASHYD      01:BOC        9.40      .921 No_data    1:45   34.61 .412
03247>         [CN= 69.0: N= 3.00]                                                    
03248>         [Ip=  .28:TP= 5.00]                                                    
03249>  3G1:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03250>       DESIGN HASHYD      01:BOD        7.91      .756 No_date    1:55   34.61 .412
03251>         [CN= 69.0: N= 3.00]                                                    
03252>         [Tp=  .58:TP= 5.00]                                                    
03253>  3G1:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03254>       DESIGN HASHYD      01:BOE        9.71      .738 No_date    2:00   34.61 .412
03255>         [CN= 69.0: N= 3.00]                                                    
03256>         [Tp=  .48:TP= 5.00]                                                    
03257> *------------------------------------------------------------------------------
03258> * EXISTING flow - Total Flow to Shield Creek (Starter Node WC12)
03259> *------------------------------------------------------------------------------
03260> *  McEvoy Drain, c/s at residential  area
03261>  3G1:0014                ID:NHYD       AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
03262>       ADD HYD            02:EX1       24.62     3.079 No_date    1:40   40.71  n/a
03263>                        + 03:B1A        9.08      .850 No_date    1:50   34.61  n/a
03264>         [DT=  5.00]  SUM  01:Blue      33.70     3.902 No_date    1:45   39.66  n/a
03265> * Typical Section based on McEvoy Branch Ves Ditch 3.5:1 slopes
03266> * provided by Attel
03267> * Manning's n is Channel  not maintained, light brush on banks
03268> * Route Rims to d/s node N1
03269> * Slope = 1% as per Attel drawing
03270>  3G1:0015----------------ID:RtID-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03271>       ROUTE CHANNEL   -> 02:Blue      33.70     3.902 No_date    1:45   39.66  n/a
03272>         [DT=  5.00] OUT<- 01:BBlue    33.70     3.737 No_date    1:50   39.66  n/a
03273>         [I/S/n=  .015/ .0040/.050                                              
03274>         [Vmax= 1.18:Tmax=  .194]                                               
03275> * Typical Section based on Shields ND Ves Ditch 3:1  Banks
03276> * provided by Attel
03277> * Manning's n is Channel not maintained, light brush on banks
03278> * Route End to d/s Node N1
03279> * Slope   0.01% as per plan provided by Attel.
03280>  3G1:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03281>       ROUTE CHANNEL   -> 02:EX2       10.54      .671 No_date    2:10   34.61  n/a
03282>   *     [DT=  5.00] OUT<- 01:REX2      10.54      .606 No_date    2:20   34.61  n/a
03283>         [I/S/n=  .194:/ .0500/.035]                                            
03284>         [Vmax=  .98:Tmax=  .325]                                               
03285> *  McEvoy Drain, d/s of residential area along Dales Barn Rd
03286>  3G1:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03287>       ADD HYD            02:PEX2      10.54      .606 No_date    2:20   34.61  n/a
03288>                        + 03:RFlow     33.70     3.737 No_date    1:50   38.06  n/a
03289>                        + 04:B1A        9.08      .961 No_date    1:45   32.61  n/a
03290>         [DT= 5.00]  SUM= 01:N1        54.16     5.035 No_date    1:50   37.37  n/a
03291> * Route Node N1 to Node N2
03292> * Typical Section based on shields ND Ves Ditch 3:1 Banks
03293> * provided by Attel
03294> * Manning's n is Channel not maintained, light brush on banks
03295> * Slope = 0.65% as per plan provided by Attel.
03296>  3G1:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03297>       ROUTE CHANNEL   -> 02:N1        54.16     5.035 No_date    1:50   37.37  n/a
03298>   *     [DT= 5.00] OUT<- 01:RN1       54.16     4.593 No_date    2:00   37.37  n/a
03299>         [I/S/n=  .184:/ .0507/.035]                                            
03300>         [Vmax=  .349:Tmax= 1.941]                                              
03301> * Typical Section based on Attel Drawing drain d/s of N2
03302> * Manning's n is Channel not maintained, light brush on banks
03303> * Route Node N2ex to d/s node E
03304> * Slope = [dS= 84.5/748]
03305>  3G1:N2.E----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03306>       ROUTE CHANNEL   -> 02:N2A       1.13      .102 No_date    1:45   34.61  n/a
03307>         [DT= 5.00] OUT<- 01:RN2A      1.13      .101 No_date    1:45   34.61  n/a
03308>         [I/S/n=  .487:/ .720/.050]                                             
03309>         [Vmax=  .531:Tmax=  .266]                                              
03310> *  Drain 2, d/s of residential area
03311>  3G1:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03312>       ADD HYD            02:RN1       54.16     4.593 No_date    2:00   37.37  n/a
03313>                        + 03:RN2A       1.13      .102 No_date    1:45   34.61  n/a
03314>                        + 04:B2A        8.81      .736 No_date    1:55   34.61  n/a
03315>         [DT=  5.00]  SUM  01:N2        66.38     5.565 No_date    2:00   36.87  n/a
03316> * ROUTE N2 to N3
03317> * Typical Section based on Shields NE Ves Ditch 3:1 banks
03318> * provided by Attel
03319> * Manning's n is Channel not maintained, light brush on banks
03320> * Slope = 0.05% as per plan provided by Attel.
```

```
03321> 29:0021----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03322>      ROUTE CHANNEL   -> 02:RD        66.38     5.585 3c_date    2:00   36.37  n/a
03323>    * [RD= 5.00] outs= 01:RHD        66.38     5.869 3c_date    2:00   36.37  n/a
03324>       [/s/n= 710./ .050/.035]
03325>       -Vmax= .150:Dmax= 1.508]
03326> # End Drain 1 s/s of residential area
03327> 30:0022----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03328>      ADD HYD           02:RDA       3.14      .400 3c_date    1:45   36.61  n/a
03329>                      + 03:RTB       7.27      .975 3c_date    1:50   31.61  n/a
03330>                      + 04:RX4       .58       .064 3c_date    1:40   47.45  n/a
03331>      [DT= 5.00]  SUM=  01:RHD      11.00     1.439 3c_date    1:40   35.18  n/a
03332> # Typical Section based on Atkel Paving Drain btw c/s of Rd
03333> # Assuming n is Channel not maintained, light brush on banks
03334> # Route to d/s area
03335> # Slope = (98-84)/663
03336> 31:0023----------ID:RTB--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03337>      ROUTE CHANNEL   -> 02:RDA       6.65      .759 3c_date    1:40   35.18  n/a
03338>       [RJD= 5.00] outs= 01:RPJC       6.85      .580 3c_date    1:55   35.18  n/a
03339>       [1/s/n= 663./ .030/.050]
03340>       [Vmax= .597:Dmax= .281]
03341> #  Drain 2, d/s of residential area
03342> 32:0024----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03343>      ADD HYD           02:RX2      86.38     5.000 3c_date    2:00   36.57  n/a
03344>                      + 03:RPJC       6.85      .580 3c_date    1:55   35.18  n/a
03345>                      + 04:RSC        9.71      .733 3c_date    2:00   36.61  n/a
03346>      [DT= 5.00]  SUM=  01:RHD      82.84     6.256 3c_date    2:00   36.47  n/a
03347> # ROUTE RD to RC12:
03348> # Typical Section based on Enfield MD Yee Ditch 1st banks
03349> # provided by Alex.
03350> # Assuming n is Channel not maintained, light brush on banks
03351> # Slope = 0.05  as per plan provided by Alex.
03352> 301:0025----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03353>      ROUTE CHANNEL   -> 02:RD        82.84     6.294 3c_date    2:00   36.47  n/a
03354>    * [RDT= 5.00] outs= 01:RHD        82.84     6.713 3c_date    2:10   36.47  n/a
03355>       [1/s/n=  915./ .050/.035]
03356>       [Vmax= .756:Dmax= 1.068]
03357> # Flow at Planned node RC12B for comparison
03358> # Routed RD plus EA3
03359> 301:0026----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03360>      ADD HYD           03:RA1      93.94     6.713 3c_date    2:10   36.47  n/a
03361>                      + 01:RX4       1.36      .176 3c_date    2:00   36.61  n/a
03362>      [DT= 5.00]  SUM=  01:RCR12B   104.24     6.766 3c_date    2:10   36.39  n/a
03363> # Flow from Station at node RC12B for comparison
03364> 301:0027----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03365>      DESIGN KARHYD     01:RC06L     78.11     3.810 3c_date    2:25   34.81 .412
03366>       [CN= 69.0: K= 1.00]
03367>       [Tp=  .91:Et= 1.00]
03368> # Typical Section based on Mallory Branch Yee Ditch 1.5:1 slopes
03369> # provided by Alex.
03370> # Route from D-EA2 to RCR12B
03371> # Assuming n is Channel not maintained, light brush on banks
03372> # Invert at RCR12B as per Atkel bottom of ditch points - 82.52 m
03373> # Slope   (88.0-82.52)/1519
03374> 301:0028----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03375>      ROUTE CHANNEL   -> 02:RC        78.11     3.679 3c_date    2:40   40.71  n/a
03376>       [Rdt= 5.00] outs= 01:RCR1B      4.87      .438 3c_date    2:00   40.71  n/a
03377>       [1/s/n= 1519./ .070/.050]
03378>       [Vmax=  .514:Dmax= 1.454]
03379> 302:0029----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03380>      ADD HYD           02:RCR1B    78.11     4.038 3c_date    2:35   39.61  n/a
03381>                      + 03:RX1B      24.62     1.948 3c_date    2:00   40.71  n/a
03382>      [DT= 5.00]  SUM=  01:RtB7ot   102.73     5.480 3c_date    2:15   36.97  n/a
03383> +----------------------------------------------------------------------------+
03384> # Simulations with 4 hour Chicago from City of Ottawa
03385> # SCS 24 hours type II, from City of Ottawa
03386> # Simulations with July 1, 1979 Historical Event, City of Ottawa
03387> 301:0002----------------------------------------------------------------------
03388>      finish
03389> ----------------------------------------------------------------------------
03390> ****************************************************************************
03391>      WARNINGS / ERRORS / NOTES
03392>      -------------------------
03393> 30:0005 DESIGN STANDHYD
03394>       *** WARNING: Storage Coefficient is smaller than DT!
03395>                    Use a smaller DT or a larger area.
03396> 30:0005 DESIGN KARHYD
03397>       *** WARNING: Time step is too large for value of TP.
03398>                    R.V. may be ok.  Peak flow could be off.
03399> 30:0006 DESIGN STANDHYD
03400>       *** WARNING: Storage Coefficient is smaller than DT!
03401>                    Use a smaller DT or a larger area.
03402> 30:0006 DESIGN KARHYD
03403>       *** WARNING: Time step is too large for value of TP.
03404>                    R.V. may be ok.  Peak flow could be off.
03405> 30:0007 DESIGN STANDHYD
03406>       *** WARNING: Storage Coefficient is smaller than DT!
03407>                    Use a smaller DT or a larger area.
03408> 30:0007 DESIGN KARHYD
03409>       *** WARNING: Time step is too large for value of TP.
03410>                    R.V. may be ok.  Peak flow could be off.
03411> 30:0008 DESIGN STANDHYD
03412>       *** WARNING: Storage Coefficient is smaller than DT!
03413>                    Use a smaller DT or a larger area.
03414> 30:0008 DESIGN KARHYD
03415>       *** WARNING: Time step is too large for value of TP.
03416>                    R.V. may be ok.  Peak flow could be off.
03417> 025:0006 DESIGN STANDHYD
03418>       *** WARNING: Storage Coefficient is smaller than DT!
03419>                    Use a smaller DT or a larger area.
03420> 025:0006 DESIGN KARHYD
03421>       *** WARNING: Time step is too large for value of TP.
03422>                    R.V. may be ok.  Peak flow could be off.
03423> 030:0006 DESIGN STANDHYD
03424>       *** WARNING: Storage Coefficient is smaller than DT!
03425>                    Use a smaller DT or a larger area.
03426> 030:0006 DESIGN KARHYD
03427>       *** WARNING: Time step is too large for value of TP.
03428>                    R.V. may be ok.  Peak flow could be off.
03429> 100:0006 DESIGN STANDHYD
03430>       *** WARNING: Storage Coefficient is smaller than DT!
03431>                    Use a smaller DT or a larger area.
03432> 100:0006 DESIGN KARHYD
03433>       *** WARNING: Time step is too large for value of TP.
03434>                    R.V. may be ok.  Peak flow could be off.
03435> 205:0006 DESIGN STANDHYD
03436>       *** WARNING: Storage Coefficient is smaller than DT!
03437>                    Use a smaller DT or a larger area.
03438> 205:0006 DESIGN KARHYD
03439>       *** WARNING: Time step is too large for value of TP.
03440>                    R.V. may be ok.  Peak flow could be off.
03441> 210:0006 DESIGN STANDHYD
03442>       *** WARNING: Storage Coefficient is smaller than DT!
03443>                    Use a smaller DT or a larger area.
03444> 210:0006 DESIGN KARHYD
03445>       *** WARNING: Time step is too large for value of TP.
03446>                    R.V. may be ok.  Peak flow could be off.
03447> 225:0006 DESIGN STANDHYD
03448>       *** WARNING: Storage Coefficient is smaller than DT!
03449>                    Use a smaller DT or a larger area.
03450> 225:0006 DESIGN KARHYD
03451>       *** WARNING: Time step is too large for value of TP.
03452>                    R.V. may be ok.  Peak flow could be off.
03453> 250:0006 DESIGN STANDHYD
03454>       *** WARNING: Storage Coefficient is smaller than DT!
03455>                    Use a smaller DT or a larger area.
03456> 250:0006 DESIGN KARHYD
03457>       *** WARNING: Time step is too large for value of TP.
03458>                    R.V. may be ok.  Peak flow could be off.
03459> 295:0006 DESIGN STANDHYD
03460>       *** WARNING: Storage Coefficient is smaller than DT!
03461>                    Use a smaller DT or a larger area.
03462> 295:0006 DESIGN KARHYD
03463>       *** WARNING: Time step is too large for value of TP.
03464>                    R.V. may be ok.  Peak flow could be off.
03465> 295:0025 ROUTE CHANNEL   ->
03466>       *** WARNING: TRAVEL TIME TABLE was exceeded
03467> 301:0026 DESIGN STANDHYD
03468>       *** WARNING: Storage Coefficient is smaller than DT!
03469>                    Use a smaller DT or a larger area.
03470> 301:0026 DESIGN KARHYD
03471>       *** WARNING: Time step is too large for value of TP.
03472>                    R.V. may be ok.  Peak flow could be off.
03473> 301:0025 ROUTE CHANNEL   ->
03474>       *** WARNING: TRAVEL TIME TABLE was exceeded
03475>   Simulation ended on 2008-12-17      at 09:39:38
03476> ----------------------------------------------------------------------------
03477>
03478>
```

```
*-- Metric units / ID numbers OFF
*----------------------------------------------------------------------------
*  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
*----------------------------------------------------------------------------
*  Project Name: Greely Village Center     Project Number: 607-07
*  Date        : 04-06-2008
*  Modeller    : JRT
*  Company     : JFSAinc.
*  Filename #  : 2u2a1007
*----------------------------------------------------------------------------
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stamp for: GRP2u2a - Greely, Residential, Phase 2, ultimate v2 with 3
*
*                        THIS MODEL USES CALIB STANDHYD
*                 THE POND IS CALIBRATED FOR ULTIMATE CONDITIONS
*                          THE WEIR IS .67, .8: 3.0
*
* December 15, 1998
* "c" at the end of filename: Added July 1st 1999 Event
*
*  EXISTING CONDITIONS ASSUMPTIONS:
*  CN', X'VP, TIMP,
*  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
*  and drainage study.
*  and as per Aitel drawing: Greely Village Area.dwg
*  as specified per subcatchment
*  Ip calculated using the Uplnd method as per Stantec. Ip = Tc * 2/3)
                          ALGER COMMENTS
*  Developped Areas: CN=+/1, as per soil type C and Open spaces with Fair grass cover.
*  Imperviousness slope within area as per Aitel drawing.
*  Ximp = Timp = 1.0: unless otherwise noted.
*  Initial Abstraction (Ia) set to 4.67 mm for pervious surfaces, as per City Standards
*  Initia. Abstraction (Ia) set to 2.57 mm for impervious surfaces, as per City Standards
*  Average  or lengths (LNG) from rydrce  .or based on average lot size (10 m).
*  Average  rpervious lengths (LG' in STANDHYD based on A/1.5 (SCS).
*  Average pervious slope (SLP) = 1: as default
*  Average impervious slope (SLPI: 1: as default
*  Average pervious roughness (NHP  0.25 as default).
*  Average  rpervious roughness (NHP  0.035  weighted average of 0.013 for
*    "roads c-length of 0.in and 0.050 for ditch length over average lot width
*    of 30 m.)
*
*----------------------------------------------------------------------------
START                 CSDAY [0.0],  METOUT=[2],  NSTORM=[1],  NRUN= 1
*                       ["4HD2XMK.STM"] <--Storm Filename, One per line for NSTORM line
*----------------|-----------------------------------------------------------
READ STORM            STORM_FILENAME ["storm.001"]
*----------------|-----------------------------------------------------------
*----------------------------------------------------------------------------
*
*# Existing flow - McEvoy Branch of Shield Creek - Areas
*# Area u/s of proposed development (residential)
*# CN'=75, slope = 0.8, Ia=5.16, X'XP=5, YIMP=35, see SCS07 as per Stantec
*# Area partially adjusted based on Aitel drawings.
*----------------------------------------------------------------------------
*# u/s of SwM at as per Aitel - with modified boundaries and Ia.
ADDHYD MASHYD         'MHYI=["EX'"], 'I'=[5.min, AREA=[24.62]ha,
                      'AF=[0]mm), CN/C=[7-], TP=[0.3]'hrs,
                      RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr], END=-1
*----------------|-----------------------------------------------------------
*----------------------------------------------------------------------------
*
*# Existing flow - External areas u/s of SwM at
*# CN'=60, as per Stantec see SCS07.
*# Area partial y adjusted based on Aitel drawings.
*----------------------------------------------------------------------------
*# Areas External to Development.
*  Part of EX2 is to be developed in Phase 2 as area is smaller
DEVLOP MASHYD         MHYI-["EX2"], JC-[5.min, AREA=[9.89]ha,
                      IMP [0]ha), CN/C-[69], IP-[0.67]hrs,
                      RAINFALL [ ,  ,  ,  ,  ,  ]mm/hr], END=1
*----------------|-----------------------------------------------------------
ADDHYD MASHYD         MHYI ["EX3"], JC [5.min, AREA [21.36]ha,
                      'AF=[0]mm), CN/C=[69], TP [0.83]hrs,
                      RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr], END=1
*----------------|-----------------------------------------------------------
*# Slope, Timp, Area from Aitel drawing
*# CN from Stantec [SC00.]
*# Ximp = Timp = 10
CALIB STANDHYD        MHYI ["EX4"], JC-[5.min], AREA=[0.69]ha),
                      XIMP-[0.11], TIM.=[0.22], Ja'=[0]mm), LOSS=[2],
                      SCS curve number CN [69],
                      Pervious   surfaces: IAper-[4.67]mm), SLPP-[1],(),
                      Impervious surfaces: IAimp-[1.57]mm), SLPI-[1](),
                      SCS curve number CN [98],
                      Pervious   surfaces: IAper-[4.67]mm), SLPP-[1],(),
                      Impervious surfaces: IAimp-[1.57]mm), SLPI-[1](),
                      MANNING-[ ,  ,  ,  ,  ]mm/hr) ,  END=-1
*----------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Subcatch Ex
*# Timp = Ximp = 0.37 ha /0.52 ha =  0.60
*# CN'=80, as per Stantec see SC00.
*# Slope is estimated at 1%
*# Ximp = Timp = 60%
CALIB STANDHYD        MHYI-["EX5"], JC-[5.min], AREA [0.52]ha,
                      XIMP= 0.60, TIMP=[0.60], 'AF'=[0]mm), LOSS [2],
                      SCS curve number CN=[69],
                      Pervious   surfaces: IAper=[4.67]mm), SLPP= 1](),
                      Impervious surfaces: IAimp-[1.57]mm), SLPI-[1](),
                      MANNING-[ ,  ,  ,  ,  ]mm/hr) ,  END=-1
*----------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Subcatch Ex
*# Timp = Ximp = 0.0  ha /0.51 ha =  0.20
*# CN'=80, as per Stantec see SC00.
*# Slope is estimated at 1%
*# Ximp = Timp =  10%
CALIB STANDHYD        MHYI-["EX6"], JC-[5.min], AREA=[0.51 (ha),
                      XIMP-[0.16], TIM.=[0.20], 'AF= 0]mm), LOSS=[2],
                      SCS curve number CN=[69],
                      Pervious   surfaces: IAper-[4.67]mm), SLPP-[1](),
                      Impervious surfaces: IAimp [1.57]mm), SLPI-[1](),
                      MANNING-[ ,  ,  ,  ,  ]mm/hr) ,  END=-1
*----------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Subcatch Ex
*# Timp = Ximp = 0.03 ha /0.39 ha =  0.25
*# CN'=80, as per Stantec see SC00.
*# Slope is estimated at 1%
*# Ximp = Timp = 10%
CALIB STANDHYD        MHYI-["EX7"], JC-[5.min], AREA=[0.39](ha),
                      XIMP [0.17], TIM.=[0.23], 'AF= 0]mm', LOSS=[2],
                      SCS curve number CN [69],
                      Pervious   surfaces: IAper [4.67]mm), SLPP-[1](),
                      Impervious surfaces: IAimp [1.57]mm), SLPI-[1](),
                      MANNING-[ ,  ,  ,  ,  ]mm/hr) ,  END=-1
*----------------|-----------------------------------------------------------
*# Areas to be occupied by commercial development
*# CN' 69, as per Stantec see SC001.
DESIGN NASHYD         MHYD-["P1A"], JC-[5.min, AREA=[9.4.]ha),
                      'AF-[0]mm), CN/C-[69], IP-[0.5.]hrs,
                      RAINFALL [ ,  ,  ,  ,  ]mm/hr), END=-1
*----------------|-----------------------------------------------------------
DESIGN NASHYD         MHYD= "P2A"], JC-[5.min, AREA [3.13](ha),
                      'AF=[0]mm), CN/C= 69], IP-[0.17]hrs,
                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END=-1
*----------------|-----------------------------------------------------------
DESIGN NASHYD         MHYD-["P3A"], JC [5.min, AREA=[4.14](ha),
                      'AF=[0]mm), CN/C [69], IP-[0.2.]hrs,
                      RAINFALL=[ ,  ,  ,  ,  ]mm/hr), END=-1
*----------------|-----------------------------------------------------------
DESIGN NASHYD         MHYD-["P3B"], JC-[5.min, AREA=[2..](ha),
                      'AF [0]mm), CN/C-[69], IP-[0.2]hrs,
                      RAINFALL [ ,  ,  ,  ,  ]mm/hr), END=-1
*----------------|-----------------------------------------------------------
*----------------------------------------------------------------------------
*
*# PROPOSED RESIDENTIAL SUBWATERSHEDS  Residential Area Phase 1 and 2
*----------------------------------------------------------------------------
*# CN' 69, as per Stantec see SC00.
*# Ip estimated with Uplnd Method.
DESIGN NASHYD         MHYD-["P4C"], JC [5]min, AREA [4.26](ha),
                      'AF [0]mm), CN/C-[69], IP-[0.18]hrs,
                      RAINFALL [ ,  ,  ,  ,  ]mm/hr), END=-1
*----------------|-----------------------------------------------------------
*----------------------------------------------------------------------------
*
*# AREAS GO ALONG TO POND
*----------------------------------------------------------------------------
*
CALIB STANDHYD        MHYD-["P4.A"], JC-[5](min), APOA=[0.2](ha),
                      XIMP=[0.11], TIMP=[0.2.], 'AF'=[0]mm), LOSS [2],
                      SCS curve number CN=[71],
                      Pervious   surfaces: IAper=[4.67](mm), SLPP- 1](),
```

```
                                    IAPE=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                  Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[65.4](ft), MNI=[0.045], SCI=[0](min),
                  RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1A"], DT=[5](min), AREA=[1.57](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[52.3](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1B"], DT=[5](min), AREA=[1.12](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[65.4](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1C"], DT=[5](min), AREA=[0.45](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[65.4](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1D"], DT=[5](min), AREA=[0.52](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[56.9](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1E"], DT=[5](min), AREA=[0.63](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[65.8](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR1A"], DT=[5](min), AREA=[0.66](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[66.1](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR2B"], DT=[5](min), AREA=[0.48](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[55.4](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR3A"], DT=[5](min), AREA=[0.93](ac),
                    XIMP=[0.11], TIMP=[0.21], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[70.7](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-
* ------------------|-------------------------------------------------------------|
*# slope estimated at 2  based on backyard swales.
*# Tlag and Xlag based on total pond area
*# xlag = 0 pond/A ror
*# Tlag = weighted average of pond and backyards
CALIB STANDHYD      HYD=["FR3B"], DT=[5](min), AREA=[5.63](ac),
                    XIMP=[0.64], TIMP=[0.47], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[80. ](in), MNI=[0.035], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-
*|-----------------|-------------------------------------------------------------|
*|*****************************************************************************
*# UNCONTROLLED AREAS
*|*****************************************************************************
*|
CALIB STANDHYD      HYD=["FR7A"], DT=[5](min), AREA=[1.35](ac),
                    XIMP [0.02], TIMP=[0.14], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN [71],
                    Pervious   surfaces: IAper [1.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP [0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[ 94.9 (ft), MNI=[0.035], SCI [0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-
*|-----------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR7B1"], DT [5](min), AREA=[0.36](ac),
                    XIMP [0.02], TIMP [0.14], DWF [0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI [99.0](ft), MNI [0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR7B2"], DT=[5](min), AREA=[0.72](ac),
                    XIMP=[0.02], TIMP=[0.14], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[38.3](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR7C1"], DT=[5](min), AREA=3.74(ac),
                    XIMP=[0.02], TIMP=[0.14], DWF=[0](cfs), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](ac), SLPI=[1](%),
                                    LGI=[51.0](ft), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
CALIB STANDHYD      HYD=["FR7C2"], DT=[5](min), AREA=0.17(ac),
                    XIMP [0.02], TIMP [0.14], DWF [0](cfs), LOSS=[2],
                    SCS curve number CN [71],
                    Pervious   surfaces: IAper [1.67](ac), SLPP=[1](%),
                                    LAP=[40](ft), MNP [0.25], SCP [0](min),
                    Impervious surfaces: IAimp= [1.57](ac), SLPI=[1](%),
                                    LGI=[11.0](ft), MNI=[0.045], SCI [0](min),
                    RAINFALL=[ ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,](in/hr) ,  END=-1
* ------------------|-------------------------------------------------------------|
```

```
CALIB STANDHYD      NHYD ["FR1D"], DT=[5](min), AREA=[0.46](ha),
                    XIMP [0.02], TIMP= 0.14], IMP= 0](ha), LOSS=[2],
                    SCS curve number CN= 7],
                    Pervious   surfaces: [Aper=[4.87](ha), SLPP=[1](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: [Aimp=[1.57](ha), SLPI [1](%),
                                         LGI [41.7](m), MNI=[0.015], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR2"], DT=[5](min), AREA=[1.59](ha),
                    XIMP [0.01], TIMP [0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN= 7],
                    Pervious   surfaces: [Aper=[4.87](ha), SLPP=[1](%),
                                         LGP=[40](m), MNP [0.25], SCP [0](min),
                    Impervious surfaces: [Aimp=[1.57](ha), SLPI [1](%),
                                         LGI=[55.9](m), MNI=[0.015], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD= "FR1A" , DT=[5](min), AREA=[1.10](ha),
                    XIMP=[0.0], TIMP=[0.07], IMP=[2](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: [Aper [1.07](ha), SLPP=[1](%),
                                         LGP=[40](m), MNP= 0.25 , SCP= 0](min),
                    Impervious surfaces: [Aimp=[1.07](ha), SLPI=[1](%),
                                         LGI=[55.6](m), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR5E"], DT=[5](min), AREA=[0.23](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[2](ha),
                    SCS curve number CN=[71],
                    Pervious   surfaces: [Aper=[1.07](ha), SLPP=[1](%),
                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: [Aimp=[1.07](ha), SLPI=[1](%),
                                         LGI=[40.8](m), MNI=[0.042], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD ["FR5E2"], DT=[5](min), AREA=[1.03](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[0](ha),
                    SCS curve number CN=[71],
                    Pervious   surfaces: [Aper=[4.87](ha), SLPP=[1](%),
                                         LGP [40](m), MNP [0.25], SCP=[0](min),
                    Impervious surfaces: [Aimp=[1.57](ha), SLPI= 1](%),
                                         LGI= 0 .0 (m), MNI=[0.045], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR1C"], DT=[5](min), AREA=[0.46](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: [Aper=[0.07](ha), SLPP= 1](%),
                                         LGP= 40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: [Aimp=[1.57](ha), SLPI= 1](%),
                                         LGI=[1.9.2](m), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR1L"], DT=[5](min), AREA=[1.82](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: [Aper [3.67](ha), SLPP [1](%),
                                         LGP [40](m), MNP [0.25], SCP [0](min),
                    Impervious surfaces: [Aimp= 1.5"(ha), SLPI= 1](%),
                                         "GI=[54.1](m), MNI=[0.015], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  (mm/hr) ,  END=-1
*-----------------|-------------------------------------------------------------|
*$*****************************************************************************
*& Existing Flow - Upstream of Residential Area Phase 1 and 2
*$*****************************************************************************
*$ Typical Section based on proposed channel provided by AEL
*& All bank slopes, Long Slope = 0.50%, Manning's n is 0.03
*& Route EX1 to D/S node RD
ROUTE CHANNEL       ENGfoot ["REX1" ,NEXTid ["RX1"] ,
                    RDT=[5](min),
                    CHLATH=[517](m),  CHSLOPE=[0.50](%),
                                      FPSLOPE=[0.50](%),
                    SECNUM=[1],       NSEG=[1]
                    ( SEGROUGH, SEGDIST (m)[=[0.03,0.0] NSEG times
                    ( DISTANCE (m), ELEVATION (m)[=[0,     1.00]
                                                  [ 4.5,   0.00]
                                                  [ 5.5,   0.00]
                                                  [ 10.0,  1.00]
*-----------------|-------------------------------------------------------------|
*& Total flow at node RD
*& (Note that EX2 will be sheet draining to proposed channel)
ADD HYD             ENGDsum-["RD"], ENGDs to add ["FR2A"+"REX1"+"FR5E1"
                                                  +"FR5E2"+"EX2",
*-----------------|-------------------------------------------------------------|
*$ Typical Section based on proposed channel provided by AEL
*& All bank slopes, Long Slope = 0.50%, Manning's n is 0.03
*& Route SW draining at RD to d/s node N-2RA
ROUTE CHANNEL       NHYDout=["RD"] ,NEWDid=["RD"] ,
                    RDT=[5](min),
                    CHLDIA [326](m),  CHSLOPE [0.50](%),
                                      FPSLOPE [0.50](%),
                    SECNUM [1],       NSEG [1]
                    ( SEGROUGH, SEGDIST (m)[ (0.03,10.0) NSEG times
                    ( DISTANCE (m), ELEVATION (m)[=[0,     1.00]
                                                  [ 1.5,   0.00]
                                                  [ 5.5,   0.00]
                                                  [ 10.0,  1.00]
*-----------------|-------------------------------------------------------------|
*$ Total flow at node N-RA2
ADD HYD             ENGDsum-["NEX2"], ENGDs to add ["RD0"+"FR1C"]
*-----------------|-------------------------------------------------------------|
*& Route Node N-EX2 to Node N1
*& Typical Section based on Skiview MS Vee Ditch 3:1 banks
*& provided by Attl
*& Manning's n is Channel not maintained, light brush on banks
*& Slope = 0.05% as per plan provided by Attl
ROUTE CHANNEL       NHYDout=["RNEX2" ,NEWDid=["NEX2"] ,
                    RDT=[5](min),
                    CHLDIA=[233](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE [0.05](%),
                    SECNUM [3],       NSEG [3]
                    ( SEGROUGH, SEGDIST (m)[ (0.0%,6.0 -0.05%,6 @ 0.05,51.80] NSEG times
                    ( DISTANCE (m), ELEVATION (m)[ (0,    85.00]
                                                  [0.5,   85.03]
                                                  [0.50,  85.03]
                                                  [0.50,  85.03]
                                                  [10.50, 86.05]
                                                  [12.40, 85.80]
                                                  [51.80, 85.80]
*-----------------|-------------------------------------------------------------|
*$*****************************************************************************
*& Residential Development - Phase 1 and 2
*$*****************************************************************************
*& Peak flow at node N-R1A
ADD HYD             ENGDsum- "FR1A" , ENGDs to add- "FR2A"+"FR1B"+"EX4"]
*-----------------|-------------------------------------------------------------|
*& Route Node NR1A to Node N-FR1
*& Typical Section based on McEvoy Avenue Vee Ditch 1.5:1 slopes
*& provided by Attl
*& Manning's n is Channel not maintained, light brush on banks
*& Slope = 0.6%, approximate y as per Attl drawing (86-10.1)/100m
ROUTE CHANNEL       NHYDout=["NR1A"] ,NEWDid=["FR1A"] ,
                    RDT=[5](min),
                    CHLOCH [318](m),  CHSLOPE [0.60](%),
                                      FPSLOPE [0.60](%),
                    SECNUM=[1],       NSEG=[1]
                    ( SEGROUGH, SEGDIST (m)[=[0.050,47.00] NSEG times
                    ( D STANCE (m), ELEVATION (m)[=[0,     85.15]
                                                  [ 1.00,  85.13]
                                                  [ 4.41,  84.30]
                                                  [ 9.41,  85.30]
                                                  [48.80,  85.90]
*-----------------|-------------------------------------------------------------|
*& Total flow at node N-FR1
ADD HYD             ENGDsum-["NFR1"], ENGDs to add ["FR1"+"FR1B"+"FR1A"]
*-----------------|-------------------------------------------------------------|
*& Volume to ponding area is FR1
```

```
*4 Q=0.55 m3/s requires 44 per SCS 100yr Existing conditions
*4 Culvert from inlet 1
*4 Assuming outlet culvert is 600 mm, slope = 1.2 , HDPE smooth walls
*4 Manning's n = 0.012, inlet control nomograph
*3 Hydraulic head = 0.9m, Qmax=0.610
COMPUTE [QREQD]     MEYDnm="MFX1", C=0.61,Z=[0.610](cms), N=3,LZ=[1],
                    Xn="MEYDn="MFX1"]
                    XCnAME="[MFX1]"
                    IMAGE="[MFX1]"(cms)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 1 pipe
ADD HYD             MEYDsum-["In1"], MEYDs to add ["FR1B"-"MFX1Mn"]
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 1 - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout=["Pin1"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[85](m),
                    PROUGH=[0.012], PSLOPE=[0.016](m/m), MEYDin=["In1"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Culvert from inlet 2
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout="Cln2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[17.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), MEYDin=["FR2A"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 2 pipe
ADD HYD             MEYDsum ["In2"], MEYDs to add-["FR2B"+"Cln2"]
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 2 - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout ["Pin2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[51](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), MEYDin=["In2"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Culvert from inlet 3
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout="Cln3"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[10.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), MEYDin=["FR3A"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 3 pipe
ADD HYD             MEYDsum ["In3"], MEYDs to add ["FR3B"+"Cln3"]
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 4 - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout="Cln4" ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[35](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), MEYDin=["In4"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Culvert from inlet 4
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout="Cln4" ,RNUMBER=[1],
                    PDIAM-[600](mm), PLENGTH-[12.5](m),
                    PROUGH-[0.012], PSLOPE-[0.004](m/m), MEYDin-["FR4A"] ,
                    EOT -5](min)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 4 pipe
ADD HYD             MEYDsum=["In4"], MEYDs to add= "FR4B"+"Cln4"]
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE-[1]cir., MEYDout-["Cln4"] ,RNUMBER-[1],
                    PDIAM-[600](mm), PLENGTH-[45](m),
                    PROUGH-[0.012], PSLOPE-[0.019](m/m), MEYDin-["In4"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Culvert from inlet 5
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE-[1]cir., MEYDout-["Cln5"] ,RNUMBER-[1],
                    PDIAM-[600](mm), PLENGTH-[12.5](m),
                    PROUGH-[0.012], PSLOPE-[0.06](m/m), MEYDin-["FR5A"] ,
                    EOT-[5](min)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 5 pipe
ADD HYD             MEYDsum=["In5"], MEYDs to add= "FR5B"+"Cln5"
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 5 - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout=["Pin5"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[10](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), MEYDin=["In5"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 Culvert from inlet 6
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout=["Cln6"] ,RNUMBER=[1],
                    PDIAM-[600](mm), PLENGTH-[12.5](m),
                    PROUGH-[0.012], PSLOPE-[0.004](m/m), MEYDin-["FR6A"] ,
                    EOT -5](min)
*-----------------|-------------------------------------------------------------|
*4 Input to inlet 6 pipe
ADD HYD             MEYDsum=["In6"], MEYDs to add=["FR6B"+"Cln6"]
*-----------------|-------------------------------------------------------------|
*4 Pipe from inlet 6 - Route to pond
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout=["Pin6"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLENGTH=[70](m),
                    PROUGH=[0.012], PSLOPE=[0.03](m/m), MEYDin=["In6"] ,
                    EOT=[5](min)
*-----------------|-------------------------------------------------------------|
*4 VOLUME TO POND (ULTIMATE CONDITIONS)
ADD HYD             MEYDsum= "POND(IN" , MEYDs to add= "Pin1"."Pin2"."Pin3"
                                 ."Pin4" "Pin5","Pin6" "Pin7"
*-----------------|-------------------------------------------------------------|
*ALLOWS TO KNOW FLOW PRODUCED BY EXTERNAL AREAS diam=0.901
*COMPUTE [QREQD]     MEYDin ["POND1n"], C=[0.901](cms), N=[1],
                    Xn="[QREQD]"
                    Y="MEYDn= "POND1"
                    IMAGE="[9999](cms)"
*-----------------|-------------------------------------------------------------|
*  Pond outflow for ultimate conditions using wdir .6, .8, 1.0
ROUTE RESERVOIR     MEYDout=["Pout"] ,MEYDin= "POND1n" ,
                    RUT=[5](min),
                                "TABLE of ( OUTFLOW-STORAGE ) values"
                                          (cms)  - (ha-m)
                                        [   0.0 ,   0.0   ]
                                        0.0114  0.0790
                                        0.0163  0.1019
                                        0.0319  0.1582
                                        0.0537  0.2166
                                        0.0819  0.2832
                                        0.090   0.3069
                                        0.705   0.49 9
                                        1.561   0.678
                                        1.925   0.8655
                                        2.243   0.7541
                                        0.2388  0.8443
                                        0.1609  0.9221
                                        0.7602  1.0219
                                        1.1329  1.3128
                                        1.5736  1.5937
                                        1.657   1.7086
                                        2.8488  2.0159
                                        [   -1  ,   -1  ]   (max twenty pts)
                                MEYDout ("Pout") ,
*-----------------|-------------------------------------------------------------|
*4 Simulating SCS 100 yr conditions with convergence of orifice weir
*4 Checked for weir .6, .8 & 1.0
*  The elevations: SCS100 is in channel - 85.15
*                                  POND AL - 85.70
*                                  TOP of POND AL - 85.99
*ROUTE RESERVOIR     MEYDin=["MEYDn"]"Pout" ,MEYDin ["POND1n"] ,
*                    RET=[5](min),
*                                "TABLE of ( OUTFLOW-STORAGE ) Values
*                                          (cms) - (ha-m)
*                                        [   0.0 ,   0.0 ]
*                                        0.0000  ,  .1780
*                                        0.20    ,  1.8710
*                                        0.33    ,  2.0192
*                                        [   -1  ,   -1  ]   (max twenty pts)
*                                MEYDout ,"Ovro" ,
*-----------------|-------------------------------------------------------------|
*  Route pond output through first set of pipes
*4 2 x 600 pipes simulated with 1 pipe of equivalent capacity (.780 m dia)
*  Just not take into account hydraulic head caused by Shield YD Backwater
*4 HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PIYPE=[1]circ, MEYDout=["Pout"] ,RNUMBER=[1],
                    PDIAM=[780](mm), PLENGTH=[75](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), MEYDin=["POut"] ,
                    EOT [5](min)
*-----------------|-------------------------------------------------------------|
```

```
*# Flow c/s of outlet culverts
ADD HYD             KHYdsum="FSout"; KHYDs to add=["FR1E"+"FR2E"+"FR3E"+"FR4E."]
*!-----------------|-------------------------------------------------------------------|
*! Route outflow through set of Culverts
*! 2 x 600 culverts simulated with 1 culvert of equivalent capacity ( 750 mm Dia)
*! CSPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          SPIPE [1]<1>c, NHYDout="Cout" ,RNUMBER=[1],
                    SHIAP=[750](mm), PIWGTH= 0(m),
                    PROUGH=[0.012], PSLOPE=[0.024](m/m), NHYDin=["FOLL"] ,
                    RDT=[5](min)
*!-----------------|-------------------------------------------------------------------|
*# Flow c/s of second set of outflow pipes
ADD HYD             NHYDsum="Fout2", NHYDs to add ["FR1C"+"FR2C"-"Cout"]
*!-----------------|-------------------------------------------------------------------|
*! Outflow through second set of pipes
*! 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
*! CSPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          SPIPE [1]<1>c, NHYDout ["Fout2"] ,RNUMBER=[1],
                    SHIAP [780] (mm), PIWGTH= 0(m),
                    PROUGH=[0.012], PSLOPE=[0.032 (m/m)], NHYDin=["FOLL2"] ,
                    RDT=[5](min)
*!-----------------|-------------------------------------------------------------------|
*# Total flow at Node N1 (Vehicle KD sizing Sales Basn 9d)
ADD HYD             NHYDsum="N1", NHYDs to add=["NHYD"+("Fout2"-"NIX)"
                                    +("FR1E"+"FR1I")
*!-----------------|-------------------------------------------------------------------|
*# ROUTE N1 to N2
*# Typical Section based on Shields ME Yee Ditch 3:1 Banks
*# provided by Ariel
*# Manning's n is Channel not maintained, light Brush on Banks
*# Slope = 0.05% as per plan provided by Ariel.
ROUTE CHANNEL       NHYDout="FR1I" ,NHYDin=["N1"] ,
                    RDT= 5 (min),
                    CHLGTH=[349](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE=[0.05](%),
                     SECNUM (N),      BSEC (3)
                    ( SECBOTLH, SECDIST (m)-[0.05,6.0 -0.035,6.6 0.05,51.80] BSEC lines
                    ( DISTANCE (m), ELEVATION (m))-[0,    85.53]
                                                   [6.0, 85.53]
                                                   [6.30, 83.43]
                                                   [9.60, 83.53]
                                                   [10.50, 84.93]
                                                   [12.40, 85.00]
                                                   [51.80, 85.90]
*!-----------------|-------------------------------------------------------------------|
*! Outflow from residential area at NX inlets
ADD HYD             NHYDsum="N2", NHYDs to add=["N1A"+"FR2A"-"Fout"]
*!-----------------|-------------------------------------------------------------------|
*# Added VOLUME from natural area contributing to N2
ADD HYD             NHYDsum ("N2"), NHYDs to add=["FR1"+"N1"+"FR5"+"FR6"
*!-----------------|-------------------------------------------------------------------|
*! ROUTE N2 to EO11A
*! Typical Section based on Shields ME Yee Ditch 3:1 Banks
*! provided by Ariel
*! Manning's n is Channel not maintained, light Brush on Banks
*# Slope = 0.05% as per plan provided by Ariel.
ROUTE CHANNEL       NHYDout ["EO3"] ,NHYDin ["N2"] ,
                    RDT [5](min),
                    CHLGTH=[315](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE=[0.05](%),
                     SECNUM=[0.],     NSEC=[3]
                    ( SECWIDTH, SECDIST (m)-[0.05,6.0 -0.035,6.6 0.05,51.80] NSEC lines
                    ( DISTANCE (m), ELEVATION (m))-[0,    85.53]
                                                   [6.0, 85.53]
                                                   [8.30, 83.43]
                                                   [9.60, 83.53]
                                                   [10.50, 84.93]
                                                   [12.40, 85.00]
                                                   [51.80, 85.90]
*!-----------------|-------------------------------------------------------------------|
*# Flow at Stantec node ECD.28 for comparison
*# routed by pipe EA1
ADD HYD             NHYDsum ["EA1E1a"], NHYDs to add ["EA0"+"EA1"]
*!-----------------|-------------------------------------------------------------------|
*! AREA CHECK
*#
ADD HYD             NHYDsum=["Total"], NHYDs to add="EX1"+"EX2"+"EX3"+"EX4"
                                    +"EX5"+"EX6"+"EX7"+"FR1A"+"FR1E"
ADD HYD             NHYDsum=["Tot2"], NHYDs to add-["Tot1"+"FR2A"+"FR2B"+"FR3A"
                                +"FR3B"+"FR4A"+"FR4B"+"FR5A"+"FR5B"]
ADD HYD             NHYDsum=["Tot3"], NHYDs to add="Tot2"+"FR6A"+"FR6B"+"FR7A"
                        ("FR8A"+"FR8B"+"FR9A"+"FR9B"+"FR10A"+"FR10B"
ADD HYD             NHYDsum=["Tot4"], NHYDs to add= "Tot3"+"FR11"+"FR12"+"FR13"
                                -"FR552"+"FR10"+"FR11"+"FR1"-"FDC"]
ADD HYD             NHYDsum ["Tot5"], NHYDs to add=["Tot4"+"FR1A"+"FR1B"+"FR2A"
                        +"FR2B"
*!-----------------|-------------------------------------------------------------------|
*!.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|
*!-----------------|-------------------------------------------------------------------|
*# Simulations with 4 hour Chicago from city of Ottawa
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[2]
*                    "CH4H002%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[5]
*                    "CH4H005%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[10]
*                    "CH4H010%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[25]
*                    "CH4H025%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[50]
*                    "CH4H050%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[100]
*                    "CH4H100%.str"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
*# 2yr 24 hours type 2, from City of Ottawa
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[20]
*                    "SC24H02%.stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[10]
*                    "SC24H05%.stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[100]
*                    "SC24H10%.stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[250]
*                    "SC24H25%.stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRUN-[500]
*                    "SC24H50%.stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
*# Simulation with July 1, 1979 Historical Event, City of Ottawa
START               IZERO-[0.0],  NSTOUT-[2],  NSTORM-[1],  NRU  N-[1]
*                    "P1979070].stm"] <--storm filename, one per line for NSTORM line
*!-----------------|-------------------------------------------------------------------|
FINISH
FINISH
```

```
00001> ------------------------------------------------------------------------
00002>
00003>  SSSSS   A    M   M   M   M   A    T    I    M   X   XXX        999    999  ----------
00004>  S      A A   MM MM   MM MM  A A    T    I    MM MM   X    O   O    9   9  9   9
00005>  SSSSS  AAAAA  M M M   M M M AAAAA   T    I    M M M    X   O   O   9999   9999 Sept 2008
00006>      S  A   A  M   M   M   M A   A   T    I    M   M   X  O   O      9      9
00007>  SSSSS  A   A  M   M   M   M A   A   T    I    M   M  XXX  OOO       9      9 ==========
00008>                                                                  9   9   9   9 # 2547402
00009>       StormWater Management Hydrologic Model                    999    999
00010>
00011> ************************************************************************
00012> ************************* SWMHYMO Ver/5 beta ***************************
00013> ******* A single event and continuous hydrologic simulation model  *******
00014> *******     based on the principles of HYMO and its successors      *******
00015> *******                  OTTHYMO-83 and OTTHYMO-89.                  *******
00016> ************************************************************************
00017> ******* Distributed by:  J.F. Sabourin and Associates Inc.           *******
00018> *******                  Ottawa, Ontario: (613) 727-5199             *******
00019> *******                  Gatineau, Quebec: (819) 243-6858            *******
00020> *******                  E-Mail : sabhyrn@jfsa.com                   *******
00021> ************************************************************************
00022>
00023> ------------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
00024> ******* Licensed to: JFSAinc.                                        *******
00025> *******                  in Any City              SERIAL#:2547402     *******
00026> ------------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
00027>
00028> ************************************************************************
00029> *******          ++++++ PROGRAM ARRAY DIMENSIONS ++++++                *******
00030> *******          Maximum value for ID numbers  :    10                *******
00031> *******          Max. number of rainfall points:  52560               *******
00032> *******          Max. number of flow points    :  52560               *******
00033> ************************************************************************
00034>
00035> *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START): ***
00036> ***------------------------------------------------------------------------***
00037> ***     ID: Hydrograph Identification numbers, (1-10).                   ***
00038> ***  NHYD: Hydrograph reference numbers, (6 digits or characters).       ***
00039> ***  AREA: Drainage area associated with hydrograph, (ha.) or (ac.).     ***
00040> ***  QPEAK: Peak flow of simulated hydrograph, (m**3/s) or (cfs).        ***
00041> ***  TpeakDate_hr:mn is the date and time of the peak flow.              ***
00042> ***  R.V.: Runoff volume of simulated hydrograph, (mm) or (in).          ***
00043> ***  R.C.: Runoff Coefficient of simulated hydrograph, (ratio).          ***
00044> ***     *: see WARNING or NOTE message printed at end of run.            ***
00045> ***    **: see  ERROR  message printed at end of run                     ***
00046> ************************************************************************
00047> ************************************************************************
00048>
00049> ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
00050>
00051> ************************************************************************
00052>
00053> ********************  S U M M A R Y   O U T P U T  ************************
00054> ************************************************************************
00055> *       DATE: 2008-12-12     TIME: 08:43:59     RUN COUNTER: 001984       *
00056> ************************************************************************
00057> * Input  filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.dat    *
00058> * Output filename: c:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.out    *
00059> * Summary filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.sum   *
00060> * User Comments:                                                        *
00061> * 1:                                                                   *
00062> * 2:                                                                   *
00063> * 3:                                                                   *
00064> ************************************************************************
00065>
00066>
00067> p***********************************************************************
00068> *  SWMHYMO Ver/5.01/Jan 2001 <BETA> / INPUT DATA FILE                  *
00069> p***********************************************************************
00070> *  Project Name: [Greely Village Center]    Project Number: [647-07]
00071> *  Date        : 04-07-2008
00072> *  Modelled    : [AM]
00073> *  Company     : JFSAinc.
00074> *  License #   : 2547402
00075> p***********************************************************************
00076> *
00077> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
00078> * Proposed Ultimate Conditions. OPTION B
00079> * Filename stands for: GRP2u2a  Greely, Residential, Phase 2, Ultimate v2 with
00080> *
00081> *  December 15, 2008
00082> *  "a" at the end of filename= Added July 1st 1979 Event
00083> p***********************************************************************
00084> 
00085> ------------------------------------------------------------------------
00086> 
00087>     START
00088>       [TZERO =    .00 hrs on        0]
00089>       [METOUT=   2    (1-imperial, 2-metric output)]
00090>       [NSTORM=   1 ]
00091>       [NRUN=     1 ]
00092> ------------------------------------------------------------------------
00093>     READ STORM
00094>      Filename= c:\stdy.001
00095>      Comment = 25 yr 3 hours Atmp 10 min, City of Ottawa
00096>      [PTFW=0.833:RAIN=   4.18:TYPE=  25.00]
00097> *************************************************************************
00098> * Existing Flow - McEvoy Branch of Shirley Creek   Areas
00099> * Area 60% of proposed development (residential)
00100> * CN=75, Slope = 0.8, Tp 0.16, XIMP 5, TIMP 10, Dec 31,002 Ls Dec Stantec
00101> * Area partially adjusted based on Atrel drawings.
00102> *-----------------------------------------------------------------------
00103> * Drs of Bank St.as per Atrel   with modified boundaries and Tp.
00104>  001:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00105>      DESIGN HANYD      01:EX1        24.60      .346 Mc_date    1:15    5.17  .181
00106>        [CN= 75.0: N= 3.00]
00107>        [Tp=  .23:IA= 5.00]
00108> *-----------------------------------------------------------------------
00109> * Existing - ow - External areas d/s of Bank St.
00110> * CN=60, as per Stantec ref SC08 .
00111> * Area partially adjusted based on Atrel drawings.
00112> *-----------------------------------------------------------------------
00113> * Areas External to development.
00114>  001:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00115>      DESIGN HANYD      01:EX2         9.69      .059 Mc_date    1:30    4.87  .141
00116>        [CN= 69.0: N= 3.00]
00117>        [Tp=  .60:IA= 5.00]
00118>  001:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00119>      DESIGN HANYD      01:EX3        31.30      .192 Mc_date    1:15    4.87  .141
00120>        [CN= 69.0: N= 3.00]
00121>        [Tp=  .83:IA= 5.00]
00122> * Slope, Tlag, Area from Atrel Drawing
00123> * CN from Stantec (SC08)
00124> * Xlag = Tlag - 10:
00125>  001:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00126>   * CALIB STANDHYD      01:EX4         .50      .008 Mc_date    1:20    5.25  .332
00127>        [XIMP=.10:TIMP=.20]
00128>        [DCIA= 2 :CN= 69.0]
00129>        |Pervious    area: [Apx=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00130>        |Impervious  area: [Aimp=  .33:SLPI=1.00:LGI=  58.:MNI=.040:SCI=   .0]
00131> * Road and road side ditch along projected residential development Parkway Rd
00132> * Tlag = Xlag = 0.2: ha /0.67 ha = 0.40
00133> * CN*-69, as per Stantec ave SC08:.
00134> * Slope is estimate at 1%
00135> * Xlag = Tlag - 10:
00136>  001:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00137>   * CALIB STANDHYD      01:EX5         .52      .022 Mc_date    1:20    9.83  .389
00138>        [XIMP=.90:TIMP=.90]
00139>        [DCIA= 2 :CN= 69.0]
00140>        |Pervious    area: [Apx=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00141>        |Impervious  area: [Aimp=  .33:SLPI=1.00:LGI=  58.:MNI=.040:SCI=   .0]
00142> * Road and road side ditch along projected residential development SalesBarn Rd
00143> * Tlag = Xlag = 0.0: ha /0.5: ha = 0.0%
00144> * CN*-69, as per Stantec ave SC08:.
00145> * Slope is estimate at 1%
00146> * Xlag = Tlag - 10:
00147>  001:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00148>   * CALIB STANDHYD      01:EX6         .01      .007 Mc_date    1:20    5.54  .222
00149>        [XIMP=.10:TIMP=.20]
00150>        [DCIA= 2 :CN= 69.0]
00151>        |Pervious    area: [Apx=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00152>        |Impervious  area: [Aimp=  .33:SLPI=1.00:LGI=  58.:MNI=.040:SCI=   .0]
00153> * Road and road side ditch along projected residential development SalesBarn Rd
00154> * Tlag = Xlag = 0.0: ha /0.99 ha = 0.0%
00155> * CN*-69, as per Stantec ave SC08:.
00156> * Slope is estimate at 1%
00157> * Xlag = Tlag - 10:
00158>  001:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00159>   * CALIB STANDHYD      01:EX7         .39      .007 Mc_date    1:20    6.15  .246
00160>        [XIMP=.10:TIMP=.20]
00161>        [DCIA= 2 :CN= 69.0]
00162>        |Pervious    area: [Apx=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00163>        |Impervious  area: [Aimp=  .33:SLPI=1.00:LGI=  58.:MNI=.040:SCI=   .0]
00164> * Areas to be occupied by commercial development
00165> * CN*-69, as per Stantec ave SC08:.
00166>  001:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00167>      DESIGN HANYD      01:EX8         9.41      .067 Mc_date    1:40    4.01  .161
```

```
00167>       [CN= 69.0; N= 3.00]
00168>       [Tp=  .13:00= 5.00]
00169> 00:00.1---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00170>   * DESIGN HASHYD      01:R7A         3.11      .040 No data    1:00    4.01 .161
00171>       [CN= 69.0; N= 3.00]
00172>       [Tp=  .11:00= 5.00]
00173> 00:00.2---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00174>       DESIGN HASHYD      01:R3B         3.17      .040 No data    1:00    4.01 .161
00175>       [CN= 69.0; N= 3.00]
00176>       [Tp=  .10:00= 5.00]
00177> 00:00.3---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00178>       DESIGN HASHYD      01:R3B         2.21      .029 No data    1:00    4.01 .161
00179>       [CN= 69.0; N= 3.00]
00180>       [Tp=  .10:00= 5.00]
00181> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00182> *--------------------------------------------------------------------------
00183> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
00184> *--------------------------------------------------------------------------
00185> * CN=69, as per Stanley Doc SCS01.
00186> * Tp estimates with Upland Method.
00187> 00:00.4---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.
00188>       DESIGN HASHYD      01:FR1         6.76      .055 No data    1:00    4.01 .161
00189>       [CN= 69.0; N= 3.00]
00190>       [Tp=  .16:00= 5.00]
00191> *--------------------------------------------------------------------------
00192> * AREAS OVER TO POND
00193> *--------------------------------------------------------------------------
00194> *
00195> 00:00.5---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00196>   * CALIB STANDHYD     01:FR.A         .24      .004 No data    1:20    6.00 .240
00197>       [XIMP=.11:IMP=.21]
00198>       [LOSS= 2 :CN= 71.0]
00199>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00200>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00201> 00:00.6---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00202>       CALIB STANDHYD     01:FR1B         .53      .009 No data    1:20    6.00 .240
00203>       [XIMP=.11:IMP=.21]
00204>       [LOSS= 2 :CN= 71.0]
00205>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
00206>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00207> 00:00.7---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00208>       CALIB STANDHYD     01:FR.A         .67      .021 No data    1:20    6.00 .240
00209>       [XIMP=.11:IMP=.21]
00210>       [LOSS= 2 :CN= 71.0]
00211>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00212>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00213> 00:00.8---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00214>       CALIB STANDHYD     01:FR2B         1.12      .018 No data    1:20    6.00 .240
00215>       [XIMP=.11:IMP=.21]
00216>       [LOSS= 2 :CN= 71.0]
00217>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00218>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00219> 00:00.9---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00220>   * CALIB STANDHYD     01:FR3A         .45      .007 No data    1:20    6.00 .240
00221>       [XIMP=.11:IMP=.21]
00222>       [LOSS= 2 :CN= 71.0]
00223>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00224>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00225> 00:00.10--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00226>   * CALIB STANDHYD     01:FR3B         .69      .011 No data    1:20    6.00 .240
00227>       [XIMP=.11:IMP=.21]
00228>       [LOSS= 2 :CN= 71.0]
00229>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00230>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00231> 00:00.11--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00232>       CALIB STANDHYD     01:FP3A         .91      .017 No data    1:20    6.00 .240
00233>       [XIMP=.11:TIMP=.21]
00234>       [LOSS= 2 :CN= 71.0]
00235>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00236>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
00237> 00:00.12--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00238>       CALIB STANDHYD     01:FP4a         .65      .010 No data    1:20    6.00 .240
00239>       [XIMP=.11:TIMP=.21]
00240>       [LOSS= 2 :CN= 71.0]
00241>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00242>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
00243> 00:00.13--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00244>       CALIB STANDHYD     01:FP4B         .66      .010 No data    1:20    6.00 .240
00245>       [XIMP=.11:TIMP=.21]
00246>       [LOSS= 2 :CN= 71.0]
00247>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00248>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
00249> 00:00.14--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00250>   * CALIB STANDHYD     01:FR5A         .45      .007 No data    1:20    6.00 .240
00251>       [XIMP=.11:TIMP=.21]
00252>       [LOSS= 2 :CN= 71.0]
00253>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00254>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00255> 00:00.15--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00256>   * CALIB STANDHYD     01:FR5B         .43      .021 No data    1:20    6.00 .240
00257>       [XIMP=.11:TIMP=.21]
00258>       [LOSS= 2 :CN= 71.0]
00259>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00260>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00261> 00:00.16--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00262>       CALIB STANDHYD     01:FR5A         .43      .021 No data    1:20    6.00 .240
00263>       [XIMP=.11:TIMP=.21]
00264>       [LOSS= 2 :CN= 71.0]
00265>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00266>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00267> # Ximp estimated at 2% based on backyard scales.
00268> # Timp and Ximp based on total pond area
00269> # ximp = A pond/A tot
00270> # Timp = weighted average of road and backyards
00271> 00:00.17--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00272>       CALIB STANDHYD     01:POA          5.33      .225 No data    1:25   12.01 .492
00273>       [XIMP=.01:TIMP=.07]
00274>       [LOSS= 2 :CN= 71.0]
00275>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00276>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
00277> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00278> * ONSITE ROLLED AREAS
00279> *--------------------------------------------------------------------------
00280> *
00281> 00:00.18--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00282>   * CALIB STANDHYD     01:FR7A         1.38      .028 No data    2:05    4.09 .172
00283>       [XIMP=.02:TIMP=.14]
00284>       [LOSS= 2 :CN= 71.0]
00285>       [Pervious     area: [Apre= 4.67:SLPP 1.00:LGP   40.:MNP .250:SCP    .0]
00286>       [Impervious   area: [AImp  1.57:SLPI 1.00:LGI   95.:MNI .045:SCI    .0]
00287> 00:00.19--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00288>   * CALIB STANDHYD     01:FR7B         .16      .004 No data    2:40    4.09 .172
00289>       [XIMP=.07:TIMP=.14]
00290>       [LOSS= 2 :CN= 71.0]
00291>       [Pervious     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00292>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
00293> 00:00.20--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00294>   * CALIB STANDHYD     01:FR7B1        .22      .001 No data    2:05    4.09 .172
00295>       [XIMP=.02:TIMP=.14]
00296>       [LOSS= 2 :CN= 71.0]
00297>       [Pervious     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00298>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
00299> 00:00.21--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00300>   * CALIB STANDHYD     01:FR7C1        .29      .002 No data    2:05    4.09 .172
00301>       [XIMP=.02:TIMP=.14]
00302>       [LOSS= 2 :CN= 71.0]
00303>       [Pervious     area: [Apre= 4.67:SLPP 1.00:LGP   40.:MNP .250:SCP    .0]
00304>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
00305> 00:00.22--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00306>   * CALIB STANDHYD     01:FR7C2        .27      .001 No data    2:05    4.09 .172
00307>       [XIMP=.02:TIMP=.14]
00308>       [LOSS= 2 :CN= 71.0]
00309>       [Pervious     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00310>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
00311> 00:00.23--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00312>   * CALIB STANDHYD     01:FR7D         .39      .002 No data    2:05    4.09 .172
00313>       [XIMP=.02:TIMP=.14]
00314>       [LOSS= 2 :CN= 71.0]
00315>       [Pervious     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00316>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
00317> 00:00.24--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00318>   * CALIB STANDHYD     01:FR8          1.38      .027 No data    2:05    3.80 .152
00319>       [XIMP=.01:TIMP=.07]
00320>       [LOSS= 2 :CN= 71.0]
00321>       [Previous     area: [Apre= 4.67:SLPP 1.00:LGP   40.:MNP .250:SCP    .0]
00322>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
00323> 00:00.25--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00324>   * CALIB STANDHYD     01:FR9A         1.16      .036 No data    2:05    3.80 .152
00325>       [XIMP=.01:TIMP=.07]
00326>       [LOSS= 2 :CN= 71.0]
00327>       [Previous     area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00328>       [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
00329> 00:00.26--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00330>   * CALIB STANDHYD     01:FR9B1        .25      .00. No data    2:00    1.80 .152
00331>       [XIMP=.01:TIMP=.07]
00332>       [LOSS= 2 :CN= 71.0]
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00333>       |Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00334>       |Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI   1.:MNI=.035:SCI=   .0]
00335> 001:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00336>   * CALIB STANDHYD     01:FR3U       1.06     .035 No date    1:05    5.86 .152
00337>       [XIMP= .01:TIMP=.07]
00338>       [CN= 77.:SCN= 71.0]
00339>       |Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00340>       |Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI   1.:MNI=.035:SCI=   .0]
00341> 001:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00342>   * CALIB STANDHYD     01:FR3U       1.04     .034 No date    1:05    5.86 .152
00343>       [XIMP= .01:TIMP=.07]
00344>       [CN= 77.:SCN= 71.0]
00345>       |Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00346>       |Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI   1.:MNI=.035:SCI=   .0]
00347> 001:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00348>   * CALIB STANDHYD     01:FR1U       .03      .001 No date    1:05    5.80 .152
00349>       [XIMP= .01:TIMP=.07]
00350>       [CN= 77.:SCN= 71.0]
00351>       |Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00352>       |Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI   1.:MNI=.035:SCI=   .0]
00353> *****************************************************************************
00354> * EXISTING Flow - Parcel at Residential Area Phase 1 and 2
00355> *****************************************************************************
00356> * Typical Section based on proposed channel provided by AEL
00357> * 4:1 bank slopes, Long slope   0.56%, Manning's n is 0.07
00358> * Route EX1 to s/s node N8
00359> 001:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00360>       ROUTE CHANNEL   -> 02:EX1        24.62     .319 No date    1:45    5.11 n/a
00361>        [RT= 5.08  out= 01:EX2]        24.62     .319 No date    1:40    5.11 n/a
00362>        [L/S/n=  312./ .060/.030]
00363>        [Vmax=  .678:Dmax=  .1240]
00364> * Total flow at N-R2A
00365> * (Note that R2A will be sheet draining to proposed channel)
00366> 001:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00367>       ADD HYD           + 02:R1E        9.43     .081 No date    1:55    4.01 n/a
00368>                         + 03:EP4        5.73     .046 No date    1:55    4.01 n/a
00369>                         + 04:FR2A       1.10     .006 No date    2:05    3.80 n/a
00370>        [T= 5.08]  SUM=  01:R2A        16.84     .128 No date    1:55    4.00 n/a
00371> # Typical Section based on proposed channel provided by AEL
00372> # 4:1 bank slopes, Long Slope = 0.00%, Manning's n is 0.03
00373> # Route to drainage at N-R2A to s/s node N2
00374> 001:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00375>       ROUTE CHANNEL   -> 02:ER2A      16.84     .179 No date    1:45    4.00 n/a
00376>        [RT= 5.00] out= 01:R2A         16.84     .028 No date    1:50    4.00 n/a
00377>        [L/S/n=  442./ .030/.035]
00378>        [Vmax=  .499:Dmax=  .1260]
00379> * Total flow at node N2
00380> * (Note that EX2 will be sheet draining to proposed channel)
00381> 001:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00382>       ADD HYD           + 02:R2A        16.84     .098 No date    1:50    4.00 n/a
00383>                         + 03:EX1        24.62     .319 No date    1:45    5.11 n/a
00384>                         + 04:FR5b1       .22     .001 No date    2:00    3.80 n/a
00385>                         + 05:FR5b2      1.06     .005 No date    2:05    3.80 n/a
00386>                         + 06:EX2        9.49     .055 No date    2:10    5.01 n/a
00387>        [T= 5.08]  SUM=  01:N2         49.24     .451 No date    1:45    4.55 n/a
00388> * Typical Section based on proposed channel provided by AEL
00389> * 4:1 bank slopes, Long Slope = 0.60%, Manning's n is 0.03
00390> * Route to drainage at N2 to s/s node N-EX2
00391> 001:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00392>       ROUTE CHANNEL   -> 02:N2        49.24     .451 No date    1:45    4.55 n/a
00393>        [RT= 5.00] out= 01:EN2         49.24     .438 No date    1:50    4.55 n/a
00394>        [L/S/n=  724./ .030/.030]
00395>        [Vmax=  .791:Dmax=  .174]
00396> * Total flow at node N-EX2
00397> 001:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00398>       ADD HYD           + 02:EN2        49.46     .438 No date    1:50    4.55 n/a
00399>                         + 03:FR3b       1.84     .009 No date    2:05    3.80 n/a
00400>        [D/S= 5.00]  SUM=  01:NEX2       51.24     .438 No date    1:50    4.52 n/a
00401> # Route Node N-EX2 to Node N1
00402> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00403> * provided by Atre:
00404> # Manning's n is Channel not maintained, input grass on banks
00405> # Slope = 0.05  as per plan provided by Atre:
00406> 001:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00407>       ROUTE CHANNEL   -> 02:NEX2      51.24     .130 No date    1:50    4.52 n/a
00408>        [RT= 5.00] out= 01:EN3X2       51.24     .047 No date    2:00    4.57 n/a
00409>        [L/S/n=  563./ .060/.035]
00410>        [Vmax=  .2274:Dmax=  .135]
00411> *****************************************************************************
00412> # Residential Development - Phase 1 and 2
00413> *****************************************************************************
00414> # Total flow at node N-P3b
00415> 001:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00416>       ADD HYD           + 02:R3E        4.14     .043 No date    1:50    4.01 n/a
00417>                         + 03:R3B        2.31     .024 No date    1:55    4.01 n/a
00418>                         + 04:EX4         .50     .008 No date    1:20    5.79 n/a
00419>        [P1= 5.00]  SUM=  01:P3b         6.95     .075 No date    1:50    4.11 n/a
00420> # Route Node P3b to Node N-PR1
00421> # Typical Section based on McEvoy Branch Vee Ditch 3:1 slopes
00422> # provided by Atre:
00423> # Manning's n is Channel not maintained, input grass on banks
00424> # Slope = 0.60% approximately as per Atre: drawing (Sheet 11/318)
00425> 001:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00426>       ROUTE CHANNEL   -> 02:P3b        6.95     .075 No date    1:50    4.11 n/a
00427>        [PDT= 5.00] out= 01:PNR3b       6.95     .061 No date    1:55    4.13 n/a
00428>        [L/S/n=  318./ .060/.050]
00429>        [Vmax=  .413:Dmax=  .193]
00430> # Tota  flow at node N-PR1
00431> 001:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00432>       ADD HYD           + 02:PR1        4.26     .023 No date    1:30    4.01 n/a
00433>                         + 03:PNR3b      6.95     .061 No date    1:45    4.15 n/a
00434>                         + 04:FR1A        .26     .004 No date    1:20    6.00 n/a
00435>        [T= 5.08]  SUM=  01:NPR1        11.35     .105 No date    1:35    4.14 n/a
00436> # Volume to ponding area in PR1
00437> # Q=9.555 m3/s required as per SCS 100yr Existing conditions
00438> # Culvert from Inlet 1
00439> # Assuming outlet culvert is 600 mm, slope   1.2 , HDPE smooth walls
00440> # Manning's n   0.012, inlet control nomograph
00441> # Hydrau lic head = 0.5m, Q=0.610
00442> 001:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00443>       COMPUTE QUALITY(VO  01:NPR1       11.35     .105 No date    1:35    4.14 n/a
00444>         Major System /   02:NPRIME       .00     .000 No date    0:00     .00 n/a
00445>         Minor System %   03:NPRIMn     11.35     .105 No date    1:35    4.14 n/a
00446>        [M]Syste=-.0003e-00, Volu=2Vol=-.0000e+00, N-Qvl=    0, PollutQvl=    0.000
00447> # Input to Inlet 1 pipe
00448> 001:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00449>       ADD HYD           + 02:FR1B        .05     .004 No date    1:20    6.00 n/a
00450>                         + 03:NPR1Mn    11.35     .105 No date    1:35    4.14 n/a
00451>        [T= 5.00]  SUM=  01:T1          11.40     .109 No date    1:35    4.22 n/a
00452> # Pipe from Inlet 1 - Route to pond
00453> # HDPE smooth wall pipe Manning's n = 0.012
00454> 001:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00455>       ROUTE PIPE      -> 02:1n1        11.40     .109 No date    1:35    4.22 n/a
00456>        [RT= 5.00] out= 01:P1n2        11.40     .109 No date    1:35    4.22 n/a
00457>        [L/S/n    55./1.600/.012]
00458>        [Vmax= 2.873:Dmax=  .145]
00459>        [Tt=  .080:Dseed=  .600]
00460> # Culvert from Inlet 2
00461> # HDPE smooth wall pipe Manning's n = 0.012
00462> 001:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00463>       ROUTE PIPE      -> 02:FR2A       1.57     .023 No date    1:20    6.00 n/a
00464>        [RT= 5.00] out= 01:T2n2         1.57     .024 No date    1:20    6.00 n/a
00465>        [L/S/n=   5./ .600/.012]
00466>        [Vmax= .8648:Dmax=  .100]
00467>        [Tt=  .500:Dseed=  .600]
00468> # Input to Inlet 2 pipe
00469> 001:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00470>       ADD HYD           + 02:FR2B        1.17     .019 No date    1:20    6.00 n/a
00471>                         + 03:T1 n1      11.40     .109 No date    1:35    4.22 n/a
00472>        [T= 5.00]  SUM=  01:T2          12.58     .067 No date    1:30    4.87 n/a
00473> # Pipe from Inlet 2 - Route to pond
00474> # HDPE smooth wall pipe Manning's n = 0.012
00475> 001:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00476>       ROUTE PIPE      -> 02:T2n2       12.58     .067 No date    1:30    4.87 n/a
00477>        [RT= 5.00  out= 01:Pin2         12.58     .030 No date    1:40    4.87 n/a
00478>        [L/S/n=   75./ .600/.012]
00479>        [Vmax=  .7+1:Dmax=  .167]
00480>        [Tt=  .580:Dseed=  .600]
00481> # Culvert from Inlet 3
00482> # HDPE smooth wall pipe Manning's n = 0.012
00483> 001:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00484>       ROUTE PIPE      -> 02:FR3A        .46     .003 No date    1:30    6.00 n/a
00485>        [RT= 5.00] out= 01:T3n2          .46     .008 No date    1:30    6.00 n/a
00486>        [L/S/n    13./ .600/.012]
00487>        [Vmax=  .567:Dmax=  .067]
00488>        [Tt=  .040:Dseed=  .600]
00489> # Input to Inlet 3 pipe
00490> 001:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00491>       ADD HYD           + 02:FR3B        .52     .009 No date    1:20    6.00 n/a
00492>                         + 03:T3 n1       .46     .008 No date    1:30    6.00 n/a
00493>        [T= 5.00]  SUM=  01:T3           .97     .016 No date    1:20    6.00 n/a
00494> # Pipe from Inlet 3 - Route to pond
00495> # HDPE smooth wall pipe Manning's n = 0.012
00496> 001:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
00497>       ROUTE PIPE      -> 02:1n3        .97     .016 No date    1:20    6.00 n/a
00498>        [RT= 5.00] out= 01:Pin3         .97     .015 No date    1:20    6.00 n/a
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00489>       [L/S/c   75./ 200/.012]
00500>       [Vmax=  .56][Dmax=  .16D]
00501>       [Dia=  .750][Dused=  .56D]
00502> * Culvert from Inlet 4
00503> * HDPE smooth wall pipe Manning's n = 0.012
00504>  001:0059---------------IE:NRE----------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00505>       ROUTE PIPE      -> 02:FR3A          .71      .011 No_date    1:20     6.00  n/a
00506>        [RDT= 5.00, cuts- 01:Cin4          .71      .012 No_date    1:20     6.00  n/a
00507>        [L/S/n=   15./ .400/.012]
00508>        [Vmax=   .63][Dmax=   .97D]
00509>        [Dia=   .50D][Dused=   .50D]
00510> * Input to Inlet 4 pipe
00511>  001:0060---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00512>       ADD HYD           02:FR4E          .65      .010 No_date    1:20     6.00  n/a
00513>                       + 03:Cin4          .71      .012 No_date    1:20     6.00  n/a
00514>        [It= 5.00]  SUM   01:In4          1.36     .022 No_date    1:20     6.00  n/a
00515> * Pipe from Inlet 4 (ULTIMATE CONDITION) - Route to pond
00516> * HDPE smooth wall pipe Manning's n = 0.012
00517>  001:0061---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00518>       ROUTE PIPE      -> 02:In4           1.36     .022 No_date    1:20     6.00  n/a
00519>        [RDT= 5.00  cu.- 01:In4           1.36     .023 No_date    1:20     6.00  n/a
00520>        [L/S/n=   65./1.500/.012]
00521>        [Vmax= 1.345][Dmax=   .066]
00522>        [Dia=   .50D][Dused=   .50D]
00523> * Culvert from Inlet 5
00524> * HDPE smooth wall pipe Manning's n = 0.012
00525>  001:0062---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00526>       ROUTE PIPE      -> 02:FR5A          .66      .017 No_date    1:20     6.00  n/a
00527>        [RDT= 5.00] cuts- 01:Cin5          .66      .011 No_date    1:20     6.00  n/a
00528>        [L/S/n=   13./ .400/.012]
00529>        [Vmax=  .923][Dmax=   .067]
00530>        [Dia=   .50D][Dused=   .50D]
00531> * Input to Inlet 5 pipe
00532>  001:0063---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00533>       ADD HYD           02:FR5B          .66      .017 No_date    1:20     6.00  n/a
00534>                       + 03:Cin5          .66      .011 No_date    1:20     6.00  n/a
00535>        [IT= 5.00]  SUM   01:In5          1.32     .028 No_date    1:20     6.00  n/a
00536> * Pipe from Inlet 5 - Route to pond
00537> * HDPE smooth wall pipe Manning's n = 0.012
00538>  001:0064---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00539>       ROUTE PIPE      -> 02:In5           1.32     .028 No_date    1:20     6.00  n/a
00540>        [RDT= 5.00] cuts- 01:Pin5          1.32     .028 No_date    1:20     6.00  n/a
00541>        [L/S/n=   75./1.500/.012]
00542>        [Vmax= 1.728][Dmax=   .061]
00543>        [Dia=   .50D][Dused=   .50D]
00544> * Culvert from Inlet 6
00545> * HDPE smooth wall pipe Manning's n = 0.012
00546>  001:0065---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00547>       ROUTE PIPE      -> 02:FR6A          1.43     .031 No_date    1:20     6.00  n/a
00548>        [RDT= 5.00] cuts- 01:Cin6          1.07     .022 No_date    1:20     6.00  n/a
00549>        [L/S/n=   13./ .400/.012]
00550>        [Vmax=  .981][Dmax=   .095]
00551>        [Dia=   .50D][Dused=   .50D]
00552> * Input to Inlet 6 pipe
00553>  001:0066---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00554>       ADD HYD           02:FR6A          .99      .024 No_date    1:20     6.00  n/a
00555>                       + 03:Cin6          1.43     .031 No_date    1:20     6.00  n/a
00556>        [IT= 5.00]  SUM   01:In6          2.38     .038 No_date    1:20     6.00  n/a
00557> * Pipe from Inlet 9 - Route to pond
00558> * HDPE smooth wall pipe Manning's n = 0.012
00559>  001:0067---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00560>       ROUTE PIPE      -> 02:In9           2.38     .036 No_date    1:20     6.00  n/a
00561>        [RDT= 5.00] cuts- 01:Pin9          2.38     .026 No_date    1:20     6.00  n/a
00562>        [L/S/n=   70./ .330/.012]
00563>        [Vmax=  .834][Dmax=   .130]
00564>        [Dia=   .50D][Dused=   .50D]
00565> * VOLUME TO POND ULTIMATE RESIDENTIAL
00566>  001:0068---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00567>       ADD HYD           01:In1           1.98     .109 No_date    1:15     6.01  n/a
00568>                       + 02:In2           2.74     .040 No_date    1:20     6.01  n/a
00569>                       + 04:In3            .87     .015 No_date    1:20     6.00  n/a
00570>                       + 05:In4           1.36     .015 No_date    1:20     6.00  n/a
00571>                       + 06:In5           1.32     .019 No_date    1:20     6.00  n/a
00572>                       + 07:In6           2.38     .076 No_date    1:20     6.01  n/a
00573>                       + 08:In9           5.93     .225 No_date    1:35    12.31  n/a
00574>        [ET= 5.00]  SUM=  01:COMbin   15.48     .418 No_date    1:25     6.47  n/a
00575>  001:0069---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00576>       ROUTE RESERVOIR -> 02:COMbin   15.48     .418 No_date    1:25     6.47  n/a
00577>        [RDT= 5.00] outs- 01:Pond1     15.48     .026 No_date    4:10     6.47  n/a
00578>              Overflow <- 03:Overg        .00     .000 No_date    0:00     .00  n/a
00579>        (Ra=Ladwid=.1871E+00, Ts=0.fVol=.8000E+00, k=Cv2=    .0, Outbc=Dvi=    0.n/a)
00580> * Simulating 6th 100 yr conditions with subsequence of outflow weir
00581> * updated for weir .6: .5: 3.6
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00582> 4ROUTE RESERVOIR    RHYDout-["Pond1"] ,RHYDin-["COMbin"] ,
00583>                      RDT-[5](min),
00584> *                          CASIO of ( OUTFLOW-STORAGE ) values
00585> *                                (cms) - (ha-m)
00586> *                           (    0.0 ,   0.0 )
00587> 4                          0.00001 ) , 1.10.0
00588> 4                          0.20  ), 1.8.10
00589> *                          0.33  ), 2.0.80
00590> 4                          (    "   ,   "   )  (max twenty pts)
00591> 4                    NRYDout-["Overg"],,
00592> * Route pond output through first set of pipes
00593> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (-780 mm dia;
00594> * HDPE smooth wall pipe Manning's n - 0.012
00595>  001:0070---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
00596>       ROUTE PIPE      -> 02:Pout1        25.48     .026 No_date    4:10     6.42  n/a
00597>        [RDT= 5.00] cuts- 01:Pout1        25.48     .026 No_date    4:10     6.47  n/a
00598>        [L/S/n=   75./ .200/.012]
00599>        [Vmax=  .608][Dmax=   .106]
00600>        [Dia=   .750][Dused=   .78D]
00601> * Flow o/s at outlet culverts
00602>  001:0071---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
00603>       ADD HYD           02:FR3B          .34      .002 No_date    2:00     4.29  n/a
00604>                       + 03:FR3C          .37      .003 No_date    2:00     4.29  n/a
00605>                       + 04:Pout1        25.48     .026 No_date    4:10     6.47  n/a
00606>        [OT= 5.00]  SUM=  01:Pout        26.06     .027 No_date    4:15     6.47  n/a
00607> * Route outflow through set of culverts
00608> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (-780 mm dia
00609> * HDPE smooth wall pipe Manning's n = 0.012
00610>  001:0072---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00611>       ROUTE PIPE      -> 02:Pout         26.06     .027 No_date    4:15     6.47  n/a
00612>        [RDT= 5.00] cuts- 01:Cout         26.06     .027 No_date    4:15     6.47  n/a
00613>        [L/S/n=   75./ .400/.012]
00614>        [Vmax=  .782][Dmax=   .093]
00615>        [Dia=   .780][Dused=   .78D]
00616> * Flow o/s of second set of outflow pipes
00617>  001:0073---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
00618>       ADD HYD           02:FR3C1           .35      .002 No_date    2:00     4.29  n/a
00619>                       + 03:FR3C2           .37      .003 No_date    2:00     4.28  n/a
00620>                       + 04:Pout1         26.06     .027 No_date    4:15     6.47  n/a
00621>        [OT= 5.00]  SUM   01:Pout2        26.82     .028 No_date    4:05     6.47  n/a
00622> * Route outflow through second set of pipes
00623> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (-780 mm dia)
00624> * HDPE smooth wall pipe Manning's n = 0.012
00625>  001:0074---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00626>       ROUTE PIPE      -> 02:Pout2        26.82     .028 No_date    4:05     6.47  n/a
00627>        [RDT= 5.00] cuts- 01:Pout2        26.82     .028 No_date    4:05     6.47  n/a
00628>        [L/S/n=   65./ .200/.012]
00629>        [Vmax=  .603][Dmax=   .113]
00630>        [Dia=   .780][Dused=   .78D]
00631> * Total flow at node N1 (Shields MD along Gales Barn Rd)
00632>  001:0075---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
00633>       ADD HYD           02:NNEX          91.24     .197 No_date    2:00     4.52  n/a
00634>                       + 03:Pout1         26.82     .028 No_date    4:05     6.47  n/a
00635>                       + 04:EX7           .50       .007 No_date    1:20     6.15  n/a
00636>                       + 05:EX7D          .68       .009 No_date    2:00     4.29  n/a
00637>                       + 06:EX8           .82       .018 No_date    2:05     5.80  n/a
00638>        [OT= 5.00]  SUM   01:N1           79.17     .374 No_date    2:00     5.13  n/a
00639> * ROUTE N1 to N2
00640> * Typical Section based on Shields MD Ver Ditch 3:1 banks
00641> * provided by Acres
00642> * Manning's n is Channel not maintained, light brush on banks
00643> * slope - 0.05% as per plan provided by Acres
00644>  001:0076---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00645>       ROUTE CHANNEL   -> 02:N1           79.17     .374 No_date    2:00     5.13  n/a
00646>        [RDT= 5.00] cuts- 01:EX1          79.17     .288 No_date    2:20     5.13  n/a
00647>        [L/S/n=  919./ .050/.075]
00648>        [Vmax=  .756][Dmax=   .691]
00649> * Volume from residential area at N1 (not t
00650>  001:0077---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate hh:mm----R.V.-R.C.-
00651>       ADD HYD           02:EX7A          1.55      .038 No_date    2:00     4.29  n/a
00652>                       + 03:EX8           1.38      .027 No_date    2:05     5.80  n/a
00653>        [OT= 5.00]  SUM=  01:N1           2.93      .065 No_date    2:05     4.84  n/a
00654> * Added VOLUME from external area contributing to N1
00655>  001:0078---------------ID:NHYD---------AREA-----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
00656>       ADD HYD           02:EX1          79.17     .288 No_date    2:20     5.13  n/a
00657>                       + 03:EX2A          2.74     .045 No_date    2:05     5.80  n/a
00658>                       + 04:EX5           .67      .007 No_date    1:20     5.63  n/a
00659>                       + 05:EX6           .5       .007 No_date    1:20     5.56  n/a
00660>        [OT= 5.00]  SUM   01:N2           82.93     .397 No_date    2:20     5.17  n/a
00661> * ROUTE N1 to N2124
00662> * Typical Section based on Shields MD Ver Ditch 3:1 banks
00663> * provided by Acres
00664> * Manning's n is Channel not maintained, light brush on banks
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00665> # S=spe = 0.65  as per plan provided by Aleel.
00666> 001:0079---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00667>      ROUTE CHANNEL   -> 02:X1        87.91       .197 Ks_date    2:30    5.17  n/a
00668>        [RTI= 5.00] out<- 01:RX1       87.91       .196 Ks_date    2:45    5.12  n/a
00669>          [L/S/n= 415.7 .150/.035]
00670>          [Vmax=  1.25 Amax=   .642]
00671> # Flow at Stantec node ECR-2B for comparison
00672> # Routed to pipe SX1
00673> 001:00z0---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00674>      ALG HYD             02:RX1       81.87       .196 Ks_date    2:45    5.12  n/a
00675>                        + 03:RX2        27.30       .047 Ks_date    2:25    4.87  n/a
00676>        [DT= 5.00]  SUM=  01:X2+X1      109.2       .243 Ks_date    2:45    4.99  n/a
00677> # AREA CHECK
00678> #
00679> 001:00z1---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00680>      ALG HYD             02:EX1       24.62       .048 Ks_date    1:35    5.11  n/a
00681>                        + 03:EX2        9.88       .052 Ks_date    2:10    4.01  n/a
00682>                        + 04:EX3       21.33       .102 Ks_date    2:25    4.01  n/a
00683>                        -  05:EX1         .53       .004 Ks_date    1:20    5.79  n/a
00684>                        -  06:EX5         .62       .007 Ks_date    1:30    5.01  n/a
00685>                        -  07:EX4         .51       .006 Ks_date    1:30    5.50  n/a
00686>                        -  08:EX7         .39       .007 Ks_date    1:20    6.15  n/a
00687>                        -  09:EX1A        .24       .004 Ks_date    1:20    6.03  n/a
00688>                        -  10:EX1B        .55       .009 Ks_date    1:20    6.03  n/a
00689>        [DT= 5.00]  SUM=  01:Tot1       51.72       .231 Ks_date    1:35    4.59  n/a
00690> 001:00z2---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00691>      ADD HYD             02:Tot1       51.72       .434 Ks_date    1:35    4.59  n/a
00692>                        -  03:EX2A        1.07       .023 Ks_date    1:20    6.03  n/a
00693>                        -  04:EX2E        2.17       .018 Ks_date    1:20    6.03  n/a
00694>                        -  05:EX3A         .15       .007 Ks_date    1:20    6.03  n/a
00695>                        -  06:EX3B         .72       .049 Ks_date    1:20    6.03  n/a
00696>                        -  07:EX4A         .71       .011 Ks_date    1:20    6.03  n/a
00697>                        -  08:EX4B         .25       .010 Ks_date    1:20    6.03  n/a
00698>                        -  09:EX5A         .56       .010 Ks_date    1:20    6.03  n/a
00699>                        -  10:EX5B         .46       .007 Ks_date    1:20    6.03  n/a
00700>        [DT= 5.00]  SUM=  01:Tot2       47.71       .476 Ks_date    1:35    4.73  n/a
00701> 001:00z3---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00702>      ADD HYD             02:Tot2       47.71       .476 Ks_date    1:35    4.73  n/a
00703>                        +  03:EX6A        1.43       .027 Ks_date    1:20    6.03  n/a
00704>                        +  04:EX6E         .83       .014 Ks_date    1:20    6.03  n/a
00705>                        +  05:EX7A        1.35       .008 Ks_date    2:00    4.29  n/a
00706>                        +  06:EX7B         .76       .002 Ks_date    2:00    4.29  n/a
00707>                        +  07:EX7C2        .22       .001 Ks_date    2:00    4.29  n/a
00708>                        +  08:EX7C1        .79       .002 Ks_date    2:00    4.29  n/a
00709>                        +  09:EX7C3        .17       .001 Ks_date    2:00    4.29  n/a
00710>                        +  10:EX7D         .10       .001 Ks_date    2:00    4.29  n/a
00711>        [DT= 5.00]  SUM=  01:Tot3       53.36       .507 Ks_date    1:35    4.75  n/a
00712> 001:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00713>      ADD HYD             02:Tot3       53.36       .562 Ks_date    1:35    4.75  n/a
00714>                        +  03:EX8         1.38       .007 Ks_date    2:05    3.80  n/a
00715>                        +  04:EX9A        1.10       .006 Ks_date    2:05    3.80  n/a
00716>                        -  05:EX9B1        .25       .001 Ks_date    2:00    3.80  n/a
00717>                        -  06:EX9B2        .10       .001 Ks_date    2:05    3.80  n/a
00718>                        +  07:EX10         1.64       .009 Ks_date    2:05    3.80  n/a
00719>                        +  08:EX11         .82       .003 Ks_date    2:05    3.80  n/a
00720>                        +  09:EX1         1.26       .013 Ks_date    1:30    4.01  n/a
00721>                        -  10:EX2          5.03       .225 Ks_date    1:25   12.31  n/a
00722>        [DT= 5.00]  SUM=  01:Tot4       65.14       .716 Ks_date    1:30    5.09  n/a
00723> 001:00b3---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00724>      ADD HYD             02:Tot4       65.14       .744 Ks_date    1:30    5.09  n/a
00725>                        -  03:EX3         9.41       .087 Ks_date    1:40    4.01  n/a
00726>                        -  04:EX4         5.03       .046 Ks_date    1:25    4.01  n/a
00727>                        -  05:EX5         1.26       .047 Ks_date    1:30    4.01  n/a
00728>                        -  06:EX6         9.21       .021 Ks_date    1:35    4.01  n/a
00729>        [DT= 5.00]  SUM=  01:Tot5       70.13       .933 Ks_date    1:30    4.90  n/a
00730> #*************************************************************************
00731> # Simulations with 4 hour Chicago from City of Ottawa
00732>   ** END OF RUN :  1
00733>
00734> ************************************************************************
00735>
00736>
00737>
00738>
00739>
00740> END:COMMAND>
00741> 002:0001---------------------------------------------------------------------
00742>      START
00743>        [SSRO       .00 hrs on        3]
00744>        [MSG:OTT    2    =1 Imperial, 2 metric output]
00745>        [MSG:ROR    1 ]
00746>        [WRNN  -    2 ]
00747> #*************************************************************************
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```
00748> #  SWMHYMO Ver:5.02/Dec 2/01 <BETA> / INPUT DATA File
00749> #*************************************************************************
00750> #  Project Name: (Greely Village Center     Project Number: (607-07)
00751> #  Date         : 04-09-2008
00752> #  Modeller     : (JRR)
00753> #  Company      : JFSAInc.
00754> #  License #    : 25071d2
00755> #*************************************************************************
00756> #
00757> # SWMHYMO Model of the Greely Village Center - Residential Area - Phase 2
00758> # Proposed Ultimate conditions. OPTION B
00759> # Filename stands for: GRP2u2a - Greely, Residential, Phase 2, Ultimate v2 Well
00760> #
00761> #  December 15, 2008
00762> #  "L" at the end of Filename= Added July 1st 1979 Event
00763> #*************************************************************************
00764>  C02:0002---------------------------------------------------------------------
00765>      READ STORM
00766>        Filename = stcrs.001
00767>        Comment    = 2 years Chicago Storm 4 hours step 10 min, City of Ottawa
00768>        [SDT 10.00:SDUR=   4.00:SDI=  32.89]
00769> #*************************************************************************
00770> # Existing flow - McEvoy Branch of Shield Creek - Area1
00771> # Area C/s of proposed developm: (residential)
00772> # CN*=75, iloss = 0.0, Tpe=.16, XIN=5, TIMP=1%, see SCHC1 as per Stantec
00773> # Also partially adjusted based on Aleel drawings.
00774> #*************************************************************************
00775> # n/s of Bank St.as per Aleel - with modified boundaries and Cp.
00776>  001:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00777>      DESIGN MANHYD       01:EX1       24.62       .078 Ms_date    1:35    8.56 .261
00778>        [ia= 75.0: M= 3.00]
00779>        [Ip=  .33:Lc= 5.00]
00780> #*************************************************************************
00781> # Existing flow - External areas c/s of Bank st.
00782> # CN*=65, as per Stantec see SCH01.
00783> # Area partially adjusted based on Aleel drawings.
00784> #*************************************************************************
00785> # Areas External to development
00786>  002:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00787>      DESIGN MANHYD       01:EX2        9.88       .109 Ms_date    1:30    7.16 .271
00788>        [CN= 65.0: M= 3.00]
00789>        [Tp=  .67:Lc= 5.00]
00790>  003:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00791>      DESIGN MANHYD       01:EX3       21.33       .189 Ms_date    2:20    7.15 .211
00792>        [CN= 65.0: M= 3.00]
00793>        [Tp=  .83:Lc= 5.00]
00794> # Slope, Tisp, Area from Aleel drawing
00795> # CN from Stantec (SCH01)
00796> # Xisp - Iisp = 10
00797>  003:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00798>      *  CALIB STANDHYD      01:EX5        1.50       .022 Ms_date    1:20    9.64 .586
00799>        [XIMP=.1 :TIMP=.99]
00800>        [ILOSS= 2 :CN= 65.0]
00801>        [Previous     area: [Apre= 4.87:SLPP=1.00:SGP=  40.:MNP=.250:SCP=   .0]
00802>        [Impervious   area: [Aimp= 1.37:SLPI=1.00:SGI=  98.:MNI=.045:SCI=   .0]
00803> # Road and road side ditch along projected residential development Salesbury Rd
00804> # Tisp = Xisp = 0.0  ha /0.5  ha =  0.00
00805> # CN*=65, as per Stantec see SCH01.
00806> # Slope is estimated at 1%
00807> # Xisp - Iisp = 10
00808>  003:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00809>      *  CALIB STANDHYD      01:EX5        1.50       .022 Ms_date    1:20   14.59 .681
00810>        [XIMP=.90:TIMP=.90]
00811>        [ILOSS= 2 :CN= 65.0]
00812>        [Previous     area: [Apre= 1.07:SLPP=1.00:SGP=  40.:MNP=.250:SCP=   .0]
00813>        [Impervious   area: [Aimp= 1.43:SLPI=1.00:SGI=  98.:MNI=.045:SCI=   .0]
00814> # Road and road side ditch along projected residential development Salesbury Rd
00815> # Tisp = Xisp = 0.0  ha /0.5  ha =  0.00
00816> # CN*=65, as per Stantec see SCH01.
00817> # Slope is estimated at 1%
00818> # Xisp - Iisp = 10
00819>  003:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
00820>      *  CALIB STANDHYD      01:EX6         .21       .003 Ms_date    1:20    9.64 .727
00821>        [XIMP=.90:TIMP=.90]
00822>        [ILOSS= 2 :CN= 65.0]
00823>        [Previous     area: [Apre= 4.61:SLPP=1.00:SGP=  40.:MNP=.250:SCP=   .0]
00824>        [Impervious   area: [Aimp= 1.54:SLPI=1.00:SGI=  98.:MNI=.045:SCI=   .0]
00825> # Road and road side ditch along projected residential development Salesbury Rd
00826> # Tisp = Xisp = 0.05 ha /0.39 ha = 0.13
00827> # CN*=65, as per Stantec see SCH01.
00828> # Slope is estimated at 1%
00829> # Xisp - Iisp = 10
00830>  002:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
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 * CALIB STANDHYD     01:EX7          59.     .011 No date    1:20   10.00 .298
       [XIMP=.19:TIMP=.27]
       [LOSS= 2 :CN= 69.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0|
# Areas to be occupied by commercial development
# CN's=69, as per Station xsec SC001.
 002:0010----------------ID:RA01--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    DESIGN RA3HYD      01:RA3A         9.01     .158 No date    1:40    7.16 .217
       [CN= 69.0: N= 5.00]
       |Tp= 1.31:DT= 5.00|
 002:0011----------------ID:RA01--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * DESIGN RA4HYD      01:RA4A         3.12     .054 No date    1:25    7.16 .211
       [CN= 69.0: N= 5.00]
       |Tp= 1.31:DT= 5.00|
 002:0017----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    DESIGN RA5HYD      01:RA5A         4.14     .067 No date    1:10    7.16 .211
       [CN= 69.0: N= 5.00]
       |Tp= .22:DT= 5.00|
 002:0018----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    DESIGN RA6HYD      01:RA6A         7.97     .144 No date    1:15    7.16 .211
       [CN= 67.0: N= 5.00]
       |Tp= .22:DT= 5.00|
##################################################################################
#*********************************************************************************
# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
#*********************************************************************************
# CN's=69, as per Station xsec SC001.
# Tp estimated with Upland Method.
 002:0014----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    DESIGN RH1HYD      01:RH1          1.26     .087 No date    1:30    7.16 .211
       [CN= 69.0: N= 3.00]
       |Tp= .14:DT= 5.00|
#*********************************************************************************
# AREAS GOING TO POND
#*********************************************************************************
#
 002:0015----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH1A         .24      .006 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0016----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH1B         .25      .013 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0|
 002:0017----------------ID:RH2P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:RH2A         1.27     .034 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0018----------------ID:RH2P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:RH2B         1.77     .024 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0019----------------ID:RH3P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH3A         .65      .011 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0020----------------ID:RH3P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH3B         .52      .012 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0021----------------ID:RH4P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH4A         .71      .017 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  89.:MNI=.045:SCI=   .0|
 002:0022----------------ID:RH5P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH5A         .85      .015 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0023----------------ID:RH5P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH5B         .66      .016 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0024----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH6A         .48      .011 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0025----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:RH7A         1.82     .031 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0026----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:RH8A         .93      .016 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
 002:0027----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:RH9A         .83      .015 No date    1:20   10.00 .298
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
# Slope estimated at 2% based on Fairyard swales.
# Tlag and Xlag based on total pond area.
# xlag = A pond/A tot
# Tlag = weighted average of pond and backyards
 002:0027----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PD1          5.03     .333 No date    1:25   10.00 .363
       [XIMP=.64 TIMP=.47]
       [LOSS= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0|
#*********************************************************************************
# UNDISTURBED AREAS
#*********************************************************************************
#
 002:0028----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH7A         1.35     .018 No date    1:50    7.64 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0|
 002:0029----------------ID:RH2P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH8B         .36      .005 No date    1:40    7.64 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0|
 002:0030----------------ID:RH3P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH7B2        .22      .003 No date    1:40    7.64 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  78.:MNI=.045:SCI=   .0|
 002:0031----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:RH10         .19      .004 No date    1:15    7.81 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0|
 002:0032----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:PD7C2        .17      .002 No date    1:40    7.64 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0|
 002:0033----------------ID:RH1P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:PD7D         .38      .004 No date    1:15    7.81 .231
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0|
 002:0034----------------ID:RH2P--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:PD8          1.58     .034 No date    1:50    7.11 .219
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       |Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0|
 002:0035----------------TO:RHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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 * CALIB STANDARD      01:PRSA        1.10      .013 No_date    1:50    7.11 .210
      [X:XX=-.01:TIME=.07]
      [Loss  2 :CN  71.0]
      [Previous    area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Supervious  area: [Asup= 1.57:SLPS=1.00:LGS=  61.:MNS=.045:SCS=   .0]
 * CALIB STANDARD      01:PRSB2       1.00      .012 No_date    1:50    7.11 .210
      [XIMP=.01:TIME=.07]
      [Loss= 2 :CN= 71.0]
      [Previous    area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Supervious  area: [Asup= 1.57:SLPS=1.00:LGS=  61.:MNS=.045:SCS=   .0]
 * CALIB STANDARD      01:PR9B2       1.00      .012 No_date    1:50    7.11 .210
      [XIMP=.01:TIME=.07]
      [Loss= 2 :CN= 71.0]
      [Previous    area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Supervious  area: [Asup= 1.57:SLPS=1.00:LGS=  61.:MNS=.045:SCS=   .0]
 * CALIB STANDARD      01:PR11        .02       .002 No_date    1:50    7.11 .210
      [XIMP=.01:TIME=.07]
      [Loss= 2 :CN= 71.0]
      [Previous    area: [Apre= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Supervious  area: [Asup= 1.57:SLPS=1.00:LGS=  61.:MNS=.045:SCS=   .0]
# EXISTING Flow - Upstream of Residential Area Phase 1 and 2
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.5%, Manning's n is 0.03
# Route EX1 to d/s node N1
# Note that PRA will be short training to proposed channel
 002:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:PRA       9.01      .158 No_date    1:45    7.16 n/a
                         + 03:PRB       3.33      .054 No_date    1:45    7.16 n/a
                         + 04:PRC       1.10      .018 No_date    1:50    7.11 n/a
      [D/T= 5.00]  SUM=  01:PR2A       13.44      .231 No_date    1:45    7.16 n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.5%, Manning's n is 0.03
# Route SW training at N-R2A to d/s node N3
 002:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL  -> 02:PR2A       13.44      .231 No_date    1:35    7.16 n/a
      [RDT  5.00] out<- 03:PR2A       13.44      .231 No_date    1:35    7.16 n/a
      [I/S/n=  .400/ .050/.030]
      [Vmax=  .598:Dmax=  .215]
# Total flow at node N3
# Note that EX2 will be short training to proposed channel
 002:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:PR2A      13.44      .231 No_date    1:45    7.16 n/a
                         + 03:PRX1      24.62      .586 No_date    1:40    8.96 n/a
                         + 05:PR9B2      .97       .033 No_date    1:45    7.11 n/a
                         + 06:PR9B2     1.00       .012 No_date    1:50    7.11 n/a
                         + 08:EX2       9.82       .190 No_date    1:40    7.16 n/a
      [D2= 5.96]  SUM=   01:N3        48.40      .847 No_date    1:40    8.06 n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW training at N3 to d/s node N-EX2
 002:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL  -> 02:N3        48.40      .847 No_date    1:40    8.06 n/a
      [RDT= 5.00] out<- 01:N3        48.40      .835 No_date    1:45    8.03 n/a
      [L/S/n=  524./ .200/.035]
      [Vmax=  .666:Dmax=  .169]
# Total flow at node N-EX2
 002:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:N3        48.40      .835 No_date    1:45    8.03 n/a
                         + 03:PR10      1.84       .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM=   01:N2        50.24      .836 No_date    1:45    8.07 n/a
# Route Node N-EX2 to Node N1
# Typical Section based on Shaw da Vinci Vee Ditch 1 bri 1:  banks
# provided by Ainel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.5% as per plan provided by Ainel.
 002:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL  -> 02:N2        50.24      .836 No_date    1:45    8.07 n/a
      [RDT= 5.00] out<- 01:N2        50.24      .677 No_date    1:55    8.03 n/a
      [L/S/n=  253./ .030/.035]
      [Vmax=  .312:Dmax=  .054]
# Residential Development - Phase 1 and 2
# Total flow at node N-N1
 002:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              01:N1        50.24      .677 No_date    1:55    8.03 n/a
                         + 02:PR1       6.26       .097 No_date    1:30    7.16 n/a
                         + 03:PR3B      6.85       .117 No_date    1:40    7.36 n/a
                         + 04:PR1A       .74       .006 No_date    1:30    10.02 n/a
      [DT= 5.00]  SUM=   01:N2B       64.09      .898 No_date    1:55    8.01 n/a
# Route POSC PR3B to Node N-EX1
# Typical Section based on McEvoy Branch Vee Ditch 1 bri slopes
# provided by Ainel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.60% approximately as per Ainel drawing (88'66.1)/218m
 002:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL  -> 02:PR3B      6.85       .135 No_date    1:30    7.34 n/a
      [RDT= 5.00] out<- 01:PR3B      6.85       .117 No_date    1:40    7.36 n/a
      [L/S/n=  318./ .600/.055]
      [Vmax=  .491:Dmax=  .230]
# Total flow at node N-EX1
 002:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:PR1       6.26       .097 No_date    1:30    7.16 n/a
                         + 03:PR3B      6.85       .117 No_date    1:40    7.36 n/a
                         + 04:PR1A       .74       .006 No_date    1:30    10.02 n/a
      [DT= 5.00]  SUM=   01:N2B       13.85      .220 No_date    1:45    7.31 n/a
# Volume to ponding area is 2%.
# Q=0.020 m3/s required as per SCS 100yr Existing conditions
# Culvert from Inlet 1
# Manning corlet culvert is 600 mm, slope = 1.0%, HDPE smooth walls
# Manning's n = 0.012, inlet control nomograph
# Hydraulic head = 0.5m, Q=0.8.3
 002:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CONFLUENCE EXISTING  01:EX1        11.35      .206 No_date    1:35    7.34 n/a
         Major System /  02:EXPRIMj      .00       .000 No_date    0:00     .00 n/a
         Minor System \  03:EXPR Mn     11.35      .206 No_date    1:35    7.34 n/a
      [MajorSystem=.0000m3/s, TotCovVol=.0000x10^6, R-Cv:=    0, TotDurovf=    0.hrs]
# Input to Inlet 1 pipe
 002:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:PR1a       .50       .013 No_date    1:20   10.02 n/a
                         - 03:EXPR2Mn   11.35      .206 No_date    1:35    7.34 n/a
      [DT= 5.00]  SUM=   01:In1         11.90      .208 No_date    1:35    7.46 n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 002:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE     -> 01:In1         11.90      .208 No_date    1:35    7.46 n/a
      [RDT= 5.00] out<- 01:In1         11.90      .208 No_date    1:35    7.46 n/a
      [L/S/n=  95./1.600/.012]
      [Vmax= 2.409:Dmax=  .200]
      [Dia=  .600:Dmax=  .600]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 002:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE     -> 01:PR9A       1.00       .031 No_date    1:20   10.02 n/a
      [RDT= 5.00] out<- 01:In2         1.57       .035 No_date    1:20   10.07 n/a
      [L/S/n=  15./ .400/.012]
      [Vmax=  .909:Dmax=  .225]
      [Dia=  .500:Dmax=  .500]
# Input to Inlet 2 pipe
 002:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:PR2a       1.17       .036 No_date    1:20   10.02 n/a
                         + 03:In2        1.57       .035 No_date    1:20   10.07 n/a
      [DT= 5.00]  SUM=   01:In2         2.74       .061 No_date    1:20   10.04 n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 002:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE     -> 01:In2         2.74       .061 No_date    1:20   10.04 n/a
      [RDT= 5.00] out<- 01:Pin2        2.74       .061 No_date    1:20   10.04 n/a
      [L/S/n=  75./ .200/.012]
      [Vmax= .837:Dmax=  .195]
      [Dia=  .500:Dmax=  .500]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 002:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE     -> 02:PR1b        .49       .012 No_date    1:20   10.02 n/a
      [RDT= 5.00] out<- 01:CIn3        .49       .012 No_date    1:20   10.02 n/a
      [L/S/n=  13./ .100/.012]
      [Vmax=  .631:Dmax=  .169]
      [Dia=  .450:Dmax=  .450]
# Input to Inlet 3 pipe
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01140>     ADD HYD                02:FR3S          .57      .017 No date    1:25    10.41  n/a
01146>                          + 03:C1e5          .97      .024 No date    1:20    10.02  n/a
01146>     [DT- 5.00]  SUM=  01:Tot1          .97      .024 No date    1:20    10.02  n/a
01147> 4 Pipe from inlet 2 - Route to pond
01148> 4 HDPE smooth wall pipe Manning's n = 0.012
01149> 002:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01150>     ROUTE PIPE      => 03:Rt1          .97      .024 No date    1:20    10.02  n/a
01151>       [RDT= 5.00] outf= 01:Pin1         .97      .023 No date    1:20    10.02  n/a
01152>       [L/S/n=  75./ .200/.012]
01153>       [Vmax=  .640:Dmax=  .122]
01154>       [Din=  .500:Dused=  .500]
01155> 4 Culvert from Inlet 4
01156> 4 HDPE smooth wall pipe Manning's n = 0.012
01157> 002:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01158>     ROUTE PIPE      => 03:Rt4          .71      .017 No date    1:20    10.02  n/a
01159>       [RDT= 5.00] outf= 01:Pin4         .71      .018 No date    1:20    10.02  n/a
01160>       [L/S/n=  75./ .200/.012]
01161>       [Vmax=  .640:Dmax=  .122]
01162>       [Din=  .500:Dused=  .500]
01163> 4 Input to Inlet 4 pipe
01164> 002:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01165>     ADD HYD                03:FR4B          .65      .015 No date    1:20    10.02  n/a
01166>                          + 04:C1e4          .71      .018 No date    1:20    10.02  n/a
01167>     [DT= 5.00]  SUM=  01:Tot4         1.36      .033 No date    1:20    10.02  n/a
01168> 4 Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01169> 4 HDPE smooth wall pipe Manning's n = 0.012
01170> 002:0061----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01171>     ROUTE PIPE      => 02:Rt4          1.36      .033 No date    1:20    10.02  n/a
01172>       [RDT= 5.00] outf= 01:Pin4         1.36      .033 No date    1:20    10.02  n/a
01173>       [L/S/n=  65./1.500/.012]
01174>       [Vmax=  .859:Dmax=  .182]
01175>       [Din=  .500:Dused=  .500]
01176> 4 Culvert from Inlet 5
01177> 4 HDPE smooth wall pipe Manning's n = 0.012
01178> 002:0062----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01179>     ROUTE PIPE      => 02:Pn5A         .66      .016 No date    1:20    10.02  n/a
01180>       [RDT= 5.00] outf= 01:C1c5         .66      .016 No date    1:20    10.02  n/a
01181>       [L/S/n=  17./ .100/.012]
01182>       [Vmax=  .726:Dmax=  .153]
01183>       [Din=  .500:Dused=  .500]
01184> 4 Input to Inlet 5 pipe
01185> 002:0063----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01186>     ADD HYD                01:PR5A          .66      .016 No date    1:20    10.02  n/a
01187>                          + 02:C1e5          .66      .016 No date    1:20    10.02  n/a
01188>     [DT= 5.00]  SUM=  01:Tot5         1.32      .032 No date    1:20    10.02  n/a
01189> 4 Pipe from Inlet 5 - Route to pond
01190> 4 HDPE smooth wall pipe Manning's n = 0.012
01191> 002:0064----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01192>     ROUTE PIPE      => 02:Rt5          1.32      .028 No date    1:20    10.02  n/a
01193>       [RDT= 5.00] outf= 01:Pin5         1.32      .029 No date    1:20    10.02  n/a
01194>       [L/S/n=  75./1.800/.012]
01195>       [Vmax= 1.398:Dmax=  .278]
01196>       [Din=  .500:Dused=  .500]
01197> 4 Culvert from Inlet 6
01198> 4 HDPE smooth wall pipe Manning's n = 0.012
01199> 002:0065----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01200>     ROUTE PIPE      => 02:PR6A         1.43      .031 No date    1:20    10.02  n/a
01201>       [RDT= 5.00] outf= 01:C1c6         1.43      .032 No date    1:20    10.02  n/a
01202>       [L/S/n=  17./ .100/.012]
01203>       [Vmax=  .881:Dmax=  .177]
01204>       [Din=  .500:Dused=  .500]
01205> 4 Input to Inlet 6 pipe
01206> 002:0066----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01207>     ADD HYD                02:PR6B          .93      .022 No date    1:20    10.02  n/a
01208>                          + 03:C1c6         1.43      .032 No date    1:20    10.02  n/a
01209>     [DT= 5.00]  SUM=  01:Tot6         2.36      .054 No date    1:20    10.02  n/a
01210> 4 Pipe from Inlet 6 - Route to pond
01211> 4 HDPE smooth wall pipe Manning's n = 0.012
01212> 002:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01213>     ROUTE PIPE      => 03:Rt6          2.36      .054 No date    1:20    10.02  n/a
01214>       [RDT= 5.00] outf= 01:Pin6         2.36      .054 No date    1:20    10.02  n/a
01215>       [L/S/n=  65./ .200/.012]
01216>       [Vmax=  .938:Dmax=  .187]
01217>       [Din=  .500:Dused=  .500]
01218> 4 VOLUME TO POND ULTIMATE RESIDENTIAL
01219> 002:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01220>     ADD HYD                02:Pin1          1.53      .369 No date    1:25     7.47  n/a
01221>                          + 03:Pin2          1.70      .409 No date    1:25    10.04  n/a
01222>                          + 04:Pin4          1.16      .034 No date    1:20    10.02  n/a
01223>                          + 06:Pin5          1.32      .029 No date    1:20    10.02  n/a
01224>                          + 07:Pin6          2.36      .053 No date    1:20    10.03  n/a
01225>                          + 08:C2a           5.03      .323 No date    1:25    10.41  n/a
01226>     [DT= 5.00]  SUM=  01:POR3tr       15.38      .535 No date    1:25    10.41  n/a
01227> 002:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01228>     ROUTE RESERVOIR => 02:POR3tr       15.38      .535 No date    1:25    10.41  n/a
01229>       [RDT= 5.00] outf= 01:Peak          15.38      .041 No date    4:20    10.41  n/a
01230>                 overflow => 03:Overq          .00      .000 No date    0.00     .00  n/a
01231>       [MaxIsQpeak=.2231E+30, IsUsrOvfl=.0000E+00, S-ovf=     0, IsTabOvf=     0:hrs]
01232> 4 Simulating 0.5 100 yr conditions with submergence of outflow weir
01233> 4 Updated for weir .2, .4, 1.0
01234> *ROUTE RESERVOIR     NHYDout=["Pout"] ,hHYDin=["POR3in"] ,
01235> *                    RDT=[5.(min),
01236> *                         TABLE of | OUTFLOW-STORAGE | values
01237> *                                  (cms) - (ha-m)
01238> *                                 |   0.0 ,   0.0 |
01239> *                                  0.60001 , 1.1209
01240> *                                  0.80 , 1.8110
01241> *                                  0.90 , 2.0195
01242> *                                 |   -1 ,   -1 |   (max number pts)
01243> *                         NHYDout=["overQ"] ,
01244> 4 Route pond output through first set of pipes
01245> 4 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
01246> 4 HDPE smooth wall pipe Manning's n = 0.012
01247> 002:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01248>     ROUTE PIPE      => 02:Pout         25.48      .041 No date    4:20    10.41  n/a
01249>       [RDT= 5.00] outf= 01:Pout2        25.48      .041 No date    4:20    10.41  n/a
01250>       [L/S/n=  75./ .200/.012]
01251>       [Vmax=  .705:Dmax=  .137]
01252>       [Din=  .780:Dused=  .780]
01253> 4 Flow c/s of culvert culverts
01254> 002:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01255>     ADD HYD                01:FR4B          .65      .015 No date    1:20    10.02  n/a
01256>                          + 02:C1c4          .71      .018 No date    1:20    10.02  n/a
01257>     [DT= 5.00]  SUM=  01:Tot4         1.36      .033 No date    1:20    10.02  n/a
01258> 4 Route outflow through set of Culverts
01259> 4 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
01260> 4 HDPE smooth wall pipe Manning's n = 0.012
01261> 002:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01262>     ROUTE PIPE      => 02:Pout         26.84      .082 No date    5:05    10.36  n/a
01263>       [RDT= 5.00] outf= 01:Pout         26.84      .082 No date    5:05    10.36  n/a
01264>       [L/S/n=  17./ .100/.012]
01265>       [Vmax=  .909:Dmax=  .177]
01266>       [Din=  .780:Dused=  .780]
01267> 4 Flow c/s of second set of outflow pipes
01268> 002:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
01269>     ADD HYD                01:PR7C1          .95      .036 No date    1:45     7.84  n/a
01270>                          + 02:PR7C2         1.17      .032 No date    1:40     7.84  n/a
01271>                          + 03:Cout         26.84      .082 No date    4:05    10.36  n/a
01272>     [DT= 5.00]  SUM=  01:Pout2        28.62      .084 No date    4:05    10.33  n/a
01273> 4 Route outflow through second set of pipes
01274> 4 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
01275> 4 HDPE smooth wall pipe Manning's n = 0.012
01276> 002:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01277>     ROUTE PIPE      => 02:Pout2        28.62      .084 No date    2:15    10.33  n/a
01278>       [RDT= 5.00] outf= 01:PoutF        28.62      .084 No date    2:15    10.33  n/a
01279>       [L/S/n=  65./ .200/.012]
01280>       [Vmax=  .719:Dmax=  .144]
01281>       [Din=  .780:Dused=  .780]
01282> 4 Total flow at node N1 (sn.old MH along Julea Ave) (d)
01283> 002:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01284>     ADD HYD                01:RNEW2          51.21      .079 No date    1:55     8.02  n/a
01285>                          + 03:PoutF        28.62      .084 No date    2:15    10.39  n/a
01286>                          + 04:C7C          1.19      .011 No date    1:20    10.08  n/a
01287>                          + 05:PR10         1.40      .004 No date    1:45     1.44  n/a
01288>                          + 06:PR-1         1.60      .005 No date    1:50     1.11  n/a
01289>     [DT= 5.00]  SUM=  01:N1           79.17      .732 No date    1:55     8.79  n/a
01290> 4 ROUTE N1 to N3
01291> 4 Typical Section based on Salcido SD Voo Ditch 3:1 Banks
01292> 4 provided by Atkel.
01293> 4 Manning's n is Channel not maintained, light brush on banks
01294> 4 Slope = 0.80% as per plan provided by Atkel.
01295> *ROUTE CHANNEL     => 02:N3           75.17      .732 No date    1:55     8.79  n/a
01296>       RDT= 5.00] outf= 01:N3           75.17      .569 No date    2:10     8.79  n/a
01297>       [L/S/n=  140./ .050/.035]
01298>       [Vmax=  .304:Dmax=  .905]
01299> 4 VOLUME from pre10cential area at N3 Kitella
01300> 002:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01301>     ADD HYD                02:FR7A           1.75      .016 No date    2:50     7.84  n/a
01302>                          + 03:FR8           1.35      .016 No date    2:50     7.11  n/a
01303>     [DT= 5.00]  SUM=  01:N4           3.09      .016 No date    2:50     7.47  n/a
01304> 4 Added VOLUME from external area contributing to N4
01305> 002:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
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01329>      Add Hyd                02 8Ac1       79.17      .969 Ac_date    2:10    8.75  c/a
01330>                             03:AC1        2.75      .034 Ac_date    1:50    9.47  n/a
01331>                             04:EX5         .67      .030 Ac_date    1:00   14.53  n/a
01332>                             05:EX6         .51      .023 Ac_date    1:00    9.43  n/a
01333>       [QT= 5.00]  SUM=      01:A1         83.5%     1.045 Ac_date    2:10    9.39  n/a
01334> * ROUTE B1 to N2-2RA
01335> * Typical Section based on Shields Rd Yee Ditch Std Banks
01336> * provided by Arcel
01337> * Manning's n is Channel not maintained, light brush on banks
01338> * Slope = 0.9% as per plan provided by Arcel.
01339> 002:0070----------------ID:RTYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01340>      ROUTE CHANNEL    -> 02:B1        83.5%     1.045 Ac_date    2:10    8.39  n/a
01341>       [RDT= 5.00  dx= 100.0] 01:RA5   82.5%     1.489 Ac_date    2:30    8.39  n/a
01342>       [L/Sv=   415./ .050/.035]
01343>       [Vmax    =2.43 Dmax    =.80]
01344> * Flow at Station 2+000 NCR125 for comparison
01345> * Routed 33 plus Ex5
01346> 002:0080----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01347>      ADD HYD                02:EX1        82.93      .985 Ac_date    2:30    8.75  n/a
01348>                           + 01:EX4         1.16      .135 Ac_date    2:00    7.16  n/a
01349>       [QT= 5.00]  SUM=      01:ECH 2a   84.09     1.049 Ac_date    2:25    8.51  n/a
01350> * AREA CHECK
01351> *
01352> 002:0090----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01353>      ADD HYD                02:EX1        24.62      .620 Ac_date    1:50    9.96  c/a
01354>                           + 03:EX2         5.58      .100 Ac_date    2:10    7.16  c/a
01355>                           + 04:EX3        21.30      .195 Ac_date    2:20    7.16  c/a
01356>                           + 05:EX4         .98      .019 Ac_date    1:20    9.61  c/a
01357>                           + 06:EX5         .67      .019 Ac_date    1:20   14.58  c/a
01358>                           + 07:EX6         .51      .011 Ac_date    1:00    9.08  c/a
01359>                           + 08:EX7         .39      .011 Ac_date    1:20    9.09  c/a
01360>                           + 09:FR1A        .24      .006 Ac_date    1:20   10.02  n/a
01361>                           + 10:FR1b        .55      .013 Ac_date    1:20   10.02  n/a
01362>       [QT= 5.00]  SUM=      01:Tot1      58.57     1.237 Ac_date    2:15    8.98  c/a
01363> 001:0080----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01364>      ADD HYD                01:Tot1       58.57     1.237 Ac_date    2:15    8.98  c/a
01365>                           + 02:FR2A        1.67      .036 Ac_date    1:20   10.02  n/a
01366>                           + 03:FR2a        1.17      .026 Ac_date    1:20   10.02  n/a
01367>                           + 04:FR3A         .40      .011 Ac_date    1:00   10.02  n/a
01368>                           + 05:FR3b         .32      .012 Ac_date    1:20   10.02  n/a
01369>                           + 06:FR4A         .07      .007 Ac_date    1:20   10.02  n/a
01370>                           + 07:FR4a        .85      .018 Ac_date    1:20   10.02  n/a
01371>                           + 08:FR5A        .86      .018 Ac_date    1:20   10.02  n/a
01372>                           + 09:FR5a        .46      .011 Ac_date    1:20   10.02  n/a
01373>       [QT= 5.00]  SUM=      01:Tot2      61.71     1.377 Ac_date    2:15    8.27  c/a
01374> 001:0081----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01375>      ADD HYD                01:Tot1       58.57     1.237 Ac_date    2:15    8.98  c/a
01376>                           + 02:FR6A        1.64      .031 Ac_date    1:50    8.02  n/a
01377>                           + 03:FR6a         .94      .019 Ac_date    1:50    8.02  n/a
01378>                           + 04:FR7A        1.35      .018 Ac_date    1:50    7.84  n/a
01379>                           + 05:FR7a1        .36      .005 Ac_date    1:45    7.84  n/a
01380>                           + 06:FR7B2        .22      .003 Ac_date    1:40    7.84  n/a
01381>                           + 07:FR7C1        .58      .006 Ac_date    1:45    7.84  n/a
01382>                           + 08:FR7C2        .17      .002 Ac_date    1:40    7.84  n/a
01383>                           + 09:FR7D         .56      .008 Ac_date    1:45    7.84  n/a
01384>       [QT= 5.00]  SUM=      01:Tot3      65.80     1.444 Ac_date    2:10    8.01  c/a
01385> 001:0084----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01386>      ADD HYD                02:Tot1       65.80     1.444 Ac_date    1:40    8.01  c/a
01387>                           + 01:FR8         1.38      .016 Ac_date    1:50    7.11  n/a
01388>                           + 04:FR9A        1.16      .013 Ac_date    1:50    7.11  n/a
01389>                           + 05:FR9b1        .25      .003 Ac_date    1:45    7.11  n/a
01390>                           + 06:FR9b2       1.06      .012 Ac_date    1:50    7.11  n/a
01391>                           + 07:FR10        1.34      .022 Ac_date    1:50    7.11  n/a
01392>                           + 03:FR11         .62      .006 Ac_date    1:50    7.11  n/a
01393>                           + 09:FR1         1.26      .097 Ac_date    1:30    7.16  c/a
01394>                           + 10:FR4         5.00      .393 Ac_date    1:35   10.00  n/a
01395>       [QT= 5.00]  SUM=      01:Tot4      85.04     1.997 Ac_date    1:40    8.71  c/a
01396> 002:0080----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01397>      ADD HYD                02:Tot4       85.04     1.997 Ac_date    1:40    8.71  n/a
01398>                           + 01:FR1A        8.41      .158 Ac_date    1:40    7.16  n/a
01399>                           + 04:FR1a        3.11      .045 Ac_date    1:25    7.16  c/a
01400>                           + 05:FR2A        6.14      .087 Ac_date    1:30    7.16  n/a
01401>                           + 06:FR2B        2.21      .044 Ac_date    1:35    7.16  n/a
01402>       [QT= 5.00]  SUM=      01:Tot5      104.93    2.327 Ac_date    1:40    8.46  n/a
01403> *****************************************************************************
01404> * Slow urions with 0 near Chicago from City of Ottawa
01405>   ** END OF RUN :  9
01406>
01407> -----------------------------------------------------------------------------
01408>
01409>
01410>
01411>
```

```
01412>
01413> RUN:COMMAND1
01414> 001:0000----------------------------------------------------------------------------
01415>      START
01416>       [TZERO =     .00 hrs on      0]
01417>       [METOUT=     2    (1=imperial, 2=metric output)]
01418>       [NSTORM=     1
01419>       [NRUN  =     5 ]
01420> *****************************************************************************
01421> *  SWMHYMO Ver:5.02/Jan 2001 <BSID> / INPUT DATA FILE
01422> *****************************************************************************
01423> *  Project Name: [Greely V:[Village Center]    Project Number: [647-07]
01424> *  Date        : 08-05-2008
01425> *  Modeller    : [JRE]
01426> *  Company     : JFSAinc.
01427> *  License #   : 2497063
01428> *****************************************************************************
01429> *
01430> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
01431> * Proposed Ultimate conditions. OPTION 8
01432> * Filename stands for: GR2u2a - Greely, Residential, Phase 2, ultimate 2a weir
01433> *
01434> *  December 15, 2008
01435> *  "a" at the end of filename: Added July 1st 1979 Storm
01436> *****************************************************************************
01437> 005:0005----------------------------------------------------------------------------
01438>      READ STORM
01439>       Filename = storm.c0.
01440>       Comment  = 5 years Chicago Storm 4 Hours step 10 min, City of Ottawa
01441>       [ptT 10.00:SDR=   4.00:rrr=  45.17]
01442> *****************************************************************************
01443> * Existing flow - McEvoy Branch of Shield Creek - Area=
01444> * Area u/s of proposed development (residential)
01445> * CN*=75, alos= 0.8, Ig=0.0, XYPwr, TIMP=1, see SC001 as per Stantec
01446> * Area partially adjusted based on Arcel drawings.
01447> *****************************************************************************
01448> * u/s of bank St.Lo per Arcel  - with modified boundaries and Tp.
01449> 005:0003----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01450>      DESIGN HASHYD        01:EX1        24.62      .082 Ac_date    1:30   14.86  .979
01451>       [CN= 75.0: N= 3.0]
01452>       [Ia=  .2::DT= 5.0]
01453> *****************************************************************************
01454> * Existing flow - External areas u/s of Bank St.
01455> * CN*=79, as per Stantec see SC001.
01456> * Area partially adjusted based on Arcel drawings.
01457> *****************************************************************************
01458> * Areas External to development
01459> 005:0004----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01460>      DESIGN HASHYD        01:EX2        9.89      .177 Ac_date    2:10   12.05  .208
01461>       [CN= 69.0: N= 3.0]
01462>       [Ia=  .67::DT= 5.0]
01463> 005:0005----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01464>      DESIGN HASHYD        01:EX3        21.30      .218 Ac_date    2:20   10.05  .208
01465>       [CN= 69.0: N= 3.0]
01466>       [Ia=  .8::DT= 5.0]
01467> * Slope, Tlag, Area from Arcel Drawing
01468> * CN from Stantec SC001.
01469> * Ximp = Timp = 10.
01470> 005:0006----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01471>   * CALIB STANDHYD      01:EX4          .50      .010 Ac_date    1:30   14.47  .347
01472>       [XIMP=.11:TIMP=.22]
01473>       [Dcds= 2 :CN= 69.0]
01474>       [Previous    area: IApc= 6.67:SLPP=1.00:LGP=  40.:NKP=.250:XCP=   .0]
01475>       [Impervious  area: IAmp= 1.67:SLPI=1.00:LGI=  58.:NKI=.045:XCI=   .0]
01476> * Road and road side ditch along projected residential development Parkway Rd
01477> * Ximp = Aimp = 0.21 ha /0.51 ha = 0.40
01478> * CN*=69, as per Stantec see SC001.
01479> * Slope is estimated at 1%
01480> * Ximp = Timp = 10.
01481> 005:0007----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01482>   * CALIB STANDHYD      01:EX5          .51      .010 Ac_date    1:20   14.61  .349
01483>       [XIMP=.10:TIMP=.40]
01484>       [Dcds= 2 :CN= 69.0]
01485>       [Previous    area: IApc= 6.67:SLPP=1.00:LGP=  40.:NKP=.250:XCP=   .0]
01486>       [Impervious  area: IAmp= 1.67:SLPI=1.00:LGI=  50.:NKI=.045:XCI=   .0]
01487> * Road and road side ditch along projected residential development Parkway Rd
01488> * Timp = Ximp = 0.61 ha /0.51 ha = 0.20
01489> * CN*=69, as per Stantec see SC001.
01490> * Slope is estimated at 1%
01491> * Ximp = Timp = 10.
01492> 005:0008----------------ID:RSYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01493>   * CALIB STANDHYD      01:EX6          .51      .010 Ac_date    1:20   14.59  .332
01494>       [XIMP=.10:TIMP=.20]
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01485>       [Lose= 2 :CN= 69.0]
01486>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01487>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01488> # Road and road side ditch along projected residential development Sales Barn Rd
01489> # Tlag = Xlag = 0.69 Da /0.38 Ia = 0.25
01500> # CN= 69, as per Stantec see SC001.
01501> # Slope is estimated at 1
01502> # Xlag = Tlag = .10
01503> .005:0005----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01504>    * CALIB STANDHYD     01:PR1A        .24     .006 No date     1:20   16.05 .355
01505>       [XIMP=.1:TIMP=.21]
01506>       [Loss= 2 :CN= 69.0]
01507>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01508>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0|
01509> # Area to be occupied by Commercial development
01510> # CN= 69, as per Stantec see SC001.
01511> .005:0010----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01512>    DESIGN BASEYD        01:R1A         0.41      .014 No date     1:40   15.98 .354
01513>       [CN= 69.0: R= 5.00]
01514>       [Ia= .33:ET= 5.00]
01515> .005:0011----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01516>    * DESIGN BASEYD        01:R2A         3.13     .107 No date     1:25   15.98 .354
01517>       [CN= 69.0: R= 5.00]
01518>       [Ia= .33:ET= 5.00]
01519> .005:0012----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01520>    DESIGN BASEYD        01:R3A         3.14     .152 No date     1:30   15.98 .354
01521>       [CN= 69.0: R= 5.00]
01522>       [Ia= .33:ET= 5.00]
01523> .005:0013----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01524>    DESIGN BASEYD        01:R4A         2.21     .076 No date     1:45   15.98 .354
01525>       [CN= 69.0: R= 5.00]
01526>       [Ia= .33:ET= 5.00]
01527> ********************************************************************************
01528> *********************************************************************************
01529> * UNDEVELOPED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
01530> *********************************************************************************
01531> * CN= 69, as per Stantec see SC001
01532> * Tp estimated with Up and Nerpod.
01533> .005:0014----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01534>    DESIGN BASEYD        01:PR1         4.28     .176 No date     1:30   15.98 .354
01535>       [CN= 69.0: R= 5.00]
01536>       [Ia= .33:ET= 5.00]
01537> ********************************************************************************
01538> * AREAS GOING TO POND
01539> *********************************************************************************
01540> *
01541> .005:0015----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01542>    * CALIB STANDHYD     01:PR1A        .24     .006 No date     1:20   16.05 .355
01543>       [XIMP=.1:TIMP=.21]
01544>       [Loss= 2 :CN= 71.0]
01545>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01546>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01547> .005:0016----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01548>    * CALIB STANDHYD     01:PR1B        .55     .021 No date     1:20   16.05 .355
01549>       [XIMP=.1:TIMP=.21]
01550>       [Loss= 2 :CN= 71.0]
01551>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01552>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:MNI=.045:SCI=   .0|
01553> .005:0017----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01554>    CALIB STANDHYD       01:PR2A        1.51     .062 No date     1:20   16.05 .355
01555>       [XIMP=.1:TIMP=.21]
01556>       [Loss= 2 :CN= 71.0]
01557>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01558>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0|
01559> .005:0018----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01560>    * CALIB STANDHYD     01:PR1B        .17     .007 No date     1:20   16.05 .355
01561>       [XIMP=.1:TIMP=.21]
01562>       [Loss= 2 :CN= 71.0]
01563>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01564>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0|
01565> .005:0019----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01566>    * CALIB STANDHYD     01:PR1A        .09     .003 No date     1:20   16.05 .355
01567>       [XIMP=.1:TIMP=.21]
01568>       [Loss= 2 :CN= 71.0]
01569>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01570>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01571> .005:0020----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01572>    * CALIB STANDHYD     01:PR1B        .52     .020 No date     1:20   16.05 .355
01573>       [XIMP=.1:TIMP=.21]
01574>       [Loss= 2 :CN= 71.0]
01575>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01576>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01577> .005:0021----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01578>    * CALIB STANDHYD     01:PR4A        .71     .026 No date     1:20   16.05 .355
01579>       [XIMP=.1:TIMP=.21]
01580>       [Loss= 2 :CN= 71.0]
01581>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01582>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01583> .005.0022----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01584>    * CALIB STANDHYD     01:PR4B        .60     .024 No date     1:20   16.05 .355
01585>       [XIMP=.1:TIMP=.21]
01586>       [Loss= 2 :CN= 71.0]
01587>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01588>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  68.:MNI=.045:SCI=   .0|
01589> 005:0023----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01590>    * CALIB STANDHYD     01:PR5A        .69     .028 No date     1:20   16.05 .355
01591>       [XIMP=.1:TIMP=.21]
01592>       [Loss= 2 :CN= 71.0]
01593>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01594>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  68.:MNI=.045:SCI=   .0|
01595> 005:0024----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01596>    * CALIB STANDHYD     01:PR6A        .49     .017 No date     1:20   16.05 .355
01597>       [XIMP=.1:TIMP=.21]
01598>       [Loss= 2 :CN= 71.0]
01599>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01600>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0|
01601> 005:0025----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01602>    CALIB STANDHYD       01:PR7A        1.41     .051 No date     1:20   16.05 .355
01603>       [XIMP=.1:TIMP=.21]
01604>       [Loss= 2 :CN= 71.0]
01605>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01606>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01607> 005:0026----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01608>    * CALIB STANDHYD     01:PR8A        .83     .034 No date     1:20   16.05 .355
01609>       [XIMP=.1:TIMP=.21]
01610>       [Loss= 2 :CN= 71.0]
01611>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01612>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0|
01613> # slope estimated at 2% based on Geotyd soiles.
01614> # Tlag and Xlag based on total pond area
01615> # Xlag = A pond/A tot
01616> # Tlag = weighted average of pond and tailyards
01617> 005.0027----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01618>    CALIB STANDHYD       01:PR1         5.01     .462 No date     1:25   15.97 .353
01619>       [XIMP=.1:TIMP=.47]
01620>       [Loss= 2 :CN= 71.0]
01621>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01622>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 103.:MNI=.045:SCI=   .0|
01623> ********************************************************************************
01624> * UNDEVELOPED AREAS
01625> ********************************************************************************
01626> *
01627> 005:0028----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01628>    * CALIB STANDHYD     01:PR9A        1.32     .040 No date     1:30   15.98 .354
01629>       [XIMP=.0:TIMP=.]
01630>       [Loss= 2 :CN= 71.0]
01631>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01632>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0|
01633> 005.0029----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01634>    * CALIB STANDHYD     01:PR7b1       .38     .011 No date     1:30   15.98 .354
01635>       [XIMP=.0:TIMP=.]
01636>       [Loss= 2 :CN= 71.0]
01637>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01638>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0|
01639> 005.0030----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01640>    * CALIB STANDHYD     01:PR7b2       .22     .007 No date     1:30   15.98 .354
01641>       [XIMP=.0:TIMP=.]
01642>       [Loss= 2 :CN= 71.0]
01643>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01644>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0|
01645> 005.0031----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01646>    * CALIB STANDHYD     01:PR7c1       .39     .011 No date     1:30   15.98 .354
01647>       [XIMP=.0:TIMP=.]
01648>       [Loss= 2 :CN= 71.0]
01649>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01650>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  91.:MNI=.045:SCI=   .0|
01651> 005.0032----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01652>    * CALIB STANDHYD     01:PR7c2       .17     .005 No date     1:30   15.98 .354
01653>       [XIMP=.0:TIMP=.]
01654>       [Loss= 2 :CN= 71.0]
01655>       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01656>       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  94.:MNI=.045:SCI=   .0|
01657> 005:0033----------------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01658>    * CALIB STANDHYD     01:PR7d        .30     .009 No date     1:30   15.98 .354
01659>       [XIMP=.0:TIMP=.]
01660>       [Loss= 2 :CN= 71.0]
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01661>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01662>       [Impervious   area: IAimp= 1.53:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01663> 005:0035----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01664>   * CALIB STANDHYD     01:FR8          1.38      .035 No_date    1:40   12.34 .273
01665>       [XIMP=.01:TIMP=.67]
01666>       [SCS=  2 :CN=  71.0]
01667>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01668>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01669> 005:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01670>   * CALIB STANDHYD     01:FR9A         1.16      .029 No_date    1:35   12.34 .273
01671>       [XIMP=.01:TIMP=.67]
01672>       [SCS=  2 :CN=  71.0]
01673>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01674>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01675> 005:0038----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01676>   * CALIB STANDHYD     01:FR9b1        .20       .007 No_date    1:35   12.34 .273
01677>       [XIMP=.01:TIMP=.67]
01678>       [SCS=  2 :CN=  71.0]
01679>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01680>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01681> 005:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01682>   * CALIB STANDHYD     01:FR9B2        1.00      .027 No_date    1:35   12.34 .273
01683>       [XIMP=.01:TIMP=.67]
01684>       [SCS=  2 :CN=  71.0]
01685>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01686>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01687> 005:0036----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01688>   * CALIB STANDHYD     01:FR10         1.84      .046 No_date    1:40   12.34 .273
01689>       [XIMP=.01:TIMP=.67]
01690>       [SCS=  2 :CN=  71.0]
01691>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01692>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01693> 005:0039----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01694>   * CALIB STANDHYD     01:FR11         .62       .017 No_date    1:35   12.34 .273
01695>       [XIMP=.01:TIMP=.67]
01696>       [SCS=  2 :CN=  71.0]
01697>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  96.:MNP=.250:SCP=   .0]
01698>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01699> +----------------------------------------------------------------------------
01700> | Exit:No flow - Upstream of Residential Area Phase 1 and 2
01701> +----------------------------------------------------------------------------
01702> | Typical section based on proposed channel provided by AEL
01703> | 4:1 bank slopes, Long slope = 0.50%, Manning's n is 0.03
01704> | Route EX1 to d/s node MH
01705> 005:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01706>       ROUTE CHANNEL   -> 02:HEX1       24.62     1.096 No_date    1:50   14.86 n/a
01707>       [RDT= 5.00] outf= 01:HEX1       24.62     1.096 No_date    1:55   14.86 n/a
01708>       [L/S/n=  312./ .50/.030]
01709>       [Vmax=  .91:Imax=  .467]
01710> | Total flow at N-FR2A
01711> | (Note that FR2A will be short draining to proposed channel)
01712> 005:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01713>       ADD HYD         02:HrA          5.41      .124 No_date    1:50   12.84 n/a
01714>                     + 03:FR2A         3.13      .147 No_date    1:35   12.84 n/a
01715>                     + 04:FR3A         1.13      .029 No_date    1:35   12.84 n/a
01716>       [ST= 5.00] 90M  01:NR2A        13.64     .398 No_date    1:35   12.51 n/a
01717> | Typical Section based on proposed channel provided by AEL
01718> | 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
01719> | Route SW draining at N-FR2A to d/s node MH
01720> 005:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01721>       ROUTE CHANNEL   -> 02:NR2A       13.64     .398 No_date    1:35   12.51 n/a
01722>       [RDT= 5.00] outf= 01:NR2A       13.64     .353 No_date    1:45   12.16 n/a
01723>       [L/S/n=  647./ .50/.030]
01724>       [Vmax=  .765:Imax=  .259]
01725> | Total flow at node MH
01726> | (Note that EX2 will be short draining to proposed channel)
01727> 005:0043----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01728>       ADD HYD         02:NrA2A        13.64     .353 No_date    1:45   12.16 n/a
01729>                     + 03:FEA1         24.62     1.096 No_date    1:55   14.86 n/a
01730>                     + 04:FR3B1          .25      .007 No_date    1:35   12.34 n/a
01731>                     + 05:FR3B2         1.00      .027 No_date    1:40   12.84 n/a
01732>                     + 06:EX2           9.89      .171 No_date    2:10   12.08 n/a
01733>       [ST= 5.00] 90M  01:JN          49.40     1.504 No_date    1:40   13.46 n/a
01734> | Typical Section based on proposed channel provided by AEL
01735> | 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
01736> | Route SW draining at NC to d/s node E EX2
01737> 005:0044----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01738>       ROUTE CHANNEL   -> 02:JN        49.40     1.504 No_date    1:40   13.46 n/a
01739>       [RDT= 5.00] outf= 01:NEX2       49.40     1.457 No_date    1:45   13.46 n/a
01740>       [L/S/n=  521./ .50/.030]
01741>       [Vmax= 1.040:Imax=  .376]
01742> | Total flow at node E-EX2
01743> 005:0045----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01744>       ADD HYD         02:EX2          49.40     1.457 No_date    1:45   13.46 n/a
01745>                     + 01:FR10         1.84      .046 No_date    1:40   12.34 n/a
01746>       [QF= 5.00] 90M= 03:NEX2         51.24     1.503 No_date    1:45   13.41 n/a
01747> | Route Node E EX2 to Node E1
01748> | Typical Section based on Shields ND Vee Ditch 2:1 banks
01749> | provided by Ariel
01750> | Manning's n is Channel, not maintained, light brush on banks
01751> | Slope = 0.85% as per plan provided by Ariel.
01752> 005:0046----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01753>       ROUTE CHANNEL   -> 02:NEX2       51.24     1.503 No_date    1:45   13.44 n/a
01754>   * [RDT= 5.00] outf= 01:NEW2       51.24     1.236 No_date    1:50   13.44 n/a
01755>       [L/S/n=  253./ .85/.035]
01756>       [Vmax=  .354:Imax=  1.236]
01757> +----------------------------------------------------------------------------
01758> | Residential Development - Phase 1 and 2
01759> +----------------------------------------------------------------------------
01760> | Total flow at Node N-EX3
01761> 005:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01762>       ADD HYD         02:E3A          4.14      .104 No_date    1:50   12.08 n/a
01763>                     + 03:FR3B         3.21      .076 No_date    1:35   12.08 n/a
01764>                     + 04:EX4          .90       .019 No_date    1:20   13.44 n/a
01765>       [ST= 5.00] 30M= 01:NR1B         8.25      .199 No_date    1:30   12.33 n/a
01766> | Route Node NR1B to Node N FR1
01767> | Typical Section based on Modified Shamon Vee Ditch 1:1 slopes
01768> | provided by Ariel
01769> | Manning's n is Channel not maintained, light brush on banks
01770> | Slope = 0.60% Approximately as per Ariel drawing (ds=se.11/318m
01771> CUS:NC48----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01772>       ROUTE CHANNEL   -> 01:NR1B         8.25      .199 No_date    1:30   12.33 n/a
01773>       [RDT= 5.00] outf= 01:NR1AP        8.25      .171 No_date    1:35   12.35 n/a
01774>       [L/S/n=  318./ .60/.050]
01775>       [Vmax=  .967:Imax=  .331]
01776> | Total flow at node N-FR1
01777> CUS:NC49----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01778>       ADD HYD         01:FR1          4.26      .170 No_date    1:30   12.08 n/a
01779>                     + 02:NR1AP        8.25      .171 No_date    1:40   12.35 n/a
01780>                     + 04:FR1A         .29       .009 No_date    1:20   16.05 n/a
01781>       [I1= 5.00] 30M= 01:NFR1         11.38     .369 No_date    1:35   12.33 n/a
01782> | Volume to ponding area in FR1
01783> | Q 0.50 m3/s required as per SCS 100yr existing conditions
01784> | Culvert from Inlet 1
01785> | Assuming outlet culvert is 500 mm, slope = 1.2 , HDPE smooth walls
01786> | Manning's n = 0.012, inlet control assumed.
01787> | Upstream head = 0.9m, Q=0.510
01788> CUS:NC50----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01789>       CONJUNCTION JUNCTION 01:NFR1     11.38     .369 No_date    1:35   12.33 n/a
01790>         Major System /  01:NFR1M       .00       .000 No_date    0:00    .00 n/a
01791>         Minor System \  01:NFR1Mn     11.38     .369 No_date    1:35   12.33 n/a
01792>         (Qsystem=.0000E+00, Volume/Vol=.0.0E+00, 0, 0-Outf=    0, ToTOutVol     0.E+0)
01793> | Input to inlet 1 pipe
01794> CUS:NC51----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01795>       ADD HYD         01:FR1A         .29       .009 No_date    1:20   16.05 n/a
01796>                     + 02:NFR1Mn      11.38     .369 No_date    1:35   12.33 n/a
01797>       [I2= 5.00] 30M= 01:n            11.67     .378 No_date    1:35   12.36 n/a
01798> | Pipe from Inlet 1 - Route to pond
01799> | HDPE smooth wall pipe Mannings's n = 0.012
01800> CUS:NC52----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01801>       ROUTE PIPE      -> 01:n           11.67     .381 No_date    1:35   12.36 n/a
01802>       [RDT= 5.00] outf= 01:Pir1       11.67     .381 No_date    1:35   12.36 n/a
01803>       [L/S/n=  66.7/1.00/.012]
01804>       [Vmax= 2.593:Imax=  .283]
01805>       [Dia=  600.Delta=  .60m]
01806> | Culvert from Inlet 2
01807> | HDPE smooth wall pipe Mannings's n = 0.012
01808> CUS:NC53----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01809>       ROUTE PIPE      -> 01:FR2A        .57       .014 No_date    1:20   16.05 n/a
01810>       [RDT= 5.00] outf= 01:Pir2         .57       .014 No_date    1:20   16.05 n/a
01811>       [L/S/n=  12./ .40/.012]
01812>       [Vmax= 1.649:Imax=  .157]
01813>       [Dia=  .300:Delta=  .30m]
01814> | Input to inlet 2 pipe
01815> CUS:NC54----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01816>       ADD HYD         02:FR2A         .57       .014 No_date    1:20   16.05 n/a
01817>                     + 03:Pir2         .57       .014 No_date    1:20   16.05 n/a
01818>       [I3= 5.00] 30M= 01:n2           1.74      .042 No_date    1:20   16.07 n/a
01819> | Pipe from Inlet 2 - Route to pond
01820> | HDPE smooth wall pipe Mannings's n = 0.012
01821> CUS:NC55----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01822>       ROUTE PIPE      -> 01:n2          1.74      .042 No_date    1:20   16.07 n/a
01823>       [RDT= 5.00] outf= 01:Pir2         1.74      .042 No_date    1:20   16.07 n/a
01824>       [L/S/n=  75./ .20/.012]
01825>       [Vmax=  .652:Imax=  .267]
01826>       [Dia=  .300:Delta=  .30m]
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01827> * Culvert from inlet 3
01828> * HDPE smooth wall pipe Manning's n = 0.012
01829> 005:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01830>      ROUTE PIPE      -> 01:PR4A          .40      .017 No_data    1:20    16.05  n/a
01831>        [RDT= 5.00] out<- 01:Cin4         .40      .018 No_data    1:20    16.05  n/a
01832>        [L/S/n=   11./ .400/.012]
01833>        [Vmax= .16:Dmax=  .088]
01834>        [Din=  .600:Dused=  .500]
01835> * Input to inlet 3 pipe
01836> 005:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01837>      ADD HYD           01:PR3A          .52      .020 No_data    1:20    16.05  n/a
01838>                      + 03:CIN3          .45      .018 No_data    1:20    16.05  n/a
01839>        [ID= 5.00]  SUM=  01:IN3          .97      .038 No_data    1:20    16.05  n/a
01840> * Pipe from inlet 3 - Route to pond
01841> * HDPE smooth wall pipe Manning's n = 0.012
01842> 005:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01843>      ROUTE PIPE      -> 02:IN3           .97      .038 05 date    1:20    16.05  n/a
01844>        [RDT= 5.00] out<- 01:Pin3         .97      .038 No date    1:20    16.05  n/a
01845>        [L/S/n=   75./ .200/.012]
01846>        [Vmax=  .73:Dmax=  .154]
01847>        [Din=  .500:Dused=  .500]
01848> * Culvert from inlet 4
01849> * HDPE smooth wall pipe Manning's n = 0.012
01850> 005:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01851>      ROUTE PIPE      -> 02:PR4A          .71      .028 No date    1:20    16.05  n/a
01852>        [RDT= 5.00] out<- 01:CIN4         .71      .028 No date    1:20    16.05  n/a
01853>        [L/S/n=   11./ .400/.012]
01854>        [Vmax=  .845:Dmax=  .168]
01855>        [Din=  .600:Dused=  .600]
01856> * Input to inlet 4 pipe
01857> 005:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01858>      ADD HYD           02:PR4B          .60      .024 No date    1:20    16.05  n/a
01859>                      + 03:CIN4          .71      .028 No date    1:20    16.05  n/a
01860>        [ID= 5.00]  SUM=  01:IN4         1.31      .052 No date    1:20    16.05  n/a
01861> * Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01862> * HDPE smooth wall pipe Manning's n = 0.012
01863> 005:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01864>      ROUTE PIPE      -> 02:IN4           1.36      .052 No_data    1:20    16.05  n/a
01865>        [RDT= 5.00] out<- 01:Pin4         1.36      .051 05 date    1:20    16.05  n/a
01866>        [L/S/n=   65./1.900/.013]
01867>        [Vmax= 1.78:Dmax=  .162]
01868>        [Din=  .500:Dused=  .500]
01869> * Culvert from inlet 5
01870> * HDPE smooth wall pipe Manning's n = 0.012
01871> 005:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01872>      ROUTE PIPE      -> 02:IN5           .86      .029 No_data    1:20    16.05  n/a
01873>        [RDT= 5.00] out<- 01:CIN5         .86      .028 No_data    1:20    16.05  n/a
01874>        [L/S/n=   13./ .400/.012]
01875>        [Vmax= .82:Dmax=  .154]
01876>        [Din=  .500:Dused=  .500]
01877> * Input to inlet 5 pipe
01878> 005:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01879>      ADD HYD           02:PR5A          .46      .017 No_data    1:20    16.05  n/a
01880>                      + 01:CIN5          .86      .028 No_data    1:20    16.05  n/a
01881>        [ID= 5.00]  SUM=  01:IN5         1.32      .043 No_data    1:20    16.05  n/a
01882> * Pipe from inlet 5 - Route to pond
01883> * HDPE smooth wall pipe Manning's n = 0.012
01884> 005:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01885>      ROUTE PIPE      -> 02:IN5           1.32      .043 No_data    1:20    16.05  n/a
01886>        [RDT= 5.00] out<- 01:PIN5         1.32      .043 No_data    1:20    16.05  n/a
01887>        [L/S/n=   72./1.600/.012]
01888>        [Vmax= 1.57:Dmax=  .197]
01889>        [Din=  .500:Dused=  .500]
01890> * Culvert from inlet 6
01891> * HDPE smooth wall pipe Manning's n = 0.012
01892> 005:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01893>      ROUTE PIPE      -> 02:PR6A          1.43      .051 No_data    1:20    16.05  n/a
01894>        [RDT= 5.00] out<- 01:CIN6         1.43      .051 No_data    1:20    16.05  n/a
01895>        [L/S/n=   72./1.600/.013]
01896>        [Vmax= 1.81:Dmax=  .192]
01897>        [Din=  .600:Dused=  .600]
01898> * Input to inlet 6 pipe
01899> 005:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01900>      ADD HYD           02:PR6B          .93      .034 No_data    1:20    16.05  n/a
01901>                      + 03:CIN6         1.43      .051 No_data    1:20    16.05  n/a
01902>        [ID= 5.00]  SUM=  01:IN6         2.36      .087 No_data    1:20    16.05  n/a
01903> * Pipe from inlet 6 - Route to pond
01904> * HDPE smooth wall pipe Manning's n = 0.012
01905> 005:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01906>      ROUTE PIPE      -> 02:IN6           2.36      .087 No_data    1:20    16.05  n/a
01907>        [RDT= 5.00] out<- 01:PIN6         2.36      .086 No_data    1:20    16.05  n/a
01908>        [L/S/n=   70./ .300/.012]
01909>        [Vmax=  .80:Dmax=  .216]
01910>        [Ti=   .500:Dused=  .500]
01911> * VOLUME TO POND ULTIMATE RESIDENTIAL
01912> 005:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01913>      ADD HYD           01:Pin1          11.90      .381 No_date    1:55   12.51  n/a
01914>                      + 03:Pin2           9.24      .697 No_date    1:20   16.11  n/a
01915>                      + 04:Pin3            .97      .038 No_date    1:20   16.05  n/a
01916>                      + 05:Pin4           1.30      .054 No_date    1:20   16.05  n/a
01917>                      + 06:Pin5           1.11      .045 No_date    1:20   16.05  n/a
01918>                      + 07:Pin6           2.36      .086 No_date    1:20   16.05  n/a
01919>                      + 08:PDC            5.80      .169 No_date    1:25   15.17  n/a
01920>        [ID= 5.00]  SUM=  01:PONDin      25.48     1.315 No_date    1:25    6.54  n/a
01921> 005:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01922>      ROUTE RESERVOIR -> 01:PONDin      25.48     1.315 No_date    1:25    6.54  n/a
01923>        [RDT= 5.00] out<- 01:POUT1      25.48      .072 No_date    4:10   16.04  n/a
01924>                      over: ow <= cstovrq          .00      .000 No_date    0:00    .00  n/a
01925>        (Nxtoutwidw:3493E-06, Volov2vol-.0903E+00, N-ovf     6, Totalovf     3.026)
01926> * Simulating 5.5 100 yr conditions with convergence of sutflow weir
01927> * updated for weir .6: .6; 5.0
01928> $ROUTE RESERVOIR      ENVname="POutl" ,NHYDin="POUT1" ,
01929> *                     Nrt=[5]min,
01930> *                           TABLE OF | OUTFLOW-STORAGE | values
01931> *                                    (cfs) - (ac-ft)
01932> *                                  [   0.0 ,   0.0 ]
01933> *                                   0.0030 ,  1.1 ac
01934> *                                   0.30   ,  .0111
01935> *                                   0.53   ,  0.0195
01936> *                                    -1    ,  -1   ]  (max twelve pts)
01937> *                           ROVout=["ovrq"] ,
01938> * Route pond output through first set of pipes
01939> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
01940> * HDPE smooth wall pipe Manning's n - 0.012
01941> 005:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01942>      ROUTE PIPE      -> 01:PDout         25.48      .072 No_date    4:10   16.04  n/a
01943>        [RDT= 5.00] out<- 01:Pout1        25.48      .072 No_date    4:10   16.04  n/a
01944>        [L/S/n=   75./ .200/.013]
01945>        [Vmax=  .838:Dmax=  .180]
01946>        [Din=  .750:Dused=  .680]
01947> * Flow n/s of outlet outputs
01948> 005:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01949>      ADD HYD           02:PR4B           .60      .021 No_date    1:35   13.58  n/a
01950>                      + 03:PR4B1          .71      .028 No_date    1:35   13.58  n/a
01951>                      + 04:Pout1        25.48      .072 No_date    4:10   16.04  n/a
01952>        [ID= 5.00]  SUM=  01:Pout         26.06      .074 No_date    4:10   16.04  n/a
01953> * Route outflow through set of culverts
01954> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity ( 780 mm dia
01955> * HDPE smooth wall pipe Manning's n - 0.012
01956> 005:0072----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01957>      ROUTE PIPE      -> 02:Pout          26.06      .074 No_date    4:10   16.04  n/a
01958>        [RDT= 5.00] out<- 01:Out1         26.06      .074 No_date    4:10   16.04  n/a
01959>        [L/S/n=   13./ .400/.012]
01960>        [Vmax= 1.07:Dmax=  .155]
01961>        [Din=  .780:Dused=  .780]
01962> * Flow n/s of second set of outflow pipes
01963> 005:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01964>      ADD HYD           02:PR3T1          .09      .002 No_date    1:35   13.38  n/a
01965>                      + 04:Out2         26.06      .074 No_date    4:05   16.26  n/a
01966>                      + 04:Out2         26.06      .074 No_date    4:05   16.26  n/a
01967>        [ID= 5.00]  SUM=  01:Out2         26.62      .076 No_date    4:00   16.21  n/a
01968> * Route outflow through second set of pipes
01969> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
01970> * HDPE smooth wall pipe Manning's n - 0.012
01971> 005:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01972>      ROUTE PIPE      -> 02:Pout2         26.62      .076 No_date    4:00   16.21  n/a
01973>        [RDT= 5.00] out<- 01:Pout2        26.62      .076 No_date    4:00   16.21  n/a
01974>        [L/S/n=   65./ .200/.012]
01975>        [Vmax=  .85:Dmax=  .187]
01976>        [Din=  .780:Dused=  .680]
01977> * Tota. flow at node N. (should NE along Zulwa Farm Rd)
01978> 095:0075----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01979>      ADD HYD           02:PNEX2          51.21     1.230 No_date    1:50   13.13  n/a
01980>                      + 03:Pout2        26.62      .076 No_date    4:00   16.21  n/a
01981>                      + 04:XXX1           .09      .01  No_date    1:20   16.08  n/a
01982>                      + 05:PR3C           .10      .003 No_date    1:35   13.38  n/a
01983>                      + 06:PR.1           .62      .017 No_date    1:30   13.34  n/a
01984>        [ID= 5.00]  SUM=  01:N1          78.17     1.329 No_date    1:50   14.37  n/a
01985> * Route N1 to N3
01986> * Typical Section based on Shields MO Vee Ditch 3:1 banks
01987> * provided by Atrel
01988> * Manning's n is Channel not maintained, light brush on banks
01989> * S_ope = 0.030 as per plan provided by Atrel.
01990> 005:0076----------------ID:NHYD--------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01991>      ROUTE CHANNEL   -> 02:N             79.17     1.329 No_date    1:50   14.37  n/a
01992>        [RDT= 5.00] out<- 01:RN1          79.17     1.329 No_date    1:50   14.37  n/a
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00597>      CALIB STANDHYD     01:FR6A       1.43      .628 No_date    1:23   10.02 .296
00598>        [XIMP=.11:TIMP=.21]
00599>        [LOSS= 2 :CN= 71.0]
00600>        |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
00601>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00602> 002:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00603>      CALIB STANDHYD     01:FR6B       1.93      .828 No_date    1:22   10.02 .296
00604>        [XIMP=.1 :TIMP=.2]
00605>        [LOSS= 2 :CN= 71.0]
00606>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00607>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00608> * Slope estimates at 2% based on backyard swales.
00609> * Ximp and Ximp based on total pond area
00610> * Ximp = A pond/A tot
00611> * Timp = weighted average of pond and backyards
00612> 002:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00613>      CALIB STANDHYD     01:FDu        5.03     .715 No_date    1:25   10.02 .532
00614>        [XIMP=.44:TIMP=.4]
00615>        [LOSS= 2 :CN= 71.0]
00616>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00617>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0|
00618> *********************************************************************
00619> * UNCONTROLLED AREAS
00620> *********************************************************************
00621> *
00622>  002:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00623>   * CALIB STANDHYD     01:FR7A       1.57      .618 No_date    1:48   7.84 .231
00624>        [XIMP=.02:TIMP=.14]
00625>        [LOSS= 2 :CN= 71.0]
00626>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
00627>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00628> 002:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00629>   * CALIB STANDHYD     01:FR7B       .36      .095 No_date    1:46   7.84 .231
00630>        [XIMP=.02:TIMP=.14]
00631>        [LOSS= 2 :CN= 71.0]
00632>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00633>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0|
00634> 002:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00635>   * CALIB STANDHYD     01:FR7b2      .22      .093 No_date    1:40   7.84 .231
00636>        [XIMP=.02:TIMP=.14]
00637>        [LOSS= 2 :CN= 71.0]
00638>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00639>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00640> 002:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00641>   * CALIB STANDHYD     01:FR7C1      .38      .092 No_date    1:46   7.84 .231
00642>        [XIMP=.02:TIMP=.14]
00643>        [LOSS= 2 :CN= 71.0]
00644>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00645>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00646> 002:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00647>   * CALIB STANDHYD     01:FR7C2      .17      .092 No_date    1:40   7.84 .231
00648>        [XIMP=.02:TIMP=.14]
00649>        [LOSS= 2 :CN= 71.0]
00650>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00651>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00652> 002:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00653>   * CALIB STANDHYD     01:FR7D       .30      .004 No_date    1:40   7.84 .231
00654>        [XIMP=.02:TIMP=.14]
00655>        [LOSS= 2 :CN= 71.0]
00656>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00657>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0|
00658> 002:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00659>   * CALIB STANDHYD     01:FR8        1.10      .091 No_date    1:52   7.11 .210
00660>        [XIMP=.01:TIMP=.07]
00661>        [LOSS= 2 :CN= 71.0]
00662>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00663>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00664> 002:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00665>   * CALIB STANDHYD     01:FR9A       1.10      .313 No_date    1:52   7.11 .210
00666>        [XIMP=.01:TIMP=.07]
00667>        [LOSS= 2 :CN= 71.0]
00668>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00669>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
00670> 002:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00671>   * CALIB STANDHYD     01:FR9B       .25      .081 No_date    1:49   7.11 .210
00672>        [XIMP=.01:TIMP=.07]
00673>        [LOSS= 2 :CN= 71.0]
00674>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00675>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0|
00676> 002:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00677>   * CALIB STANDHYD     01:FR9B2      7.80     .007 No_date    1:57   7.11 .210
00678>        [XIMP=.01:TIMP=.07]
00679>        [LOSS= 2 :CN= 71.0]

01028>      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01029>      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01030> 002:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01031>   * CALIB STANDHYD     01:FR6A       1.43      .628 No_date    1:23   10.02 .296
01032>        [XIMP=.11:TIMP=.21]
01033>        [LOSS= 2 :CN= 71.0]
01034>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01035>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01036> 002:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01037>      CALIB STANDHYD     01:FR6B       1.93      .828 No_date    1:22   10.02 .296
01038>        [XIMP=.1 :TIMP=.2]
01039>        [LOSS= 2 :CN= 71.0]
01040>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01041>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01042> * Slope estimates at 2% based on backyard swales.
01043> * Ximp and Ximp based on total pond area
01044> * Timp = weighted average of pond and backyards
01045> 002:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01046>      CALIB STANDHYD     01:FDu        5.03     .715 No_date    1:25   10.03 .532
01047>        [XIMP=.44:TIMP=.4]
01048>        [LOSS= 2 :CN= 71.0]
01049>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01050>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0|
01051> *********************************************************************
01052> * UNCONTROLLED AREAS
01053> *********************************************************************
01054> *
01055>  002:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01056>   * CALIB STANDHYD     01:FR7A       1.57      .618 No_date    1:48   7.84 .231
01057>        [XIMP=.02:TIMP=.14]
01058>        [LOSS= 2 :CN= 71.0]
01059>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01060>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01061> 002:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01062>   * CALIB STANDHYD     01:FR7B       .36      .095 No_date    1:46   7.84 .231
01063>        [XIMP=.02:TIMP=.14]
01064>        [LOSS= 2 :CN= 71.0]
01065>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01066>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0|
01067> 002:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01068>   * CALIB STANDHYD     01:FR7b2      .22      .093 No_date    1:40   7.84 .231
01069>        [XIMP=.02:TIMP=.14]
01070>        [LOSS= 2 :CN= 71.0]
01071>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01072>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01073> 002:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01074>   * CALIB STANDHYD     01:FR7C1      .38      .092 No_date    1:46   7.84 .231
01075>        [XIMP=.02:TIMP=.14]
01076>        [LOSS= 2 :CN= 71.0]
01077>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01078>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01079> 002:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01080>   * CALIB STANDHYD     01:FR7C2      .17      .092 No_date    1:40   7.84 .231
01081>        [XIMP=.02:TIMP=.14]
01082>        [LOSS= 2 :CN= 71.0]
01083>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01084>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0|
01085> 002:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01086>   * CALIB STANDHYD     01:FR7D       .30      .004 No_date    1:40   7.84 .231
01087>        [XIMP=.02:TIMP=.14]
01088>        [LOSS= 2 :CN= 71.0]
01089>        |Pervious     area: IAper= 4.67:SLPP= 1.00:LGP=  40.:MNP=.250:SCP=   .0|
01090>        |Impervious   area: IAimp= 1.57:SLPI= 1.00:LGI=  45.:MNI=.045:SCI=   .0|
01091> 002:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01092>   * CALIB STANDHYD     01:FR8        1.10      .091 No_date    1:52   7.11 .210
01093>        [XIMP=.01:TIMP=.07]
01094>        [LOSS= 2 :CN= 71.0]
01095>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01096>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01097> 002:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01098>   * CALIB STANDHYD     01:FR9A       1.10      .313 No_date    1:52   7.11 .210
01099>        [XIMP=.01:TIMP=.07]
01100>        [LOSS= 2 :CN= 71.0]
01101>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01102>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01103> 002:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01104>   * CALIB STANDHYD     01:FR9B       .25      .081 No_date    1:49   7.11 .210
01105>        [XIMP=.01:TIMP=.07]
01106>        [LOSS= 2 :CN= 71.0]
01107>        |Pervious     area: IApere= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01108>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0|
01109> 002:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01110>   * CALIB STANDHYD     01:FR9B2      7.80     .007 No_date    1:57   7.11 .210
01111>        [XIMP=.01:TIMP=.07]
01112>        [LOSS= 2 :CN= 71.0]
01113> ********************************************************************
01114> * TOTAL INFLOW TO COMMERCIAL POND PDC
01115> ********************************************************************
01116> 002:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01117>     ADD HYD            02:EX1       24.62     .627 No_date    1:30   8.98  n/a
01118>                    +   03:EXC1        1.19     .064 No_date    1:20  14.96  n/a
01119>                    +   04:EXC2        1.63     .080 No_date    1:20  16.59  n/a
01120>       [CC= 1.00]  SUM=  01:NEX1       28.79     .674 No_date    1:34   9.50  n/a
01121> * Typical Section based on proposed channel provided by AEL
01122> * 4:1 bank slopes, Long slope = 0.65%, Manning's n is 0.03
01123> * Route Node N-EX1 to d/s node N8
01124>  002:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01125>     ROUTE CHANNEL   -> 02:NEX1       28.79     .674 No_date    1:34   9.50  n/a
01126>       [RDT= 1.00] sto= 01:EX1        24.62     .627 No_date    1:30   8.98  n/a
01127>       [L/S/n= 312./ .650/.030]
01128>       [Vmax= 1.017:Qmax=  .201]
01129> ********************************************************************
01130> * TOTAL INFLOW TO COMMERCIAL POND PDC
01131> ********************************************************************
01132> 002:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01133>     ADD HYD            02:EX1        .00     .011 No_date    1:20   9.64  n/a
01134>                    +   03:C1        8.30     .958 No_date    1:20  23.76  n/a
01135>                    +   04:C7        6.36     .943 No_date    1:20  27.78  n/a
01136>                    +   05:FDc       1.27     .218 No_date    1:20  24.71  n/a
01137>       [CC= 1.00]  SUM=  01:PDCin    16.71    2.120 No_date    1:21  24.51  n/a
01138> 002:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01139>     ROUTE RESERVOIR -> 02:PDCin    16.71    2.120 No_date    1:21  24.51  n/a
01140>       [RDT= 1.00] sto= 01:PDCout   16.71     .207 No_date    2:15  24.51  n/a
01141>            overflow <- 03:Over      .00     .000 No_date    0:00   .00  n/a
01142>       (MxStorage= 30.0E+00, MaxOutVol= .000E+00, 0-Out     0, TotOutVol=     0.ac-ft)
01143> * Total flow at outlet of commercial pond
01144> 002:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01145>     ADD HYD            02:PDCout    16.71     .207 No_date    2:15  24.51  n/a
01146>                    +   03:FDRA        1.10     .013 No_date    1:52   7.11  n/a
01147>       [CC= 1.00]  SUM=  01:sPDc      17.81     .218 No_date    2:12  23.81  n/a
01148> * Route pond outflow at pipe u/s of node N0
01149> * Typical Section based on proposed channel provided by AEL
01150> * 4:1 bank slopes, Long slope = 0.25%, Manning's n is 0.03
01151> 002:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01152>     ROUTE CHANNEL   -> 02:sPDc      17.81     .218 No_date    2:12  23.81  n/a
01153>       [RDT= 1.00] sto= 01:FDPDc     17.81     .214 No_date    2:20  23.81  n/a
01154>       [L/S/n= 350./ .250/.030]
01155>       [Vmax= .479:Qmax= .224]
01156> * Total channel flow at pipe u/s of node N0
01157> 002:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01158>     ADD HYD            02:FDPDc     17.81     .214 No_date    2:20  23.81  n/a
01159>                    +   03:EXBE1       .25     .003 No_date    1:40   7.1  n/a
01160>                    +   04:EXBE2      1.00     .012 No_date    1:50   7.1  n/a
01161>       [CC= 1.00]  SUM=  01:sN0       18.06     .224 No_date    2:20  23.72  n/a
01162> * ------------
01163> * Total flow at node N0
01164> * (Note that EX2 at 1 ac sheet draining to proposed channel)
01165> 002:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01166>     ADD HYD            02:sN0       18.06     .224 No_date    2:20  23.72  n/a
01167>                    +   03:EXBE1     26.79     .649 No_date    1:39   9.50  n/a
01168>                    +   04:EX2        9.98     .109 No_date    2:11   7.16  n/a
01169>                        05:sN3         .34     .050 No_date    1:20  32.56  n/a
01170>       [CC= 1.00]  SUM=  01:sN       55.98     .847 No_date    1:43  15.68  n/a
01171> * Typical Section based on proposed channel provided by AEL
01172> * 4:1 bank slopes, Long slope = 0.40%, Manning's n is 0.03
01173> * Route SW draining at N0 to d/s node N-EX2
01174>  002:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01175>     ROUTE CHANNEL   -> 02:sN0       55.98     .847 No_date    1:43  15.68  n/a
01176>       [RDT= 1.00] sto<- 01:sN0       55.98     .808 No_date    1:40   9.50  n/a
01177>       [L/S/n= 324./ .400/.030]
01178>       [Vmax=  .815:Qmax=  .398]
01179> * Total flow at node N-EX2
01180>  002:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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01164>       ADD HYD          02:RO40      55.98     .898 No_date    1:40   13.65  n/a
01165>                      + 03:rv1C       1.67     .022 No_date    1:03    7.11  n/a
01166>       [QI= 1.00]  SUM= 01:nEX2      57.85     .830 No_date    1:40   13.47  n/a
01167> # Route Node N-EX2 to Node E1
01168> # Typical section based on Suicide MD Vee Ditch 7:1 ranes
01169> # provided by Arrel
01170> # Manning's n is Channel, not Mainstream, light brush on banks
01171> # Slope = 0.05> as per plan provided by Arrel.
01172>  002:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01173>       ROUTE CHANNEL    -> 02:nEX2      57.85     .830 No_date    1:40   13.47  n/a
01174>       [RDT= 1.00] out<- 01:nEX02      57.85     .894 No_date    1:58   13.47  n/a
01175>       [L/S/n=  958./ .050/.035]
01176>       [Vmax=  .317:Dmax=  .454]
01177> *************************************************************************
01178> * Residential Development - Phase 1 and 2
01179> *************************************************************************
01180> * Total flow at node N-PE1
01181>  002:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01182>       ADD HYD          02:PE1        4.26     .097 No_date    1:31    7.16  n/a
01183>                      + 01:P1A         .24     .008 No_date    1:20   10.02  n/a
01184>       [I= 1.00]  SUM= 01:nPE1        4.50     .101 No_date    1:31    7.21  n/a
01185> * Volume to ponding area in PE1
01186> * Q=0.555 m3/s (scaled as per SCS 100yr Existing Conditions
01187> * Culvert from Inlet 1
01188> * Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
01189> * Manning's n = 0.012, inlet control nomograph
01190> * Hydraulic head = 0.9m, Q=0.616
01191>  002:0055----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01192>       CONJOIN JUNCTION  01:nRA1        4.50     .101 No_date    1:31    7.21  n/a
01193>          Major System /  02:NEXTMj      .00     .000 No_date    0:00    .00  n/a
01194>          Minor System \  03:NEXTMn     4.50     .101 No_date    1:31    7.21  n/a
01195>          (MjSysFlow:0.000CMS, TotCtrVol=0.000E+00, N-Qvi=    0, TotSurCv=    0.hrs)
01196> * Input to Inlet 1 pipe
01197>  002:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01198>       ADD HYD          02:PE1B         .55     .012 No_date    1:21   10.02  n/a
01199>                      + 03:NEXTMn     4.50     .101 No_date    1:31    7.21  n/a
01200>       [I= 1.00]  SUM= 01:In1        5.05     .109 No_date    1:31    7.21  n/a
01201> * Pipe from Inlet 1 - Route to pond
01202> * HDPE smooth wall pipe Manning's n = 0.012
01203>  002:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01204>       ROUTE PIPE       -> 02:In1        5.05     .109 No_date    1:32    7.21  n/a
01205>       [RDT= 1.00] out<- 01:Pin1        5.05     .109 No_date    1:32    7.21  n/a
01206>       [L/S/n=  60./1.800/.012]
01207>       [Vmax= 2.035:Dmax=  .145]
01208>       [Din=  .600:Dused=  .600]
01209> * Culvert from Inlet 2
01210> * HDPE smooth wall pipe Manning's n = 0.012
01211>  002:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01212>       ROUTE PIPE       -> 02:CIn2       1.57     .042 No_date    1:23   10.02  n/a
01213>       [RDT= 1.00] out<- 01:CIn2        1.57     .042 No_date    1:23   10.02  n/a
01214>       [L/S/n=  13./ .400/.012]
01215>       [Vmax=  .988:Dmax=  .125]
01216>       [Din=  .500:Dused=  .500]
01217> * Input to Inlet 2 pipe
01218>  002:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01219>       ADD HYD          02:PE2B         1.17     .024 No_date    1:22   10.02  n/a
01220>                      + 03:CIn2        1.57     .042 No_date    1:23   10.02  n/a
01221>       [I= 1.00]  SUM= 01:In2        2.74     .066 No_date    1:23   10.02  n/a
01222> # Pipe from Inlet 2 - Route to pond
01223> # HDPE smooth wall pipe Manning's n = 0.012
01224>  002:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01225>       ROUTE PIPE       -> 02:In2        2.74     .066 No_date    1:23   10.02  n/a
01226>       [RDT= 1.00] out<- 01:Pin2        2.74     .066 No_date    1:24   10.02  n/a
01227>       [L/S/n=  75./ .200/.012]
01228>       [Vmax=  .815:Dmax=  .150]
01229>       [Din=  .300:Dused=  .300]
01230> # Culvert from Inlet 3
01231> # HDPE smooth wall pipe Manning's n = 0.012
01232>  002:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01233>       ROUTE PIPE       -> 02:PE3A         .45     .010 No_date    1:21   10.02  n/a
01234>       [RDT= 1.00] out<- 01:CIn3          .45     .010 No_date    1:21   10.02  n/a
01235>       [L/S/n=  13./ .400/.012]
01236>       [Vmax=  .619:Dmax=  .066]
01237>       [Din=  .300:Dused=  .300]
01238> # Input to Inlet 3 pipe
01239>  002:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01240>       ADD HYD          02:PE3B         .52     .012 No_date    1:21   10.02  n/a
01241>                      + 03:CIn3         .45     .010 No_date    1:21   10.02  n/a
01242>       [QI= 1.00]  SUM= 01:In3          .97     .022 No_date    1:21   10.02  n/a
01243> # Pipe from Inlet 3 - Route to pond
01244> # HDPE smooth wall pipe Manning's n = 0.012
01245>  002:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01246>       ROUTE PIPE       -> 02:In3        .97     .022 No_date    1:21   10.02  n/a
01247>       [L/S/n=  75./ .200/.012]
01248>       [Vmax=  .622:Dmax=  .116]
01249>       [Din=  .300:Dused=  .300]
01250> # Culvert from Inlet 4
01251> # HDPE smooth wall pipe Manning's n = 0.012
01252>  002:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01253>       ROUTE PIPE       -> 02:PE4A         .71     .015 No_date    1:22   10.02  n/a
01254>       [RDT= 1.00] out<- 01:CIn4          .71     .015 No_date    1:22   10.02  n/a
01255>       [L/S/n=  15./ .060/.012]
01256>       [Vmax=  .771:Dmax=  .082]
01257>       [Din=  .300:Dused=  .300]
01258> # Input to Inlet 4 pipe
01259>  002:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01260>       ADD HYD          02:PE4B         .65     .014 No_date    1:21   10.02  n/a
01261>                      + 03:CIn4         .71     .015 No_date    1:22   10.02  n/a
01262>       [QI= 1.00]  SUM= 01:In4          1.36     .029 No_date    1:22   10.02  n/a
01263> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01264> # HDPE smooth wall pipe Manning's n = 0.012
01265>  002:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01266>       ROUTE PIPE       -> 02:In4-A      1.36     .029 No_date    1:22   10.02  n/a
01267>       [RDT= 1.00] out<- 01:Pin4         1.36     .029 No_date    1:22   10.02  n/a
01268>       [L/S/n=  55./1.900/.012]
01269>       [Vmax= 1.572:Dmax=  .078]
01270>       [Din=  .300:Dused=  .300]
01271> # Culvert from Inlet 5
01272> # HDPE smooth wall pipe Manning's n = 0.012
01273>  002:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01274>       ROUTE PIPE       -> 02:PE5A         .66     .014 No_date    1:22   10.02  n/a
01275>       [PDT= 1.00] out<- 01:CIn5          .66     .014 No_date    1:22   10.02  n/a
01276>       [L/S/n=  13./ .400/.012]
01277>       [Vmax=  .707:Dmax=  .088]
01278>       [Din=  .300:Dused=  .300]
01279> # Input to Inlet 5 pipe
01280>  002:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01281>       ADD HYD          02:PE5B         .46     .010 No_date    1:21   10.02  n/a
01282>                      + 03:CIn5         .66     .014 No_date    1:22   10.02  n/a
01283>       [QI= 1.00]  SUM= 01:In5          1.12     .025 No_date    1:21   10.02  n/a
01284> # Pipe from Inlet 5 - Route to pond
01285> # HDPE smooth wall pipe Manning's n = 0.012
01286>  002:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01287>       ROUTE PIPE       -> 02:In5        1.12     .025 No_date    1:21   10.02  n/a
01288>       [RDT= 1.00] out<- 01:Pin5         1.12     .025 No_date    1:22   10.02  n/a
01289>       [L/S/n=  75./1.600/.012]
01290>       [Vmax= 1.330:Dmax=  .074]
01291>       [Din=  .300:Dused=  .300]
01292> # Culvert from Inlet 6
01293> # HDPE smooth wall pipe Manning's n = 0.012
01294>  002:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01295>       ROUTE PIPE       -> 02:PE6A         1.43     .032 No_date    1:23   10.02  n/a
01296>       [RDT= 1.00] out<- 01:CIn6          1.43     .032 No_date    1:23   10.02  n/a
01297>       [L/S/n=  13./ .400/.012]
01298>       [Vmax=  .867:Dmax=  .113]
01299>       [Din=  .300:Dused=  .300]
01300> # Input to Inlet 6 pipe
01301>  002:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01302>       ADD HYD          02:PE6B         .93     .020 No_date    1:22   10.02  n/a
01303>                      + 03:CIn6         1.43     .029 No_date    1:23   10.02  n/a
01304>       [QI= 1.00]  SUM= 01:In6          2.36     .049 No_date    1:22   10.02  n/a
01305> # Pipe from Inlet 6 - Route to pond
01306> # HDPE smooth wall pipe Manning's n = 0.012
01307>  002:0072----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01308>       ROUTE PIPE       -> 02:In6        2.36     .049 No_date    1:22   10.02  n/a
01309>       [RDT= 1.00] out<- 01:Pin6         2.36     .049 No_date    1:23   10.02  n/a
01310>       [L/S/n=  75./ .300/.012]
01311>       [Vmax=  .913:Dmax=  .159]
01312>       [Din=  .500:Dused=  .500]
01313> * VOLUME TO POND ULTIMATE RESIDENTIAL
01314>  002:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01315>       ADD HYD          02:Pin1         5.05     .109 No_date    1:32    7.21  n/a
01316>                      + 03:Pin2         2.74     .065 No_date    1:24   10.10  n/a
01317>                      + 04:Pin3          .97     .021 No_date    1:22   10.02  n/a
01318>                      + 05:Pin4         1.36     .030 No_date    1:22   10.02  n/a
01319>                      + 06:Pin5         1.12     .025 No_date    1:22   10.02  n/a
01320>                      + 07:Pin6         2.36     .049 No_date    1:23   10.02  n/a
01321>                      + 08:PEo          5.05     .519 No_date    1:25   18.67  n/a
01322>       [QI= 1.00]  SUM= 01:PONDin      18.65     .583 No_date    1:24   11.57  n/a
01323> *  Pond outflow for ultimate conditions using weir .8; ref 4.0
01324>  002:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01325>       ROUTE RESERVOIR  -> 02:POUTn     18.65     .583 No_date    1:24   11.57  n/a
01326>       [RDT= 1.00] out<- 01:Pout        18.65     .575 No_date    4:15   11.37  n/a
01327>                  overflow <- 03:ovrQ             .00     .000 No_date    0:00    .00  n/a
01328>       (MaxStoVol= .18028+00, TotvolVol= .00008+00, N-Qvi=    0, TotSurCv=    0.hrs)
```

```
# Simulating SCS 100 yr conditions with submergence of outflow wells
# Unmixed for weir .6; .6; 3.0
*ROUTE RESERVOIR     NHYDout-["PDout"] ,NHYDin ["PONDin"] ,
                     RDT-[1](min),
                                 TABLE OF | OUTFLOW-STORAGE | values
                                          (CFS) - (Ac-ft)
                                          |   0.0  ,   0.0 |
                                          | 0.80861 , 1.2809
                                          | 0.20   , 1.8118
                                          | 0.30   , 2.0165
                                          |   1    ,   1   |   (max twenty pts)
                                 NHYDout=["ovrg"] ,
# Route pond outout through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=760 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 002:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PDout      18.63      .035 No date    4:15   11.57  n/a
        [RDT= 1.00] out<- 01:Pout1      18.63      .035 No date    4:17   11.57  n/a
        [L/S/n=  72./ .260/.012]
        [Vmax=  .675:Dmax=  .127]
        [Dln   .760:Dused=  .760]
# Flow o/s of culvert culverts
 002:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:EXTR1       .16      .005 No date    1:46    7.84  n/a
                     + 02:EXTR2       .22      .003 No date    1:46    7.84  n/a
                     + 04:Pout1     18.63      .035 No date    4:17   11.57  n/a
        [01= 1.00]  SUM=  01:Pout      19.21      .036 No date    4:01   11.45  n/a
# Route outflow through set of culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity [=760 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 002:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:Pout      19.21      .036 No date    4:01   11.45  n/a
        [RDT= 1.00] out<- 01:Pout      19.21      .036 No date    4:01   11.45  n/a
        [L/S/n=  18./ .400/.012]
        [Vmax=  .856:Dmax=  .138]
        [Dln   .780:Dused=  .780]
# Flow o/s of second set of outflow pipes
 002:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:FROC1       .30      .005 No date    1:46    7.84  n/a
                     + 02:FROC2       .17      .002 No date    1:46    7.84  n/a
                     + 04:Cout      19.21      .036 No date    4:01   11.45  n/a
        [01= 1.00]  SUM=  01:Pout2     19.77      .039 No date    2:05   11.35  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=760 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 002:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:Pout2    19.77      .039 No date    2:05   11.35  n/a
        [RDT= 1.00] out<- 01:Pout2     19.77      .039 No date    2:05   11.35  n/a
        [L/S/n=  65./ .230/.012]
        [Vmax=  .695:Dmax=  .133]
        [Dln=  .780:Dused=  .780]
# Total flow at node N7 (Shield MD along Swan Park Rd)
 002:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          02:ANNX2       57.85      .854 No date    1:58   13.47  n/a
                     + 03:Pout2     19.77      .039 No date    2:05   11.35  n/a
                     + 04:EX7       .39      .014 No date    1:23   12.02  n/a
                     + 05:FR7L      .33      .004 No date    1:45    7.93  n/a
                     + 06:FR11      .62      .003 No date    1:50    7.11  n/a
        [11= 1.00]  SUM=  01:N1        79.35      .711 No date    1:52   12.36  n/a
# ROUTE N1 to N3
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Ayres
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Ayres.
 002:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N1        79.35      .711 No date    1:52   12.36  n/a
        [RDT= 1.00] out<- 01:RN3       79.35      .610 No date    2:17   12.86  n/a
        [L/S/n=  589./ .050/.035]
        [Vmax=  .509:Dmax=  .912]
# VOLUME from residential area contributing to N3
 002:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          02:FR7A        1.35      .018 No date    1:49    7.84  n/a
                     - 03:FR8       1.58      .016 No date    1:52    7.11  n/a
        [02= 1.00]  SUM=  01:EX5       2.73      .035 No date    1:51    7.47  n/a
# Added VOLUME from external area contributing to N3
 002:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          03:RN3        78.93      .610 No date    2:17   12.86  n/a
                     + 01:ex5       2.73      .035 No date    1:51    7.47  n/a
                     + 04:ex6        .52      .022 No date    1:28   10.53  n/a
                     + 05:ex4        .51      .017 No date    1:24   11.73  n/a
                     + 06:ex7        .22      .024 No date    1:20   20.40  n/a
        [01= 1.00]  SUM=  01:N3        83.91      .651 No date    2:15   13.17  n/a
# ROUTE N3 to N3120
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Ayres
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per p er provided by Ayres.
 002:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N3        83.91      .651 No date    2:15   13.17  n/a
        [RDT= 1.00] out<- 01:RN3       83.91      .555 No date    2:30   12.72  n/a
        [L/S/n=  615./ .050/.025]
        [Vmax=  .795:Dmax=  .835]
# Flow at Stanley node NCR128 for comparison
# routed N3 plus EX3
 002:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:RN3         83.91      .558 No date    2:15   12.72  n/a
                     + 03:EX3       21.50      .166 No date    2:24    7.16  n/a
        [01= 1.00]  SUM=  01:NCR128    104.21      .737 No date    2:15   11.58  n/a
# AREA CREEK
#
 002:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:EX1         54.67      .402 No date    1:15    8.96  n/a
                     + 02:EX2        9.85      .106 No date    1:11    7.16  n/a
                     + 04:EX3       21.50      .166 No date    1:24    7.16  n/a
                     + 05:EX4         .50      .011 No date    1:21    9.64  n/a
                     + 06:EX5         .50      .025 No date    1:24   16.58  n/a
                     + 07:EX6         .51      .016 No date    1:24   11.23  n/a
                     + 08:EX7         .35      .014 No date    1:23   12.02  n/a
                     + 09:FR1A        .24      .006 No date    1:20   10.02  n/a
                     + 10:FR1B        .55      .013 No date    1:21   10.02  n/a
        [01= 1.00]  SUM=  01:Tot1      58.52      .390 No date    1:37    8.12  n/a
 002:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:Tot1        58.52      .390 No date    1:37    8.12  n/a
                     + 03:FR2A        1.50      .032 No date    1:23   10.02  n/a
                     + 04:FR2B        1.17      .024 No date    1:22   10.02  n/a
                     + 05:FR3A        .45      .010 No date    1:21   10.02  n/a
                     + 06:FR3B        .52      .012 No date    1:21   10.02  n/a
                     + 07:FR4A        .71      .015 No date    1:22   10.02  n/a
                     + 08:FR4B        .65      .011 No date    1:22   10.02  n/a
                     + 09:FR5A        .46      .014 No date    1:22   10.02  n/a
                     + 10:FR5B        .46      .010 No date    1:21   10.02  n/a
        [01= 1.00]  SUM=  01:Tot2      64.71      .491 No date    1:38    8.31  n/a
 002:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          02:Tot2        64.71      .491 No date    1:38    8.31  n/a
                     + 07:FR6A        1.45      .029 No date    1:27   10.02  n/a
                     + 08:FR6B        .93      .020 No date    1:22   10.02  n/a
                     + 09:FR7A        1.45      .015 No date    1:40    7.84  n/a
                     + 06:FR7B1       .36      .005 No date    1:46    7.84  n/a
                     + 07:FR7B2       .22      .003 No date    1:46    7.84  n/a
                     + 08:FR7C1       .39      .005 No date    1:46    7.84  n/a
                     + 09:FR7C2       .17      .002 No date    1:45    7.84  n/a
                     + 10:FR7D        .10      .001 No date    1:47    7.84  n/a
        [07= 1.00]  SUM=  01:Tot3      69.66      .958 No date    1:35    8.35  n/a
 002:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          02:Tot3        69.66      .958 No date    1:35    8.35  n/a
                     + 03:EX8         1.38      .016 No date    1:52    7.11  n/a
                     + 04:FR8A        1.10      .013 No date    1:52    7.11  n/a
                     + 05:FR8B1       .25      .003 No date    1:49    7.11  n/a
                     + 06:FR8B2       1.08      .012 No date    1:51    7.11  n/a
                     + 07:FR9C        1.57      .017 No date    1:51    7.11  n/a
                     + 08:FR9D        .62      .006 No date    1:50    7.11  n/a
                     + 09:FR11        4.26      .047 No date    1:41    7.16  n/a
                     + 10:Pja         5.03      .139 No date    1:25   16.03  n/a
        [01= 1.00]  SUM=  01:Tot4      85.37     1.308 No date    1:34    8.57  n/a
 002:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          01:Tot4        85.37     1.308 No date    1:34    8.57  n/a
                     + 03:C1          8.50      .959 No date    1:21   25.70  n/a
                     + 04:C2          6.84      .543 No date    1:20   27.75  n/a
                     + 05:C3           .24      .050 No date    1:20   32.58  n/a
                     + 06:EXC1        1.10      .064 No date    1:20   16.59  n/a
                     + 07:EXC2        1.03      .060 No date    1:20   16.59  n/a
                     + 08:EXC3         .22      .004 No date    1:20   20.40  n/a
                     + 09:PEA         1.57      .218 No date    1:20   24.71  n/a
        [10= 1.00]  SUM=  01:Tot5      104.21     3.252 No date    1:21   11.58  n/a
#*******************************************************************************
# simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN :  (
#-------------------------------------------------------------------------------


 RUN:C:\HYSA\*.*
 005:0001----------------------------------------------------------------------
```

```
01494>      START
01495>        [STORD =    .00 hrs on        0]
01496>        [METOUT=   2     (1=Imperial, 2=metric output)]
01497>        [NSTORM=   1 ]
01498>        [NRUN  =   5 ]
01499> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01500> +  SWMHYMO Ver:5.02/Jan 2001 <RECAP / INPUT DATA FILE
01501> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01502> +  Project Name: [Greely Village Center]     Project Number: [647-07]
01503> +  Date         : 04-09-2008
01504> +  Modeller     : [JHR]
01505> +  Company      : JFSAinc.
01506> +  License #    :  2947402
01507> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01508> +
01509> + SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
01510> + Proposed Ultimate conditions. OPTION B
01511> + Filename stands for: Greely, Commercial, Proposed
01512> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01513> 005:0007----------------------------------------------------------------------
01514>      READ STORM
01515>        Filename = stats.961
01516>        Comment  = 5 years Chicago Storm 6 Hours step 10 min, City of Ottawa
01517>        [SCS 24.0:STORM    0.00:PTOT=  65.17]
01518> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01519> # Existing flow - McEvoy Branch of Shields Creek - Areas
01520> # Area n/a or proposed development (residential)
01521> # CN=*5, xImp = 0.0, Ia=0.15, xIMP=.5, use SC901 as per Stantec
01522> # Area partially adjusted based on Atrel drawings. Ip adjusted accordingly.
01523> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01524> + n/a of Bank St.s per Atrel - with modified boundaries and To.
01525> 005:0008----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01526>      DESIGN HASHYD      01:EX1        21.62     1.00% No_date    1:30   10.66 .325
01527>        [CN= 75.0: N= 3.00
01528>        [Ip=   23:DT= 1.00
01529> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01530> # Existing flow - External areas n/a at Bank St.
01531> # CN*=80, as per Stantec see SC002.
01532> # Area partially adjusted based on Atrel drawings.
01533> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01534> # Areas External to development
01535> 005:0009----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01536>      DESIGN HASHYD      01:EX2        9.99      .172 No_date    1:10   12.88 .264
01537>        [CN= 69.0: N= 3.00
01538>        [Ip=  12:DT= 1.00
01539> 005:0005----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01540>      DESIGN HASHYD      01:EX3        21.28     .339 No_date    2:00   12.82 .262
01541>        [CN= 69.0: N= 3.00
01542>        [Ip=   83:DT= 1.00
01543> # Slope, Trap. Area from Atrel Drawing
01544> # CN from Stantec (SC001)
01545> # Ximp = Timp = 100
01546> 005:0006----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01547>      CALIB STANDHYD     01:EX4         .50      .017 No_date    1:21   15.44 .342
01548>        [XIMP =  1]:[TIMP =  22]
01549>        [LOSS= 2 ]:[CN= 69.0]
01550>        [Pervious      area: ]Aper= 0.47:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01551>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
01552> # Road and road side ditch along projected residential development Parkway Rd
01553> # Timp = Ximp = 0.21 ha /0.52 ha = 0.40
01554> # CN*=69, as per Stantec see SC901.
01555> # Slope is estimated at 1%
01556> # LOT based on centroid of area due to elongated shape  630m/2 = 315
01557> 005:0007----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01558>      CALIB STANDHYD     01:EX5         .52      .038 No_date    1:06   24.80 .527
01559>        [XIMP=.40:TIMP=.40]
01560>        [LOSS= 2 ]:[CN= 69.0]
01561>        [Pervious      area: ]Aper= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01562>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  300.:MNI=.045:SCI=   .0]
01563> # Road and road side ditch along projected residential development SalesBarn Rd
01564> # Timp = Ximp = 0.1 ha /0.51 ha = 0.20
01565> # CN* 69, as per Stantec see SC901.
01566> # Slope is estimated at 1%
01567> # LOT based on centroid of area due to elongated shape = 254m/2 = 127
01568> 005:0008----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01569>      CALIB STANDHYD     01:EX6         .51      .023 No_date    1:24   17.20 .381
01570>        [XIMP=.20:TIMP=.20]
01571>        [LOSS= 2 ]:[CN= 69.0]
01572>        [Pervious      area: ]Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01573>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
01574> + Road and road side ditch along projected residential development SalesBarn Rd
01575> + Timp = Ximp = 0.08 ha /0.38 ha = 0.21
01576> + CN*=69, as per Stantec see SC001.
01577> + Slope is estimated at 1%
01578> + LOT based on centroid of area due to elongated shape = 475m/2 = 237.5
01579> 005:0009----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01580>      CALIB STANDHYD     01:EX7         .38      .021 No_date    1:22   18.18 .403
01581>        [XIMP=.21:TIMP=.21]
01582>        [LOSS= 2 ]:[CN= 69.0]
01583>        [Pervious      area: ]Aper= 3.67:SLPP 1.00:LGP=  40.:MNP=.250:SCP=   .0]
01584>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
01585> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01586> + PROPOSED COMMERCIAL DEVELOPMENT
01587> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01588> + CN = 79 as per 1a:: grass cover with C soil type for top soil; CN*=71
01589> + XIMP = TIMP to be conservative
01590> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01591> 005:0010----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01592>      DESIGN STANDHYD    01:C1         5.38     1.566 No_date    1:20   32.74 .725
01593>        [XIMP=.63:TIMP=.63]
01594>        [SLP=1.00:DT= 1.00]
01595>        [Loss  2 :CN= 71.0]
01596> 005:0011----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01597>      DESIGN STANDHYD    01:C2         6.38     1.321 No_date    1:20   31.76 .684
01598>        [XIMP=.72:TIMP=.72]
01599>        [SLP=1.00:DT= 1.00]
01600>        [Loss  2 :CN= 71.0]
01601> 005:0012----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01602>      DESIGN STANDHYD    01:C3         .24      .058 No_date    1:20   43.74 .908
01603>        [XIMP=.83:TIMP=.83]
01604>        [SLP= 1.00:DT= 1.00]
01605>        [Loss= 2 :CN= 71.0]
01606> + Ximp = Imp ha/Total area = 0.80/1.10 ha = .73
01607> 005:0013----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01608>      DESIGN STANDHYD    01:EA21       1.10      .092 No_date    1:20   21.47 .474
01609>        [XIMP=.27:TIMP=.27]
01610>        [SLP= 1.00:DT= 1.00]
01611>        [Loss  2 :CN= 71.0]
01612> # Ximp = Imp ha/total area =  0.35/1.07 ha =  .32
01613> 005:0014----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01614>      DESIGN STANDHYD    01:EX22       1.07      .113 No_date    1:20   23.97 .530
01615>        [XIMP=.35:TIMP=.35]
01616>        [SLP=1.00:DT= 1.00]
01617>        [Loss= 2 :CN= 71.0]
01618> # Ximp =  Imp ha/total area = 0.11/0.22ha = .50
01619> 005:0015----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01620>      DESIGN STANDHYD    01:EX23       .22      .033 No_date    1:20   28.65 .634
01621>        [XIMP=.50:TIMP=.50]
01622>        [SLP=1.00:DT= 1.00]
01623>        [Loss= 2 :CN= 71.0]
01624> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01625> # Commercial pond (EX1)
01626> # Slope estimated at 1% based on elevations around pond.
01627> # Timp and Ximp based on total pond area
01628> # ximp = A pond/A tot [1.04/1.57]
01629> 005:0016----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01630>      DESIGN STANDHYD    01:POND       1.57      .391 No_date    1:00   69.90 .951
01631>        [XIMP =.67:TIMP=.67]
01632>        [SLP=1.00:DT= 1.00]
01633>        [Loss= 2 :CN= 71.0]
01634> ##########################################################################
01635> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01636> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
01637> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01638> # CN* 69, as per Stantec see SC001.
01639> # Tp estimated with Bjland Method.
01640> 005:0017----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01641>      DESIGN HASHYD      01:PK1        4.76      .100 No_date    1:31   12.89 .266
01642>        [CN= 69.0: N= 3.00
01643>        [Ip=  .18:DT= 1.00
01644> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01645> # AREAS GOING TO RESIDENTIAL POND (POND)
01646> ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
01647> +
01648> 005:0018----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01649>      CALIB STANDHYD     01:FR1A        .77      .019 No_date    1:20   16.05 .355
01650>        [XIMP=.11:TIMP=.21]
01651>        [LOSS= 2 :CN= 71.0]
01652>        [Pervious      area: ]Aper= 4.67:SLPP 1.00:LGP=  40. :MNP=.250:SCP=   .0]
01653>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  40. :MNI=.045:SCI=   .0]
01654> 005:0019----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
01655>      CALIB STANDHYD     01:FR1B        .55      .019 No_date    1:21   16.05 .355
01656>        [XIMP .11:TIMP .21]
01657>        [LOSS= 2 :CN= 71.0]
01658>        [Pervious      area: ]Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01659>        [Impervious    area: ]Aimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0]
```

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01661>  005:0020-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01662>      CALIB STANDHYD     01:FR2A        1.67     .051 No_date    1:23   16.05 .355
01663>        [XIMP=.11:TIMP=.21]
01664>        [LOSS= 2 :CN= 71.0]
01665>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01666>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0]
01667>  005:0021-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01668>      CALIB STANDHYD     01:FR2B        1.17     .039 No_date    1:22   16.05 .355
01669>        [XIMP=.11:TIMP=.21]
01670>        [LOSS= 2 :CN= 71.0]
01671>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01672>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  80.:MNI=.045:SCI=   .0]
01673>  005:0022-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01674>      CALIB STANDHYD     01:FR3A         .45     .016 No_date    1:21   16.05 .355
01675>        [XIMP=.11:TIMP=.21]
01676>        [LOSS= 2 :CN= 71.0]
01677>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01678>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
01679>  005:0023-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01680>      CALIB STANDHYD     01:FR3B         .52     .018 No_date    1:21   16.05 .355
01681>        [XIMP=.11:TIMP=.21]
01682>        [LOSS= 2 :CN= 71.0]
01683>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01684>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
01685>  005:0024-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01686>      CALIB STANDHYD     01:FR4A         .71     .026 No_date    1:21   16.05 .355
01687>        [XIMP=.11:TIMP=.21]
01688>        [LOSS= 2 :CN= 71.0]
01689>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01690>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  69.:MNI=.045:SCI=   .0]
01691>  005:0025-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01692>      CALIB STANDHYD     01:FR4B         .65     .022 No_date    1:21   16.05 .355
01693>        [XIMP=.11:TIMP=.21]
01694>        [LOSS= 2 :CN= 71.0]
01695>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01696>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
01697>  005:0026-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01698>      CALIB STANDHYD     01:FR5A         .66     .023 No_date    1:21   16.05 .355
01699>        [XIMP=.11:TIMP=.21]
01700>        [LOSS= 2 :CN= 71.0]
01701>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01702>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
01703>  005:0027-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01704>      CALIB STANDHYD     01:FR5B         .46     .016 No_date    1:21   16.05 .355
01705>        [XIMP=.11:TIMP=.21]
01706>        [LOSS= 2 :CN= 71.0]
01707>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01708>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
01709>  005:0028-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01710>      CALIB STANDHYD     01:FR6A        1.41     .041 No_date    1:22   16.05 .355
01711>        [XIMP=.11:TIMP=.21]
01712>        [LOSS= 2 :CN= 71.0]
01713>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01714>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
01715>  005:0029-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01716>      CALIB STANDHYD     01:FR6B         .83     .032 No_date    1:22   16.05 .355
01717>        [XIMP=.11:TIMP=.21]
01718>        [LOSS= 2 :CN= 71.0]
01719>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01720>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0]
01721> # slope estimated at 2% based on backyard swales.
01722> # Timp and Ximp based on total pond area
01723> # Ximp = A pond/A tot
01724> # Timp = weighted average of pond and backyards
01725>  005:0030-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01726>      CALIB STANDHYD     01:PDC         5.03     .468 No_date    1:24   25.47 .500
01727>        [XIMP=.44:TIMP=.47]
01728>        [LOSS= 2 :CN= 71.0]
01729>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01730>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
01731> #*******************************************************************************
01732> # UNCONTROLLED AREAS
01733> #*******************************************************************************
01734> #
01735>  005:0031-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01736>   *  CALIB STANDHYD     01:FR7A        1.35     .035 No_date    1:41   13.38 .296
01737>        [XIMP=.02:TIMP=.14]
01738>        [LOSS= 2 :CN= 71.0]
01739>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01740>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
01741>  005:0032-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01742>   *  CALIB STANDHYD     01:FR7B1        .36     .011 No_date    1:35   13.38 .296
01743>        [XIMP=.02:TIMP=.14]
01744>        [LOSS= 2 :CN= 71.0]
01745>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01746>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
01747>  005:0033-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01748>   *  CALIB STANDHYD     01:FR7B2        .22     .007 No_date    1:35   13.38 .296
01749>        [XIMP=.02:TIMP=.14]
01750>        [LOSS= 2 :CN= 71.0]
01751>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01752>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  38.:MNI=.045:SCI=   .0]
01753>  005:0034-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01754>   *  CALIB STANDHYD     01:FR7C1        .39     .012 No_date    1:39   13.38 .296
01755>        [XIMP=.02:TIMP=.14]
01756>        [LOSS= 2 :CN= 71.0]
01757>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01758>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
01759>  005:0035-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01760>   *  CALIB STANDHYD     01:FR7C2        .17     .005 No_date    1:38   13.38 .296
01761>        [XIMP=.02:TIMP=.14]
01762>        [LOSS= 2 :CN= 71.0]
01763>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01764>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  31.:MNI=.045:SCI=   .0]
01765>  005:0036-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01766>   *  CALIB STANDHYD     01:FR7D         .30     .009 No_date    1:38   13.38 .296
01767>        [XIMP=.02:TIMP=.14]
01768>        [LOSS= 2 :CN= 71.0]
01769>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01770>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
01771>  005:0037-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01772>   *  CALIB STANDHYD     01:FR8         1.38     .036 No_date    1:42   12.34 .273
01773>        [XIMP=.01:TIMP=.07]
01774>        [LOSS= 2 :CN= 71.0]
01775>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01776>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
01777>  005:0038-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01778>   *  CALIB STANDHYD     01:FR8A        1.10     .029 No_date    1:41   12.34 .273
01779>        [XIMP=.01:TIMP=.07]
01780>        [LOSS= 2 :CN= 71.0]
01781>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01782>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=   .0]
01783>  005:0039-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01784>   *  CALIB STANDHYD     01:FR8B1        .25     .007 No_date    1:39   12.34 .273
01785>        [XIMP=.01:TIMP=.07]
01786>        [LOSS= 2 :CN= 71.0]
01787>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01788>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0]
01789>  005:0040-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01790>   *  CALIB STANDHYD     01:FR8B2       1.00     .026 No_date    1:40   12.34 .273
01791>        [XIMP=.01:TIMP=.07]
01792>        [LOSS= 2 :CN= 71.0]
01793>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01794>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
01795>  005:0041-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01796>   *  CALIB STANDHYD     01:FR10        1.37     .048 No_date    1:42   12.34 .273
01797>        [XIMP=.01:TIMP=.07]
01798>        [LOSS= 2 :CN= 71.0]
01799>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01800>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 171.:MNI=.045:SCI=   .0]
01801>  005:0042-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01802>   *  CALIB STANDHYD     01:FR11         .62     .017 No_date    1:40   12.34 .273
01803>        [XIMP=.01:TIMP=.07]
01804>        [LOSS= 2 :CN= 71.0]
01805>        [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
01806>        [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  54.:MNI=.045:SCI=   .0]
01807> #*******************************************************************************
01808> # EXISTING flow - Upstream of Proposed Development
01809> #*******************************************************************************
01810> # Total flow at node N-EX1
01811>  005:0043-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01812>      ADD HYD            02:EX1        24.62    1.056 No_date    1:34   14.86  n/a
01813>                       + 03:EXC1        1.10     .052 No_date    1:20   21.12  n/a
01814>                       + 04:EXC2        1.07     .113 No_date    1:20   21.53  n/a
01815>        [DT= 1.00]  SUM= 01:NEX1       26.79    1.159 No_date    1:34   15.49  n/a
01816> # Typical Section based on proposed channel provided by AEL
01817> # 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
01818> # Route Node N-EX1 to d/s node NO
01819>  005:0044-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01820>      ROUTE CHANNEL    -> 02:NEX1       26.79    1.159 No_date    1:34   15.49  n/a
01821>        [RDT= 1.00] out<- 01:RNEX1      26.79    1.118 No_date    1:36   15.49  n/a
01822>        [L/S/n= 372.7/ .850/.030]
01823>        {Vmax= 1.438:Dmax=  .386}
01824> #*******************************************************************************
01825> # TOTAL INFLOW TO COMMERCIAL POND PDC
01826> #*******************************************************************************
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 0:8275>  005:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8280>      ADD HYD            02:EX4          .50     .017 No_date    1:21   15.44  n/a
 0:8285>                       + 03:01          8.30    1.366 No_date    1:20   32.74  n/a
 0:8290>                       + 04:07          6.54    1.171 No_date    1:20   37.76  n/a
 0:8295>                       + 05:FP2         1.57     .301 No_date    1:20   33.89  n/a
 0:8300>       [PT= 1.00]  SUM=  01:FOCln      16.71    4.005 No_date    1:18   34.24  n/a
 0:8305>  005:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8310>      ROUTE RESERVOIR -> 02:FOCln      16.71    3.606 No_date    1:18   34.24  n/a
 0:8315>       [RDT= 1.00] outc= 01:FOCout     16.71     .228 No_date    2:07   34.24  n/a
 0:8320>             overflow = 03:Over         .00     .000 No_date    0:00    .00  n/a
 0:8325>       [Max Stored=-.3734E+00, TotVolVol=-.0000E+00, R-Vol=     0, TotDurOvf=    0.hrs]
 0:8330> * Total flow at outlet of commercial pond
 0:8335>  005:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8340>      ADD HYD            01:FOCout       16.71     .408 No_date    2:07   34.24  n/a
 0:8345>                       + 02:FP4A         1.14     .029 No_date    1:41   12.24  n/a
 0:8350>       [IT= 1.00]  SUM=  03:InPDs       17.85     .345 No_date    2:06   32.89  n/a
 0:8355> * Route pond outflow at pipe d/s of node N0
 0:8360> * Typical Section based on proposed channel provided by AEL
 0:8365> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
 0:8370>  005:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8375>      ROUTE CHANNEL   -> 02:InPDs       17.85     .342 No_date    2:14   32.89  n/a
 0:8380>       [RDT= 1.00] outc= 03:OutPND      17.85     .342 No_date    2:14   32.89  n/a
 0:8385>       [L/S/n=  160./ .250/ .030]
 0:8390>       [Vmax=  .564:Dmax=  .294]
 0:8395> * Total channel flow at pipe d/s of node N0
 0:8400>  005:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8405>      ADD HYD            02:OutPND       17.85     .342 No_date    2:14   32.89  n/a
 0:8410>                       + 03:FP4S1         .25     .007 No_date    1:36   12.24  n/a
 0:8415>                       + 04:FP4S2        1.00     .026 No_date    1:41   12.24  n/a
 0:8420>       [PT= 1.00]  SUM=  01:OutN0       19.06     .367 No_date    2:05   31.51  n/a
 0:8425> * ************
 0:8430> * Total flow at node N0
 0:8435> * (Note that EX2 will be sheet draining to proposed channel)
 0:8440>  005:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8445>      ADD HYD            02:OutN0        19.06     .362 No_date    2:05   31.84  n/a
 0:8450>                       + 03:RNEX1        26.79    1.118 No_date    1:38   15.49  n/a
 0:8455>                       + 04:EX2          9.89     .173 No_date    2:10   12.08  n/a
 0:8460>                       + 05:C3          1.25     .068 No_date    1:20   41.76  n/a
 0:8465>       [PT= 1.00]  SUM=  01:N0         55.99    1.561 No_date    1:41   20.47  n/a
 0:8470> * Typical Section based on proposed channel provided by AEL
 0:8475> * 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
 0:8480> * Route SW draining at N0 to d/s node N-EX2
 0:8485>  005:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8490>      ROUTE CHANNEL   -> 02:N0         55.99    1.561 No_date    1:41   20.47  n/a
 0:8495>       [RDT= 1.00] outc= 01:RN0        55.99    1.443 No_date    1:41   20.47  n/a
 0:8500>       [L/S/n=  324./ .400/ .030]
 0:8505>       [Vmax=  .946:Dmax=  .515]
 0:8510> * Total flow at node N-EX2
 0:8515>  005:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8520>      ADD HYD            02:RN0          55.99    1.439 No_date    1:41   20.47  n/a
 0:8525>                       + 03:FP1D          .97     .026 No_date    1:42   12.24  n/a
 0:8530>       [PT= 1.00]  SUM=  01:NEX2       57.85    1.465 No_date    1:46   20.21  n/a
 0:8535> * Route Node N-EX2 to Node N1
 0:8540> * Typical Section based on Sheet A6 Vee Ditch 3:1 banks
 0:8545> * provided by Atrel
 0:8550> * Manning's n is Channel not maintained, light brush on banks
 0:8555> * Slope = 0.65% as per plan provided by Atrel.
 0:8560>  005:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8565>      ROUTE CHANNEL   -> 02:NEX2       57.85    1.465 No_date    1:46   20.21  n/a
 0:8570>       [RDT= 1.00] outc= 01:RNEX2      57.85    1.345 No_date    1:53   20.21  n/a
 0:8575>       [L/S/n=  750./ .050/ .035]
 0:8580>       [Vmax=  .95:Dmax= 1.200]
 0:8585> *-------------------------------------------------------------------------
 0:8590> * Residential Development - Phase 1 and 2
 0:8595> *-------------------------------------------------------------------------
 0:8600> * Total flow at node N-EX1
 0:8605>  005:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8610>      ADD HYD            02:EX1          6.36     .178 No_date    1:31   12.30  n/a
 0:8615>                       + 03:FR1A          .14     .009 No_date    1:10   16.05  n/a
 0:8620>       [PT= 1.00]  SUM=  01:NEX1        6.50     .178 No_date    1:31   12.30  n/a
 0:8625> * Volume to ponding area in cf:
 0:8630> * Q=0.035 m3/s required as per SCS 100yr Existing conditions
 0:8635> * Culvert from Inlet 1
 0:8640> * Assuming outlet culvert is 600 mm, slope = 1.0%, HDPE smooth wa is
 0:8645> * Manning's n = 0.012, Inlet control nomograph
 0:8650> * Hydraulic head = 0.9m, Q=0.61m
 0:8655>  005:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8660>      COMPUTE PEAKBYP    01:FR1          4.50     .178 No_date    1:31   12.30  n/a
 0:8665>         Major System /  02:FR1Maj       .00     .000 No_date    0:00    .00  n/a
 0:8670>         Minor System \  03:FR1Min      4.50     .178 No_date    1:31   12.30  n/a
 0:8675>       [Max System=.0000E+00, TotVolVol=-.0000E+00, R-Vol=     0, TotDurOvf=    0.hrs]
 0:8680> * Input to Inlet 1 pipe
 0:8685>  005:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8690>      ADD HYD            02:FR1A         6.50     .178 No_date    1:31   12.30  n/a
 0:8695>                       + 03:FR1B          .00     .000 No_date    0:00    .00  n/a
 0:8700>       [PT= 1.00]  SUM=  01:FR1         6.50     .178 No_date    1:31   12.30  n/a
 0:8705> * Culvert from Inlet 1
 0:8710> * HDPE smooth wall pipe Manning's n = 0.012
 0:8715>  005:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8720>      ROUTE PIPE      -> 02:FR1          6.50     .178 No_date    1:31   12.30  n/a
 0:8725>       [RDT= 1.00] outc= 01:Pip1         6.50     .178 No_date    1:32   12.30  n/a
 0:8730>       [L/S/n=  65./1.000/ .012]
 0:8735>       [Vmax= 2.417:Dmax=  .750]
 0:8740>       [Dia=  .600:Used=  .600]
 0:8745> * Culvert from Inlet 2
 0:8750> * HDPE smooth wall pipe Manning's n = 0.012
 0:8755>  005:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8760>      ROUTE PIPE      -> 02:FR2B         1.57     .051 No_date    1:23   16.05  n/a
 0:8765>       [RDT= 1.00] outc= 01:CIn2         1.57     .051 No_date    1:23   16.05  n/a
 0:8770>       [L/S/n=  15./ .400/ .012]
 0:8775>       [Vmax=  1.019:Dmax=  .150]
 0:8780>       [Dia=  .200:Used=  .300]
 0:8785> * Input to Inlet 2 pipe
 0:8790>  005:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8795>      ADD HYD            02:FR2B         1.57     .039 No_date    1:22   16.05  n/a
 0:8800>                       + 03:CIn2         1.57     .056 No_date    8:08   16.26  n/a
 0:8805>       [PT= 1.00]  SUM=  01:In2         3.70     .089 No_date    1:23   16.17  n/a
 0:8810> * Pipe from Inlet 2 - Route to pond
 0:8815> * HDPE smooth wall pipe Manning's n = 0.012
 0:8820>  005:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8825>      ROUTE PIPE      -> 02:In2          3.70     .089 No_date    1:23   16.17  n/a
 0:8830>       [RDT= 1.00] outc= 01:Pin2         3.70     .089 No_date    1:23   16.17  n/a
 0:8835>       [L/S/n=  75./ .200/ .012]
 0:8840>       [Vmax=  .825:Dmax=  .248]
 0:8845>       [Dia=  .300:Used=  .300]
 0:8850> * Culvert from Inlet 3
 0:8855> * HDPE smooth wall pipe Manning's n = 0.012
 0:8860>  005:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8865>      ROUTE PIPE      -> 02:InA          .45     .016 No_date    1:27   16.05  n/a
 0:8870>       [RDT= 1.00] outc= 01:CIn3         .45     .016 No_date    1:27   16.05  n/a
 0:8875>       [L/S/n=  15./ .400/ .012]
 0:8880>       [Vmax=  .723:Dmax=  .094]
 0:8885>       [Dia=  .300:Used=  .300]
 0:8890> * Input to Inlet 3 pipe
 0:8895>  005:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8900>      ADD HYD            02:InSE          .52     .018 No_date    1:21   16.05  n/a
 0:8905>                       + 03:CIn3          .45     .016 No_date    1:21   16.05  n/a
 0:8910>       [PT= 1.00]  SUM=  01:In3          .97     .034 No_date    1:21   16.05  n/a
 0:8915> * Pipe from Inlet 3 - Route to pond
 0:8920> * HDPE smooth wall pipe Manning's n = 0.012
 0:8925>  005:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8930>      ROUTE PIPE      -> 02:In3          .97     .034 No_date    1:21   16.05  n/a
 0:8935>       [RDT= 1.00] outc= 01:Pin3         .97     .033 No_date    1:22   16.05  n/a
 0:8940>       [L/S/n=  75./ .200/ .012]
 0:8945>       [Vmax=  .728:Dmax=  .116]
 0:8950>       [Dia=  .300:Used=  .300]
 0:8955> * Culvert from Inlet 4
 0:8960> * HDPE smooth wall pipe Manning's n = 0.012
 0:8965>  005:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:8970>      ROUTE PIPE      -> 02:FR4A          .71     .024 No_date    1:21   16.05  n/a
 0:8975>       [RDT= 1.00] outc= 01:CIn4          .71     .024 No_date    1:22   16.05  n/a
 0:8980>       [L/S/n=  13./ .400/ .012]
 0:8985>       [Vmax=  .824:Dmax=  .107]
 0:8990>       [Dia=  .300:Used=  .300]
 0:8995> * Input to Inlet 4 pipe
 0:9000>  005:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9005>      ADD HYD            02:FR4A          .65     .022 No_date    1:21   16.05  n/a
 0:9010>                       + 03:CIn4          .71     .024 No_date    1:22   16.05  n/a
 0:9015>       [PT= 1.00]  SUM=  01:In4         1.36     .047 No_date    1:21   16.05  n/a
 0:9020> * Pipe from Inlet 4 [ULTIMATE CONDITIONS] - Route to pond
 0:9025> * HDPE smooth wall pipe Manning's n = 0.012
 0:9030>  005:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9035>      ROUTE PIPE      -> 02:In4          1.36     .047 No_date    1:21   16.05  n/a
 0:9040>       [RDT= 1.00] outc= 01:Pin4         1.36     .047 No_date    1:22   16.02  n/a
 0:9045>       [L/S/n=  65./1.000/ .012]
 0:9050>       [Vmax= 1.012:Dmax=  .150]
 0:9055>       [Dia=  .150:Used=  .150]
 0:9060> * Culvert from Inlet 5
 0:9065> * HDPE smooth wall pipe Manning's n = 0.012
 0:9070>  005:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9075>      ROUTE PIPE      -> 02:FR5A          .66     .023 No_date    1:21   16.05  n/a
 0:9080>       [RDT= 1.00] outc= 01:CIn5          .66     .023 No_date    1:21   16.05  n/a
 0:9085>       [L/S/n=  17./ .200/ .012]
 0:9090>       [Vmax=  .802:Dmax=  .089]
 0:9095>       [Dia=  .250:Used=  .300]
 0:9100> * Input to Inlet 5 pipe
 0:9105>      ADD HYD            02:FR5A          .66     .019 No_date    1:21   16.05  n/a
 0:9110>                       + 03:RPKiMn       4.50     .178 No_date    1:31   12.30  n/a
 0:9115>       [PT= 1.00]  SUM=  01:In5          5.05     .196 No_date    1:31   12.70  n/a
 0:9120> * Pipe from Inlet 1 - Route to pond
 0:9125> * HDPE smooth wall pipe Manning's n = 0.012
 0:9130>  005:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9135>      ROUTE PIPE      -> 02:In1          5.05     .196 No_date    1:31   12.70  n/a
 0:9140>       [RDT= 1.00] outc= 01:Pin1         5.05     .196 No_date    1:32   12.70  n/a
 0:9145>       [L/S/n=  65./1.000/ .012]
 0:9150>       [Vmax= 2.417:Dmax=  .750]
 0:9155>       [Dia=  .600:Used=  .600]
 0:9160> * Culvert from Inlet 2
 0:9165> * HDPE smooth wall pipe Manning's n = 0.012
 0:9170>  005:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9175>      ROUTE PIPE      -> 02:FR2B         1.57     .051 No_date    1:23   16.05  n/a
 0:9180>       [RDT= 1.00] outc= 01:CIn2         1.57     .051 No_date    1:23   16.05  n/a
 0:9185>       [L/S/n=  15./ .400/ .012]
 0:9190>       [Vmax=  1.019:Dmax=  .150]
 0:9195>       [Dia=  .200:Used=  .300]
 0:9200> * Input to Inlet 2 pipe
 0:9205>  005:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9210>      ADD HYD            02:FR2B         1.57     .039 No_date    1:22   16.05  n/a
 0:9215>                       + 03:CIn2         1.57     .056 No_date    8:08   16.26  n/a
 0:9220>       [PT= 1.00]  SUM=  01:In2         3.70     .089 No_date    1:23   16.17  n/a
 0:9225> * Pipe from Inlet 2 - Route to pond
 0:9230> * HDPE smooth wall pipe Manning's n = 0.012
 0:9235>  005:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9240>      ROUTE PIPE      -> 02:In2          3.70     .089 No_date    1:23   16.17  n/a
 0:9245>       [RDT= 1.00] outc= 01:Pin2         3.70     .089 No_date    1:23   16.17  n/a
 0:9250>       [L/S/n=  75./ .200/ .012]
 0:9255>       [Vmax=  .825:Dmax=  .248]
 0:9260>       [Dia=  .300:Used=  .300]
 0:9265> * Culvert from Inlet 3
 0:9270> * HDPE smooth wall pipe Manning's n = 0.012
 0:9275>  005:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9280>      ROUTE PIPE      -> 02:InA          .45     .016 No_date    1:27   16.05  n/a
 0:9285>       [RDT= 1.00] outc= 01:CIn3         .45     .016 No_date    1:27   16.05  n/a
 0:9290>       [L/S/n=  15./ .400/ .012]
 0:9295>       [Vmax=  .723:Dmax=  .094]
 0:9300>       [Dia=  .300:Used=  .300]
 0:9305> * Input to Inlet 3 pipe
 0:9310>  005:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9315>      ADD HYD            02:InSE          .52     .018 No_date    1:21   16.05  n/a
 0:9320>                       + 03:CIn3          .45     .016 No_date    1:21   16.05  n/a
 0:9325>       [PT= 1.00]  SUM=  01:In3          .97     .034 No_date    1:21   16.05  n/a
 0:9330> * Pipe from Inlet 3 - Route to pond
 0:9335> * HDPE smooth wall pipe Manning's n = 0.012
 0:9340>  005:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9345>      ROUTE PIPE      -> 02:In3          .97     .034 No_date    1:21   16.05  n/a
 0:9350>       [RDT= 1.00] outc= 01:Pin3         .97     .033 No_date    1:22   16.05  n/a
 0:9355>       [L/S/n=  75./ .200/ .012]
 0:9360>       [Vmax=  .728:Dmax=  .116]
 0:9365>       [Dia=  .300:Used=  .300]
 0:9370> * Culvert from Inlet 4
 0:9375> * HDPE smooth wall pipe Manning's n = 0.012
 0:9380>  005:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9385>      ROUTE PIPE      -> 02:FR4A          .71     .024 No_date    1:21   16.05  n/a
 0:9390>       [RDT= 1.00] outc= 01:CIn4          .71     .024 No_date    1:22   16.05  n/a
 0:9395>       [L/S/n=  13./ .400/ .012]
 0:9400>       [Vmax=  .824:Dmax=  .107]
 0:9405>       [Dia=  .300:Used=  .300]
 0:9410> * Input to Inlet 4 pipe
 0:9415>  005:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9420>      ADD HYD            02:FR4A          .65     .022 No_date    1:21   16.05  n/a
 0:9425>                       + 03:CIn4          .71     .024 No_date    1:22   16.05  n/a
 0:9430>       [PT= 1.00]  SUM=  01:In4         1.36     .047 No_date    1:21   16.05  n/a
 0:9435> * Pipe from Inlet 4 [ULTIMATE CONDITIONS] - Route to pond
 0:9440> * HDPE smooth wall pipe Manning's n = 0.012
 0:9445>  005:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9450>      ROUTE PIPE      -> 02:In4          1.36     .047 No_date    1:21   16.05  n/a
 0:9455>       [RDT= 1.00] outc= 01:Pin4         1.36     .047 No_date    1:22   16.02  n/a
 0:9460>       [L/S/n=  65./1.000/ .012]
 0:9465>       [Vmax= 1.012:Dmax=  .150]
 0:9470>       [Dia=  .150:Used=  .150]
 0:9475> * Culvert from Inlet 5
 0:9480> * HDPE smooth wall pipe Manning's n = 0.012
 0:9485>  005:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 0:9490>      ROUTE PIPE      -> 02:FR5A          .66     .023 No_date    1:21   16.05  n/a
 0:9495>       [RDT= 1.00] outc= 01:CIn5          .66     .023 No_date    1:21   16.05  n/a
 0:9500>       [L/S/n=  17./ .200/ .012]
 0:9505>       [Vmax=  .802:Dmax=  .089]
 0:9510>       [Dia=  .250:Used=  .300]
 0:9515> * Input to Inlet 5 pipe
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018993>  005:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
018994>       ADD HYD            02:PR3B         .46      .316 No_date    1:21   16.05  n/a
018995>                        + 03:C1n5         .56      .021 No_date    1:21   16.05  n/a
018996>       [IT= 1.00]  SUM=  01:Inc          1.02      .019 No_date    1:21   16.05  n/a
018997> F Pipe from Inlet 5 - Route to pond
018998> F HDPE smooth wall pipe Manning's n = 0.012
018999>  005:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019000>       ROUTE PIPE       => 02:Pn5         1.02      .019 No_date    1:21   16.05  n/a
019001>         [RDT= 1.00] out<- 01:Pin5         1.02      .019 No_date    1:22   16.05  n/a
019002>         [I/S/n=   75./1.000/.012]
019003>         [Vmax= 1.52:Tmax=  .002]
019004>         [Din=  .500:Dused=  .500]
019005> # Culvert from Inlet 6
019006> # HDPE smooth wall pipe Manning's n = 0.012
019007>  005:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019008>       ROUTE PIPE       => 02:PR6A        1.43      .047 No_date    1:22   16.00  n/a
019009>         [RDT= 1.00] out<- 01:C1n6         1.43      .047 No_date    1:23   16.00  n/a
019010>         [I/S/n=   75./1.000/.012]
019011>         [Vmax= .975:Tmax=  .143]
019012>         [Din=  .500:Dused=  .500]
019013> # Input to Inlet 8 pipe
019014>  005:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019015>       ADD HYD            02:PR6B          .97      .632 No_date    1:22   16.00  n/a
019016>                        + 03:C1n6         1.43      .047 No_date    1:23   16.00  n/a
019017>       [VT= 1.00]  SUM=  01:Inn          2.46      .618 No_date    1:22   16.00  n/a
019018> # Pipe from Inlet 8 - Route to pond
019019> # HDPE smooth wall pipe Manning's n = 0.012
019020>  005:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019021>       ROUTE PIPE       => 02:Tn8         2.56      .678 No_date    1:22   16.00  n/a
019022>         [RDT= 1.00] out<- 01:Pin8         2.56      .677 No_date    1:23   16.00  n/a
019023>         [I/S/n=   75./1.000/.012]
019024>         [Vmax= 1.087:Tmax=  .720]
019025>         [Din=  .500:Dused=  .500]
019026> * VOLUMES TO POND ULTIMATE RESIDENTIAL
019027>  005:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019028>       ADD HYD            01:P1n1          5.05      .95 No_date     1:17   17.29  n/a
019029>                        + 02:P1n2          2.74      .483 No_date    1:24   16.21  n/a
019030>                        + 04:C1n3          .97      .038 No_date    1:22   16.05  n/a
019031>                        + 05:C1n4         1.36      .047 No_date    1:22   16.05  n/a
019032>                        + 06:C1n5         1.12      .039 No_date    1:22   16.05  n/a
019033>                        + 07:C1n6         2.56      .077 No_date    1:23   16.05  n/a
019034>                        + 08:P3u          5.03      .166 No_date    1:24   22.87  n/a
019035>       [VT= 1.00]  SUM=  01:POND1r      18.63      .505 No_date    1:24   17.85  n/a
019036> *  Pond outflow for all rate conditions using weir .6; .6; 4.8
019037>  005:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019038>       ROUTE RESERVOIR  => 02:tcPOND      18.63      .505 No_date    1:24   17.85  n/a
019039>         [RDT= 1.00] out<- 01:POUT        18.63      .053 No_date    4:12   17.85  n/a
019040>                 overflow <- 03:ovrQ        .00      .000 No_date    0:00    .00  n/a
019041>         [MaxStOvd= .240:Rs+n=, TotOutVol=.808:R+n=, M-Out=    0, TotTrigOut=     0 hrs]
019042> * Simulating 500 100 yr conditions with submergence at overflow weir
019043> * updated for weir .6; .6; 4.8
019044> *ROUTE RESERVOIR    NHYDout=["POUT"] ,NHYDin=["POND1r"] ,
019045> *                   RUC-[1](min),
019046> *                        TABLE of | OUTFLOW-STORAGE | values
019047> *                                 (cms) - (ha-m)
019048> *                                |   0.0  ,  0.0 |
019049> *                                 0.03061 , 1.2909
019050> *                                 0.790   , 1.5810
019051> *                                 0.830   , 3.0165
019052> *                                |   1    ,   1  |   (max twenty pts)
019053> *                        NHYDovf=["ovrQ"] ,
019054> * Route pond output through first set of pipes
019055> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (.780 mm dia)
019056> * HDPE smooth wall pipe Manning's n = 0.012
019057>  005:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019058>       ROUTE PIPE       => 03:POut        18.63      .053 No_date    4:12   17.85  n/a
019059>         ROT= 1.00] out<- 01:Pout1       18.63      .053 No_date    4:13   17.85  n/a
019060>         [I/S/n=   75./1.000/.012]
019061>         [Vmax= .768:Tmax=  .157]
019062>         [Din=  .780:Dused=  .780]
019063> * Flow u/s of outlet culverts
019064>  005:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019065>       ADD HYD            03:PR7B          .16      .011 No_date    1:19   15.38  n/a
019066>                        + 05:PR7B2         .22      .007 No_date    1:18   15.38  n/a
019067>                        + 04:Pout1       18.63      .053 No_date    4:13   17.85  n/a
019068>       [VT= 1.00]  SUM=  01:Pout         19.21      .055 No_date    4:04   17.71  n/a
019069> * Route outflow through set of culverts
019070> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
019071> * HDPE smooth wall pipe Manning's n = 0.012
019072>  005:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
019073>       ROUTE PIPE       => 02:Pout        19.21      .055 No_date    4:04   17.71  n/a
019074>         [RDT= 1.00] out<- 01:Cout        19.21      .055 No_date    4:05   17.71  n/a
019075>         [I/S/n=   13./ .600/.012]
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020760>       [Vmax= .987:Tmax=  .134]
020777>       [Din=  .780:Dused=  .780]
020778> * Flow u/s of second set of outflow pipes
020779>  005:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
020780>       ADD HYD            02:PR7C1         .59      .012 No_date    1:19   15.38  n/a
020781>                        + 03:PR7C2         .17      .005 No_date    1:18   15.38  n/a
020782>                        + 04:Pout          19.21      .055 No_date    4:05   17.71  n/a
020783>       [IT= 1.00]  SUM=  01:PoutL2        19.77      .063 No_date    1:49   17.56  n/a
020784> * Route outflow through second set of pipes
020785> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
020786> * HDPE smooth wall pipe Manning's n = 0.012
020787>  005:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
020788>       ROUTE PIPE       => 02:PoutL2       19.77      .063 No_date    1:49   17.56  n/a
020789>         [RDT= 1.00] out<- 01:PoutF       19.77      .063 No_date    1:50   17.56  n/a
020790>         [I/S/n=   65./1.000/.012]
020791>         [Vmax= .910:Tmax=  .170]
020792>         [Din=  .780:Dused=  .780]
020793> * Total flow at node N1 (shield MD alone Sales Barn MD)
020794>  005:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
020795>       ADD HYD            02:PNEX2         57.80     1.240 No_date    1:53   20.21  n/a
020796>                        + 03:PontF         19.77      .063 No_date    1:50   17.56  n/a
020797>                        + 04:OK1            .39      .021 No_date    1:22   18.15  n/a
020798>                        + 05:PR5E           .30      .009 No_date    1:38   13.38  n/a
020799>                        + 06:PR14           .62      .017 No_date    1:48   12.34  n/a
021000>       [IT= 1.00]  SUM=  01:N1           78.93     1.339 No_date    1:53   19.45  n/a
021001> # ROUTE N1 to N3
021002> # Typical Section based on Shields MD Vee Ditch 3:1 banks
021003> # provided by Atkel
021004> # Manning's n is Channel not maintained, light brush on banks
021005> # Slope   0.005 as per plan provided by Atkel.
021006>  005:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021007>       ROUTE CHANNEL    => 02:N1          78.93     1.339 No_date    1:54   19.45  n/a
021008>         [RDT= 1.00] out<- 01:RN1         78.93     1.079 No_date    2:06   19.45  n/a
021009>         [I/S/n=  349./ .050/.035]
021010>         [Vmax=  .346:Tmax= 1.154]
021011> * VOLUME from residential area at N3 Interim
021012>  005:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021013>       ADD HYD            03:PR9A          1.39      .036 No_date    1:41   13.38  n/a
021014>                        + 05:PR8           1.38      .036 No_date    1:42   12.34  n/a
021015>         [VT= 1.00]  SUM=  01:N31           2.77      .074 No_date    1:42   12.86  n/a
021016> * Added VOLUME from external area contributing to N3
021017>  005:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021018>       ADD HYD            02:RN1           78.93     1.079 No_date    2:06   19.45  n/a
021019>                        + 03:N31           2.77      .074 No_date    1:42   12.86  n/a
021020>                        + 04:EX5           .52      .038 No_date    1:26   23.80  n/a
021021>                        + 05:EX4           .53      .027 No_date    1:24   17.20  n/a
021022>                        + 06:EXC4          .27      .013 No_date    1:20   20.65  n/a
021023>       [VT= 1.00]  SUM=  01:N3           82.91     1.161 No_date    2:01   19.28  n/a
021024> * ROUTE N3 to N128
021025> * Typical Section based on Shields MD Vee Ditch 3:1 banks
021026> * provided by Atkel
021027> * Manning's n is Channel not maintained, light brush on banks
021028> * Slope = 0.005 as per plan provided by Atkel.
021029>  005:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021030>       ROUTE CHANNEL    => 02:N3          82.91     1.161 No_date    2:01   19.28  n/a
021031>         [RDT= 1.00] out<- 01:RN3         82.91      .961 No_date    2:31   19.28  n/a
021032>         [I/S/n=  815./ .050/.035]
021033>         [Vmax= .835:Tmax= 1.089]
021034> * Flow at Stanley node ECR-29 for comparison
021035> * Routed to plus EX:
021036>  005:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021037>       ADD HYD            02:RN3           82.91      .964 No_date    2:31   19.28  n/a
021038>                        + 03:EX3           21.30      .318 No_date    2:22   12.08  n/a
021039>       [VT= 1.00]  SUM=  01:NCR128       104.21     1.282 No_date    2:21   17.81  n/a
021040> * AREA CHECK
021041> *
021042>  005:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021043>       ADD HYD            02:EX1           24.82     1.076 No_date    1:44   14.66  n/a
021044>                        + 03:EX2           9.89      .172 No_date    2:10   15.68  n/a
021045>                        + 04:EX3           21.30      .318 No_date    2:22   12.08  n/a
021046>                        + 05:EX5            .50      .017 No_date    1:21   13.44  n/a
021047>                        + 06:EX6            .52      .018 No_date    1:26   23.80  n/a
021048>                        + 07:EX6            .51      .015 No_date    1:24   17.20  n/a
021049>                        + 08:EX7            .39      .021 No_date    1:20   20.65  n/a
021050>                        + 09:PR1A           .24      .009 No_date    1:20   16.05  n/a
021051>                        + 10:PR1B           .55      .019 No_date    1:21   16.05  n/a
021052>       [DT= 1.00]  SUM=  01:Tot1         58.52     1.377 No_date    1:37   13.02  n/a
021053>  005:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
021054>       ADD HYD            02:Tot1          58.52     1.377 No_date    1:37   13.02  n/a
021055>                        + 03:PR2A          1.67      .051 No_date    1:23   16.05  n/a
021056>                        + 04:PR2B          1.17      .039 No_date    1:22   16.05  n/a
021057>                        + 05:PR3A           .65      .016 No_date    1:21   16.05  n/a
021058>                        + 06:PR3B           .52      .018 No_date    1:21   16.05  n/a
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02159>                    -  03:ER9A        .61      .026 No date     1:21   16.8?  n/a
02160>                    -  04:ER8B        .65      .032 No date     1:21   16.8?  n/a
02161>                    -  05:ER8A        .86      .023 No date     1:21   16.8?  n/a
02162>                    -  10:ER5E        .46      .016 No_date     1:21   16.8?  n/a
02163>       [D/= 1.00]  SUM=  01:Tot2      64.71    1.571 No_date     1:37   13.7?  n/a
02164> 005:0088----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02165>      ADD HYD           02:Tot2       64.71    1.571 No_date     1:37   13.7?  n/a
02166>                    -  03:ER6A        1.41      .047 No_date     1:22   14.0?  n/a
02167>                    -  04:ER6B        .93       .032 No_date     1:22   14.0?  n/a
02168>                    -  05:ER7A        1.95      .059 No_date     1:41   13.3?  n/a
02169>                    -  06:ER7B1       .96       .011 No_date     1:19   12.3?  n/a
02170>                    -  07:ER7B2       .22       .007 No_date     1:18   12.3?  n/a
02171>                    -  08:ER7C1       .69       .012 No_date     1:19   12.3?  n/a
02172>                    -  09:ER7C2       .37       .005 No_date     1:18   12.3?  n/a
02173>                    -  10:ER7D        .30       .008 No_date     1:18   12.3?  n/a
02174>       [D/= 1.00]  SUM=  01:Tot3      69.66    1.726 No_date     1:30   13.0?  n/a
02175> 005:0089----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02176>      ADD HYD           02:Tot3       69.66    1.726 No_date     1:30   13.0?  n/a
02177>                    -  03:ER8         1.38      .036 No_date     1:42   12.3?  n/a
02178>                    -  04:ER9A        1.16      .029 No_date     1:41   12.3?  n/a
02179>                    -  05:ER9B1       .28       .007 No_date     1:19   12.3?  n/a
02180>                    -  06:ER9B2       1.30      .026 No_date     1:41   12.3?  n/a
02181>                    -  07:ER1C        1.87      .048 No_date     1:42   12.3?  n/a
02182>                    -  08:ER11        .82       .017 No_date     1:46   12.3?  n/a
02183>                    -  09:ER1         4.26      .170 No_date     1:11   12.0?  n/a
02184>                    -  10:ER3D        5.03      .466 No_date     1:24   25.8?  n/a
02185>       [D/= 1.00]  SUM=  01:Tot4      95.37    2.314 No_date     1:35   14.3?  n/a
02186> 005:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02187>      ADD HYD           02:Tot4       95.37    2.314 No_date     1:35   14.3?  n/a
02188>                    -  03:C1          8.30      1.366 No_date     1:20   32.7?  n/a
02189>                    -  04:C2          6.34      1.321 No_date     1:20   37.7?  n/a
02190>                    -  05:C3          .24       .068 No_date     1:20   33.7?  n/a
02191>                    -  06:EXC1        1.10      .032 No_date     1:20   27.4?  n/a
02192>                    -  07:EXC2        1.07      .113 No_date     1:20   24.9?  n/a
02193>                    -  08:EXC3        .22       .033 No_date     1:20   28.6?  n/a
02194>                    -  09:E3C         1.57      .301 No_date     1:20   33.5?  n/a
02195>       [D/= 1.00]  SUM=  01:Tot5      104.97   4.705 No_date     1:21   17.8?  n/a
02196> *****************************************************************************
02197> * Simulations with 4 hour Chicago from City of Ottawa
02198> * ** END OF RUN :  9
02199>
02200> *****************************************************************************
02201>
02202>
02203>
02204>
02205>
02206> RUN:COMMAND#
02207> 010:0001----------------------------------------------------------------------
02208>      START
02209>       [TZERO =    .00 hrs on      0]
02210>       [METOUT=   2    (1-Imperial, 2-metric output)]
02211>       [NSTORM=   1 ]
02212>       [NRUN  =  10 ]
02213> *****************************************************************************
02214> *  SWMHYMO Version 3.0 /Jan 2008  <CETTAS / INPUT NAME FILE
02215> *****************************************************************************
02216> *  Project Name: [Greely Village Centre]     Project Number: [647-97]
02217> *  Date        : 04-03-2008
02218> *  Modeller    : [JMF]
02219> *  Company     : JFSAinc.
02220> *  License #   : 2541402
02221> *****************************************************************************
02222> *
02223> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
02224> * Proposed Ultimate Conditions, OPTION B
02225> * Filename Stamps for: Greely, Commercial, Proposed
02226> *****************************************************************************
02227> 010:0002----------------------------------------------------------------------
02228>      READ STORM
02229>       Filename  = storm.001
02230>       Comment   = 10 years Chicago Storm 4 Hours Step 10 min, City of Ottawa
02231>       [STORM=10.00:STORM=  0.00:PTOT=  57.0%]
02232> *****************************************************************************
02233> * Existing flow - McEvoy Branch of Shirley Creek - Areas
02234> * Area s/s of proposed development (residential)
02235> * CN*-75, slope = 0.5, Tp-0.10, XIMP 5, TIMP 15, see SC002 as per Stantec
02236> * Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
02237> *****************************************************************************
02238> * s/s of Bank St.as per Atrel - with modified boundaries and Tc.
02239> 010:0003----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02240>      DESIGN RAINHYD    01:Ex1        21.62    1.016 No_date     1:36   19.2?  .367
02241>       [CN  75.0] B=  5.00]
02242>       Tp=  .23:DT= 1.00]
02243> *****************************************************************************
02244> # Existing flow - External areas s/s of Bank St.
02245> # CN*=80, as per Stantec see SC001.
02246> # Area partially adjusted based on Atrel drawings.
02247> #*****************************************************************************
02248> # Areas External to Development
02249> 010:0004----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02250>      DESIGN RAINHYD    01:EX2        9.89     .227 No_date     1:09   15.7?  .380
02251>       [CN  69.0  B=  3.00]
02252>       [Tp=  .67:DT= 1.00]
02253> 010:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02254>      DESIGN RAINHYD    01:EX3        21.30    .420 No_date     2:22   15.7?  .380
02255>       [CN  69.0  B=  3.00]
02256>       [Tp=  .83:DT= 1.00]
02257> # Slope, Tlag, Area from Atrel Drawing
02258> # CN from Stantec (SC001)
02259> # Ximp = Timp = 10%
02260> 010:0006----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02261>      CALIB STANDHYD    01:EX4         .50      .022 No_date     1:02   19.6?  .574
02262>       [XIMP= 11 TIMP= 22]
02263>       [LOSS= 2 :CN= 69.0]
02264>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02265>       [Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI=  98.:NMI=.045:SCI=   .0]
02266> # Road and road side ditch along projected residential development Parkway Rd
02267> # Timp = Ximp = 0.71 ha /0.57 ha = 0.46
02268> # CN*=69, as per Stantec see SC001.
02269> # Slope is estimated at 1%
02270> # IGT based on centroid of area dcc to elongated shape = 500m/2 = 250
02271> 010:0007----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02272>      CALIB STANDHYD    01:EX5         .52      .047 No_date     1:26   28.8?  .553
02273>       [XIMP=.46:TIMP=.46]
02274>       [LOSS= 2 :CN= 69.0]
02275>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02276>       [Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI=  300.:NMI=.045:SCI=   .0]
02277> # Road and road side ditch along projected residential development Sallie Burn Rd
02278> # Timp = Ximp = 0.1 ha /0.81 ha = 0.12
02279> # CN* 69, as per Stantec see SC001.
02280> # Slope is estimated at 1%
02281> # IGT based on centroid of area dcc to elongated shape = 354m/2 = 177
02282> 010:0008----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02283>      CALIB STANDHYD    01:EX6         .51      .029 No_date     1:24   21.5?  .489
02284>       [XIMP=.20:TIMP=.20]
02285>       [LOSS= 2 :CN= 69.0]
02286>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02287>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI= 177.:NMI=.045:SCI=   .0]
02288> # Road and road side ditch along projected residential development Sallie Burn Rd
02289> # Timp = Ximp = 0.05 ha /0.39 ha = 0.13
02290> # CN*=69, as per Stantec see SC001.
02291> # Slope is estimated at 1%
02292> # IGT based on centroid of area dcc to elongated shape = 275m/2 = 137.5
02293> 010:0009----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02294>      CALIB STANDHYD    01:EX7         .19      .026 No_date     1:23   22.6?  .431
02295>       [XIMP=.23:TIMP=.23]
02296>       [LOSS= 2 :CN= 69.0]
02297>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02298>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI= 137.:NMI=.045:SCI=   .0]
02299> #*****************************************************************************
02300> # PROPOSED COMMERCIAL DEVELOPMENT
02301> #*****************************************************************************
02302> # CN - 79 as per fair grass cover with C soil type (or Imp and ) CN*=77
02303> # XIMP = TIMP to be conservative
02304> #*****************************************************************************
02305> 010:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02306>      DESIGN STANDHYD    01:C1          0.30     1.63% No_date     1:20   36.8%  .739
02307>       [XIMP=.65:TIMP=.65]
02308>       [SLP=1.00:DT= 1.00]
02309>       [LOSS= 2 :CN= 71.0]
02310> 010:0011----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02311>      DESIGN STANDHYD    01:C2          6.34     1.573 No_date     1:20   44.4?  .849
02312>       [XIMP=.79:TIMP=.79]
02313>       [SLP=1.00:DT= 1.00]
02314>       [LOSS= 2 :CN= 71.0]
02315> 010:0012----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02316>      DESIGN STANDHYD    01:C3          .24      .058 No_date     1:20   41.0?  .787
02317>       [XIMP=.95:TIMP=.95]
02318>       [SLP 1.00:DT= 1.00]
02319>       [LOSS= 2 :CN= 71.0]
02320> * Ximp = Imp ha/total area = 0.30/1.10 ha = .27
02321> 010:0013----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02322>      DESIGN STANDHYD    01:EXC1        1.10     .1?? No_date     1:20   76.2?  1.000
02323>       [XIMP .27:TIMP=.27]
02324>       [SLP=1.00:DT= 1.00]
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02325>       [Loss= 2 :CN= 71.0]
02326> * Imp  Imp ha/total area   0.35/1.07 ha =  .35
02327> 010:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02328>      DESIGN STANDHYD     01:EXC3        .22     .039 No date    1:08   84.90 .883
02329>       [XIMP=.50:TIMP=.50]
02330>       [SLP=1.00:DC=  1.00]
02331>       [LOSS= 2 :CN= 71.0]
02332> *--------------------------------------------------------------------------
02333> * Commercial pond (PEC)
02334> * slope estimated at 1% based on elevations around pond.
02335> * Timp and Ximp based on total pond area
02336> * ximp = A pond/A tot (1.00/1.57)
02337> 010:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02338>      DESIGN STANDHYD     01:POC         1.57     .359 No date    1:10   40.23 .766
02339>       [XIMP=.67:TIMP=.67]
02340>       [SLP=1.00:DC=  1.00]
02341>       [LOSS= 2 :CN= 71.0]
02342> ##########################################################################
02343> *--------------------------------------------------------------------------
02344> * PROPOSED RESIDENTIAL SUBWATERSHEDS = Residential Area Phase 1 and 2
02345> *--------------------------------------------------------------------------
02346> # CN*=80, As per Stanley see SCS01.
02347> # Tp estimated with Upland Method.
02348> 010:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02349>      DESIGN HASHYD       01:PR1         0.36     .226 No date    1:11   25.78 .380
02350>       [CN= 69.0:N= 3.00]
02351>       [Ia=  .18:DT= 1.00]
02352> *--------------------------------------------------------------------------
02353> * AREAS GOING TO RESIDENTIAL POND (POND)
02354> *--------------------------------------------------------------------------
02355> #
02356> 010:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02357>      CALIB STANDHYD      01:PR1A        .70     .451 No date    1:21   20.60 .388
02358>       [X_IA=.11:Y_IA=.21]
02359>       [LOSS= 2 :CN= 71.0]
02360>       [Pervious     area: IAper=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02361>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02362> 010:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02363>      CALIB STANDHYD      01:PR1B        .66     .425 No date    1:21   20.05 .389
02364>       [XIMP=.11:TIMP=.21]
02365>       [LOSS= 2 :CN= 71.0]
02366>       [Pervious     area: IAper=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02367>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02368> 010:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02369>      CALIB STANDHYD      01:PR1C        .57     .372 No date    1:14   20.40 .389
02370>       [X_IA=.11:TIMP=.21]
02371>       [LOSS= 2 :CN= 71.0]
02372>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02373>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02374> 010:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02375>      CALIB STANDHYD      01:PR2B        .17     .061 No date    1:14   20.45 .389
02376>       [XIMP=.11:TIMP=.21]
02377>       [LOSS= 2 :CN= 71.0]
02378>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02379>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02380> 010:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02381>      CALIB STANDHYD      01:PR3A        .46     .320 No date    1:21   20.75 .389
02382>       [XIMP=.11:TIMP=.21]
02383>       [LOSS= 2 :CN= 71.0]
02384>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02385>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02386> 010:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02387>      CALIB STANDHYD      01:PR3B        .50     .324 No date    1:21   20.45 .389
02388>       [XIMP=.11:TIMP=.21]
02389>       [LOSS= 2 :CN= 71.0]
02390>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02391>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02392> 010:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02393>      CALIB STANDHYD      01:PR4A        .71     .463 No date    1:21   20.45 .389
02394>       [XIMP=.11:TIMP=.21]
02395>       [LOSS= 2 :CN= 71.0]
02396>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02397>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02398> 010:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02399>      CALIB STANDHYD      01:PR4B        .65     .420 No date    1:21   20.45 .389
02400>       [XIMP=.11:TIMP=.21]
02401>       [LOSS= 2 :CN= 71.0]
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02608>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02609>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02610> 010:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02611>      CALIB STANDHYD      01:PR2A        .66     .431 No date    1:15   20.45 .389
02612>       [XIMP=.11:TIMP=.21]
02613>       [LOSS= 2 :CN= 71.0]
02614>       [Pervious     area: IAper=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02615>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02616> 010:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02617>      CALIB STANDHYD      01:PR3B        .46     .021 No date    1:21   20.45 .389
02618>       [X_IA=.11:Y_IA=.21]
02619>       [LOSS= 2 :CN= 71.0]
02620>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02621>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
02622> 010:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02623>      CALIB STANDHYD      01:PR4A        1.42     .085 No date    1:14   20.45 .389
02624>       [X_IA=.11:Y_IA=.21]
02625>       [LOSS= 2 :CN= 71.0]
02626>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02627>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
02628> 010:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02629>      CALIB STANDHYD      01:PR4B        .93     .042 No date    1:15   20.45 .389
02630>       [X_IA=.11:Y_IA=.21]
02631>       [LOSS= 2 :CN= 71.0]
02632>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02633>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0]
02634> * slope estimated at 2% based on backyard swales.
02635> * Timp and Ximp based on total pond area
02636> * ximp = A pond/A tot
02637> * Timp = weighted average of pond and backyards
02638> 010:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02639>      CALIB STANDHYD      01:POC         5.03     .574 No date    1:15   11.50 .596
02640>       [XIMP=.66:TIMP=.83]
02641>       [LOSS= 2 :CN= 71.0]
02642>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02643>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
02644> ##########################################################################
02645> * UNCONTROLLED AREAS
02646> *--------------------------------------------------------------------------
02647> #
02648> 010:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02649>  * CALIB STANDHYD      01:PR7A        1.35     .857 No date    1:18   17.52 .388
02650>       [XIMP=.02:TIMP=.14]
02651>       [LOSS= 2 :CN= 71.0]
02652>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02653>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
02654> 010:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02655>  * CALIB STANDHYD      01:PR7A1       .58     .026 No date    1:36   17.52 .388
02656>       [XIMP=.02:TIMP=.14]
02657>       [LOSS= 2 :CN= 71.0]
02658>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02659>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
02660> 010:0033----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02661>  * CALIB STANDHYD      01:PR7B2       .22     .010 No date    1:15   17.67 .393
02662>       [XIMP=.02:TIMP=.14]
02663>       [LOSS= 2 :CN= 71.0]
02664>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02665>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
02666> 010:0034----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02667>  * CALIB STANDHYD      01:PR7C1       .39     .017 No date    1:15   17.67 .393
02668>       [XIMP=.02:TIMP=.14]
02669>       [LOSS= 2 :CN= 71.0]
02670>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02671>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  91.:MNI=.045:SCI=   .0]
02672> 010:0035----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02673>  * CALIB STANDHYD      01:PR7C2       .17     .008 No date    1:15   17.67 .393
02674>       [XIMP=.02:TIMP=.14]
02675>       [LOSS= 2 :CN= 71.0]
02676>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02677>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  94.:MNI=.045:SCI=   .0]
02678> 010:0036----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02679>  * CALIB STANDHYD      01:PR7D        .50     .023 No date    1:36   17.52 .388
02680>       [XIMP=.02:TIMP=.14]
02681>       [LOSS= 2 :CN= 71.0]
02682>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02683>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
02684> 010:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02685>  * CALIB STANDHYD      01:PR8         1.38     .052 No date    1:39   18.28 .410
02686>       [XIMP=.01:TIMP=.01]
02687>       [LOSS= 2 :CN= 71.0]
02688>       [Pervious     area: IAper= 6.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02689>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
02690> 010:0038----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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02481>   *  CALIB STANDHYD     01 FRNA       1.10      .012 No_date    1:38   16.29  .310
02482>       [XIMP .01:TIMP  .07]
02483>       [LOSS  2 :CN=  71.0]
02484>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02485>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02486> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02487>   *  CALIB STANDHYD     01:FRNA       1.10      .012 No_date    1:38   16.29  .310
02488>       [XIMP .01:TIMP  .07]
02489>       [LOSS  2 :CN=  71.0]
02490>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02491>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02492> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02493>   *  CALIB STANDHYD     01:FRNA       1.10      .030 No_date    1:38   16.29  .310
02494>       [XIMP .01:TIMP  .07]
02495>       [LOSS  2 :CN=  71.0]
02496>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02497>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02498> 010:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02499>   *  CALIB STANDHYD     01:FR1        1.80      .070 No_date    1:36   16.28  .310
02500>       [XIMP .01:TIMP  .07]
02501>       [LOSS  2 :CN=  71.0]
02502>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02503>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02504> 010:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02505>   *  CALIB STANDHYD     01:FR1        .62       .024 No_date    1:34   16.28  .310
02506>       [XIMP .01:TIMP  .07]
02507>       [LOSS  2 :CN=  71.0]
02508>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02509>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02510> 010:0043----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02511>   *  CALIB STANDHYD     01:FR1        .62       .024 No_date    1:34   16.28  .310
02512>       [XIMP .01:TIMP  .07]
02513>       [LOSS  2 :CN=  71.0]
02514>       [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02515>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02516> ********************************************************************************
02517> * EXISTING flow - Upstream of Proposed Development
02518> ********************************************************************************
02519> * Total flow at node N-EX1
02520> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02521>     ADD HYD            02:EX1       24.62     1.416 No_date    1:34   19.21  n/a
02522>                      + 03:EXC1       1.13      .111 No_date    1:20   26.27  n/a
02523>                      + 04:EXC2       1.07      .139 No_date    1:20   29.06  n/a
02524>       [T= 1.00]  SUM= 01:NEX1      26.79     1.525 No_date    1:34   19.89  c/s
02525> * Typical Section based on proposed channel provided by ASL
02526> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
02527> * Route Node N-EX1 to d/s node N0
02528> 010:0044----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02529>     ROUTE CHANNEL    -> 02:NEX1      26.79     1.525 No_date    1:34   19.89  c/s
02530>       [RJT= 1.00] outx= 01:RNEX1     26.79     1.477 No_date    1:38   19.85  c/s
02531>       [L/S/n=  312./ .250/.030]
02532>       [Vmax= 1.256:Dmax=  .579]
02533> ********************************************************************************
02534> * TOTAL INFLOW TO COMMERCIAL POND PDC
02535> ********************************************************************************
02536> 010:0045----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02537>     ADD HYD            02:EX4        .50      .022 No_date    1:22   18.69  n/a
02538>                      + 03:C1         8.30     1.635 No_date    1:20   30.84  n/a
02539>                      + 04:C2         6.73     1.595 No_date    1:20   33.02  n/a
02540>                      + 05:FDc        1.57      .359 No_date    1:20   48.71  n/a
02541>       [T= 1.00]  SUM= 01:PDCin      16.11     4.558 No_date    1:20   48.51  n/a
02542> 010:0046----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02543>     ROUTE RESERVOIR -> 02:PdCin     16.71     3.098 No_date    1:20   48.51  n/a
02544>       [RTI= 1.00] outx= 01:EOCout    16.71      .419 No_date    2:01   48.51  n/a
02545>            overflow <- 03:OvEO        .00      .000 No_date    0:00    .00  n/a
02546>       (MaxStage=.73;HD=0, TorOverVo =.000:Stor=     0, TotDur-Ovf=     0.hrs)
02547> * Total flow at outlet of commercial pond
02548> 010:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02549>     ADD HYD            01:PdCout     16.71      .469 No_date    2:01   48.51  n/a
02550>                      + 02:FDA        1.16      .042 No_date    1:26   16.36  n/a
02551>       [VT= 1.00]  SUM= 01:sPDc       17.87      .479 No_date    1:57   39.02  n/a
02552> * Route peak outflow at pipe d/s of node N0
02553> * Typical Section based on proposed channel provided by AEL
02554> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
02555> 010:0048----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02556>     ROUTE CHANNEL    -> 02:sPDc      17.87      .479 No_date    1:57   39.02  n/a
02557>       [RTI= 1.00] outx= 01:R48Pdc    17.87      .465 No_date    2:08   39.02  n/a
02558>       [L/S/n=  300./ .250/.030]
02559>       [Vmax=  .520:Dmax=  .361]
02560> * Total channel flow at pipe d/s of node N0
02561> 010:0049----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02562>     ADD HYD            02:R48Pdc     17.87      .465 No_date    2:08   39.02  n/a
02563>                      + 01:FP05T       .05       .010 No_date    1:57   18.28  n/a
02564>                      + 04:FP05J       1.06      .035 No_date    1:38   18.28  n/a
02565>       [VT= 1.00]  SUM= 01:comN0      19.06      .494 No_date    2:05   37.52  n/a
02566> ********************
02567> * Total flow at node N0
02568> * (Note that N0 will be sheet draining to proposed channel)
02569> 010:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02570>     ADD HYD            02:comN0      19.06      .494 No_date    2:05   37.52  n/a
02571>                      + 03:FNEX1      26.79     1.477 No_date    1:38   19.85  n/a
02572>                      + 02:EX2         5.09      .227 No_date    2:09   15.78  n/a
02573>                      + 05:C3          .25       .080 No_date    1:20   51.06  n/a
02574>       [VT= 1.00]  SUM= 01:N0        50.58     1.983 No_date    1:41   25.33  n/a
02575> * Typical Section based on proposed channel provided by ASL
02576> * 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
02577> * Provide SW draining at EC to d/s node N-EX2
02578> 010:0051----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02579>       ROUTE CHANNEL    -> 02:N0        50.58     1.983 No_date    1:41   25.33  n/a
02580>       [RJT= 1.00] outx= 01:RN0        50.58     1.916 No_date    1:46   25.33  n/a
02581>       [L/S/n=  524./ .400/.030]
02582>       [Vmax= 1.315:Dmax=  .580]
02583> * Total flow at node N-EX2
02584> 010:0052----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02585>     ADD HYD            02:RN0        50.58     1.916 No_date    1:46   25.33  n/a
02586>                      + 03:FN1A        6.71      .077 No_date    1:40   15.26  n/a
02587>       [VT= 1.00]  SUM= 01:NEX2      57.85     1.983 No_date    1:46   25.01  n/a
02588> * Route Node N-EX2 to Node N1
02589> * Typical Section based on Site as MR Vee Ditch 3:1 banks
02590> * provided by Atrel
02591> * Manning's n is channel not maintained, light brush on banks
02592> * Slope = 0.55% as per plan provided by Atrel.
02593> 010:0053----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02594>       ROUTE CHANNEL    -> 02:NEX2      57.85     1.983 No_date    1:46   25.01  n/a
02595>     * [RTI= 1.00] outx= 01:FNEX2      57.85     1.838 No_date    1:52   25.01  n/a
02596>       [L/S/n=  253./ .050/.035]
02597>       [Vmax=  .376:Dmax= 1.345]
02598> ********************************************************************************
02599> * Residential Development - Phase 1 and 2
02600> ********************************************************************************
02601> * Total flow at node N-PR1
02602> 010:0054----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02603>     ADD HYD            02:PR1        4.28      .206 No_date    1:1    15.08  n/a
02604>                      + 03:FR1A        .24      .011 No_date    1:2    30.45  n/a
02605>       [T= 1.00]  SUM= 01:NPR1        4.50      .227 No_date    1:3    16.03  n/a
02606> * Volume to ponding area in PR1
02607> * Q=0.5\5 m3/s required as per SCS 100yr Existing conditions
02608> * Culvert from inlet 1
02609> * Assuming one at culvert is 600 mm, slope = 1.0%, HDPE smooth walls
02610> * Manning's n = 0.012, inlet control  nomograph
02611> * Hydraulic head = 0.34, Q=0.610
02612> 010:0055----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02613>       COMPUTE DVALH=ID     01:DPR1       4.50      .227 No_date    1:31   16.03  n/a
02614>          Major System /  02:DPR1X       .00       .000 No_date    0:00    .00  n/a
02615>          Minor System \  03:DPR1M-      4.50      .227 No_date    1:31   16.03  n/a
02616>       (MjSysFlo=.000CMS=0, TorOverVo=.000:Stor=     0, K-Ovf=     0, TotDurOvf     0.hrs)
02617> * Input to Inlet 1 pipe
02618> 010:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02619>     ADD HYD            02:FR1A        .56      .026 No_date    1:16   30.45  n/a
02620>                      + 03:DPR1M-     4.50      .227 No_date    1:31   16.03  n/a
02621>       [T= 1.00]  SUM= 01:In1         5.06      .252 No_date    1:31   16.51  n/a
02622> * Pipe from inlet 1 - Route to pond
02623> * HDPE smooth wall pipe Manning's n = 0.012
02624> 010:0057----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02625>       ROUTE PIPE       -> 02:In1       5.06      .252 No_date    1:31   16.51  n/a
02626>       [RJC= 1.00] outx= 01:Pin1       5.06      .252 No_date    1:31   16.51  n/a
02627>       [L/S/n=  65%/1.00/.012]
02628>       (Vmax= 2.624:Dmax=  .190)
02629>       (D:n=  .600:Dused=  .580)
02630> * Culvert from inlet 2
02631> * HDPE smooth wall pipe Manning's n = 0.012
02632> 010:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02633>       ROUTE PIPE       -> 02:FR2A      1.57      .072 No_date    1:34   20.45  n/a
02634>       [RJT= 1.00] outx= 01:PIN2       1.57      .072 No_date    1:34   20.45  n/a
02635>       [L/S/n=  17./ .100/.012]
02636>       (Vmax= 1.125:Dmax=  .180)
02637>       (D:n=  .500:Dused=  .480)
02638> * Input to inlet 2 pipe
02639> 010:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02640>     ADD HYE            02:FR2E        1.17      .055 No_date    1:34   20.45  n/a
02641>                      + 03:C1A2        1.27      .073 No_date    7:43   20.73  n/a
02642>       [T= 1.00]  SUM= 01:In2         2.74      .125 No_date    1:34   20.61  n/a
02643> * Pipe from inlet 2 - Route to pond
02644> * HDPE smooth wall pipe Manning's n = 0.012
02645> 010:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
02646>       ROUTE PIPE       -> 02:In2       2.74      .125 No_date    1:34   20.61  n/a
02647>       [RTI= 1.00] outx= 01:Pin2       2.74      .125 No_date    1:32   20.61  n/a
02648>       [L/S/n=  3%-/ .200/.012]
02649>       (Vmax= 1.063:Dmax=  .464)
02650>       [Dia-  .500:Dused-  .500)
02651> * Culvert from inlet 3
02652> * HDPE smooth wall pipe Manning's n = 0.012
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02657> 010:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02658>      ROUTE PIPE      -> 02:FR3A        .45      .320 No_date    1:21   20.45  n/a
02659>       [RDT= 1.00] out<- 01:CIn3        .45      .321 No_date    1:21   20.45  n/a
02660>        [L/S/n=  13./ .100/.012]
02661>        [Vmax=  .773:Dmax=  .094]
02662>        [Din=  .500:Dused=  .500]
02663> # Input to inlet 2 pipe
02664> 010:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02665>      ADD HYD         02:FR3E        .52      .824 No_date    1:35   20.45  n/a
02666>                    + 03:CIn3        .45      .321 No_date    1:21   20.45  n/a
02667>       [DT= 1.00]  SUM=  01:In2        .97      .815 No_date    1:31   20.45  n/a
02668> # Pipe from inlet 3 - Route to pond
02669> # HDPE smooth wall pipe Manning's n = 0.012
02670> 010:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02671>      ROUTE PIPE      -> 02:In3         .97      .045 No_date    1:32   20.45  n/a
02672>       [RDT= 1.00] out<- 01:Pin3        .97      .044 No_date    1:35   20.45  n/a
02673>        [L/S/n=  72./ .200/.012]
02674>        [Vmax=  .766:Dmax=  .168]
02675>        [Din=  .500:Dused=  .500]
02676> # Culvert from inlet 4
02677> # HDPE smooth wall pipe Manning's n = 0.012
02678> 010:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02679>      ROUTE PIPE      -> 02:In4         .71      .033 No_date    1:33   20.45  n/a
02680>       [RDT= 1.00] out<- 01:C.n4        .71      .033 No_date    1:33   20.45  n/a
02681>        [L/S/n=  15./ .400/.012]
02682>        [Vmax=  .895:Dmax=  .120]
02683>        [Din=  .500:Dused=  .500]
02684> # Input to inlet 4 pipe
02685> 010:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02686>      ADD HYD         02:FR3B        .65      .038 No_date    1:33   20.45  n/a
02687>                    + 03:CIn4        .71      .033 No_date    1:33   20.45  n/a
02688>       [DT= 1.00]  SUM=  01:In4        1.36     .063 No_date    1:33   20.45  n/a
02689> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
02690> # HDPE smooth wall pipe Manning's n = 0.012
02691> 010:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02692>      ROUTE PIPE      -> 02:In4         1.36     .063 No_date    1:33   20.45  n/a
02693>       [RDT= 1.00] out<- 01:Pin4        1.36     .063 No_date    1:34   20.45  n/a
02694>        [L/S/n=  55./1.900/.012]
02695>        [Vmax= 1.882:Dmax=  .112]
02696>        [Din=  .500:Dused=  .500]
02697> # Culvert from inlet 5
02698> # HDPE smooth wall pipe Manning's n = 0.012
02699> 010:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02700>      ROUTE PIPE      -> 02:FR5A        .66      .031 No_date    1:33   20.45  n/a
02701>       [RDT= 1.00] out<- 01:CIn2        .66      .031 No_date    1:33   20.45  n/a
02702>        [L/S/n=  13./ .400/.012]
02703>        [Vmax=  .876:Dmax=  .115]
02704>        [Din=  .500:Dused=  .500]
02705> # Input to inlet 5 pipe
02706> 010:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02707>      ADD HYD         02:FR5B        .66      .031 No_date    1:31   20.45  n/a
02708>                    + 03:CIn5        .66      .031 No_date    1:33   20.45  n/a
02709>       [DT= 1.00]  SUM=  01:In5        1.32     .061 No_date    1:32   20.45  n/a
02710> # Pipe from inlet 5 - Route to pond
02711> # HDPE smooth wall pipe Manning's n = 0.012
02712> 010:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02713>      ROUTE PIPE      -> 02:In5         1.32     .061 No_date    1:33   20.45  n/a
02714>       [RDT= 1.00] out<- 01:Pin5        1.32     .061 No_date    1:34   20.45  n/a
02715>        [L/S/n=  75./1.000/.012]
02716>        [Vmax= 1.880:Dmax=  .108]
02717>        [Din=  .500:Dused=  .500]
02718> # Culvert from inlet 6
02719> # HDPE smooth wall pipe Manning's n = 0.012
02720> 010:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02721>      ROUTE PIPE      -> 02:FR6A        1.43     .065 No_date    1:34   20.45  n/a
02722>       [RDT= 1.00] out<- 01:CIn6        1.43     .065 No_date    1:34   20.45  n/a
02723>        [L/S/n=  13./ .400/.012]
02724>        [Vmax= 1.095:Dmax=  .171]
02725>        [Din=  .500:Dused=  .500]
02726> # Input to inlet 6 pipe
02727> 010:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02728>      ADD HYD         02:FR6B        .93      .042 No_date    1:35   20.45  n/a
02729>                    + 03:CIn6        1.43     .065 No_date    1:34   20.45  n/a
02730>       [DT= 1.00]  SUM=  01:In6        2.36     .107 No_date    1:34   20.45  n/a
02731> # Pipe from inlet 6 - Route to pond
02732> # HDPE smooth wall pipe Manning's n = 0.012
02733> 010:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02734>      ROUTE PIPE      -> 02:In6         2.36     .107 No_date    1:34   20.45  n/a
02735>       [RDT= 1.00] out<- 01:P-n6        2.36     .107 No_date    1:35   20.45  n/a
02736>        [L/S/n=  70./ .360/.012]
02737>        [Vmax= 1.125:Dmax=  .243]
02738>        [Din=  .500:Dused=  .500]
02739> # VOLUME TO POND ULTIMATE RESIDENTIAL
02740> 010:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02741>      ADD HYD         02:Pin1        5.05      .262 No_date    1:31   16.62  n/a
02742>                    + 03:Pin2        2.78      .125 No_date    1:35   20.74  n/a
02743>                    + 04:Pin3         .97      .044 No_date    1:35   20.45  n/a
02744>                    + 05:Pin4        1.36      .063 No_date    1:34   20.45  n/a
02745>                    + 06:Pin5        1.32      .061 No_date    1:34   20.45  n/a
02746>                    + 07:Pin6        2.36      .107 No_date    1:35   20.45  n/a
02747>                    + 08:P2u         5.03      .574 No_date    1:23   21.30  n/a
02748>       [DT= 1.00]  SUM=  01:POND1in   18.63     1.155 No_date    1:24   22.39  n/a
02749> #  Pond outflow for ultimate conditions using weir .6/ .6/ 3.0
02750> 010:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02751>      ROUTE RESERVOIR -> 03:POND1r     18.63     1.155 No_date    1:30   22.38  n/a
02752>       [RDT= 1.00] out<- 01:POUT        18.63     .072 No_date    4:08   22.38  n/a
02753>            overflow <- 02:OvFlw        .00       .000 No_date    0:00    .00   n/a
02754>       [MaxStoSwd=.3498E+00, ToCovfVel=.0000E+00, n=0/F=    0, Outbrnch=    3.000]
02755> # Simulating 50% 100 yr conditions with subsequence of outflow weir
02756> # updated for weir .6/ .6/ 3.0
02757> ROUTE RESERVOIR     NHYDout ["POUT"] ,NHYDin-["POND1in"] ,
02758>                     RDC-[1(min),
02759> #                         TABLE of [ OUTFLOW-STORAGE ] values
02760> #                                   (cms) - (ha-m)
02761> #                                   [   0.0 ,   0.0 ]
02762> #                                   [0.0000] , [.0000]
02763> #                                   [0.20   , [.0139]
02764> #                                   [0.34   , [.0195]
02765> #                                   [   1 ,    1  ]  [max tweny pts]
02766> #                           NHYDovf=["Ovrg"] ,
02767> # Route pond output through first set of pipes
02768> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
02769> # HDPE smooth wall pipe Manning's n = 0.012
02770> 010:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02771>      ROUTE PIPE      -> 02:POut1      18.63     .072 No_date    4:08   22.38  n/a
02772>       [RDT= 1.00] out<- 01:Pout1      18.63     .072 No_date    4:10   22.38  n/a
02773>        [L/S/n=  75./ .200/.012]
02774>        [Vmax=  .939:Dmax=  .192]
02775>        [Din=  .780:Dused=  .780]
02776> # Flow u/s of culvert culverts
02777> 010:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02778>      ADD HYD         02:FR7B1         .36      .018 No_date    1:36   17.52  n/a
02779>                    + 03:FR7B2         .22      .010 No_date    1:35   17.52  n/a
02780>                    + 04:Pout1       18.63     .072 No_date    4:10   22.38  n/a
02781>       [DT= 1.00]  SUM=  01:Pout       19.21     .075 No_date    4:00   22.24  n/a
02782> # Route outflow through set of culverts
02783> # 2 x 800 culverts simulated with 1 culvert of equivalent capacity (=900 mm dia
02784> # HDPE smooth wall pipe Manning's n = 0.012
02785> 010:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02786>      ROUTE PIPE      -> 02:Pout       19.21     .075 No_date    4:00   22.24  n/a
02787>       [RDT= 1.00] out<- 01:Cout       19.21     .073 No_date    4:04   22.24  n/a
02788>        [L/S/n=  13./ .100/.012]
02789>        [Vmax= 1.583:Dmax=  .156]
02790>        [Din=  .780:Dused=  .780]
02791> # Flow u/s of second set of culvert pipes
02792> 010:0078----------ID:NHYD-------AREA----QPEAY-TpeakDate_hh:mm----R.V.-R.C.-
02793>      ADD HYD         02:FR7C1         .19      .001 No_date    1:55   17.52  n/a
02794>                    + 03:FR7C2         .17      .008 No_date    1:35   17.52  n/a
02795>                    + 04:Cout        19.21     .075 No_date    4:04   22.24  n/a
02796>       [DT= 1.00]  SUM=  01:Pout2      19.77     .081 No_date    1:42   22.10  n/a
02797> # Route outflow through second set of pipes
02798> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
02799> # HDPE smooth wall pipe Manning's n = 0.012
02800> 010:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02801>      ROUTE PIPE      -> 02:Pout2      19.77     .081 No_date    1:42   22.10  n/a
02802>       [RDT= 1.00] out<- 01:PoutF      19.77     .081 No_date    1:41   22.10  n/a
02803>        [L/S/n=  65./ .200/.0.3]
02804>        [Vmax=  .870:Dmax=  .193]
02805>        [Din=  .780:Dused=  .780]
02806> # Total flow at Node 01 (Shield MD along Selby Bain Rd)
02807> 010:0080----------ID:NHYD-------AREA----QPEAK-TpeakDat_hh:mm----R.V.-R.C.-
02808>      ADD HYD         02:RMEX2        57.85     1.668 No_date    1:52   25.01  n/a
02809>                    + 03:PoutF       19.77     .081 No_date    1:47   22.10  n/a
02810>                    + 04:FX7         .58       .024 No_date    1:23   22.03  n/a
02811>                    + 05:FR7D        .36       .014 No_date    1:36   17.52  n/a
02812>                    + 06:FR1I        .62       .024 No_date    1:18   16.78  n/a
02813>       [DT= 1.00]  SUM=  01:N1         78.93     1.788 No_date    1:50   24.17  n/a
02814> # ROUTE N1 to N3
02815> # Typical Section based on Schilds MD Vol Pitch 3:1 banks
02816> # provided by Atrel
02817> # Manning's n is channel not maintained, light brush on banks
02818> # Slope   0.65% as per plan provided by Atrel.
02819> 010:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02820>      ROUTE CHANNEL   -> 03:N3         78.93     1.780 No_date    1:50   24.17  n/a
02821>       [RDT= 1.00] out<- 01:N1         78.93     1.467 No_date    2:02   24.17  n/a
02822>        [L/S/n=  345./ .050/.035]
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02822>       [Vmax=  .167:Dmax= 1.292]
02823> # VOLUME from residential Area at N3 interim
02825>  010:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02826>      ADD HYD           02:FR3A       1.35      .857 No_date     1:38   17.52  n/a
02827>                      + 03:FR8        3.18      .872 No_date     1:39   16.28  n/a
02828>       [ID= 1.00]  SUM= 01:N31        4.53     1.729 No_date     1:38   16.65  n/a
02829> # Added VOLUME from external area contributing to N3
02830>  010:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02831>      ADD HYD           02:HN1       75.93    1.467 No_date     2:07   24.13  n/a
02832>                      + 03:N31        4.53     1.729 No_date     1:38   16.65  n/a
02833>                      + 04:EX5         .22      .047 No_date     1:26   28.69  n/a
02834>                      + 05:EX6         .51      .029 No_date     1:24   11.52  n/a
02835>                      + 06:EXC1        .22      .039 No_date     1:20   34.30  n/a
02836>       [ID= 1.00]  SUM= 01:N3        81.01    1.535 No_date     2:01   23.97  n/a
02837> # Route N3 to NC12s
02838> # Typical section based on Shields MP Voc Ditch 3:1 Banks
02839> # provided by Attel
02840> # Manning's n is Channel not maintained, light brush on banks
02841> # Slope   0.5% as per plan provided by Attel
02842>  010:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02843>      ROUTE CHANNEL   -> 02:N3        81.01    1.535 No_date     2:01   23.97  n/a
02844>       [ROT= 1.00] SUL-> 01:HN3       81.01    1.534 No_date     2:07   24.13  n/a
02845>       [L/S/n=  415./ .050/.035]
02846>       [Vmax=  .357:Dmax= 1.228]
02847> # Flow at Stantec node BCB128 for comparison
02848> # Routes N3 plus EX3
02849>  010:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02850>      ADD HYD           02:AR3       82.91    1.510 No_date     2:27   23.87  n/a
02851>                      + 03:EX3        21.70     .629 No_date     2:22   15.78  n/a
02852>       [ID= 1.00]  SUM= 01:NCR12B    104.61    1.711 No_date     2:27   22.56  n/a
02853> # AREA CHECK
02854> #
02855>  010:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02856>      ADD HYD           02:EX1       24.82    1.418 No_date     1:34   19.21  n/a
02857>                      + 03:EX2        9.89     .227 No_date     1:09   15.78  n/a
02858>                      + 04:EX3       21.70     .629 No_date     2:22   15.78  n/a
02859>                      + 05:EX4         .58     .012 No_date     1:22   18.65  n/a
02860>                      + 06:EX5         .22     .047 No_date     1:26   28.69  n/a
02861>                      + 07:EX6         .51     .029 No_date     1:24   11.52  n/a
02862>                      + 08:EX7         .39     .026 No_date     1:15   17.63  n/a
02863>                      + 09:FR1A        .24     .011 No_date     1:01   20.05  n/a
02864>                      + 10:FR1B        .35     .025 No_date     1:15   28.45  n/a
02865>       [ID= 1.00]  SUM= 01:Tot1      58.72    1.816 No_date     1:17   17.84  n/a
02866>  010:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02867>      ADD HYD           02:Tot1      58.72    1.816 No_date     1:17   17.53  n/a
02868>                      + 03:FR2A        1.37     .072 No_date     1:34   20.45  n/a
02869>                      + 04:FR2E        1.17     .053 No_date     1:34   20.45  n/a
02870>                      + 05:FR3A         .45     .020 No_date     1:21   20.45  n/a
02871>                      + 06:FR3B         .52     .026 No_date     1:33   20.45  n/a
02872>                      + 07:FR4A         .43     .015 No_date     1:17   20.05  n/a
02873>                      + 08:FR4B         .65     .030 No_date     1:15   20.05  n/a
02874>                      + 09:FR5A         .86     .031 No_date     1:15   18.85  n/a
02875>                      + 10:FR5B         .46     .017 No_date     1:21   18.85  n/a
02876>       [ID= 1.00]  SUM= 01:Tot2      64.71    2.096 No_date     1:16   17.81  n/a
02877>  010:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02878>      ADD HYD           02:Tot2      64.71    2.096 No_date     1:16   17.81  n/a
02879>                      - 03:FR6A        1.43     .065 No_date     1:34   20.45  n/a
02880>                      + 04:FR6B         .93     .042 No_date     1:35   20.45  n/a
02881>                      + 05:FR7A        1.35     .057 No_date     1:19   17.52  n/a
02882>                      + 06:fr8b1       .56     .016 No_date     1:16   17.52  n/a
02883>                      + 07:fr8b2       .27     .008 No_date     1:15   17.52  n/a
02884>                      + 08:fr8c1       .89     .017 No_date     1:36   17.52  n/a
02885>                      + 09:fr8c2       .17     .008 No_date     1:35   17.52  n/a
02886>                      + 10:FR7D        .30     .013 No_date     1:36   17.52  n/a
02887>       [ID= 1.00]  SUM= 01:Tot3      69.66    2.323 No_date     1:16   17.80  n/a
02888>  010:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02889>      ADD HYD           03:Tot1      19.16    2.701 No_date     1:36   17.85  n/a
02890>                      + 04:FR8        1.58     .062 No_date     1:19   16.28  n/a
02891>                      + 04:fr8A       1.10     .042 No_date     1:19   16.28  n/a
02892>                      - 05:fr8e1       .25     .010 No_date     1:27   16.28  n/a
02893>                      - 06:FR8e2      1.00     .039 No_date     1:38   16.28  n/a
02894>                      - 07:FR1C       1.57     .070 No_date     1:10   16.28  n/a
02895>                      - 08:FR1D        .60     .024 No_date     1:10   16.23  n/a
02896>                      - 09:FR1        4.06     .092 No_date     1:31   15.74  n/a
02897>                      - 10:FR3a       5.83     .574 No_date     1:03   5.80  n/a
02898>       [ID= 1.00]  SUM= 01:Tot4      85.37    3.118 No_date     1:35   18.46  n/a
02899>  010:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02900>      ADD HYD           02:Tot4      85.37    3.118 No_date     1:35   18.46  n/a
02901>                      - 03:C1          8.36    1.634 No_date     1:20   38.84  n/a
02902>                      - 04:C2          6.54    1.573 No_date     1:20   44.42  n/a
02903>                      - 05:C3           .94     .208 No_date     1:20   57.06  n/a
02904>                      + 06:EXC1        1.16     .111 No_date     1:20   34.30  n/a
02905>                      + 07:EXC2        1.03     .136 No_date     1:20   39.68  n/a
02906>                      + 08:EXC3         .22     .039 No_date     1:20   34.30  n/a
02907>                      + 09:Pbc        1.59     .359 No_date     1:20   40.28  n/a
02908>       [ID= 1.00]  SUM= 01:Tot5      104.21    5.865 No_date     1:21   22.26  n/a
02909> ********************************************************************************
02910> # Simulations with 4 hour Chicago from City of Ottawa
02911>  ** END OF RUN :  34
02912>
02913> ********************************************************************************
02914>
02915>
02916>
02917>
02918>
02919>  RUN:C:\OTTAWA\JF
02920>  025:0001----------------------------------------------------------------------
02921>      START
02922>       [TZERO =    .00 Hrs on        0]
02923>       [METOUT=   2    (1=imperial, 2=metric output)]
02924>       [NSTORM=   1 ]
02925>       [NRUN  =  25 ]
02926> ********************************************************************************
02927> #  SWMHYMO Ver:5.02/Jun 2001 <KEYAD / INPUT DATA FILE
02928> ********************************************************************************
02929> #  Project Name: [Greely Village Centre]    Project Number: [841-07]
02930> #  Date        : 01-JAN-2008
02931> #  Name(s)     : [CHF]
02932> #  Company     : JFSAinc.
02933> #  License #   : [547402]
02934> #--------------------------------------------------------------------------
02935> #
02936> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
02937> # Proposed Ultimate conditions. OPTION 0
02938> # Filename stands for: Greely, Commercial, Proposed
02939> #--------------------------------------------------------------------------
02940>  025:0002----------------------------------------------------------------------
02941>      READ STORM
02942>       filename = storm.001
02943>       Comment  = 25 years Chicago Storm 6 Hours step 10 min, City of Ottawa
02944>       [RAIN=1.00:RED=  4.60:PTOT=  61.73]
02945> ********************************************************************************
02946> # Existing flow - Mosvey branch of Shield Creek - Areas
02947> # Area d/s of proposed development (residential)
02948> # CN=79%, slope   0.8, Tp 0.16, XIMP=5, TIMP=15, see SC002 as per Stantec
02949> # Area partially adjusted based on Attel drawings. Tp adjusted accordingly.
02950> ********************************************************************************
02951> # d/s of Bank St.as per Attel - with modified boundaries and Tp.
02952>  025:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02953>      ESTIMATE HASHYD      01:EX1       24.82    1.883 No_date     1:16   75.96 .406
02954>       [CN= 75.0: N= 3.00]
02955>       [Ia=  .25:SI=  .00]
02956> ********************************************************************************
02957> # Existing flow - External areas d/s of Bank St.
02958> # CN= 69, as per Stantec see SC001.
02959> # Area partially adjusted based on Attel drawings.
02960> #--------------------------------------------------------------------------
02961> # Areas External to development
02962>  025:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02963>      ESTIMATE HASHYD      01:EX2        9.89     .197 No_date     1:09   20.82 .237
02964>       [CN= 69.0: N= 3.00]
02965>       [Ia=  .67:SI=  1.00]
02966>  025:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02967>      ESTIMATE HASHYD      01:EX3       21.70     .559 No_date     1:21   20.82 .237
02968>       [CN= 69.0: N= 3.00]
02969>       [Ia=  .67:SI=  1.00]
02970> # Slope, Timp, Area from Attel Drawing
02971> # Ck from Stantec (BCB01)
02972> # Ximp = Timp = 10%
02973>  025:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02974>      CALIB STANDHYD       01:EX4         .50      .032 No_date     1:12   25.40 .411
02975>       [XIMP=.10:TIMP=.32]
02976>       [DCIA=  0 :CN= 69.0]
02977>       [Pervious      Area: IAperv= 4.67:SLPP=  .05:LGP=   40.:NHP=.250:SCP=    0]
02978>       [Impervious    Area: IAimp= 1.57:SLPI=  .05:LGI=   50.:NHI=.015:SCI=    0]
02979> # Road and road side ditch along projected residential development Parkway Rd
02980> # Timp = Ximp = 0.21 ha /0.52 ha   0.40
02981> # CN=AB, as per Stantec see SC001.
02982> # Slope is estimated at 1%
02983> # LGI based on centroid of area due to elongated shape = 100m/2 = 50m
02984>  025:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02985>      CALIB STANDHYD       01:EX5         .62      .052 No_date     1:05   35.50 .575
02986>       [XIMP=.60:TIMP=.60]
02987>       [DCIA=  0 :CN= 69.0]
02988>       [Pervious      Area: IAperv= 4.67:SLPP=1.00:LGP=   40.:NHP=.250:SCP=    0]
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02889>       [Impervious   area: IAimp= 1.57:SLPI=1.00:IGI= 100.:MNI=.045:SCI=   .0]
02890> * Road and road side ditch along projected residential development Salesbarn Rd
02891> * Timp = Ximp = 0.1 ha /0.51 ha = 0.20
02892> * CN*=85, as per Stantec see SC001.
02893> * Slope is estimated at 1%
02894> * I of based on centroid of area due to elongated shape - 354m/2 = 177
02895>  025:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02896>      CALIB STANDHYD     01:EX6          .51     .037 No_date     1:24   27.27 .642
02897>       [XIMP=.20:TIMP=.20]
02898>       [LOSS= 2 :CN= 69.0]
02899>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02900>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
02901> * Road and road side ditch along projected residential development Salesbarn Rd
02902> * Timp = Ximp = 0.69 ha /0.32 ha = 0.55
02903> * CN*=80, as per Stantec see SC001.
02904> * Slope is estimated at 1%
02905> * I of based on centroid of area due to elongated shape = 275m/2 = 137.5
02906>  025:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02907>      CALIB STANDHYD     01:EX7          .99     .083 No_date     1:24   25.81 .482
02908>       [XIMP=.23:TIMP=.23]
02909>       [LOSS= 2 :CN= 69.0]
02910>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02911>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
02912> *********************************************************************
02913> * PROPOSED COMMERCIAL DEVELOPMENT
02914> *********************************************************************
02915> * CN   79 as per fair grass cover with C soil type for top soil; CN*=71
02916> * XIMP = TIMP to be conservative
02917> *********************************************************************
02918>  025:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02919>      DESIGN STANDHYD    01:C1          8.80    1.98 No_date     1:26   46.80 .758
02920>       [XIMP=.63:TIMP=.63]
02921>       [SLP=1.00:IT=  1.00]
02922>       [LOSS= 2 :CN= 71.0]
02923>  025:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02924>      DESIGN STANDHYD    01:C2          6.31    1.921 No_date    1:20   52.81 .855
02925>       [XIMP=.79:TIMP=.79]
02926>       [SLP=1.00:IT=  .60]
02927>       [LOSS= 2 :CN= 71.0]
02928>  025:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02929>      DESIGN STANDHYD    01:C3           .24     .095 No_date     1:26   60.79 .974
02930>       [XIMP=.96:TIMP=.96]
02931>       [SLP=1.00:IT=  1.00]
02932>       [LOSS= 2 :CN= 71.0]
02933> * Imp = Imp ha/total area = 0.70/1.10 ha = .27
02934>  025:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02935>      DESIGN STANDHYD    01:EXC1         1.10     .358 No_date     1:26   47.65 .658
02936>       [XIMP=.27:TIMP=.27]
02937>       [SLP=1.00:IT=  1.00]
02938>       [LOSS= 2 :CN= 71.0]
02939> * Imp = Imp ha/total area = 0.35/1.07 ha = .35
02940>  025:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02941>      DESIGN STANDHYD    01:EXC2         1.07     .364 No_date     1:26   55.73 .678
02942>       [XIMP=.15:TIMP=.15]
02943>       [SLP=1.00:IT=  1.00]
02944>       [LOSS= 2 :CN= 71.0]
02945> * Imp = Imp ha/total area = 0.21/0.22ha = .96
02946>  025:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02947>      DESIGN STANDHYD    01:EXC3          .22     .071 No_date     1:20   41.56 .673
02948>       [XIMP=.98:TIMP=.98]
02949>       [SLP=1.00:IT=  1.00]
02950>       [LOSS= 2 :CN= 71.0]
02951> *********************************************************************
02952> * Commercial pond POND
02953> * slope estimated at 1% based on elevations around pond.
02954> * Ting and Xing based on total pond area
02955> * Xing = A pond/A tot /1.94/1.57
02956>  025:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02957>      DESIGN STANDHYD    01:POC          1.57     .610 No_date     1:24   48.36 .788
02958>       [XIMP=.67:TIMP=.67]
02959>       [SLP=1.00:IT=  1.00]
02960>       [LOSS= 2 :CN= 71.0]
02961> **********************************************************************
02962> *********************************************************************
02963> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
02964> *********************************************************************
02965> * CN*=69, as per Stantec see SC001.
02966> * Tp estimated with Uplands Method.
02967>  025:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02968>      DESIGN NASHYD      01:PR1          4.26     .304 No_date     1:31   20.82 .237
02969>       [UH= 69.0: N= 3.00]
02970>       [Tp=  .10:IT= 1.00]
02971> *********************************************************************

03072> * AREAS GOING TO RESIDENTIAL POND POND1
03073> *********************************************************************
03074> *
03075>  025:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03076>      CALIB STANDHYD     01:FR1A         .24     .017 No_date     1:31   26.35 .427
03077>       [XIMP=.11:TIMP=.11]
03078>       [LOSS= 2 :CN= 71.0]
03079>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03080>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
03081>  025:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03082>      CALIB STANDHYD     01:FR1B         .53     .037 No_date     1:32   26.35 .427
03083>       [XIMP=.11:TIMP=.21]
03084>       [LOSS= 2 :CN= 71.0]
03085>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03086>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
03087>  025:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03088>      CALIB STANDHYD     01:FR2A         .67     .101 No_date     1:33   25.36 .427
03089>       [XIMP=.11:TIMP=.21]
03090>       [LOSS= 2 :CN= 71.0]
03091>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03092>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0]
03093>  025:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03094>      CALIB STANDHYD     01:FR2B         .57     .077 No_date     1:33   26.36 .427
03095>       [XIMP=.11:TIMP=.21]
03096>       [LOSS= 2 :CN= 71.0]
03097>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03098>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
03099>  025:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03100>      CALIB STANDHYD     01:FR3A         .45     .060 No_date     1:32   26.36 .427
03101>       [XIMP=.11:TIMP=.21]
03102>       [LOSS= 2 :CN= 71.0]
03103>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03104>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03105>  025:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03106>      CALIB STANDHYD     01:FR3B         .62     .015 No_date     1:32   26.36 .427
03107>       [XIMP=.11:TIMP=.21]
03108>       [LOSS= 2 :CN= 71.0]
03109>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03110>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
03111>  025:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03112>      CALIB STANDHYD     01:FR4A         .71     .046 No_date     1:32   26.36 .427
03113>       [XIMP=.11:TIMP=.21]
03114>       [LOSS= 2 :CN= 71.0]
03115>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03116>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  69.:MNI=.045:SCI=   .0]
03117>  025:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03118>      CALIB STANDHYD     01:FR4B         .66     .044 No_date     1:32   26.36 .427
03119>       [XIMP=.11:TIMP=.21]
03120>       [LOSS= 2 :CN= 71.0]
03121>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03122>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
03123>  025:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03124>      CALIB STANDHYD     01:FR5A         .56     .040 No_date     1:32   26.36 .427
03125>       [XIMP=.11:TIMP=.21]
03126>       [LOSS= 2 :CN= 71.0]
03127>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03128>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03129>  025:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03130>      CALIB STANDHYD     01:FR5B         .46     .031 No_date     1:32   26.36 .427
03131>       [XIMP=.11:TIMP=.21]
03132>       [LOSS= 2 :CN= 71.0]
03133>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03134>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03135>  025:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03136>      CALIB STANDHYD     01:FR6A         .43     .029 No_date     1:32   26.36 .427
03137>       [XIMP=.11:TIMP=.21]
03138>       [LOSS= 2 :CN= 71.0]
03139>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03140>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03141>  025:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03142>      CALIB STANDHYD     01:FR6B         .93     .063 No_date     1:32   26.36 .427
03143>       [XIMP=.11:TIMP=.21]
03144>       [LOSS= 2 :CN= 71.0]
03145>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03146>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0]
03147> * slope estimated at 2% based on backyard swales.
03148> * Ting and Xing based on total pond area
03149> * xing = A pond/A tot
03150> * Timp = weighted average of pond and backyards
03151>  025:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03152>      CALIB STANDHYD     02:POND         5.03     .713 No_date     1:28   38.33 .592
03153>       [XIMP=.44:TIMP=.44]
03154>       [LOSS= 2 :CN= 71.0]
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|Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
|Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
+----------------------------------------------------------------------+
* UNCONTROLLED AREAS
+----------------------------------------------------------------------+
*
025:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9A        .35     .081 No date    1:35   25.12 .374
      |XIMP= .02:TIMP=.14|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9B        .16     .023 No date    1:35   25.12 .374
      |XIMP= .02:TIMP=.14|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.67:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0033----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9C        .12     .015 No date    1:33   25.12 .374
      |XIMP= .02:TIMP=.14|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7C1       .10     .006 No date    1:34   25.12 .374
      |XIMP= .02:TIMP=.14|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7D        .30     .020 No date    1:33   25.12 .374
      |XIMP= .02:TIMP=.14|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR8         .35     .027 No date    1:36   25.12 .374
      |XIMP= .01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9A        1.18     .082 No date    1:36   21.65 .351
      |XIMP=.01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9B1       .05     .004 No date    1:34   21.65 .351
      |XIMP= .01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9B2       1.08     .067 No date    1:36   21.65 .351
      |XIMP= .01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0|
025:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR10        1.80     .104 No date    1:37   21.65 .351
      |XIMP=.01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=.05:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=.05:LGI=  111.:MNI=.045:SCI=   .0|
025:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR11        .62     .036 No date    1:35   21.65 .351
      |XIMP=.01:TIMP=.07|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=   .0|
+----------------------------------------------------------------------+
* EXISTING Flow - Upstream of Proposed Development
+----------------------------------------------------------------------+
* Total flow at node N-EX1
025:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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ADD HYD              02:EX1       25.02    1.881 No date    1:31   25.06  n/a
                   + 03:PXC        1.10     .118 No date    1:30   35.65  n/a
                   = 04:PXC2       1.07     .106 No date    1:30   35.75  n/a
    [IT= 1.00]  SUM= 01:NOX-      26.79    2.029 No date    1:34   25.80  n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
* Route N-EX1 to S/s node N0
025:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:REX1      26.79    2.029 No date    1:34   25.80  n/a
      [PDT  1.00] outs= 01:REX1     26.75    1.971 No date    1:37   25.80  n/a
      [L/S/n=  312./ .850/.030]
      (Vmax= 1.452:Dmax=  .404)
+----------------------------------------------------------------------+
* TOTAL INFLOW TO COMMERCIAL POND #3C
+----------------------------------------------------------------------+
025:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              02:EX4        .56     .032 No date    1:32   25.60  n/a
                       + 03:C1         8.36    1.581 No date    1:20   16.00  n/a
                       + 04:C2         6.34    1.923 No date    1:20   52.81  n/a
                       + 05:PDc        1.50     .436 No date    1:30   48.14  n/a
      [PT= 1.00]  SUM= 01:PDCin      16.77    4.163 No date    1:30   38.47  n/a
025:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR -> 01:PDCin      16.7     4.163 No date    1:30   38.47  n/a
      [RUT= 1.00] outs= 01:PDCout    16.71    .885 No date    1:54   48.47  n/a
            Overflow -> 05:Ovrq        .00     .000 No date    0:00    .00  n/a
    (MaxToAvail=.4957E-06, OutovfVol=.0000E+00, R-Ovf=    0, TotDurOvf=    0.hrs)
* Total flow at outlet of Commercial pond
025:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              02:PDCout     16.71     .885 No date    1:54   48.47  n/a
                       + 03:PR9A       1.10     .062 No date    1:37   21.65  n/a
      [PC= 1.00]  SUM= 01:PDc        17.81     .681 No date    1:52   46.81  n/a
* Route pond outflow at pipe s/s of node N0
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
025:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:RPDc      17.81     .681 No date    1:52   46.81  n/a
      [RUT= 1.00] outs= 01:RPDc      17.81     .655 No date    2:00   46.81  n/a
      [L/S/n=  880./ .250/.030]
      (Vmax=  .647:Dmax=  .401)
* Total channel flow at pipe s/s of node N0
025:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              03:RPDc      17.81     .656 No date    2:00   46.81  n/a
                       - 04:PR9B1      .05     .003 No date    1:34   21.65  n/a
                       = 05:OUTNO     17.76     .653 No date    1:58   46.16  n/a
      [IT= 1.00]  SUM= 01:OUTNO      17.76     .653 No date    1:58   46.16  n/a
+ ************
* Total flow at node N0
* (Note that EX2 will be sheet draining to proposed channel)
025:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              02:OUTNO      55.98    2.698 No date    1:59   45.16  n/a
                       + 03:REX1       1.71     .073 No date    1:37   25.80  n/a
                       + 04:PXC2       1.07     .106 No date    1:30   35.75  n/a
                       + 05:C3         9.89     .603 No date    1:20   50.19  n/a
      [I1= 1.00]  SUM= 01:N0         55.98    2.718 No date    1:40   31.66  n/a
* Typical Section Based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
* Route SW draining at N0 to s/s node N-EX2
025:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:N0        55.98    2.718 No date    1:40   31.66  n/a
      [RU2= 1.00] outs= 01:RN0       55.98    2.622 No date    1:45   31.66  n/a
      [L/S/n=  324./ .400/.030]
      (Vmax= 1.102:Dmax=  .670)
* Total flow at node N-EX2
025:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              02:RN0        55.98    2.622 No date    1:45   31.66  n/a
                       + 03:PR10       1.80     .103 No date    1:37   21.65  n/a
      [U2= 1.00]  SUM= 01:NEX2       57.85    2.715 No date    1:44   31.32  n/a
* Route Node N-EX2 to Node N1
* Typical Section based on SB's da N3 Vee Ditch 3:1 banks
* provided by Allen
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atkil.
025:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NEX2      57.85    2.715 No date    1:44   31.32  n/a
  * [RE1- 1.00] outs= 01:RNEX2      57.85    2.029 No date    1:48   31.32  n/a
      [L/S/n=  253./ .050/.075]
      (Vmax=  .383:Dmax= 1.556)
+----------------------------------------------------------------------+
* Residential Development - Phase 1 and 2
+----------------------------------------------------------------------+
* Total flow at node N-PR1
025:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD              01:PR1         4.26     .304 No date    1:31   28.63  n/a
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03321>                    +  03:FP4A        .94      .017 No data    1:31   26.36  n/a
03322>       [IT  1.00]  SUM=  01:NPX1       4.50      .321 No data    1:31   21.12  n/a
03323> # Volume to ponding area in PX1
03324> # Q 0.55> m3/s required as per 2YR 100yr Existing conditions
03325> # Culvert from inlet 1
03326> # Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
03327> # Manning's n = 0.012, inlet control nomograph
03328> # Hydraulic head = 0.5m, Q=0.619
03329> 025:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03330>      COMPUTE LOALMIJ    01:NPX1         4.50      .321 No date    1:31   21.12  n/a
03331>        Major system /   02:NPX1MJ        .06      .030 No date    0:08     .80  n/a
03332>        Minor system \   03:NPX1MN       4.50      .321 No date    1:31   21.12  n/a
03333>      [MJ=yes=0.0600E+00, TotOutVol= 0.000E+00, M-Over=    0, TotOurOver=    0.m3s]
03334> # Input to inlet 1 pipe
03335> 025:0055----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03336>      ADD HYD            02:PR1a         .50      .037 No date    1:32   26.36  n/a
03337>                       + 03:NPX1XL       4.50      .321 No date    1:31   21.12  n/a
03338>      [IT  1.00]  SUM=  01:In1          5.00      .358 No date    1:31   21.69  n/a
03339> # Pipe from inlet 1 - Route to pond
03340> # HDPE smooth wall pipe Manning's n = 0.012
03341> 025:0052----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03342>      ROUTE PIPE         -> 02:In1         5.00      .358 No date    1:31   21.69  n/a
03343>       [RDT= 1.00] out<- 01:Pin1          5.00      .358 No date    1:31   21.69  n/a
03344>       [L/S/m=   65./1.600/.012]
03345>       [Vmax= 2.801:Dmax=   .277]
03346>       [Din=  .600:Dused=  .600]
03347> # Culvert from inlet 2
03348> # HDPE smooth wall pipe Manning's n = 0.012
03349> 025:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03350>      ROUTE PIPE         -> 02:PR2A        .67      .104 No date    1:33   26.36  n/a
03351>       [RDT= 1.00] out<- 01:Cin2          .67      .104 No date    1:33   26.36  n/a
03352>       [L/S/m=   13./ .480/.012]
03353>       [Vmax= 1.264:Dmax=   .220]
03354>       [Din=  .500:Dused=  .500]
03355> # Input to inlet 2 pipe
03356> 025:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03357>      ADD HYD            02:PR2b         .17      .077 No data    1:33   26.36  n/a
03358>                       + 03:Cin2         .67      .104 No data    1:33   26.71  n/a
03359>      [IT= 1.00]  SUM=  01:In2          2.74      .181 No data    1:33   26.56  n/a
03360> # Pipe from inlet 2 - Route to pond
03361> # HDPE smooth wall pipe Manning's n = 0.012
03362> 025:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03363>      ROUTE PIPE         -> 02:In2         2.74      .181 No data    1:33   26.56  n/a
03364>       [RDT= .400] out<- 01:Pin2          2.74      .180 No data    1:34   26.56  n/a
03365>       [L/S/m=   75./ .800/.012]
03366>       [Vmax= 1.062:Dmax=   .405]
03367>       [Din=  .500:Dused=  .500]
03368> # Culvert from inlet 3
03369> # HDPE smooth wall pipe Manning's n = 0.012
03370> 025:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03371>      ROUTE PIPE         -> 02:PR3A        .46      .030 No data    1:32   26.36  n/a
03372>       [RDT= 1.00] out<- 01:Cin3          .46      .030 No data    1:32   26.36  n/a
03373>       [L/S/m=   55./ .600/.012]
03374>       [Vmax=  .874:Dmax=  .115]
03375>       [Din=  .500:Dused=  .500]
03376> # Input to inlet 3 pipe
03377> 025:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03378>      ADD HYD            02:PR3b         .52      .035 No data    1:32   26.36  n/a
03379>                       + 03:Cin3         .97      .060 No data    1:32   26.36  n/a
03380>      [IT  1.00]  SUM=  01:In3          1.49      .065 No data    1:32   26.36  n/a
03381> # Pipe from inlet 3 - Route to pond
03382> # HDPE smooth wall pipe Manning's n = 0.012
03383> 025:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03384>      ROUTE PIPE         -> 02:In3         1.87      .065 No data    1:32   26.36  n/a
03385>       [RDT= 1.00] out<- 01:Pin3          1.87      .064 No data    1:33   26.36  n/a
03386>       [L/S/m=   75./ .2300/.012]
03387>       [Vmax=  .852:Dmax=  .196]
03388>       [Din=  .500:Dused=  .500]
03389> # Culvert from inlet 4
03390> # HDPE smooth wall pipe Manning's n = 0.012
03391> 025:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03392>      ROUTE PIPE         -> 02:PR4A        .71      .048 No data    1:32   26.36  n/a
03393>       [RDT= 1.00] out<- 01:Cin4          .71      .048 No data    1:32   26.36  n/a
03394>       [L/S/m=   17./ .480/.013]
03395>       [Vmax= 1.007:Dmax=  .145]
03396>       [Din=  .500:Dused=  .500]
03397> # Input to inlet 4 pipe
03398> 025:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03399>      ADD HYD            02:PR4B         .65      .046 No data    1:32   26.36  n/a
03400>                       + 03:Cin4         .71      .048 No data    1:32   26.36  n/a
03401>      [IT  1.00]  SUM=  01:In4          1.36      .092 No data    1:32   26.36  n/a
03402> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
03403> # HDPE smooth wall pipe Manning's n = 0.012
03404> 025:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03405>      ROUTE PIPE         -> 02:In4         1.36      .092 No data    1:32   26.36  n/a
03406>       [RDT= 1.00] out<- 01:Pin4          1.36      .092 No data    1:33   26.36  n/a
03407>       [L/S/m=   65./1.800/.012]
03408>       [Vmax= 2.100:Dmax=   .236]
03409>       [Din=  .500:Dused=  .500]
03410> # Culvert from inlet 5
03411> # HDPE smooth wall pipe Manning's n = 0.012
03412> 025:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03413>      ROUTE PIPE         -> 02:PR5A        .66      .045 No data    1:32   26.36  n/a
03414>       [RDT= 1.00] out<- 01:Cin5          .66      .045 No data    1:32   26.36  n/a
03415>       [L/S/m=   13./ .480/.013]
03416>       [Vmax=  .981:Dmax=  .140]
03417>       [Din=  .500:Dused=  .500]
03418> # Input to inlet 5 pipe
03419> 025:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03420>      ADD HYD            02:PR5B         .16      .011 No data    1:32   26.36  n/a
03421>                       + 03:Cin5         .66      .045 No data    1:32   26.36  n/a
03422>      [IT= 1.00]  SUM=  01:In5          1.12      .079 No data    1:32   26.36  n/a
03423> # Pipe from inlet 5 - Route to pond
03424> # HDPE smooth wall pipe Manning's n = 0.012
03425> 025:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03426>      ROUTE PIPE         -> 02:In5         1.12      .079 No data    1:32   26.36  n/a
03427>       [RDT= 1.00] out<- 01:Pin5          1.12      .079 No data    1:33   26.36  n/a
03428>       [L/S/m=   25./1.680/.013]
03429>       [Vmax= 1.874:Dmax=   .129]
03430>       [Din=  .500:Dused=  .500]
03431> # Culvert from inlet 6
03432> # HDPE smooth wall pipe Manning's n = 0.012
03433> 025:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03434>      ROUTE PIPE         -> 02:PR6A        1.43      .095 No data    1:33   26.36  n/a
03435>       [RDT  1.00] out<- 01:Cin6          1.43      .095 No data    1:33   26.36  n/a
03436>       [L/S/m=   23./ .900/.012]
03437>       [Vmax= 1.975:Dmax=   .209]
03438>       [Din=  .500:Dused=  .500]
03439> # Input to inlet 6 pipe
03440> 025:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03441>      ADD HYD            02:PR6B         .93      .060 No data    1:32   26.36  n/a
03442>                       + 03:Cin6         1.43      .095 No data    1:33   26.36  n/a
03443>      [IT= 1.00]  SUM=  01:In6          2.36      .152 No data    1:33   26.36  n/a
03444> # Pipe from inlet 6 - Route to pond
03445> # HDPE smooth wall pipe Manning's n = 0.012
03446> 025:0072----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03447>      ROUTE PIPE         -> 02:In6         2.36      .107 No data    1:33   26.36  n/a
03448>       [RDC  1.00] out<- 01:Pin6          2.36      .107 No data    1:33   26.36  n/a
03449>       [L/S/m=   70./ .300/.013]
03450>       [Vmax= 1.255:Dmax=  .190]
03451>       [Din=  .500:Dused=  .500]
03452> # VOLUME TO POND CALCULATE RESIDENTIAL
03453> 025:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03454>      ADD HYD            02:Pin1         5.00      .358 No data    1:31   21.63  n/a
03455>                       + 03:Pin2         2.74      .180 No data    1:33   26.72  n/a
03456>                       + 04:Pin3          .97      .064 No data    1:33   26.36  n/a
03457>                       + 05:Pin4         1.36      .092 No data    1:33   26.36  n/a
03458>                       + 06:Pin5         1.12      .079 No data    1:33   26.36  n/a
03459>                       + 07:Pin6         2.36      .152 No data    1:33   26.36  n/a
03460>                       + 08:PIn          5.03      .713 No data    1:23   38.33  n/a
03461>      [IC= 1.00]  SUM=  01:PONDin       18.63     1.500 No data    1:24   28.41  n/a
03462> #  Pond outflow for ultimate conditions using weir .6, .6, 3.0
03463> 025:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03464>      ROUTE RESERVOIR -> 02:PONDin      18.63     1.500 No data    1:24   28.41  n/a
03465>       [RDT= 5.00] out<- 01:POUT         18.63      .101 No data    4:06   28.41  n/a
03466>            overflow <= 03:over2          .00      .000 No data    0:00     .00  n/a
03467>      [MaxStage=.63:IC=0, TotVolVol=.000E+00, M Ove=    0, TotOurOvF=    0.m3s]
03468> # Simulating SUB 100 yr conditions with submergence of outflow weir
03469> # Control for weir .6, .6, 3.0
03470> $ROUTE RESERVOIR     RNYDout ["POUT"] ,RNYDin ["PONDin"] ,
03471> &                    RDT=1.0[min],
03472> &                          TABLE of | OUTFLOW STORAGE | values
03473> &                                    (cms)    (ha-m)
03474> &                                  1   0.0 ,   0.0 ;
03475> &                                   0.09001 , 1.1259
03476> &                                   0.20  , 1.8110
03477> &                                   0.39  , 2.8195
03478> &                                   |     |  ,   |  |  (max twenty pts)
03479> &                          RNYDovF=["over"] ,
03480> # Route pond output through first set of pipes
03481> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=960 cms dia)
03482> # HDPE smooth wall pipe Manning's n = 0.012
03483> 025:0075----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03484>      ROUTE PIPE         -> 02:POUT        18.63      .101 No data    4:06   28.41  n/a
03485>       [RDC= 1.00] out<- 01:POUT1         18.63      .101 No data    0:07   28.01  n/a
03486>       [L/S/m=   70./ .200/.012]
```

```
                    (Vmax=  .629:Dmax=  .216)
                    (Dir=  .780:Dused=  .780)
# Flow s/s of outlet culverts
 025:0078---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             03:PR1B        .16     .023 No_date    1:33   25.12  n/a
                       + 04:PR1C1       .22     .019 No_date    1:33   25.12  n/a
                       + 05:Pout1     18.83     .101 No_date    4:07   28.01  n/a
     [DT= 1.00]  SUM=  01:Pout      19.21     .103 No_date    4:01   28.25  n/a
# Route outflow through set of Culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity | 780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 025:0077---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout      19.21     .105 No_date    4:01   28.25  n/a
     [RDT= 1.00] outs= 01:Cout      19.21     .105 No_date    4:01   28.25  n/a
     [L/s/m=  13./ .400/.012]
     (Vmax= 1.184:Dmax=  .154)
     [Dir=  .780:Dused=  .780]
# Flow s/s of second set of outflow pipes
 025:0078---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:PR2C1       .39     .025 No_date    1:33   25.12  n/a
                       + 04:Cout      19.21     .105 No_date    4:01   28.25  n/a
     [DT= 1.00]  SUM=  01:Pout2     19.77     .103 No_date    4:01   28.11  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity |=780 mm dia|
# HDPE smooth wall pipe Manning's n = 0.012
 025:0079---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout2     19.77     .103 No_date    3:59   28.11  n/a
     [RDT= 1.00] outs= 01:Pout9     19.77     .101 No_date    4:00   28.11  n/a
     [L/s/m    65./ .080/.012]
     (Vmax=  .903:Dmax=  .223)
     [Dir=  .780:Dused=  .780]
# Total flow at node N1 (Shield RD along Sales Barn Rd)
 025:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:BREK2       57.85    2.979 No_date    1:48   31.54  n/a
                       + 03:RouteF      19.77     .106 No_date    4:00   28.11  n/a
                       + 04:EX7          .39     .033 No_date    1:23   28.51  n/a
                       + 05:PR7D         .58     .030 No_date    1:33   25.12  n/a
                       + 06:PR7F         .82     .036 No_date    1:35   21.85  n/a
     [DT= 1.00]  SUM=  01:N1        78.93    2.995 No_date    1:48   30.41  n/a
# ROUTE N1 to N3
# Typical Section based on Shields MD Vee ditch 3:1 bank
# provided by Attel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.3% as per plan provided by Attel.
 025:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1        78.93    2.995 No_date    1:48   30.41  n/a
     [RDT= 1.00] outs= 01:N3        78.93    2.020 No_date    2:01   30.41  n/a
     [L/s/m   339./ .050/.035]
     (Vmax=  .494:Dmax= 1.478)
# VOLUME from residential area at N3 interim
 025:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:PR3A        1.35     .081 No_date    1:35   23.12  n/a
                       + 03:PR4         1.38     .077 No_date    1:36   21.65  n/a
     [DT= 1.00]  SUM=  01:N3A        2.73     .159 No_date    1:36   22.30  n/a
# Added VOLUME from external area contributing to N3
 025:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EX5          .50     .059 No_date    1:25   35.56  n/a
                       + 03:N3A         2.73     .159 No_date    1:36   22.30  n/a
                       + 04:EX6          .51     .047 No_date    1:24   27.27  n/a
                       + 05:EXC1        1.09     .138 No_date    1:20   41.56  n/a
     [DT= 1.00]  SUM=  01:N3        83.97    3.158 No_date    2:01   30.19  n/a
# ROUTE N3 to N3120
# Typical section based on Shields MD Vee ditch 3:1 bank
# provided by Attel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.8% as per plan provided by Attel.
 025:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3        83.97    3.158 No_date    2:01   30.18  n/a
     [RDT= 1.00] outs= 01:EX3        83.97    1.990 No_date    2:20   30.18  n/a
     [L/s/m=  415./ .050/.035]
     (Vmax=  .763:Dmax= 1.478)
# Flow at Stantec node NC01B for comparison
# Scaled 44 plus 100
 025:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EX3         83.97    1.990 No_date    2:20   30.18  n/a
                       + 03:EX5         20.50     .559 No_date    2:21   28.53  n/a
     [DT= 1.00]  SUM=  01:NC01B     104.21    2.410 No_date    2:20   29.27  n/a
# AREA CHECK
 025:0086---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EX3         84.52    1.883 No_date    1:39   35.86  n/a
                       - 03:EX2          8.85     .303 No_date    2:09   30.61  n/a
                       - 04:EX3         21.50     .559 No_date    2:23   28.53  n/a
                       - 05:EX4          .50     .042 No_date    1:41   35.48  n/a
                       - 06:EX5          .50     .059 No_date    1:25   35.56  n/a
                       - 07:EX6          .51     .047 No_date    1:24   27.27  n/a
                       - 08:EX7          .39     .033 No_date    1:23   28.51  n/a
                       - 09:PR1A         .24     .017 No_date    1:31   26.36  n/a
                       - 10:PR1B         .55     .037 No_date    1:32   26.36  n/a
     [DT= 1.00]  SUM=  01:Tot1      58.52    2.420 No_date    1:36   22.96  n/a
 025:0087---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot1        58.52    2.420 No_date    1:36   22.96  n/a
                       + 03:PR2A        1.57     .104 No_date    1:33   26.56  n/a
                       + 04:PR2B        1.17     .077 No_date    1:33   26.35  n/a
                       + 05:PR1A         .47     .030 No_date    1:32   26.36  n/a
                       + 06:PR1B         .91     .061 No_date    1:32   26.36  n/a
                       + 07:PR4A         .71     .045 No_date    1:32   25.28  n/a
                       + 08:PR1B         .55     .041 No_date    1:32   25.28  n/a
                       + 09:PR5A         .58     .045 No_date    1:32   25.28  n/a
                       + 10:PR5B         .46     .031 No_date    1:32   25.26  n/a
     [DT= 1.00]  SUM=  01:Tot2      64.71    2.817 No_date    1:30   23.29  n/a
 025:0088---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot2        64.71    2.817 No_date    1:35   23.29  n/a
                       - 03:PR6A        1.13     .085 No_date    1:31   26.16  n/a
                       - 04:PR6B         .93     .069 No_date    1:31   26.16  n/a
                       - 05:PR7A        1.55     .083 No_date    1:35   23.12  n/a
                       - 06:PR7B1        .56     .023 No_date    1:33   23.12  n/a
                       - 07:PR7B2        .22     .015 No_date    1:33   23.12  n/a
                       - 08:PR7C1        .55     .025 No_date    1:35   23.12  n/a
                       - 09:PR7D2        .17     .011 No_date    1:33   23.12  n/a
                       - 10:PR7D         .58     .030 No_date    1:33   23.12  n/a
     [DT= 1.00]  SUM=  01:Tot3      59.86    2.146 No_date    1:35   23.38  n/a
 025:0089---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot3        59.86    2.146 No_date    1:35   23.38  n/a
                       + 03:PR8         1.78     .077 No_date    1:16   31.65  n/a
                       + 04:PR9A        1.10     .062 No_date    1:16   31.65  n/a
                       + 05:PR9B1        .75     .035 No_date    1:18   31.65  n/a
                       + 06:PR9B2       1.80     .067 No_date    1:16   31.65  n/a
                       + 07:PR1D        1.87     .108 No_date    1:17   21.65  n/a
                       + 08:PR1I         .68     .038 No_date    1:18   21.65  n/a
                       + 09:PR1         4.28     .304 No_date    1:31   20.82  n/a
                       + 10:PR1         5.03     .713 No_date    1:23   38.33  n/a
     [DT= 1.00]  SUM=  01:Tot4      80.37    4.256 No_date    1:34   24.01  n/a
 025:0090---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot4        80.37    4.256 No_date    1:34   24.01  n/a
                       + 03:C1          4.19    1.981 No_date    1:20   46.60  n/a
                       + 04:C2          6.36    1.923 No_date    1:20   52.81  n/a
                       + 05:C3           .24     .095 No_date    1:20   60.19  n/a
                       + 06:EXC1        1.09     .138 No_date    1:20   32.63  n/a
                       + 07:EXC2        1.07     .166 No_date    1:20   35.71  n/a
                       + 08:EXC3         .32     .047 No_date    1:20   41.56  n/a
                       + 09:PR1         1.52     .410 No_date    1:20   42.16  n/a
     [DT= 1.00]  SUM=  01:Tot5      104.01   7.384 No_date    1:21   26.26  n/a
#*******************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN :  45
-------------------------------------------------------------------------------
RUN:COMMAND4
 C001:C001---------------------------------------------------------------------
     START
      [TIMRN=     .03 hrs on      0]
      [METOUT    2    (1=imperial, 2=metric output)]
      [NSTORM=   1]
      [NRUN  =   5]
#*******************************************************************************
#  SWMHYMO Ver:5.02/Jun 2001 <esia> / INPUT DATA FILE
#*******************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [367 01]
#  Date        : 01-09-2009
#  Modeller    : JDF
#  Company     : JFSAinc.
#  License #   : 2047402
#*******************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate Conditions. Option B
# Filename stands for: Greely, Commercial, Proposed
#*******************************************************************************
```

```
03653>  050:0002----------------------------------------------------------------------
03654>       READ STORM
03655>        Filename = storm.001
03656>        Comment  = 50 years Chicago Storm 4 Hours step 10 min, City of Ottawa
03657>        ptot=10.00:itot=    4.00 PTOT   48.73]
03658> #*************************************************************************
03659> # Existing Flow - McEvoy Branch of Shield Creek - Areas
03660> # Area c/s of proposed development (residential)
03661> # CN= 75, slope = 0.8, Iam=.16, AIMP=.2, DIMP=.15, see SCH07 as per Stantec
03662> # Area partially adjusted based on Attel drawings. To adjusted accordingly.
03663> #*************************************************************************
03664> # c/s of Bank St.as per Attel - with modified boundaries and Tp.
03665>  050:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03666>       DESIGN NASHYD      01:EX1       24.62     1.256 No date    1:54   29.75 .423
03667>        [CN= 75.0: N= 3.0]
03668>        [Tp=  .23:dT= 1.00]
03669> #*************************************************************************
03670> # Existing flow - External areas c/s of Bank St.
03671> # CN=49, as per Stantec see SC001.
03672> # Area partially adjusted based on Attel drawings.
03673> #*************************************************************************
03674> # Areas External to development
03675>  050:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03676>       DESIGN RASHYD      01:EX2        9.89     .360 No date    1:48   26.92 .363
03677>        [CN= 49.0: N= 3.00]
03678>        [Ia=  .67:dT= 1.00]
03679>  050:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03680>       DESIGN NASHYD      01:EX3       21.30     .671 No date    2:21   24.92 .361
03681>        [CN= 49.0: N= 3.00]
03682>        [Ia=  .82:dT= 1.00]
03683> # Slope, Tlag, Area from Attel Drawing
03684> # CN from Stantec (SC001)
03685> # Xlag   Tlag = .30
03686>  050:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03687>       CALIB STANDHYD     02:EX4        .50      .038 No date    1:52   29.97 .436
03688>        [XIMP=..1:TIMP=.22]
03689>        [Loss= 2 :CN= 69.0]
03690>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03691>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03692> # Road and road side ditch along projected residential development Parkway Rd
03693> # Tlag = Xlag = 0.21 hr /0.02 hr  = 8.40
03694> # CN=98, as per Stantec see SC001.
03695> # Slope is estimated at 1%
03696> # LGI based on centroid of area due to elongated shape   600m/2 = 300
03697>  050:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03698>       CALIB STANDHYD     03:EX5        .22      .068 No date    1:26   40.68 .592
03699>        [XIMP=.00:TIMP=.40]
03700>        [Loss= 2 :CN= 69.0]
03701>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03702>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 300.:MNI=.045:SCI=   .0]
03703> # Road and road side ditch along projected residential development Salesbarn Rd
03704> # Tlag = Xlag = 0.1 hr /0.51 hr  = 0.20
03705> # CN=98, as per Stantec see SC001.
03706> # Slope is estimated at 1%
03707> # LGI based on centroid of area due to elongated shape   354m/2 = 177
03708>  050:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03709>       CALIB STANDHYD     04:EX6        .51      .011 No date    1:24   31.86 .464
03710>        [XIMP=.20:TIMP=.20]
03711>        [Loss= 2 :CN= 69.0]
03712>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03713>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 177.:MNI=.045:SCI=   .0]
03714> # Road and road side ditch along projected residential development Salesbarn Rd
03715> # Tlag   Xlag = 0.03 hr /0.39 hr  = 0.23
03716> # CN=98, as per Stantec see SC001.
03717> # Slope is estimated at 1%
03718> # LGI based on centroid of area due to elongated shape   255m/2 = 127.5
03719>  050:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03720>       CALIB STANDHYD     05:EX7        .38      .038 No date    1:02   33.18 .483
03721>        [XIMP=.21:TIMP=.21]
03722>        [Loss= 2 :CN= 69.0]
03723>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03724>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 127.:MNI=.045:SCI=   .0]
03725> #*************************************************************************
03726> # PROPOSED COMMERCIAL DEVELOPMENT
03727> #*************************************************************************
03728> # CN = 75 as per full grass cover with C soil type for top soil; CN*=80
03729> # XIMP = TIMP to be conservative
03730> #*************************************************************************
03731>  050:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03732>       DESIGN STANDHYD    01:EC1        8.30     3.744 No date    1:20   32.57 .765
03733>        [XIMP=.61:TIMP=.85]
03734>        [SLP=1.00:dT= 1.00]
03735>        [Loss= 2 :CN= 72.0]
03736>  050:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03737>       DESIGN STANDHYD    02:EC2        6.58     3.167 No date    1:20   29.21 .862
03738>        [XIMP=.79:TIMP=.79]
03739>        [SLP 1.00:dT= 1.00]
03740>        [Loss= 2 :CN= 71.0]
03741>  050:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03742>       DESIGN STANDHYD    03:EC3         .24      .106 No date    1:18   27.16 .779
03743>        [XIMP=.98:TIMP=.98]
03744>        [SLP=1.00:dT= 1.00]
03745>        [Loss= 2 :CN= 71.0]
03746> # Xlag = Imp ha/total area = 0.30/1.78 ha = .17
03747>  050:0013---------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03748>       DESIGN STANDHYD    04:EXC1       1.10      .158 No date    1:26   37.61 .548
03749>        [XIMP=.27:TIMP=.27]
03750>        [SLP=1.00:dT= 1.00]
03751>        [Loss= 2 :CN= 71.0]
03752> # Tlag = Imp ha/total area = 0.35/1.07 ha = .33
03753>  050:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03754>       DESIGN STANDHYD    05:EXC2       1.07      .149 No date    1:20   40.86 .596
03755>        [XIMP=.35:TIMP=.35]
03756>        [SLP 1.00:dT= 1.00]
03757>        [Loss= 2 :CN= 71.0]
03758> # Tlag = Imp ha/total area = 0.11/0.22ha = .50
03759>  050:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03760>       DESIGN STANDHYD    06:EXC3        .22      .053 No date    1:20   42.18 .616
03761>        [XIMP=.50:TIMP=.50]
03762>        [SLP=1.00:dT= 1.00]
03763>        [Loss= 2 :CN= 71.0]
03764> #*************************************************************************
03765> # Commercial pond (POc)
03766> # slope estimated at 1% based on elevations around pond.
03767> # Timp and Ximp based on total pond area.
03768> # ximp = A pond/A tot (1.04/1.57)
03769>  050:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03770>       DESIGN STANDHYD    01:POc        1.57      .584 No date    1:20   54.23 .789
03771>        [XIMP=.67:TIMP=.67]
03772>        [SLP 1.00:dT= 1.00]
03773>        [Loss= 0 :CN= 71.0]
03774> ##########################################################################
03775> #*************************************************************************
03776> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
03777> #*************************************************************************
03778> # CN= 69, as per Stantec see SC001.
03779> # Tp estimated with Uplans Method.
03780>  050:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03781>       DESIGN NASHYD      01:R1         4.26      .368 No date    1:10   34.97 .564
03782>        [CN= 69.0: N= 3.00]
03783>        [Ia=  .18:dT= 1.00]
03784> #*************************************************************************
03785> # AREAs GOING TO RESIDENTIAL POND (PDa)
03786> #*************************************************************************
03787> #
03788>  050:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03789>       CALIB STANDHYD     01:R1A        .36      .021 No date    1:51   31.08 .482
03790>        [XIMP=.11:TIMP=.21]
03791>        [Loss= 2 :CN= 71.0]
03792>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03793>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  40.:MNI=.045:SCI=   .0]
03794>  050:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03795>       CALIB STANDHYD     02:R1B        .55      .047 No date    1:51   31.08 .482
03796>        [XIMP=.11:TIMP=.21]
03797>        [Loss= 2 :CN= 71.0]
03798>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03799>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  61.:MNI=.045:SCI=   .0]
03800>  050:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03801>       CALIB STANDHYD     03:PR2A       1.57      .171 No date    1:52   31.08 .482
03802>        [XIMP=.11:TIMP=.21]
03803>        [Loss= 2 :CN= 71.0]
03804>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03805>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 102.:MNI=.045:SCI=   .0]
03806>  050:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03807>       CALIB STANDHYD     04:PR2B       1.17      .087 No date    1:52   31.08 .482
03808>        [XIMP=.11:TIMP=.21]
03809>        [Loss= 2 :CN= 71.0]
03810>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03811>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03812>  050:0022---------------ID:ENVD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03813>       CALIB STANDHYD     01:PR1A       1.45      .039 No date    1:51   31.08 .482
03814>        [XIMP=.21:TIMP=.21]
03815>        [Loss= 2 :CN= 71.0]
03816>        [Pervious      area: IAper= 4.67:SLPP 1.00:IGP=  40.:MNP=.250:SCP=   .0]
03817>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03818>  050:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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038564>  SUB:0048----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
038565>       ROUTE CHANNEL    -> 01:rPDc      17.81      .850 No_data    1:00   52.81  n/a
038567>         [RDT= 1.00] out<- 01:RSPDc     17.81      .817 No_data    1:58   57.01  n/a
038568>         [L/S/n=  360./ .250/.030]
038569>         (Vmax=  .426:Dmax=  .444)
038570> # Total channel flow at pipe C/s of node 30
038571>  SUB:0049----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
038572>       ADD HYD            02:ex30      19.06      .891 No_date    1:56   51.89  n/a
038573>                        + 03:EX2        9.58      .365 No_date    1:48   34.93  n/a
038574>                        + 05:c3         .24       .196 No_date    1:18   67.16  n/a
038575>       [DT= 1.00]  SUM=  01:30        28.90     1.315 No_date    1:40   36.68  n/a
038576> # ************
038577> # Total flow at node 30
038578> # (Note that EX2 will be sheet draining to proposed channel)
038579>  SUB:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040603>       ADD HYD            02:ex30      19.06      .891 No_date    1:56   51.89  n/a
040611>                        + 03:NNEX1     26.79     2.291 No_date    1:37   38.51  n/a
040620>                        + 04:EX2        9.58      .365 No_date    1:48   34.93  n/a
040629>                        + 05:c3         .24       .196 No_date    1:18   67.16  n/a
040638>       [DT= 1.00]  SUM=  01:30        55.98     3.315 No_date    1:44   36.68  n/a
040646> # Typical Section based on proposed channel provided by AEL
040647> # 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
040648> # Route SW draining at 30 to n/x node N-EX2
040649>  SUB:0051----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040650>       ROUTE CHANNEL    -> 02:n30      55.98     3.315 No_date    1:44   36.68  n/a
040658>         [RDT= 1.00] out<- 01:nN0      55.98     3.285 No_date    1:44   36.56  n/a
040667>         [L/S/n=  324./ .400/.030]
040675>         (Vmax= 1.159:Dmax=  .730)
040684> # Total flow at node N-EX2
040685>  SUB:0052----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040694>       ADD HYD            02:nN0       55.98     3.285 No_date    1:44   36.68  n/a
040702>                        + 03:FR10       1.87      .331 No_date    1:35   26.98  n/a
040711>       [DT= 1.00]  SUM=  01:NEX2      57.85     3.577 No_date    1:44   36.33  n/a
040719> # Route Node N-EX2 to Node N1
040728> # Typical section based on Shaw da MN Vee Ditch 3:1 banks
040737> # provided by Ariel
040746> # Manning's n is Channel not maintained, light brush on banks
040754> # Slope = 0.75% as per plan provided by Ariel.
040763>  SUB:0053----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040771>       ROUTE CHANNEL    -> 02:NEX2      57.85     3.577 No_date    1:44   36.33  n/a
040780>         [RDT= 1.00] out<- 01:NEX2      57.85     3.553 No_date    1:58   36.22  n/a
040789>         [L/S/n=  1233./ .050/.035]
040797>         (Vmax=  .307:Dmax=  1.713)
040806> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
040815> # Residential Development - Phase 1 and 2
040824> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
040833> # Total flow at node N-PE
040842>  SUB:0054----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040850>       ADD HYD            02:ex2       4.26      .168 No_date    1:36   24.09  n/a
040859>                        + 03:FR1A       .24       .021 No_date    1:30   31.08  n/a
040868>       [DT= 1.00]  SUM=  01:NPX1       4.50      .189 No_date    1:36   25.25  n/a
040876> # Va ane to manning also in EX1
040885> # Q=0.695 a/s required as per SCS 10yr Existing conditions
040894> # Culvert from Inlet 1
040903> # Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
040911> # Manning's n = 0.012, Inlet control nomograph
040920> # Hydraulic Head = 0.9m, Q=0.610
040929>  SUB:0055----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040937>       COMPUTE DIVERT     01:NPX1        4.50      .189 No_date    1:36   25.25  n/a
040946>         Major System /   02:N2ELN        .00       .000 No_date    0:00    .00  n/a
040955>         Minor System \   03:N2ELMn      4.50      .189 No_date    1:36   25.25  n/a
040963>       (M)DynEle=.0800E+03, TotVolVol=.0000E+00, K-Curve=    0, TotExcVol=    0.000)
040972> ¶ Input to Inlet 1 pipe
040981>  SUB:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
040989>       ADD HYD            02:FR1B         .58       .067 No_date    1:31   31.08  n/a
040998>                        + 03:EPE_Vr      4.50      .189 No_date    1:36   25.25  n/a
041007>       [DT= 1.00]  SUM=  01:In1         5.08      .438 No_date    1:31   27.98  n/a
041015> # Pipe from Inlet 1 - Route to pond
041024> # HDPE smooth wall pipe Manning's n = 0.012
041033>  SUB:0057----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041041>       ROUTE PIPE       -> 02:In1         5.08      .432 No_date    1:31   25.49  n/a
041050>         [RDT= 1.00] out<- 01:Pin1       5.08      .438 No_date    1:31   25.79  n/a
041059>         [L/S/n=  67./1.600/.012]
041067>         (Vmax= 2.595:Dmax=  .583)
041076>         [Din=  .600:Dused=  .600]
041085> # Culvert from inlet 2
041093> # HDPE smooth wall pipe Manning's n = 0.012
041102>  SUB:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041111>       ROUTE PIPE       -> 02:FR2A        1.57      .111 No_date    1:13   31.08  n/a
041119>         [RDT= 1.00] out<- 01:Cin2       1.57      .111 No_date    1:13   31.08  n/a
041128>         [L/S/n=  13./ .400/.012]
041137>         [Vmax= 1.319:Dmax=  .251]
041145>         [Din=  .300:Dused=  .300]
041154> # Input to Inlet 2 pipe
041163>  SUB:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041171>       ADD HYD            02:FR2B         .17       .007 No_date    1:13   31.08  n/a
041180>                        + 03:Cin2        1.57      .111 No_date    1:13   31.08  n/a
041189>       [DT= 1.00]  SUM=  01:In2         1.74      .097 No_date    1:13   31.21  n/a
041197> ¶ Pipe from Inlet 2 - Route to pond
041206> ¶ HDPE smooth wall pipe Manning's n = 0.012
041215>  SUB:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041223>       ROUTE PIPE       -> 02:In2         1.74      .227 No_date    1:32   31.31  n/a
041232>         [RDT= 1.00] out<- 01:Pin2       1.74      .226 No_date    1:33   31.31  n/a
041241>         [L/S/n=  15./ .250/.012]
041249>         (Vmax= 1.121:Dmax=  .465)
041258>         [Din=  .500:Dused=  .500]
041267> # Culvert from Inlet 3
041275> # HDPE smooth wall pipe Manning's n =  0.012
041284>  SUB:0061----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041292>       ROUTE PIPE       -> 02:FR3A         .02       .005 No_date    1:31   31.08  n/a
041301>         [RDT= 1.00] out<- 01:Cin3        .45       .038 No_date    1:31   31.08  n/a
041310>         [L/S/n=  13./ .400/.012]
041318>         (Vmax=  .050:Dmax=  .181)
041327>         [Din=  .300:Dused=  .300]
041336> ¶ Input to Inlet 3 pipe
041344>  SUB:0062----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041353>       ADD HYD            02:FR3B         .52       .045 No_date    1:31   31.08  n/a
041362>                        + 03:Cin3        .45       .038 No_date    1:31   31.08  n/a
041370>       [DT= 1.00]  SUM=  01:In3         .97       .083 No_date    1:31   31.08  n/a
041379> ¶ Pipe from Inlet 3 - Route to pond
041388> ¶ HDPE smooth wall pipe Manning's n = 0.012
041396>  SUB:0063----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041405>       ROUTE PIPE       -> 02:In3         .97       .083 No_date    1:31   31.08  n/a
041413>         [RDT= 1.00] out<- 01:Pin3       .97       .083 No_date    1:31   31.08  n/a
041422>         [L/S/n=  75./ .250/.012]
041431>         (Vmax=  .493:Dmax=  .368]
041439>         [Din=  .500:Dused=  .500]
041448> # Culvert from Inlet 4
041457> # HDPE smooth wall pipe Manning's n =  0.012
041465>  SUB:0064----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041474>       ROUTE PIPE       -> 02:FR4A         .27       .060 No_date    1:17   31.08  n/a
041483>         [RDT= 1.00] out<- 01:Cin4        .27       .060 No_date    1:17   31.08  n/a
041491>         [L/S/n=  13./ .400/.012]
041500>         (Vmax= 1.073:Dmax=  .164)
041509>         [Din=  .300:Dused=  .300]
041517> ¶ Input to Inlet 4 pipe
041526>  SUB:0065----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041535>       ADD HYD            02:FR4B         .65       .055 No_date    1:31   31.08  n/a
041543>                        + 03:Cin4        .71       .060 No_date    1:57   31.08  n/a
041552>       [DT= 1.00]  SUM=  01:In4         1.36      .115 No_date    1:57   31.08  n/a
041561> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
041569> ¶ HDPE smooth wall pipe Manning's n = 0.012
041578>  SUB:0066----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041587>       ROUTE PIPE       -> 02:In4         1.36      .115 No_date    1:32   31.08  n/a
041595>         [RDT= 1.00] out<- 01:Pin4       1.36      .115 No_date    1:32   31.08  n/a
041604>         [L/S/n=  65./1.900/.012]
041613>         (Vmax= 2.270:Dmax=  .350]
041621>         [Din=  .500:Dused=  .500]
041630> ¶ Culvert from Inlet 5
041639> ¶ HDPE smooth wall pipe Manning's n = 0.012
041647>  SUB:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041656>       ROUTE PIPE       -> 02:FR5A         .66       .056 No_date    1:31   31.08  n/a
041665>         [RDT= 1.00] out<- 01:Cin5        .66       .056 No_date    1:32   31.08  n/a
041673>         [L/S/n=  13./ .400/.012]
041682>         (Vmax= 1.051:Dmax=  .158]
041691>         [Din=  .300:Dused=  .300]
041699> # Input to Inlet 5 pipe
041708>  SUB:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041717>       ADD HYD            02:FR5B         .16       .000 No_date    1:31   31.08  n/a
041725>                        + 03:Cin5        .66       .056 No_date    1:31   31.08  n/a
041734>       [DT= 1.00]  SUM=  01:In5         .82       .056 No_date    1:31   31.08  n/a
041743> # Pipe from Inlet 5 - Route to pond
041751> # HDPE smooth wall pipe Manning's n = 0.012
041760>  SUB:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041769>       ROUTE PIPE       -> 02:In5         1.12      .096 No_date    1:32   31.08  n/a
041777>         [RDT= 1.00] out<- 01:Pin5       1.12      .096 No_date    1:32   31.08  n/a
041786>         [L/S/n=  75./1.600/.012]
041795>         (Vmax= 2.001:Dmax=  .165]
041803>         [Din=  .500:Dused=  .500]
041812> # Culvert from Inlet 6
041821> # HDPE smooth wall pipe Manning's n = 0.012
041829>  SUB:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
041838>       ROUTE PIPE       -> 02:FR6A         .43       .038 No_date    1:32   31.08  n/a
041847>         [RDT= 1.00] out<- 01:Cin6        .43       .038 No_date    1:32   31.08  n/a
041855>         [L/S/n=  13./ .400/.012]
041864>         (Vmax= 1.288:Dmax=  .237]
```

```
04151>       [Din=  .700:Dused=  .500]
04152> # Input to inlet 6 pipe
04153> 050:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04154>      ADD HYD            02:rvRb       .93     .078 No_date    1:32    31.07  n/a
04155>                      -  03:C1n6       1.43    .118 No_date    1:32    31.04  n/a
04156>      [JT= 1.00]  SUM=   01:In6        2.36    .196 No_date    1:32    31.05  n/a
04157> # Pipe from inlet 6 - Route to pond
04158> # 600 smooth wall pipe Manning's n = 0.012
04159> 050:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04160>      ROUTE PIPE      -> 01:In6        2.36    .196 No_date    1:32    31.05  n/a
04161>        [RT= 1.00] cur<- 01:Pipe       2.36    .196 No_date    1:33    31.05  n/a
04162>        [L/S/n=  30./ .500/.012]
04163>        [Vmax= 1.258:Dmax=  .364]
04164>        [Din=  .500:Dused=  .500]
04165> # VOLUME TO POND ULTIMATE CONDITION A1
04166> 050:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04167>      ADD HYD            02:Pin1       5.05    .436 No_date    1:31    26.04  n/a
04168>                       + 03:Pin2       2.76    .226 No_date    1:32    31.08  n/a
04169>                       + 04:Pin3        .97    .080 No_date    1:32    31.08  n/a
04170>                       + 05:Pin4       1.36    .105 No_date    1:32    31.08  n/a
04171>                       + 06:Pin5       1.72    .006 No_date    1:32    31.08  n/a
04172>                       + 07:Pin6       2.16    .196 No_date    1:33    31.08  n/a
04173>                       + 08:Pin        5.05    .275 No_date    1:25    45.60  n/a
04174>      [DT= 1.00]  SUM=   01:POND1n     18.55   1.795 No_date    1:26    33.21  n/a
04175> #  Pond outflow for ultimate conditions using weir .8; .8; 3.0
04176> 060:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04177>      ROUTE RESERVOIR -> 02:POND1n     18.55   1.795 No_date    1:26    33.21  n/a
04178>        [RUT= 1.00] out<- 01:POut       18.55    .126 No_date    4:05    33.21  n/a
04179>              overflow <- 03:Over        .00    .000 No_date    0:00     .00  n/a
04180>        (MaxOutQ=  .5003E+00, TotOvrVol=  .0000E+00, R-Ovr=    0, VolTarget=    0.0ha)
04181> # Simulating 5c5 100 yr conditions with submergence of outflow weir
04182> # updated for weir .6; .6; 3.0
04183> #ROUTE RESERVOIR     NHYDout=["POut"] ,NHrDin=["POND1n"] ,
04184> #                    RET=[1]min,
04185> #                          TABLE of ( OUTFLOW-STORAGE ) values
04186> #                                        (cms) - (ha-m)
04187> #                                   (   0.0 ,   0.0 )
04188> #                                    0.0600 , 1.1100
04189> #                                    0.30   , .8110
04190> #                                    0.33   , 2.0195
04191> #                                   (   -1  ,   -1  )  max twenty pts)
04192> #                          EHEDovf ["Ovf0"] ,
04193> # Route POND output through first set of pipes
04194> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=750 mm dia)
04195> # HDPE smooth wall pipe Manning's n = 0.012
04196> 050:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04197>      ROUTE PIPE      -> 01:POut       18.55    .126 No_date    4:05    33.21  n/a
04198>        [RT= 1.00] cur<- 01:Pout1      18.55    .126 No_date    4:04    33.21  n/a
04199>        [L/S/n=  35./ .500/.012]
04200>        [Vmax=  .630:Dmax=  .143]
04201>        [Din=  .750:Dused=  .750]
04202> # Flow s/s of outlet culverts
04203> 050:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04204>      ADD HYD            02:FP1B        .16     .010 No_date    1:32    27.84  n/a
04205>                       + 03:FP1C        .20     .015 No_date    1:32    27.84  n/a
04206>                       + 04:Pout1      18.55    .126 No_date    4:04    33.21  n/a
04207>      [DT= 1.00]  SUM=   01:Pout       19.21    .130 No_date    4:03    33.04  n/a
04208> # Route outflow through set of culverts
04209> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=750 mm dia
04210> # HDPE smooth wall pipe Manning's n = 0.012
04211> 050:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04212>      ROUTE PIPE      -> 02:Pout       19.21    .130 No_date    4:03    33.04  n/a
04213>        [RT= 1.00] cur<- 01:Cout       19.21    .130 No_date    4:03    33.04  n/a
04214>        [L/S/n=  35./ .600/.012]
04215>        [Vmax= 1.281:Dmax=  .206]
04216>        [Din=  .750:Dused=  .750]
04217> # Flow c/s of second set of outflow pipes
04218> 050:0078----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04219>      ADD HYD            02:FP2C1       .39     .032 No_date    1:32    27.64  n/a
04220>                       - 04:rb7c2       .17     .015 No_date    1:31    27.64  n/a
04221>                      -  04:Cout       19.21    .130 No_date    4:03    33.04  n/a
04222>      [DT= 1.00]  SUM=   01:Pout2      19.77    .134 No_date    3:40    32.89  n/a
04223> # Route outflow through second set of pipes
04224> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity ( 780 mm dia)
04225> # HDPE smooth wall pipe Manning's n = 0.012
04226> 050:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04227>      ROUTE PIPE      -> 01:Pout2      19.77    .134 No_date    3:40    32.89  n/a
04228>        [RT= 1.00] cur<- 01:Pout2      19.77    .134 No_date    3:41    32.89  n/a
04229>        [L/S/n=  65./ .500/.012]
04230>        [Vmax= 1.699:Dmax=  .251]
04231>        [Din=  .780:Dused=  .780]
04232> # Total flow at node N1 [Shield MD along 5a ex Farm Rd]
04233> 050:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04234>      ADD HYD            01:RNEW2      57.85    3.454 No_date    1:40    30.33  n/a
04235>                       + 03:Pmp1F      16.71    1.164 No_date    1:43    32.80  n/a
04236>                       + 04:EX3        1.39     .089 No_date    1:32    33.19  n/a
04237>                       + 05:FR1E        .30     .025 No_date    1:32    27.64  n/a
04238>                       + 06:FR1I        .62     .048 No_date    1:33    26.00  n/a
04239>      [DT= 1.00]  SUM=   01:N1         78.93   5.803 No_date    1:58    30.34  n/a
04240> # ROUTE N1 to N3
04241> # Typical section based on Shields MD Voc Ditch 3:1 banks
04242> # provided by Ariel
04243> # Manning's n is Channel not maintained, light brush on banks
04244> # Slope = 0.05% as per p an provided by Ariel.
04245> 050:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04246>      ROUTE CHANNEL   -> 02:N.         78.93   5.803 No_date    1:58    30.34  n/a
04247>  *     [RT= 1.00] cut<- 01:FD1        78.93   2.019 No_date    2:07    35.53  n/a
04248>        [L/S/n=  319./ .050/.035]
04249>        [Vmax=  .484:Dmax= 1.665]
04250> # VOLUME from residential area at N1 in-situ
04251> 050:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04252>      ADD HYD            02:rA7A        1.35    .105 No_date    1:34    27.84  n/a
04253>                      -  03:FP8         1.38    .098 No_date    1:34    26.00  n/a
04254>      [DT= 1.00]  SUM=   01:N31        2.73    .204 No_date    1:34    26.91  n/a
04255> # Added VOLUME from external area contributing to N3
04256> 050:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04257>      ADD HYD            02:EN1        78.93   3.619 No_date    2:03    35.34  n/a
04258>                      -  03:FP1        2.73     .204 No_date    1:34    26.91  n/a
04259>                      -  04:EX5         .50     .038 No_date    1:36    40.68  n/a
04260>                      -  05:EX6         .51     .044 No_date    1:35    41.66  n/a
04261>                      -  06:EX2A        .22     .053 No_date    1:20    47.18  n/a
04262>      [DT= 1.00]  SUM=   01:N3         82.91   3.771 No_date    2:01    35.10  n/a
04263> # ROUTE N3 to NCR128
04264> # Typical section based on Shields MD Voc Ditch 3:1 banks
04265> # provided by Ariel
04266> # Manning's n is Channel not maintained, light brush on banks
04267> # Slope = 0.05% as per plan provided by Ariel.
04268> 050:0084----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04269>      ROUTE CHANNEL   -> 02:N3         82.91   3.771 No_date    2:01    35.10  n/a
04270>        [RT= 1.00] out<- 01:N3         82.91   3.320 No_date    2:06    35.10  n/a
04271>        [L/S/n=  415./ .050/.035]
04272>        [Vmax=  .380:Dmax= 1.576]
04273> # Flow at Stantec node NCR128 for comparison
04274> # Routed N1 plus EX1
04275> 050:0085----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04276>      ADD HYD            02:N3         82.91   3.320 No_date    2:06    35.10  n/a
04277>                       + 03:EX3        21.39    673 No_date    2:21    24.92  n/a
04278>      [DT= 1.00]  SUM=   01:NCR128    104.21   3.955 No_date    2:06    33.02  n/a
04279> # AREA CHECK
04280> #
04281> 050:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04282>      ADD HYD            02:FX1        24.59    9.249 No_date    1:34    37.35  n/a
04283>                       - 03:EX2         9.39     .885 No_date    2:06    24.92  n/a
04284>                       - 04:EX3        21.39     .673 No_date    2:21    24.92  n/a
04285>                       - 05:EX4         .50     .040 No_date    1:31    26.57  n/a
04286>                       - 06:EX5         .52     .058 No_date    1:26    40.68  n/a
04287>                       - 07:EX6         .51     .044 No_date    1:27    41.66  n/a
04288>                       - 08:EX7         .98     .019 No_date    1:27    35.10  n/a
04289>                       - 09:FR1A        .24     .021 No_date    1:31    31.08  n/a
04290>                       - 10:FR1A        .66     .047 No_date    1:31    31.08  n/a
04291>      [DT= 1.00]  SUM=   01:Out1       58.52   2.908 No_date    1:36    27.64  n/a
04292> 050:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04293>      ADD HYD            02:Tot1       58.52   2.908 No_date    1:36    27.64  n/a
04294>                       + 03:FR2A        1.57     .111 No_date    1:32    31.08  n/a
04295>                       + 04:FR7B        1.19     .097 No_date    1:32    31.08  n/a
04296>                       + 05:FR1A         .66     .038 No_date    1:31    31.08  n/a
04297>                       + 06:FR3B         .52     .040 No_date    1:31    31.08  n/a
04298>                       + 07:FR4A         .71     .060 No_date    1:32    31.08  n/a
04299>                       + 08:FR1B         .65     .045 No_date    1:31    31.08  n/a
04300>                       + 09:FR7A         .68     .050 No_date    1:31    31.08  n/a
04301>                       + 10:FR5B         .48     .040 No_date    1:31    31.08  n/a
04302>      [DT= 1.00]  SUM=   01:Tot2       64.71   3.398 No_date    1:35    27.69  n/a
04303> 050:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04304>      ADD HYD            02:Tot2       64.71   3.398 No_date    1:35    27.69  n/a
04305>                       + 03:FR6A        .45     .114 No_date    1:32    31.08  n/a
04306>                       + 04:FR4B        .93     .079 No_date    1:32    31.08  n/a
04307>                       + 05:FR7A        .35     .105 No_date    1:34    27.64  n/a
04308>                       + 06:FR7B        .38     .030 No_date    1:32    27.64  n/a
04309>                       + 07:FR7E2       .22     .018 No_date    1:32    27.64  n/a
04310>                       + 08:FR7C1       .38     .032 No_date    1:32    27.64  n/a
04311>                       + 09:FR7C2       .17     .015 No_date    1:31    27.64  n/a
04312>                       + 10:FR7D        .30     .025 No_date    1:32    27.64  n/a
04313>      [DT= 1.00]  SUM=   01:Tot3       68.96   3.804 No_date    1:34    27.81  n/a
04314> 050:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04315>      ADD HYD            02:Tot3       69.56   3.809 No_date    1:34    27.61  n/a
04316>                       - 03:FX8         1.38    .099 No_date    1:34    26.00  n/a
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                    -  04:FPSA      1.10     .080 No_date    1:34   26.00  n/a
                    -  05:FPSB1      .25     .019 No_date    1:32   26.00  n/a
                    -  06:FPSB2     1.00     .073 No_date    1:34   26.00  n/a
                    -  07:FP1C      1.87     .132 No_date    1:35   26.00  n/a
                    -  08:FP1I       .62     .046 No_date    1:33   26.00  n/a
                    -  09:FP1       4.26     .368 No_date    1:30   24.92  n/a
                    -  10:PDc       5.03     .825 No_date    1:23   43.80  n/a
      [DT= 1.00]  SUM=  01:Tot1    55.37    5.162 No_date    1:33   28.47  n/a
 #*:0098----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Tot4    55.37    5.162 No_date    1:33   28.47  n/a
                    -  03:FI        8.56    1.264 No_date    1:20   52.17  n/a
                    -  04:EX        6.54    1.167 No_date    1:20   55.21  n/a
                    -  05:FA         .94     .136 No_date    1:20   47.13  n/a
                    -  06:EXC1      1.16     .159 No_date    1:20   47.64  n/a
                    -  07:EXC2      1.07     .190 No_date    1:20   46.96  n/a
                    -  08:EXC3       .22     .053 No_date    1:20   47.18  n/a
                    -  09:PDc       1.57     .484 No_date    1:20   54.23  n/a
      [DT= 1.00]  SUM=  01:Tot5    104.21    8.691 No_date    1:21   33.00  n/a
 #*************************************************************************
 # Simulations with 4 hour Chicago from City of Ottawa
   ** END OF RUN :  99
 #*************************************************************************
 RUN:COMMAND*
 100:0001----------------------------------------------------------------------
     START
       [TZERO      .00 hrs on        0]
       [METOUT    2     (1 imperial, 2 metric output)]
       [NSTORM=    1 ]
       [NRUN  = 100 ]
 #*************************************************************************
 #  SWMM:NU Ver:5.027Jun 2001 <EXIA> / INPUT DATA FILE
 #*************************************************************************
 #  Project Name: [Greely Village Centre]    Project Number: [647-07]
 #  Date        : 04-09-2008
 #  Modeller    : [JHE]
 #  Company     : JFSA inc.
 #  License #   : 2541402
 #*************************************************************************
 #
 # SWMM:NU model of the Greely Village Centre - Residential Area - Phase 2
 # Proposed Ultimate Conditions. OPTION B
 # Filename stands for: Greely, Commercial, Proposed
 #*************************************************************************
  100:0002----------------------------------------------------------------------
      READ STORM
       Filename  storm.001
       Comment   100 years Chicago Storm 4 Hours step 10 min, City of Ottawa
       [SDT=10.0m:SUNR=   4.00:PTOT=  6.00]
 #*************************************************************************
 # Existing Flow - McKeny Branch of Shield Creek - Areas
 # Area s/s of proposed development (residential)
 # CN'=76, slope = 0.8, Tp=0.16, XIMP=5, TIA=15, see SC001 as per Stantec
 # Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
 #*************************************************************************
 # s/s of Bank St.as per Atrel - with modified boundaries and Ip.
  100:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1      21.61    3.067 No_date    1:34   31.37  .498
       [CN= 76.0: N= 3.00]
       [Tp=  .13:DT= 1.00]
 #*************************************************************************
 # Existing Flow - External areas s/s of Bank St.
 # CN'=69. as per Stantec Sec SC001.
 # Area partially adjusted based on Atrel drawings.
 #*************************************************************************
 # Areas External to development
  100:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2      9.83    1.401 No_date    1:34   29.23  .387
       [CN= 69.0: N= 3.00]
       [Tp=  .67:DT= 1.00]
  100:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3      21.10    2.784 No_date    1:20   29.51  .387
       [CN= 69.0: N= 3.00]
       [Tp=  .33:DT= 1.00]
 # Slope, Timp, Area from Atrel Drawing
 # CN from Stantec (SC001)
 # Ximp   Timp - 10
  100:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX4       .50     .056 No_date    1:31   24.95  .660
       [CN= 76.0: N= 3.00]
       [Tp=  .13:DT= 1.00]
       [XIMP=.10:TIMP=.12]
       [LOSS= 2 :CN= 69.0]
       [Pervious    area: [Aper= 4.67:sLP= 1.00:sLP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:sLI= 1.00:LCI=  28.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Parkway Rd
 # Timp = Ximp = 0.1 ha /0.52 ha =  0.40
 # CN'=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # LGI based on centroid of area due to elongated shape = 500m/2 = 250
  100:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX5       .52     .078 No_date    1:20   45.23  .606
       [XIMP=.40:TIMP=.40]
       [LOSS= 2 :CN= 65.0]
       [Pervious    area: [Aper= 4.67:sLP=1.00:sLP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:sLI=1.00:LCI= 300.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Delaware Rd
 # Timp = Ximp = 0.1 ha /0.51 ha =  0.20
 # CN'=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # LGI based on centroid of area due to elongated shape = 354m/2 = 177
  100:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX6       .51     .052 No_date    1:24   36.85  .486
       [XIMP=.20:TIMP=.20]
       [LOSS= 2 :CN= 69.0]
       [Pervious    area: [Aper= 4.67:sLP=1.00:sLP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:sLI=1.00:LCI= 177.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Delaware Rd
 # Timp = Ximp = 0.05 ha /0.38 ha =  0.13
 # CN'=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
  100:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX7       .38     .045 No_date    1:22   38.24  .563
       [XIMP=.13:TIMP=.13]
       [LOSS= 2 :CN= 65.0]
       [Pervious    area: [Aper= 4.67:sLP=1.00:sLP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:sLI=1.00:LCI= 137.:NNI=.045:SCI=   .0]
 #*************************************************************************
 # EXISTING COMMERCIAL DEVELOPMENT
 #*************************************************************************
 # LS - 79 as per full grass cover with C soil type for top soil; CN= 71
 # XIMP - TIMP to be conservative
 #*************************************************************************
  100:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C1        0.70    2.062 No_date    1:20   58.90  .775
       [XIMP=.65:TIMP=.65]
       [SLP=1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
  100:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C2        0.36    2.020 No_date    1:20   67.95  .868
       [XIMP=.75:TIMP=.75]
       [SLP=1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
  100:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C3        .24     .117 No_date    1:20   74.38  .938
       [XIMP= 90:TIMP=.90]
       [SLP=1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
 # Imp = Imp ha/total area = 0.30/1.10 ha = .27
  100:00:3----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EXC1      1.10     .183 No_date    1:20   47.05  .566
       [XIMP=.27:TIMP=.27]
       [SLP 1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
 # Imp = Imp ha/total area = 0.35/1.07 ha = .33
  100:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EXC2      1.07     .291 No_date    1:20   70.76  .813
       [XIMP=.33:TIMP=.33]
       [SLP=1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
 # Imp = Imp ha/total area = 0.11/0.22ha = .50
  100:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EXC3      .22     .068 No_date    1:20   85.29  .938
       [XIMP=.50:TIMP=.50]
       [SLP 1.00:DT= 1.00]
       [LOSS= 2 :CN= 71.0]
 #*************************************************************************
 # Commercial pond (PDc)
 # Slope estimated at 1% based on elevations around pond.
 # Timp and Ximp based on total pond area
 # ximp = A pond/A tot (1.06/1.57)
  100:0016----------ID:NHYD       AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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```
044481>       DESIGN STANDARD    01:PDC          1.57      .541 No_Date     1:20   60.66 .798
044484>         [X:MP=-.67:TIMP=.67]
044485>         [SLP= 1.00:DT= 1.00]
044486>         [LOSS= 2 :CN= 71.0]
044487> ***********************************************************************
044488> *-----------------------------------------------------------------------*
044489> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Mashichiel Area Phase 1 and 2    *
044490> *-----------------------------------------------------------------------*
044491> # CN*-69, Ia per standic soil SCS01.
044492> # Tp estimated with Upland Method.
044493>  100:0017----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044494>       DESIGN HYDROID      01:PX1          0.26      .438 No_Date     1:10   28.41 .580
044495>         [IN= 69.01 N= 9.00]
044496>         [Tp= .13:07= 1.00]
044497> *-----------------------------------------------------------------------*
044498> * AREAS GOING TO RESIDENTIAL POND (PEL)                                 *
044499> *-----------------------------------------------------------------------*
044500> #
044501>  100:0018----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044502>       CALIB STANDHYD      01:PR1A         .24      .024 No_date     1:50   36.21 .477
044503>         [XIMP=.11:TIMP=.21]
044504>         [LOSS= 2 :CN= 71.0]
044505>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044506>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044507>  100:0019----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044508>       CALIB STANDHYD      01:PR1B         .55      .059 No_date     1:50   36.21 .477
044509>         [XIMP=.11:TIMP=.21]
044510>         [LOSS= 2 :CN= 71.0]
044511>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044512>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044513>  100:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044514>       CALIB STANDHYD      01:PR2A         .57      .160 No_date     1:32   36.21 .477
044515>         [XIMP=.11:TIMP=.21]
044516>         [LOSS= 2 :CN= 71.0]
044517>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044518>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044519>  100:0021----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044520>       CALIB STANDHYD      01:PR3A         .11      .032 No_date     1:31   36.21 .477
044521>         [XIMP=.11:TIMP=.21]
044522>         [LOSS= 2 :CN= 71.0]
044523>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044524>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044525>  100:0022----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044526>       CALIB STANDHYD      01:PR3B         .45      .048 No_date     1:31   36.21 .477
044527>         [XIMP=.11:TIMP=.21]
044528>         [LOSS= 2 :CN= 71.0]
044529>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044530>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044531>  100:0023----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044532>       CALIB STANDHYD      01:PR3B         .52      .056 No_date     1:31   36.21 .477
044533>         [XIMP=.11:TIMP=.21]
044534>         [LOSS= 2 :CN= 71.0]
044535>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044536>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044537>  100:0024----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044538>       CALIB STANDHYD      01:PR4A         .71      .074 No_date     1:31   36.21 .477
044539>         [XIMP=.11:TIMP=.21]
044540>         [LOSS= 2 :CN= 71.0]
044541>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044542>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044543>  100:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044544>       CALIB STANDHYD      01:PR4B         .65      .068 No_date     1:31   36.21 .477
044545>         [XIMP=.11:TIMP=.21]
044546>         [LOSS= 2 :CN= 71.0]
044547>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044548>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044549>  100:0026----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044550>       CALIB STANDHYD      01:PR5A         .66      .069 No_date     1:31   36.21 .477
044551>         [XIMP=.11:TIMP=.21]
044552>         [LOSS= 2 :CN= 71.0]
044553>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044554>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044555>  100:0027----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044556>       CALIB STANDHYD      01:PR5B         .40      .049 No_date     1:30   36.21 .477
044557>         [XIMP=.11:TIMP=.21]
044558>         [LOSS= 2 :CN= 71.0]
044559>         [Pervious     area: IAper= 4.67:SLPP=  .00:LGP=  40.:NMP=.250:SCP=   .0]
044560>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044561>  100:0028----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044562>       CALIB STANDHYD      01:PR6A         1.43      .136 No_date     1:37   36.31 .477
044563>         [XIMP=.11:TIMP=.21]
044564>         [LOSS= 2 :CN= 71.0]
044565>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044566>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:NMI=.045:SCI=   .0]
044567>  100:0029----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
044568>       CALIB STANDHYD      01:PR6B         .91      .098 No_date     1:41   36.27 .479
044569>         [XIMP=.11:TIMP=.21]
044570>         [LOSS= 2 :CN= 71.0]
044571>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
044572>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:NMI=.045:SCI=   .0]
045573> # slope estimated at 2% based on backyard swales
045574> # Timp and Ximp based on total pond area
045575> # ximp = A pond/A tot
045576> # Timp = weighted average of pond and backyards
045577>  100:0030----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045578>       CALIB STANDHYD      01:PDC          5.03      .948 No_date     1:23   49.65 .653
045579>         [X:MP=.44:TIMP=.47]
045580>         [LOSS= 2 :CN= 71.0]
045581>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045582>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:NMI=.045:SCI=   .0]
045583> *-----------------------------------------------------------------------*
045584> * UNCONTROLLED AREAS                                                    *
045585> *-----------------------------------------------------------------------*
045586> #
045587>  100:0031----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045588>   * CALIB STANDHYD      01:PR1A         1.15      .111 No_date     1:33   32.58 .429
045589>         [XIMP=.03:TIMP=.14]
045590>         [LOSS= 2 :CN= 71.0]
045591>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045592>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NMI=.045:SCI=   .0]
045593>  100:0032----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045594>   * CALIB STANDHYD      01:PR7B1        .36      .037 No_date     1:31   32.58 .429
045595>         [XIMP=.03:TIMP=.14]
045596>         [LOSS= 2 :CN= 71.0]
045597>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045598>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NMI=.045:SCI=   .0]
045599>  100:0033----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045600>   * CALIB STANDHYD      01:PR7B2        .22      .023 No_date     1:30   32.58 .429
045601>         [XIMP=.03:TIMP=.14]
045602>         [LOSS= 2 :CN= 71.0]
045603>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045604>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NMI=.045:SCI=   .0]
045605>  100:0034----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045606>   * CALIB STANDHYD      01:PR7C1        .39      .040 No_date     1:31   32.58 .429
045607>         [XIMP=.02:TIMP=.14]
045608>         [LOSS= 2 :CN= 71.0]
045609>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045610>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NMI=.045:SCI=   .0]
045611>  100:0035----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045612>   * CALIB STANDHYD      01:PR7C2        .17      .018 No_date     1:31   32.58 .429
045613>         [XIMP=.02:TIMP=.14]
045614>         [LOSS= 2 :CN= 71.0]
045615>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045616>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NMI=.045:SCI=   .0]
045617>  100:0036----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045618>   * CALIB STANDHYD      01:PR8          1.38      .124 No_date     1:33   30.77 .405
045619>         [XIMP=.01:TIMP=.07]
045620>         [LOSS= 2 :CN= 71.0]
045621>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045622>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:NMI=.045:SCI=   .0]
045623>  100:0037----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045624>   * CALIB STANDHYD      01:PR9A         1.10      .106 No_date     1:33   30.77 .405
045625>         [XIMP=.01:TIMP=.07]
045626>         [LOSS= 2 :CN= 71.0]
045627>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045628>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  80.:NMI=.045:SCI=   .0]
045629>  100:0038----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045630>   * CALIB STANDHYD      01:PR9B1        .20      .021 No_date     1:31   30.77 .405
045631>         [XIMP=.01:TIMP=.07]
045632>         [LOSS= 2 :CN= 71.0]
045633>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045634>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  80.:NMI=.045:SCI=   .0]
045635>  100:0039----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045636>   * CALIB STANDHYD      01:PR9B2        .09      .009 No_date     1:31   30.77 .405
045637>         [XIMP=.01:TIMP=.07]
045638>         [LOSS= 2 :CN= 71.0]
045639>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045640>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  80.:NMI=.045:SCI=   .0]
045641>  100:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045642>   * CALIB STANDHYD      01:PR9B2        1.09      .091 No_date     1:33   30.77 .405
045643>         [XIMP=.01:TIMP=.07]
045644>         [LOSS= 2 :CN= 71.0]
045645>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
045646>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:NMI=.045:SCI=   .0]
045647>  100:0041----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
045648>   * CALIB STANDHYD      01:PR10         1.37      .156 No_date     1:34   30.77 .405
```

```
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious    area: IAper= 4.67:SLPP=1.00:LSP=  40.:NNP=.250:SCP=   .0]
[Impervious  area: IAimp= 1.57:SLPI 1.00:LSI=  11.:NNI=.015:SCI=   .0]
10:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 - CALIB STANDHYD    01:PR11        .62      .958 No date    1:37   30.77 .405
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious    area: IAper= 4.67:SLPP=1.00:LSP=  40.:NNP=.250:SCP=   .0]
[Impervious  area: IAimp= 1.57:SLPI 1.00:LSI=  64.:NNI=.045:SCI=   .0]
*****************************************************************
* EXISTING Flow - Upstream of Proposed Development
*****************************************************************
* Total flow at node N-EX1
100:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          01:EX1        24.63    2.867 No_date    1:34   34.87 n/a
                   + 03:EXC1        1.13     .183 No_date    1:20   45.33 n/a
                   + 04:EXC2        1.07     .211 No_date    1:20   46.56 n/a
    [DT= 1.00]  SUM= 01:NEX1       26.79    2.876 No_date    1:33   35.67 n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 Bank slopes, Long slope = 0.05%, Manning's n is 0.03
* Route Pond N-EX1 to d/s node N0
100:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:NEX1       26.79    2.876 No_date    1:36   35.67 n/a
    [RTI= 1.00] outs= 01:RNEX1        26.79    2.864 No_date    1:36   35.67 n/a
    [I/S/n=  .050/ .030/.030]
    [Vmax= 1.480:Tmax=  .333]
*****************************************************************
* TOTAL INFLOW TO COMMERCIAL POND PO1
*****************************************************************
100:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:EX1         8.50    1.000 No_date    1:21   84.95 n/a
                   + 03:C1          8.38    2.562 No_date    1:20   58.90 n/a
                   + 04:C2          6.84    2.420 No_date    1:20   60.85 n/a
                   + 05:C3n         1.57     .241 No_date    1:20   60.66 n/a
    [DT= 1.00]  SUM= 01:InCln       16.71    5.065 No_date    1:20   61.02 n/a
100:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR -> 02:PDCin     16.71    5.065 No_date    1:38   61.02 n/a
    [MxS= 1.00] outs= 01:PDCout     16.71    1.065 No_date    1:48   61.02 n/a
              overflow <- 03:Ovrq       .00      .000 No_date    0:00     .00 n/a
    [MaxStored=.6008ICE+00, TailVol=.000ICE+00, M-Ovf=    0. TotDurOvf=    0.hrs]
* Total flow at outlet of commercial pond
100:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:PDCout     16.71    1.065 No_date    1:48   61.02 n/a
                   + 03:PR9A        7.19     .748 No_date    1:33   80.77 n/a
    [DT= 1.00]  SUM= 01:OFCn        23.91    1.045 No_date    1:48   65.15 n/a
* Route pond outflow at pipe u/s at node N0
* Typical Section based on proposed channel provided by AEL
* 2:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
100:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:OFCn      17.81    1.045 No_date    1:45   59.15 n/a
    [RTI= 1.00] outs= 01:OutPDC     17.81    1.041 No_date    1:55   59.15 n/a
    [I/S/n=  sec:/ .250/.030]
    [Vmax=  .724:Tmax=  .688]
* Total channel flow at pipe d/s of node N0
100:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:RePDC      17.81    1.041 No_date    1:55   59.15 n/a
                   + 04:FROM1       .25      .024 No_date    1:31   38.77 n/a
                   + 04:FROM2      1.00      .091 No_date    1:33   38.77 n/a
    [DT= 1.00]  SUM= 01:Out0       19.06    1.068 No_date    1:53   57.28 n/a
*************
* Total flow at node N0
* (Note that EX2 will be sheet draining to proposed channel)
100:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          01:unN0       19.06    1.089 No_date    1:53   57.28 n/a
                   + 02:NNEX1      26.79    2.804 No_date    1:36   35.67 n/a
                   + 04:EX2         8.89     .433 No_date    2:00   74.82 n/a
                   + 05:C5          .24      .131 No_date    1:20   74.82 n/a
    [DT= 1.00]  SUM= 01:N0         55.98    3.987 No_date    1:38   42.09 n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long S ope = 0.40%, Manning's n is 0.03
* Route SW draining at N0 to u/s node N-EX2
100:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:N0        55.98    3.987 No_date    1:40   42.09 n/a
     RTI= 1.00] outs= 01:sN0        55.98    3.861 No_date    1:44   42.09 n/a
     [I/S/n=  324./ .400/.030]
     [Vmax= 1.214:Tmax=  .750]
* Total flow at node N-EX2
100:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:RN0        55.98    3.861 No_date    1:40   42.09 n/a
                   + 03:PR10        1.87     .156 No_date    1:30   38.77 n/a
    [DT= 1.00]  SUM= 01:NEX2       57.85    4.006 No_date    1:45   41.74 n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Shields VG Vee Ditch 2:1 banks
* provided by Ariel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Ariel.
100:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:NEX2      57.85    4.006 No_date    1:45   41.74 n/a
  *   [RTI= 1.00] outs= 01:NEX2      57.85    3.265 No_date    1:53   41.74 n/a
    [L/S/n=  253./ .005/.035]
    [Vmax=  .351:Tmax= 1.818]
*****************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************
* Total flow at node N-PR1
100:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:EX1         6.26     .439 No_date    1:30   28.03 n/a
                     01:CRIA        .24      .016 No date    1:30   36.21 n/a
    [DT= 1.00]  SUM= 01:NPR1        6.50     .454 No date    1:30   28.79 n/a
* Volume to storing area in PR1
* Qmax.655 m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head = 0.8m, Q=0.610
100:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    COMBINE DUALHYD  01:NPR1        4.50     .464 No_date    1:30   28.79 n/a
       Major System /  03:NPR1Mj     .00      .000 No date    0:00     .00 n/a
       Minor System \  05:NPR1Mn    4.50      .464 No date    1:30   28.79 n/a
     [MjSysVol=.000ICE+00, TailVol=0.000ICE+00, M-Ovf=    0. TotDurOvf=    0.hrs]
* Input to Inlet 2 pipe
100:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:PR1A        .01      .059 No_date    1:30   36.21 n/a
                   + 03:NPR1Mn     4.50      .464 No_date    1:30   28.79 n/a
    [DT= 1.00]  SUM= 01:In1         5.05     .523 No_date    1:30   30.49 n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
100:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE       -> 02:In1       5.05     .523 No_date    1:30   30.49 n/a
     [RTI= 1.00] outs= 01:PIn1      5.05     .522 No_date    1:31   30.49 n/a
     [L/S/n=  65./1.600/.012]
     [Vmax= 5.176:Tmax=  .342]
     [Dia=  .600:Dsed=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
* Input to Inlet 2 pipe
100:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE       -> 02:PR2A      1.57     .150 No_date    1:32   36.21 n/a
     [RTI= 1.00] outs= 01:CIn2      1.57     .150 No_date    1:37   36.21 n/a
     [L/S/n=  13./ .900/.012]
     [Vmax= 1.786:Tmax=  .202]
     [Dia=  .300:Dsed=  .300]
* Input to Inlet 2 pipe
100:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:PR2a        1.17     .122 No_date    1:31   36.21 n/a
                   + 03:C1n2        1.57     .150 No_date    1:31   36.67 n/a
    [DT= 1.00]  SUM= 01:In2         2.74     .262 No_date    1:31   36.47 n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
100:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE       -> 02:In2       2.74     .262 No_date    1:31   36.47 n/a
  *   [RTI= 1.00] outs= 01:PIn2      2.74     .279 No_date    1:31   36.47 n/a
    [L/S/n=  75./ .250/.012]
    [Vmax= 1.283:Tmax=  .483]
    [Dia=  .500:Dsed=  .500]
* Culvert from Inlet 3
* HDPE smooth wall pipe Manning's n = 0.012
100:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE       -> 02:PR3A      .45      .048 No_date    1:30   36.21 n/a
     [RTI= 1.00] outs= 01:CIn3      .45      .047 No_date    1:30   36.21 n/a
     [L/S/n=  13./ .009/.012]
     [Vmax= 1.006:Tmax=  .146]
     [Dia=  .300:Dsed=  .300]
* Input to Inlet 3 pipe
100:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:PR3A        .52      .056 No_date    1:30   36.21 n/a
                   + 03:C1n3        .45      .048 No_date    1:30   36.21 n/a
    [DT= 1.00]  SUM= 01:In3         .97      .104 No_date    1:30   36.21 n/a
* Pipe from Inlet 3 - Route to pond
* HDPE smooth wa l pipe Manning's n = 0.012
100:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE       -> 02:In3       .97      .104 No_date    1:30   36.21 n/a
     [RTI= 1.00] outs= 0.:In3       .97      .103 No_date    1:31   36.21 n/a
     [L/S/n=  75./ .200/.012]
     [Vmax=  .9:1:Tmax=  .226]
     [Dia=  .300:Dsed=  .300]
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04815> * Culvert from inlet 4
04816> * HDPE smooth wall pipe Manning's n = 0.012
04817> 100:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04818>      ROUTE PIPE      -> 02:PR4A        .71      .074 No_date    1:31   36.21  n/a
04819>        [RT= 1.00] out<- 01:CIN4        .71      .074 No_date    1:31   36.21  n/a
04820>        [L/S/n=  13./ .400/.012]
04821>        [Vmax= 1.138:Dmax=  .183]
04822>        [Dia=  .500:Dused=  .500]
04823> * Input to inlet 4 pipe
04824>  100:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04825>      ADD HYD         -> 02:PR4B        .65      .068 No_date    1:31   36.21  n/a
04826>                       + 03:CIN4        .71      .074 No_date    1:31   36.21  n/a
04827>        [ID= 1.00]  SUM= 01:IN4         1.36     .142 No_date    1:31   36.21  n/a
04828> * Pipe from inlet 4 [ULTIMATE CONDITIONS] - Route to pond
04829> * HDPE smooth wall pipe Manning's n = 0.012
04830>  100:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04831>      ROUTE PIPE      -> 02:IN4         1.36     .142 No_date    1:31   36.21  n/a
04832>        [RT= 1.00] out<- 01:PIP4        1.36     .142 No_date    1:31   36.21  n/a
04833>        [L/S/n=  67./1.900/.012]
04834>        [Vmax= 2.786:Dmax=  .171]
04835>        [Dia=  .500:Dused=  .500]
04836> * Culvert from inlet 5
04837> * HDPE smooth wall pipe Manning's n =  0.012
04838>  100:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04839>      ROUTE PIPE      -> 02:PR5A        .66      .069 No_date    1:31   36.21  n/a
04840>        [RT= 1.00] out<- 01:CIN5        .66      .069 No_date    1:31   36.21  n/a
04841>        [L/S/n=  13./ .400/.012]
04842>        [Vmax= 1.111:Dmax=  .176]
04843>        [Dia=  .500:Dused=  .500]
04844> * Input to inlet 5 pipe
04845>  100:0088----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04846>      ADD HYD         -> 02:PR5B        .46      .049 No_date    1:30   36.21  n/a
04847>                       + 03:CIN5        .66      .069 No_date    1:31   36.21  n/a
04848>        [ID= 1.00]  SUM= 01:IN5         1.12     .118 No_date    1:31   36.21  n/a
04849> * Pipe from in et 5   Route to pond
04850> * HDPE smooth wall pipe Manning's n = 0.012
04851>  100:0089----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04852>      ROUTE PIPE      -> 02:IN5         1.12     .118 No_date    1:31   36.21  n/a
04853>        [RT= 1.00] out<- 01:PIN5        1.12     .118 No_date    1:31   36.21  n/a
04854>        [L/S/n=  95./1.900/.012]
04855>        [Vmax= 2.111:Dmax=  .167]
04856>        [Dia=  .500:Dused=  .500]
04857> * Culvert from inlet 6
04858> * HDPE smooth wall pipe Manning's n =  0.012
04859>  100:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04860>      ROUTE PIPE      -> 02:PR6A        1.47     .146 No_date    1:32   36.21  n/a
04861>        [RT= 1.00] out<- 01:CIN6        1.47     .146 No_date    1:32   36.21  n/a
04862>        [L/S/n=  13./ .400/.012]
04863>        [Vmax= 1.852:Dmax=  .268]
04864>        [Dia=  .500:Dused=  .500]
04865> * Input to inlet 6 pipe
04866>  100:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04867>      ADD HYD         -> 02:PR6B        .91      .098 No_date    1:31   36.21  n/a
04868>                       + 03:CIN6        1.47     .146 No_date    1:32   36.21  n/a
04869>        [ID= 1.00]  SUM= 01:IN6         2.38     .243 No_date    1:31   36.21  n/a
04870> * Pipe from inlet 6 - Route to pond
04871> * HDPE smooth wall pipe Manning's n = 0.012
04872>  100:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04873>      ROUTE PIPE      -> 02:IN6         2.38     .243 No_date    1:31   36.21  n/a
04874>    * [RT= 1.00] out<- 01:PIP6        2.38     .243 No_date    1:32   36.21  n/a
04875>        [L/S/n=  70./ .300/.012]
04876>        [Vmax= 1.327:Dmax=  .215]
04877>        [Dia=  .500 Dused=  .515]
04878> * VOLUME TO POND ULTIMATE RESIDENTIAL
04879>  100:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04880>      ADD HYD         -> 02:PIN1        5.05     .522 No_date    1:31   36.67  n/a
04881>                       + 03:PIN2        2.74     .279 No_date    1:31   36.67  n/a
04882>                       + 04:PIN3         .87      .103 No_date    1:31   36.21  n/a
04883>                       + 05:PIN4        1.36     .142 No_date    1:31   36.21  n/a
04884>                       + 06:PIN5        1.37     .138 No_date    1:31   36.21  n/a
04885>                       + 07:PIN6        2.36     .242 No_date    1:32   36.21  n/a
04886>                       + 08:POA         6.04     .948 No_date    1:28   48.65  n/a
04887>        [ID= 1.00]  SUM= 01:PONDin      18.83    2.146 No_date    1:25   38.41  n/a
04888> *  Pond outflow for ultimate conditions using weir  6, .6, 3.0
04889>  100:0094----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04890>      ROUTE RESERVOIR -> 02:PONDin      18.83    3.746 No_date    1:25   38.41  n/a
04891>        [SID= 1.00] out<- 01:Pond       18.83     .955 No_date    3:00   38.40  n/a
04892>              Overflow -> 01:Overq        .00      .000 No_date    0:00    .00  n/a
04893>        [MxStoRec=.5/ac*in, In:OutVol=.0000E+00, R-Ovf=    0, TotDurOvf      0.hrs]
04894> * Simulating SCS 100 yr conditions with convergence of outflow weir
04895> * Updated for weir .6, .6, 3.0
04896> &ROUTE RESERVOIR      NHYDout=["Pond1"] ,NHYDin=["PONDin"] ,
04897> &                     RDC= 1|min|,
04898> &                          Vaili of | DSI:Qa-STORAGE | values
04899> &                                  |ac*in|    |Ac-in|
04900> &                                [    0.0 ,    0.0 ]
04901> &                                 0.00001 , 1.1209
04902> &                                 0.20    , 1.4110
04903> &                                 0.33    , 2.0166
04904> &                                [   -1 ,   -1  ]  (Max Lacuny Vol)
04905> &                          NHYDovf-["ovrq"] ,
04906> * Route pond output through first set of pipes
04907> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
04908> * HDPE smooth wall pipe Manning's n = 0.012
04909>  100:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04910>      ROUTE PIPE      -> 02:POut1       18.83     .155 No_date    3:59   35.40  n/a
04911>        [RT= 1.00] out<- 01:Pout1       18.83     .155 No_date    3:59   35.40  n/a
04912>        [L/S/n=  95./ .200/.012]
04913>        [Vmax= 1.048:Dmax=  .278]
04914>        [Dia=  .780:Dused=  .780]
04915> * Flow s/s of outlet culverts
04916>  100:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04917>      ADD HYD         -> 02:PR7S1       .36      .037 No_date    1:31   32.58  n/a
04918>                       + 03:PR7S2       .22      .023 No_date    1:30   32.58  n/a
04919>                       + 04:Pout1      18.83     .155 No_date    3:59   35.40  n/a
04920>        [ID= 1.00]  SUM= 01:Pout        19.41     .174 No_date    3:46   35.33  n/a
04921> * Route outflow through set of Culverts
04922> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
04923> * HDPE smooth wall pipe Manning's n =  0.012
04924>  100:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04925>      ROUTE PIPE      -> 02:Pout        19.41     .174 No_date    3:46   35.33  n/a
04926>        [RT= 1.00] out<- 01:Cout        19.37     .174 No_date    3:46   35.33  n/a
04927>        [L/S/n=  13./ .400/.013]
04928>        [Vmax= 1.252:Dmax=  .228]
04929>        [Dia=  .780:Dused=  .780]
04930> # Flow s/s of second set of outflow pipes
04931>  100:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04932>      ADD HYD         -> 02:PR7C1       .36      .040 No_date    1:31   32.58  n/a
04933>                       + 03:PR7C2       .19      .018 No_date    1:30   32.58  n/a
04934>                       + 04:Cout       19.37     .174 No_date    3:46   35.33  n/a
04935>        [ID= 1.00]  SUM= 01:Pout2       19.77     .164 No_date    3:51   34.67  n/a
04936> # Route outflow through second set of pipes
04937> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
04938> # HDPE smooth wall pipe Manning's n = 0.012
04939>  100:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04940>      ROUTE PIPE      -> 02:Pout2       19.77     .164 No_date    3:51   34.67  n/a
04941>        [RT= 1.00] out<- 01:Pout2       19.77     .164 No_date    3:52   34.67  n/a
04942>        [L/S/n=  95./ .200/.012]
04943>        [Vmax= 1.067:Dmax=  .279]
04944>        [Dia=  .780:Dused=  .780]
04945> # Total flow at node h1 (Shields MD along Bales Ranch Rd)
04946>  100:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04947>      ADD HYD         -> 02:PRSX7      51.85    5.260 No_date    1:51   35.75  n/a
04948>                       + 03:Pout2      19.77     .164 No_date    3:52   34.67  n/a
04949>                       + 04:EX7         .19      .045 No_date    1:21   45.04  n/a
04950>                       + 05:EX7D        .39      .091 No_date    1:21   42.58  n/a
04951>                       + 06:EX11        .62      .078 No_date    1:32   30.77  n/a
04952>        [ID= 1.00]  SUM= 01:H1          78.80    5.688 No_date    1:51   40.97  n/a
04953> * ROUTE H1 to H3
04954> * Typical Section based on Shields MD Vee Ditch 3:1 banks
04955> * provided by Atrel
04956> * Manning's n is Channel not maintained, light brush on banks
04957> * Slope = 0.05; as per plan provided by Atrel.
04958>  100:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04959>      ROUTE CHANNEL   -> 02:H3          78.80    3.488 No_date    1:51   40.97  n/a
04960>    * [RT= 1.00] out<- 01:CH1         78.80    3.939 No_date    2:05   40.97  n/a
04961>        [L/S/n=  348./ .050/.035]
04962>        [Vmax=  .355 Dmax= 1.762]
04963> * VOLUME from residential area at E3 intersit
04964>  100:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04965>      ADD HYD         -> 03:PR7A       1.36      .151 No_date    1:33   32.58  n/a
04966>                       + 02:PR8         1.58      .204 No_date    1:33   30.77  n/a
04967>        [ID= 1.00]  SUM= 01:H3I         2.73     .255 No_date    1:33   31.67  n/a
04968> # Added Volume from external area contributing to E3
04969>  100:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04970>      ADD HYD         -> 02:EX3        28.43    2.949 No_date    2:05   40.67  n/a
04971>                       + 03:EX3I        2.73     .255 No_date    1:33   31.67  n/a
04972>                       + 04:EX5         .52      .078 No_date    1:25   46.23  n/a
04973>                       + 05:EX6         .51      .052 No_date    1:24   34.85  n/a
04974>                       + 06:EXC3        .22      .060 No_date    1:20   51.19  n/a
04975>        [ID= 1.00]  SUM= 01:H3          32.01    3.094 No_date    2:05   40.43  n/a
04976> * ROUTE H3 to EC1/8
04977> * Typical Section based on Shields MD Vee Ditch 3:1 banks
04978> * provided by Atrel
04979> * Manning's n is Channel not maintained, light brush on banks
04980> * Slope = 0.05; as per plan provided by Atrel.
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04981> 100:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
04986>     ROUTE CHANNEL    -> 02:3D        87.91     9.805 No date     2:05    40.42  n/a
04987>   *   [RDT= 1.00] outf= 01:RD3       82.91     7.657 No date     2:03    40.42  n/a
04984>       [J/Sf= 415.7 .0570/.0751
04985>       [Vmax=  .361:Dmax= 1.4721
04986> # Flow at Granter node RCR128 for comparison
04987> # Routed to pink XX1
04988> 100:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
04989>     ADD HYD             02:EX3       82.91     7.657 No date     2:03    40.42  n/a
04990>                       - 03:EX3       21.56      .798 No date     2:08    29.43  n/a
04991>     [YF= 1.00]  SUM=  01:RCR128   104.21    1.7249 No date     2:03    38.17  n/a
04992> # AREA CHECK
04993> #
04994> 100:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
04995>     ADD HYD             02:EX1       24.62     2.867 No_date     1:54    31.87  n/a
04996>                       + 03:EX2        6.89      .433 No_date     2:08    29.13  n/a
04997>                       + 04:EX3       21.83      .788 No_date     2:20    29.63  n/a
04998>                       + 05:EX4        .53      .050 No_date     1:41    34.05  n/a
04999>                       + 06:EX5        .22      .023 No_date     1:35    46.18  n/a
05000>                       + 07:EX6        .51      .053 No_date     1:36    36.83  n/a
05001>                       + 08:EX7        .39      .045 No_date     1:32    28.24  n/a
05002>                       + 09:EB1A       .24      .026 No_date     1:30    36.21  n/a
05003>                       + 10:EB1B       .55      .059 No_date     1:30    36.21  n/a
05004>     [DT= 1.00]  SUM=  01:Tot1      82.62     3.438 No_date     1:36    32.13  n/a
05005> 100:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05006>     ADD HYD             02:Tot1      58.52     3.438 No_date     1:36    32.13  n/a
05007>                       + 03:EB2A       1.27      .160 No_date     1:32    36.21  n/a
05008>                       + 04:EB2B       1.17      .172 No_date     1:31    36.21  n/a
05009>                       + 05:EB3A        .65      .040 No_date     1:30    36.21  n/a
05010>                       + 06:EB3B        .52      .056 No_date     1:30    36.21  n/a
05011>                       + 07:EB4A        .71      .074 No_date     1:31    36.21  n/a
05012>                       + 08:EB4B        .85      .068 No_date     1:31    36.21  n/a
05013>                       + 09:EB5A        .66      .065 No_date     1:31    36.21  n/a
05014>                       + 10:EB5B        .68      .069 No_date     1:30    36.21  n/a
05015>     [DT= 1.00]  SUM=  02:Tot2      64.71     4.027 No_date     1:34    32.52  n/a
05016> 100:0088----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05017>     ADD HYD             01:Tot2      64.71     4.027 No_date     1:34    32.52  n/a
05018>                       + 03:EB6A       1.43      .148 No_date     1:32    36.21  n/a
05019>                       + 04:EB6B        .93      .098 No_date     1:32    36.21  n/a
05020>                       + 05:EB7A       1.35      .131 No_date     1:31    32.58  n/a
05021>                       + 06:EB7B1       .36      .037 No_date     1:31    32.58  n/a
05022>                       + 07:EB7B2       .22      .023 No_date     1:31    32.58  n/a
05023>                       + 08:EB7C1       .39      .040 No_date     1:31    32.58  n/a
05024>                       + 09:EB7C2       .17      .018 No_date     1:30    32.58  n/a
05025>                       + 10:EB7D        .70      .073 No_date     1:31    32.58  n/a
05026>     [DT= 1.00]  SUM=  01:Tot3      69.86     4.512 No_date     1:34    32.65  n/a
05027> 100:0089----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05028>     ADD HYD             02:Tot3      69.86     4.512 No_date     1:34    32.65  n/a
05029>                       + 03:FB1        1.38      .126 No_date     1:37    36.77  n/a
05030>                       + 04:EB9A       1.10      .100 No_date     1:33    36.77  n/a
05031>                       + 05:EB9B1       .25      .029 No_date     1:31    36.77  n/a
05032>                       + 06:EB9B2      1.50      .091 No_date     1:33    36.77  n/a
05033>                       + 07:EB10       1.57      .164 No_date     1:34    36.77  n/a
05034>                       + 08:EB11        .60      .058 No_date     1:32    36.77  n/a
05035>                       + 09:EB3        4.36      .438 No_date     1:30    29.43  n/a
05036>                       + 10:EB4        9.93      .948 No_date     1:31    30.65  n/a
05037>     [DT= 1.00]  SUM=  01:Tot4      85.07     6.172 No_date     1:37    32.85  n/a
05038> 100:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDa_e_hh:mn----R.V.-R.C.-
05039>     ADD HYD             02:Tot4      85.07     6.172 No_date     1:32    33.25  n/a
05040>                       + 03:C1         8.32     2.562 No_date     1:20    58.50  n/a
05041>                       + 04:C2         6.34     2.420 No_date     1:20    65.95  n/a
05042>                       + 05:C3          .26      .117 No_date     1:20    74.32  n/a
05043>                       + 06:EXC1       1.19      .301 No_date     1:20    46.08  n/a
05044>                       + 07:EXC2       1.80      .511 No_date     1:20    46.56  n/a
05045>                       + 08:EXC3        .72      .196 No_date     1:20    53.17  n/a
05046>                       + 09:PDC         .57      .541 No_date     1:20    69.66  n/a
05047>     [DT= 1.00]  SUM=  01:Tot5      104.21    9.9.5 No_date     1:21    38.15  n/a
05048> #*************************************************************************
05049> # Simulations with 4 hour Chicago from City of Ottawa
05050> # SCS 24 hours type 2, from City of Ottawa
05051>   ** END OF RUN : 201
05052>
05053> ------------------------------------------------------------------------------
05054>
05055>
05056>
05057>
05058>
05059> RUN:COMMANDS
05060> 202:0001----------------------------------------------------------------------
05061>     START
05062>       TAREA =     .00 hrs on        0]
05063>       [METOUT=    2    (1 Imperial, 2Metric output)]
05064>       [NSTORM=    1 ]
05065>       [NRUN  = 202 ]
05066> #*************************************************************************
05067> #  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
05068> #*************************************************************************
05069> #  Project Name: Greely Village Center      Project Number: 1847-07
05070> #  Date        : 01-08-2008
05071> #  Modeller    : [MF]
05072> #  Company     : JFSAinc.
05073> #  License #   : 2547480
05074> #*************************************************************************
05075> #
05076> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
05077> # Proposed Ultimate Conditions: 5YCDOK.P
05078> # Filename stands for: Greely Commercial, Proposed
05079> #*************************************************************************
05080> 202:0002----------------------------------------------------------------------
05081>     READ STORM
05082>       Filename = storm.000
05083>       Comment  = 2 years SCS Type 2 Storm 24 hours step 10 min, City of Ottaw
05084>       [STM=10.00:SDUR=  24.00:PTOT=  48.46]
05085> #*************************************************************************
05086> # Existing flow - Mahoney branch of Shield Creek - Areas
05087> # Area a/s of proposed development (residential)
05088> # CN=75, slope = 0.8, Cp 0.15, XIMP 5, TIMP 15, see SC002 as per Stantec
05089> # Area partially adjusted based on Arch. drawings. Tp adjusted accordingly.
05090> #*************************************************************************
05091> # a/s of Bank St.as per Arcel - with modified boundaries and Cp.
05092> 202:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05093>     DESIGN NASHYD       01:EX1       24.62      .916 No_date    12:08    16.75 .336
05094>       [CN= 75.0: N= 3.00]
05095>       [Ia=  .23:DT= 1.00]
05096> #*************************************************************************
05097> # Existing flow - External areas a/s of Bank St.
05098> # CN*=60, as per Stantec dwg SC001.
05099> # Area partially adjusted based on Arcel drawings.
05100> #*************************************************************************
05101> # Areas External to development
05102> 202:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05103>     DESIGN NASHYD       01:EX2        9.89      .149 No_date    12:28    13.89 .282
05104>       [CN= 59.0: N= 3.00]
05105>       [Ia=  .43:DT= 1.00]
05106> 202:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05107>     DESIGN NASHYD       01:EX3       21.30      .258 No_date    12:48    15.68 .282
05108>       [CN= 59.0: N= 3.00]
05109>       [Ia=  .43:DT= 1.00]
05110> # Slope, Tlmp, Area from Arcel Drawing
05111> # Ch from Stantec (SC001)
05112> # Xlmp = Ylmp = 10
05113> 202:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05114>     FACTR STANDHYD      01:EX4         .52      .013 No_date    12:02    17.29 .357
05115>       [XIMP=.10:TIMP=.22]
05116>       [CHNL= 2 :CN= 59.0]
05117>       [Pervious    area: IAper=  4.67:SLPP= 1.00:LGP=  45.:MNP=.250:SCP=   .0]
05118>       [Impervious  area: IAimp=  1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
05119> # Road and road side ditch along projected residential development Parkway Ro
05120> # Tlmp = Xlmp = 0.27 ha /0.67 ha = 0.40
05121> # CN*=60, as per Stantec dwg SC001.
05122> # Slope is estimated at 1%
05123> # LGI based on centroid of area due to elongated shape = 880m/2 = 440
05124> 202:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05125>     CALIB STANDHYD      01:EX5         .52      .023 No_date    12:07    26.04 .537
05126>       [XIMP=.40:TIMP=.40]
05127>       [LGS= 2 :CN= 69.0]
05128>       [Pervious    area: IAper=  4.67:SLPP= 1.00:LGP=  45.:MNP=.250:SCP=   .0]
05129>       [Impervious  area: IAimp=  1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
05130> # Road and road side ditch along projected residential development SaleBarn Rd
05131> # Tlmp = Xlmp = 0.1 ha /0.5 ha = 0.20
05132> # CN*=69, as per Stantec dwg SC001.
05133> # Slope is estimated at 1%
05134> # LGI based on centroid of area due to elongated shape = 350m/2 = 177
05135> 202:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
05136>     CALIB STANDHYD      01:EX6         .51      .015 No_date    12:04    19.80 .394
05137>       [XIMP=.20:TIMP=.20]
05138>       [LGS= 2 :CN= 69.0]
05139>       [Pervious    area: IAper=  4.67:SLPP=1.00:LGP=  45.:MNP=.250:SCP=   .0]
05140>       [Impervious  area: IAimp=  1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
05141> # Road and road side ditch along projected residential development SaleBarn Rd
05142> # Tlmp = Xlmp = 0.06 ha /0.30 ha = 0.20
05143> # CN*=69, as per Stantec dwg SC001.
05144> # Slope is estimated at 1%
05145> # LGI based on centroid of area due to elongated shape = 270m/2 = 137.0
05146> 202:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
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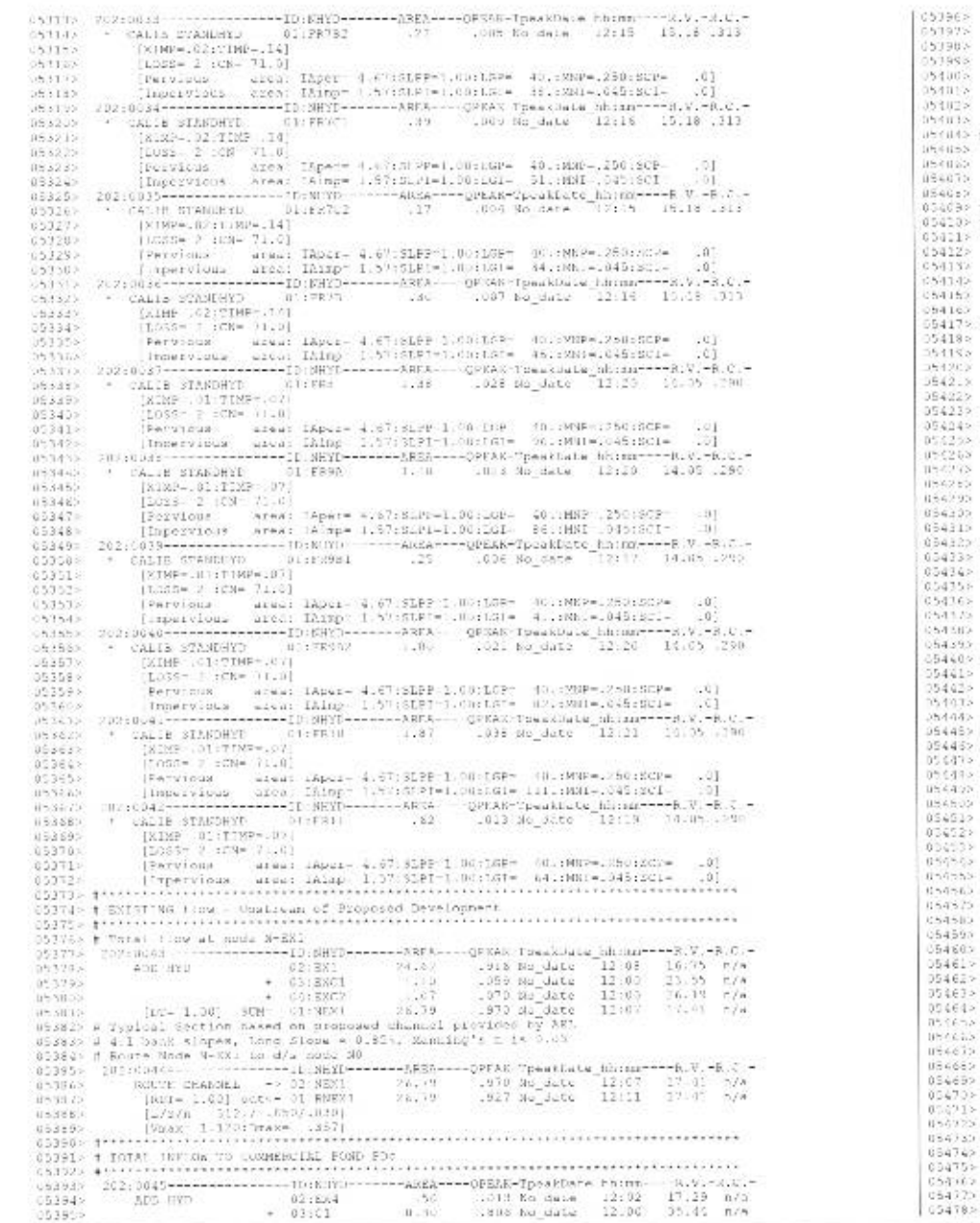
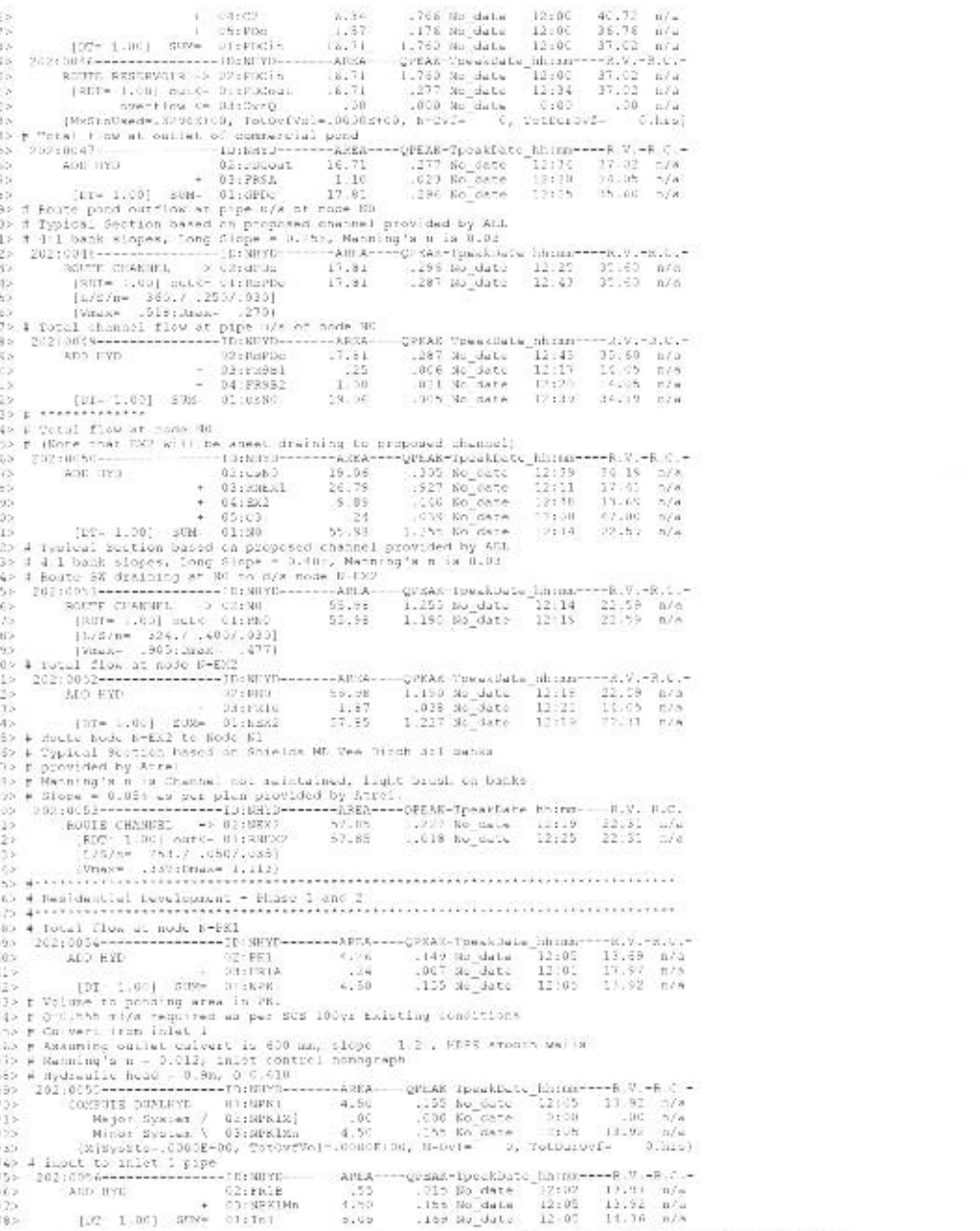
05134>       CALIB STANDHYD     01:EXT          .39      .014 No_date    12:05    28.14 .415
05144>         [X:X=-.23:TIMP=-.23]
05145>         [LOSS= 2 :CN= 69.0]
05146>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05147>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  132.:MNI=.045:SCI=    .0]
05148> *********************************************************************************
05149> * PROPOSED COMMERCIAL DEVELOPMENT
05150> *********************************************************************************
05151> # CN   79 as per rain grass cover with C soil type for Log soil; CN*=71
05152> # XIMP  TIMP to be conservative
05153> *********************************************************************************
05154>  202:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05155>       DESIGN STANDHYD    01:C1          8.36     .830 No_date    12:00   40.97 .840
05156>         [XIMP=.63:TIMP=.63]
05157>         [SLP=1.00:DT= 1.00]
05158>         [LOSS= 2 :CN= 71.0]
05159>  202:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05160>       DESIGN STANDHYD    01:C2          4.94     .369 No_date    12:06   40.97 .840
05161>         [XIMP=.79:TIMP=.79]
05162>         [SLP=1.00:DT= 1.00]
05163>         [LOSS= 2 :CN= 71.0]
05164>  202:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05165>       DESIGN STANDHYD    01:C3          .24      .036 No_date    12:00   46.98 .870
05166>         [XIMP=.98:TIMP=.98]
05167>         [SLP=1.00:DT= 1.00]
05168>         [LOSS= 2 :CN= 71.0]
05169> * imp = imp ha/total area = 0.30/1.10 ha = .27
05170>  202:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05171>       DESIGN STANDHYD    01:EXC1        1.10     .080 No_date    12:00   25.55 .486
05172>         [XIMP=.27:TIMP=.27]
05173>         [SLP 1.00:DT= 1.00]
05174>         [LOSS= 2 :CN= 71.0]
05175> * imp = imp ha/total area = 0.35/1.07 ha = .33
05176>  202:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05177>       DESIGN STANDHYD    01:EXC2        1.07     .079 No_date    12:00   26.19 .490
05178>         [X:X=-.35:TIMP=.35]
05179>         [SLP 1.00:DT= 1.00]
05180>         [LOSS= 2 :CN= 71.0]
05181> * imp = imp ha/total area = 0.11/0.22ha = .50
05182>  202:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05183>       DESIGN STANDHYD    01:EXC3         .22     .020 No_date    12:00    31.14 .641
05184>         [XIMP=.50:TIMP=.50]
05185>         [SLP=1.00:DT= 1.00]
05186>         [LOSS= 2 :CN= 71.0]
05187> *********************************************************************************
05188> * Commercial Ponds (PEC)
05189> * slope estimated at 2% based on elevations around pond.
05190> * Timp and Ximp based on total pond area
05191> * Ximp = A pond/A tot (1.05/1.57)
05192>  202:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05193>       DESIGN STANDHYD    01:EPC          1.57     .176 No_date    12:00   40.76 .789
05194>         [XIMP=.67:TIMP=.67]
05195>         [SLP 1.00:DT= 1.00]
05196>         [LOSS= 2 :CN= 71.0]
05197> ##################################################################################
05198> *********************************************************************************
05199> * PROPOSED RESIDENTIAL SUBDIVISION - Residential Area Phase 1 and 2
05200> *********************************************************************************
05201> * CN*=69, as per Standard SWM 20001.
05202> * Tc estimated with Uplund Method.
05203>  202:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05204>       DESIGN NASHYD      01:PR          4.96     .142 No_date    12:05   15.99 .282
05205>         [CN  69.0: N= 3.00]
05206>         [Tp=  .18:DT= 1.00]
05207> *********************************************************************************
05208> * AREAS GOING TO RESIDENTIAL POND (PO1)
05209> *********************************************************************************
05210> *
05211>  202:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05212>       CALIB STANDHYD     01:PR1A         .24      .007 No_date    12:01   17.97 .371
05213>         [X:X=-.11:TIMP=.21]
05214>         [LOSS= 2 :CN= 71.0]
05215>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05216>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   40.:MNI=.045:SCI=    .0]
05217>  202:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05218>       CALIB STANDHYD     01:PR1B         .55      .015 No_date    12:02   17.97 .371
05219>         [XIMP=.11:TIMP=.21]
05220>         [LOSS= 2 :CN= 71.0]
05221>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05222>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   40.:MNI=.045:SCI=    .0]
05223>  202:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05224>       CALIB STANDHYD     01:PR1C         .91      .019 No_date    12:02   17.97 .371
05225>         [XIMP=.11:TIMP=.21]
05226>         [LOSS= 2 :CN= 71.0]
05227>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05228>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   40.:MNI=.045:SCI=    .0]
05229>  202:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05230>       CALIB STANDHYD     01:PR2B         1.17      .031 No_date    12:03   17.97 .371
05231>         [XIMP .11:TIMP .21]
05232>         [LOSS  2 :CN= 71.0]
05233>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05234>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   88.:MNI=.045:SCI=    .0]
05235>  202:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05236>       CALIB STANDHYD     01:PR3A         .45      .011 No_date    12:02   17.97 .371
05237>         [XIMP=.11:TIMP=.21]
05238>         [LOSS= 2 :CN= 71.0]
05239>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05240>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   59.:MNI=.045:SCI=    .0]
05241>  202:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05242>       CALIB STANDHYD     01:PR3B         .52      .013 No_date    12:02   17.97 .371
05243>         [XIMP=.11:TIMP=.21]
05244>         [LOSS= 2 :CN= 71.0]
05245>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05246>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   59.:MNI=.045:SCI=    .0]
05247>  202:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05248>       CALIB STANDHYD     01:PR4A         .91      .019 No_date    12:02   17.97 .371
05249>         [XIMP=.11:TIMP=.21]
05250>         [LOSS= 2 :CN= 71.0]
05251>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05252>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   59.:MNI=.045:SCI=    .0]
05253>  202:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05254>       CALIB STANDHYD     01:PR4B         .65      .015 No_date    12:02   17.97 .371
05255>         [XIMP=.11:TIMP=.21]
05256>         [LOSS= 2 :CN= 71.0]
05257>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05258>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   66.:MNI=.045:SCI=    .0]
05259>  202:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05260>       CALIB STANDHYD     01:PR5A         .66      .018 No_date    12:02   17.97 .371
05261>         [XIMP=..11:TIMP=.21]
05262>         [LOSS= 2 :CN= 71.0]
05263>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05264>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   66.:MNI=.045:SCI=    .0]
05265>  202:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05266>       CALIB STANDHYD     01:PR5B         .46      .013 No_date    12:02   17.97 .371
05267>         [XIMP=..11:TIMP=.21]
05268>         [LOSS= 2 :CN= 71.0]
05269>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05270>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   55.:MNI=.045:SCI=    .0]
05271>  202:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05272>       CALIB STANDHYD     01:PR6A         1.41      .038 No_date    12:04   17.97 .371
05273>         [XIMP=..11:TIMP=.21]
05274>         [LOSS= 2 :CN= 71.0]
05275>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05276>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   98.:MNI=.045:SCI=    .0]
05277>  202:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05278>       CALIB STANDHYD     01:PR6B         .93      .025 No_date    12:03   17.97 .371
05279>         [XIMP .11:TIMP .21]
05280>         [LOSS  2 :CN= 71.0]
05281>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05282>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   79.:MNI=.045:SCI=    .0]
05283> * Ximpa estimated at 2% based on backyard swales.
05284> * Timp and Ximp based on total pond area
05285> * Ximp = A pond/A tot
05286> * Timp = weighted average of pond and backyards
05287>  202:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05288>       CALIB STANDHYD     01:PO1          5.03      .291 No_date    12:04   25.76 .693
05289>         [XIMP=.4:TIMP=.4]
05290>         [LOSS= 2 :CN= 71.0]
05291>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05292>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  153.:MNI=.045:SCI=    .0]
05293> *********************************************************************************
05294> * UNCONTROLLED AREAS
05295> *********************************************************************************
05296> *
05297>  202:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05298>    * CALIB STANDHYD     01:PR7A         1.35      .031 No_date    12:09   15.10 .311
05299>         [XIMP=.07:TIMP=.14]
05300>         [LOSS= 2 :CN= 71.0]
05301>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05302>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   87.:MNI=.045:SCI=    .0]
05303>  202:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05304>    * CALIB STANDHYD     01:PR7B1        .36      .008 No_date    12:16   15.10 .311
05305>         [XIMP .02:TIMP .14]
05306>         [LOSS  2 :CN= 71.0]
05307>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    .0]
05308>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   49.:MNI=.045:SCI=    .0]
```





```
# Pipe from inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in1          5.05     .169 No date   12:05    .4.36  n/a
        [RT= 1.00] out<- 01:Pin1         5.05     .169 No date   12:05    .4.36  n/a
        [L/S/n=   65./1.600/.012]
        [Vmax= 2.317:Dmax=   .337]
        [Din=  .600:Dused=  .600]
# Culvert from inlet 7
# HDPE smooth wall pipe Manning's n = 0.012
 202:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR2A         1.57     .031 No date   12:04   17.87  n/a
        [RT= 1.00] out<- 01:Cin2         1.57     .031 No date   12:04   17.87  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .838:Dmax=  .134]
        [Din=  .500:Dused=  .500]
# Input to inlet 2 pipe
 202:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR2A         1.17     .031 No date   12:01   17.97  n/a
                    + 03:Cin2         1.57     .031 No date   12:04   17.87  n/a
        [DT= 1.00]  SUM=  01:in2      2.74     .061 No date   12:04   17.91  n/a
# Pipe from inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in2          2.74     .071 No date   12:05   18.01  n/a
        [RT= 1.00] out<- 01:Pin2         2.74     .070 No date   12:05   18.01  n/a
        [L/S/n=   75./ .600/.012]
        [Vmax=  .867:Dmax=  .217]
        [Din=  .600:Dused=  .600]
# Culvert from inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 202:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR3A          .62     .013 No date   12:02   17.97  n/a
        [RT= 1.00] out<- 01:Cin3          .62     .013 No date   12:02   17.97  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .672:Dmax=  .076]
        [Din=  .500:Dused=  .500]
# Input to inlet 3 pipe
 202:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR3A          .62     .013 No date   12:02   17.97  n/a
                    + 03:Cin3          .85     .014 No date   12:02   17.97  n/a
        [DT= 1.00]  SUM=  01:in3       1.47     .027 No date   12:02   17.97  n/a
# Pipe from inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in3          1.47     .027 No date   12:02   17.97  n/a
        [RT= 1.00] out<- 01:Pin3         1.47     .027 No date   12:03   17.97  n/a
        [L/S/n=   75./ .600/.012]
        [Vmax=  .667:Dmax=  .133]
        [Din=  .500:Dused=  .500]
# Culvert from inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 202:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR4A          .71     .019 No date   12:02   17.97  n/a
        [RT= 1.00] out<- 01:Cin4          .71     .019 No date   12:02   17.97  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .752:Dmax=  .092]
        [Din=  .500:Dused=  .500]
# Input to inlet 4 pipe
 202:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR4A          .62     .018 No date   12:02   17.97  n/a
                    + 03:Cin4          .71     .019 No date   12:02   17.97  n/a
        [DT= 1.00]  SUM=  01:in4       1.34     .037 No date   12:02   17.97  n/a
# Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in4          1.34     .037 No date   12:05   17.97  n/a
        [RT= 1.00] out<- 01:Pin4         1.34     .037 No date   12:05   17.97  n/a
        [L/S/n=   65./1.600/.012]
        [Vmax= 1.802:Dmax=  .086]
        [Din=  .500:Dused=  .500]
# Culvert from inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 202:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR5A          .66     .018 No date   12:02   17.97  n/a
        [RT= 1.00] out<- 01:Cin5          .66     .018 No date   12:02   17.97  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .746:Dmax=  .088]
        [Din=  .500:Dused=  .500]
# Input to inlet 5 pipe
 202:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR5A          .46     .013 No date   12:02   17.97  n/a
                    + 03:Cin5          .66     .018 No date   12:02   17.97  n/a
        [DT= 1.00]  SUM=  01:in5       1.12     .031 No date   12:02   17.97  n/a
# Pipe from inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in5          1.12     .031 No date   12:02   17.97  n/a
        [RT= 1.00] out<- 01:Pin5         1.12     .031 No date   12:03   17.97  n/a
        [L/S/n=   75./1.600/.012]
        [Vmax= 1.137:Dmax=  .083]
        [Din=  .500:Dused=  .500]
# Culvert from inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 202:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR6A          .43     .035 No date   12:04   17.87  n/a
        [RT= 1.00] out<- 01:Cin6          .43     .035 No date   12:04   17.87  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .938:Dmax=  .128]
        [Din=  .500:Dused=  .500]
# Input to inlet 6 pipe
 202:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR6A          .08     .035 No date   12:03   17.87  n/a
                    + 03:Cin6          .43     .028 No date   12:04   17.87  n/a
        [DT= 1.00]  SUM=  01:in6       2.36     .063 No date   12:04   17.87  n/a
# Pipe from inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 202:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in6          2.36     .063 No date   12:04   17.87  n/a
        [RT= 1.00] out<- 01:Pin6         2.36     .063 No date   12:04   17.87  n/a
        [L/S/n=   65./1.600/.012]
        [Vmax=  .979:Dmax=  .196]
        [Din=  .600:Dused=  .600]
# VOLUME TO POND OUTFLOW RESTRICTED
 202:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         01:Pin1          5.05     .169 No date   12:05   14.38  n/a
                    + 02:Pin2          2.74     .070 No date   12:05   18.01  n/a
                    + 04:Pin3          .85      .027 No date   12:03   17.97  n/a
                    + 05:Pin4          1.34     .037 No date   12:03   17.97  n/a
                    + 06:Pin5          1.12     .031 No date   12:03   17.97  n/a
                    + 07:Pin6          2.36     .063 No date   12:04   17.91  n/a
                    + 08:FR7           5.05     .091 No date   12:04   18.06  n/a
      [POND 1.00]  STR=  01:POND n     15.55     .685 No date   12:04   19.79  n/a
#  Pond outflow for ultimate conditions using weir .5; .6; 3.0
 202:0074----------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:POND n     15.55     .685 No date   12:04   19.79  n/a
        [RES= 1.00] out<- 01:Pout1     15.53     .042 No date   16:05   19.79  n/a
              overflow <- 03:overQ         .00     .000 No date    0:00     .00  n/a
       [MAXstOvwd=.23612+00, IotovfVol=.00308+00, R-sqf      0, ConErrPct=     0.Pre]
# Simulating 2Cs 100 yr conditions with submergence of outflow weir
# updated for weir .5; .6; 3.0
ROUTE RESERVOIR     "NHYDout=["Pout1"] ,NHYDin=["POND1n"] ,
#                   HOT= 1 (min),
#                              TABLE OF [ OUTFLOW-STORAGE ] values
#                                        1(cms) - (ha-m)
#                                      [   0.0 ,   0.0 ]
#                                       0.00001 , 1.7282
#                                       0.20    , 1.8110
#                                       0.22    , 2.0195
#                                      [   -1  ,   -1  ]  (max twenty pts)
#                              XMrDsvf-["svrQ"] ,
# Route pond output through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n = 0.012
 202:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout1    15.53     .042 No date   16:05   19.79  n/a
        [RES= 1.00] out<- 01:Pout1     15.53     .042 No date   16:05   19.79  n/a
        [L/S/n=   75./ .600/.012]
        [Vmax=  .213:Dmax=  .159]
        [Din=  .780:Dused=  .780]
# Flow s/a of outlet culverts
 202:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR7s1         .36     .009 No date   12:06   15.18  n/a
                    + 03:FR7s2         .22     .005 No date   12:05   15.18  n/a
                    + 01:Pout1       15.53     .042 No date   16:06   19.79  n/a
      [Ti= 1.00]  SUM   01:Pout      16.07     .044 No date   16:09   19.62  n/a
# Route outflow through set of culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n = 0.012
 202:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout     15.21     .044 No date   16:05   19.65  n/a
        [RT= 1.00] out<- 01:Cout1    15.21     .044 No date   16:05   19.65  n/a
        [L/S/n=   13./ .600/.012]
        [Vmax=  .825:Dmax=  .129]
        [Din=  .780:Dused=  .780]
# Flow s/a of second set of outflow pipes
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05634> 202:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05635>     ADD HYD                 02:FR3C      .49     .069 No_date   12:16   15.18  n/a
05636>                           + 03:FR3C2     .17     .024 No_date   12:15   15.18  n/a
05637>                           + 04:Cour      19.11   .046 No_date   14:09   24.65  n/a
05638>     [DT= 1.00]  SUM   01:Four      19.77   .055 No_date   12:21   19.57  n/a
05639> # Route outflow through second set of pipes
05640> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
05641> # HDPE smooth wall pipe Manning's n = 0.012
05642> 202:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05643>     ROUTE PIPE      -> 02:Four2     19.77     .055 No_date   12:21   19.02  n/a
05644>     [RT= 1.00] SUM=  01:FourP     19.77     .055 No_date   12:22   19.02  n/a
05645>     [L/S/m=  55.2 .200/.012]
05646>     [Vmax=  .778:Dmax=  .156]
05647>     [Dia=  .780:Dideal=  .780]
05648> # Total flow at node M3 (shield MH along Sales Barn Rd)
05649> 202:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05650>     ADD HYD                 02:NEA2     57.85    1.014 No_date   12:25   22.31  n/a
05651>                           + 03:FourP    19.77     .055 No_date   12:22   19.02  n/a
05652>                           + 04:SW1      .49       .014 No_date   12:07   20.73  n/a
05653>                           + 05:FR3L     .35       .007 No_date   12:16   15.18  n/a
05654>                           + 06:FR2I     .62       .017 No_date   12:19   14.06  n/a
05655>     [DT= 1.00]  SUM=  01:M3       78.55    1.069 No_date   12:25   21.51  n/a
05656> # ROUTE M3 to N3
05657> # Typical Section based on Shields MH Vee Ditch 3:1 banks
05658> # provided by Ainl
05659> # Manning's n is Channel not maintained, light brush on banks
05660> # Slope = 0.05% as per plan provided by Ainl.
05661> 202:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05662>     ROUTE CHANNEL   -> 02:N3       78.55    1.069 No_date   12:25   21.51  n/a
05663>     [RT= 1.00] SUM=  01:NM3       78.55    .067 No_date   12:36   21.51  n/a
05664>     [L/S/m=  349./ .050/.035]
05665>     [Vmax=  .331:Dmax=  1.066]
05666> # VOLUME from residential area at E3 interim
05667> 202:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05668>     ADD HYD                 02:FR3A     1.38      .031 No_date   12:15   15.18  n/a
05669>                           + 03:FR8      1.38      .028 No_date   12:20   14.05  n/a
05670>     [DT= 1.00]  SUM=  01:NS1      2.73      .059 No_date   12:20   14.61  n/a
05671> # Added VOLUME from external area contributing to N3
05672> 202:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05673>     ADD HYD                 02:NM2      78.55     .067 No_date   12:36   21.51  n/a
05674>                           + 03:EX1      7.09      .059 No_date   12:20   16.61  n/a
05675>                           + 04:EX3      .62       .023 No_date   12:07   20.73  n/a
05676>                           + 05:EX4      .81       .010 No_date   12:00   19.09  n/a
05677>                           + 06:EXC3     .22       .020 No_date   12:00   31.14  n/a
05678>     [DT= 1.00]  SUM=  01:N3       82.91     .956 No_date   12:35   21.32  n/a
05679> # ROUTE N3 to bc128
05680> # Typical Section based on Shields MH Vee Ditch 3:1 banks
05681> # provided by Ainl
05682> # Manning's n is Channel not maintained, light brush on banks
05683> # Slope   0.05% as per plan provided by Ainl.
05684> 202:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05685>     ADD HYD                 02:NM3      82.91     .781 No_date   12:52   21.32  n/a
05686>                           + 03:EX5      21.20     .258 No_date   12:49   16.69  n/a
05687>     [LT= 1.00]  SUM=  01:NCB128   104.21    1.038 No_date   12:52   19.66  n/a
05688> # AREA CHECK
05689> #
05690> 202:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05691>     ADD HYD                 02:EX1      20.07     .416 No_date   12:08   16.75  n/a
05692>                           + 03:EX2      9.69      .140 No_date   12:38   13.65  n/a
05693>                           + 04:EX3      21.38     .258 No_date   12:49   16.69  n/a
05694>                           + 05:EX4      .50       .013 No_date   12:07   17.00  n/a
05695>                           + 06:EX5      .52       .023 No_date   12:07   20.04  n/a
05696>                           + 07:EX6      .57       .015 No_date   12:04   19.09  n/a
05697>                           + 08:EX7      .38       .014 No_date   12:03   20.13  n/a
05698>                           + 09:FR1A     .24       .007 No_date   12:01   19.97  n/a
05699>                           + 10:FR1L     .22       .011 No_date   12:00   19.97  n/a
05700>     [DT= 1.00]  SUM=  01:Tot1     58.52    1.195 No_date   12:05   15.27  n/a
05701> 202:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05702>     ADD HYD                 02:Tot1     58.52    1.195 No_date   12:05   15.27  n/a
05703>                           + 03:FR2A     .51       .041 No_date   12:01   17.97  n/a
05704>                           + 04:FR1B     .17       .031 No_date   12:07   17.97  n/a
05705>                           + 05:FR1B     .45       .013 No_date   12:02   17.97  n/a
05706>                           + 06:FR3B     .52       .015 No_date   12:02   17.97  n/a
05707>                           + 07:FR4A     .71       .019 No_date   12:02   17.97  n/a
05708>                           + 08:FR4B     .65       .016 No_date   12:02   17.97  n/a
05709>                           + 09:FR5A     .66       .018 No_date   12:02   17.97  n/a
05710>                           + 10:FR5B     .66       .018 No_date   12:02   17.97  n/a
05711>                           + 11:FR6      .66       .018 No_date   12:02   17.97  n/a
05712>                           + 12:FR7      .66       .018 No_date   12:02   17.97  n/a
05713>                           + 13:FR8      .66       .018 No_date   12:02   17.97  n/a
05714>                           + 14:FR9      .66       .018 No_date   12:02   17.97  n/a
05715>                           + 15:FR10     .66       .018 No_date   12:02   17.97  n/a
05716>                           + 16:FR11     .66       .018 No_date   12:02   17.97  n/a
05717>                           + 17:FR12     .66       .018 No_date   12:02   17.97  n/a
05718>                           + 18:FR13     .66       .018 No_date   12:02   17.97  n/a
05719>                           + 19:FR14     .66       .018 No_date   12:02   17.97  n/a
05720>                           + 20:FR15     .66       .018 No_date   12:02   17.97  n/a
05721>                           + 21:FR16     .66       .018 No_date   12:02   17.97  n/a
05722>                           + 22:FR17     .66       .018 No_date   12:02   17.97  n/a
05723>                           + 23:FR18     .66       .018 No_date   12:02   17.97  n/a
05724>                           + 24:FR19     .66       .018 No_date   12:02   17.97  n/a
05725>                           + 25:FR20     .66       .018 No_date   12:02   17.97  n/a
05726>                           + 26:FR21     .66       .018 No_date   12:02   17.97  n/a
05727>                           + 27:FR22     .66       .018 No_date   12:02   17.97  n/a
05728>                           + 28:FR23     .66       .018 No_date   12:02   17.97  n/a
05729>     [DT= 1.00]  SUM=  01:Tot2     58.71    1.341 No_date   12:05   15.52  n/a
05730> 202:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05731>     ADD HYD                 02:Tot2     58.71    1.341 No_date   12:05   15.52  n/a
05732>                           + 03:FR6A     1.43      .038 No_date   12:04   17.97  n/a
05733>                           + 04:FR6B     .92       .025 No_date   12:03   17.97  n/a
05734>                           + 05:FR3A     1.38      .031 No_date   12:15   15.18  n/a
05735>                           + 06:FR7E1    .36       .008 No_date   12:16   15.18  n/a
05736>                           + 07:FR7E2    .22       .005 No_date   12:15   15.18  n/a
05737>                           + 08:FR7C1    .39       .009 No_date   12:16   15.18  n/a
05738>                           + 09:FR7C2    .17       .004 No_date   12:16   15.18  n/a
05739>                           + 10:FR7D     .10       .001 No_date   12:16   15.18  n/a
05740>     [DT= 1.00]  SUM=  01:Tot3     59.06    1.458 No_date   12:05   15.59  n/a
05741> 202:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05742>     ADD HYD                 02:Tot3     59.06    1.458 No_date   12:05   15.59  n/a
05743>                           + 03:FR8      1.38      .028 No_date   12:20   14.05  n/a
05744>                           + 24:FR9A     1.10      .023 No_date   12:20   14.05  n/a
05745>                           - 25:FR9B1    .35       .008 No_date   12:17   14.05  n/a
05746>                           - 26:FR9B2    1.00      .021 No_date   12:20   14.05  n/a
05747>                           + 27:FR1C     1.87      .038 No_date   12:21   15.05  n/a
05748>                           + 28:FR1L     .62       .013 No_date   12:19   14.06  n/a
05749>                           - 29:EX1      4.26      .119 No_date   12:05   15.69  n/a
05750>                           + 10:FR3L     5.03      .297 No_date   12:04   38.26  n/a
05751>     [DT= 1.00]  SUM=  01:Tot4     55.93     .764 No_date   12:07   16.13  n/a
05752> 202:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05753>     ADD HYD                 02:Tot4     55.93     .764 No_date   12:07   16.13  n/a
05754>                           + 03:C1       8.50      .406 No_date   12:00   35.44  n/a
05755>                           + 04:C2       6.34      .788 No_date   12:00   60.72  n/a
05756>                           + 05:C3       .24       .035 No_date   12:00   67.00  n/a
05757>                           + 06:EXC1     1.10      .058 No_date   12:00   31.55  n/a
05758>                           + 07:EXC2     1.07      .070 No_date   12:00   44.19  n/a
05759>                           + 08:EXC3     .22       .020 No_date   12:00   31.14  n/a
05760>                           + 09:PDC      2.57      .176 No_date   12:00   36.76  n/a
05761>     [DT= 1.00]  SUM=  01:Tot5     384.71    9.680 No_date   12:01   16.76  n/a
05762> #*************************************************************************
05763> # Simulations with 4 hour Chicago from City of Ottawa
05764> # SCS 24 hours type 2, from City of Ottawa
05765> #  1:100 YR SCS 24 HOUR : 204
05766> #
05767> #-------------------------------------------------------------------------
05768>
05769>
05770>
05771>
05772>
05773> RUN:COMMAND#
05774> 205:0001----------------------------------------------------------------------
05775>     STORM
05776>       TZERO =    .00 hrs on        01
05777>       METOUT=    2   [1=Imperial, 2=metric output]
05778>       NSTORM=    1
05779>       NRUN   = 205 ]
05780> #*************************************************************************
05781> #  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
05782> #*************************************************************************
05783> #  Project Name:  [Greely Village Center]    Project Number: [647-07]
05784> #  Date        : 04-DEC-2008
05785> #  Modeller    : [JDT]
05786> #  Company     : JFSA Inc.
05787> #  License #   : 2647402
05788> #*************************************************************************
05789> #
05790> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
05791> # Proposed Ultimate conditions, OPTION B
05792> # Filename stands for: Greely, Commercial, Proposed
05793> #*************************************************************************
05794> 200:0007----------------------------------------------------------------------
05795>     READ STORM
05796>       Filename = Utils.001
05797>       Comment  = 5 years SCS Type 2 Storm 24 hours step 10 min, City of Ottaw
05798>       [SDT 10.00:STFR=  04.00:PTOT=  64.11]
05799> #*************************************************************************
05800> # Existing flow - McEvoy Branch of Shield Creek - Areas
05801> # Area c/a of proposed development (residential)
05802> # CN=70, slope = 0.0, Tp=0.76, X1N=+0, TIMP=35, use SCS02 as per Stantec
05803> # Area partially adjusted based on Ainl drawings. Tp adjusted accordingly.
05804> #*************************************************************************
05805> # c/a or Tank Sizes per Ainl - with modified boundaries and Tp.
05806> 200:0001----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05807>     ENGLISH MANHYD      01:EX1       24.62     1.411 No_date   12:08   26.81  .410
05808>       [CN= 70.0: N= 3.00]
05809>       [Tp   .23 DT= 1.00]
05810> #*************************************************************************
```

```
* Existing flow - External areas d/s of Bank St.
* CN*=69, as per Stantec rpt SC001.
* Area partially adjusted based on Atkel drawings.
*****************************************************************************
* Areas External to development
 70%:0004----------------TO:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN NASHYD     01:EX2        9.89     .230 No date   12:58   23.18 .316
      |CN= 69.0: N= 3.00|
      |Tp=  .6:TP= 1.00|
 70%:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN NASHYD     01:EX3       21.80     .421 No date   12:04   27.76 .316
      |CN= 69.0: N= 3.00|
      |Tp=  .8:TP= 1.00|
* Sloan, Tlag, Area from Atkel Drawing
* CN from Stantec (SC001)
* Xlag  Tlag = 10\
 20%:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX4        .50     .024 No date   12:02   2.591 .420
      |XIMP=.1:TIMP=.27|
      |LOSS= 2 :CN= 69.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
* Road and road side ditch along projected residential development Parkway Rd
* Tlag  Xlag   0.21 ha /0.52 ha   0.40
* CN* 69, as per Stantec rpt SC001
* Slope is estimated at 1%
* LGP based on centroid of area due to elongated shape = 500m/2 = 250
 20%:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX5        .52     .035 No date   12:05   3.125 .521
      |XIMP=.40:TIMP=.49|
      |LOSS= 2 :CN= 69.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 500.:MNI=.045:SCI=   .0|
* Road and road side ditch along projected residential development SalesBarn Rd
* Tlag = Xlag = 0.1 ha /0.5  ha = 0.20
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* LGP based on centroid of area due to elongated shape = 354m/2 = 177
 20%:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX6        .51     .025 No date   12:04   2.758 .465
      |XIMP=.20:TIMP=.29|
      |LOSS= 2 :CN= 69.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0|
* Road and road side ditch along projected residential development SalesBarn Rd
* Tlag  Xlag   0.08 ha /0.38 ha   0.23
* CN* 69, as per Stantec see SC001
* Slope is estimated at 1%
* LGP based on centroid of area due to elongated shape = 277m/2 = 139.5
 20%:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX7        .39     .022 No date   12:03   2.026 .469
      |XIMP=.23:TIMP=.29|
      |LOSS= 2 :CN= 69.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 117.:MNI=.045:SCI=   .0|
*****************************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
*****************************************************************************
* CN - 79 as per fair grass cover with C soil type for top soil. CN*=71
* XIMP - TIMP to be conservative
*****************************************************************************
 20%:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:C1         5.30    1.122 No date   12:00   4h:60 .958
      |XIMP=.63:TIMP=.63|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
 20%:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:C2         6.34    1.028 No date   12:03   24.96 .857
      |XIMP=.79:TIMP=.79|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
 20%:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:C3         .74     .051 No date   12:00   4h:45 .975
      |XIMP=.98:TIMP=.98|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
* Tlag = Tmp ha/total area = 0.30/1.10 ha = .27
 20%:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:EX01       1.10     .058 No date   12:00   4.799 .535
      |XIMP=.27:TIMP=.27|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
* Tlag  Tmp ha/total area = 0.35/1.10 ha = .32
 20%:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:EXC2       1.07     .108 No date   12:00   7.147 .585
      |XIMP=.35:TIMP=.35|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
* Tlag  Tmp ha/total area = 0.21/0.22ha = .50
 20%:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:EXC3       .22     .028 No date   12:00   1.484 .674
      |XIMP=.50:TIMP=.50|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
*****************************************************************************
* Commercial pond (PDc)
* Slope estimated at 1% based on elevations around pond.
* Tlag and Xlag based on total pond area
* Xlag = A pond/A tot (1.84/1.54)
 20%:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD   01:PDc        1.57     .243 No date   12:00   5.128 .787
      |XIMP=.67:TIMP=.67|
      |SLP=1.00:LT= 1.00|
      |LOSS= 2 :CN= 71.0|
*****************************************************************************
*****************************************************************************
* PROPOSED RESIDENTIAL SUBMATERSHED - Residential Area Phase 1 and 2
*****************************************************************************
* CN* 69, as per Stantec see SC001.
* Tp estimated with Uplan method.
 20%:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN NASHYD     01:RR1        6.26     .245 No date   12:01   22.18 .546
      |CN= 69.0: N= 3.00|
      |Tp=  .1:TP= 1.00|
*****************************************************************************
* AREAS GOING TO RESIDENTIAL POND (PDr)
*****************************************************************************
*
 20%:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR1A         .24     .012 No date   12:00   .9.02 .436
      |XIMP=.11:TIMP=.27|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR1B         .55     .026 No date   12:00   2.092 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR2A        1.57     .074 No date   12:04   5.702 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 100.:MNI=.045:SCI=   .0|
 20%:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR2B        1.17     .056 No date   12:04   4.192 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR3A         .40     .023 No date   12:07   1.792 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR4B         .57     .026 No date   12:02   2.082 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR4A         .71     .035 No date   12:03   2.782 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
 20%:0025----------------ID:NHYD-------AREA----QPEAS-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:RR1B         .65     .032 No date   12:03   2.592 .436
      |XIMP=.11:TIMP=.21|
      |LOSS= 2 :CN= 71.0|
      |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
      |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0|
```

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05977> 205:0025----------ID:NHSE-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05978>     CALIB STANDHYD     01:FRSA        .66      .072 No date   12:03   27.92 .436
05979>       [XIMP=.11:TIMP=.21]
05980>       [LOSS= 2 :CN= 71.0]
05981>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05982>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05983> 205:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05984>     CALIB STANDHYD     01:FRAB        .46      .023 No date   12:02   27.92 .436
05985>       [XIMP=.12:TIMP=.21]
05986>       [LOSS= 2 :CN= 71.0]
05987>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05988>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05989> 205:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05990>     CALIB STANDHYD     01:FRBA        .41      .048 No date   12:04   27.92 .436
05991>       [XIMP=.11:TIMP=.21]
05992>       [LOSS= 2 :CN= 71.0]
05993>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05994>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05995> 205:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05996>     CALIB STANDHYD     01:FRBB        .83      .095 No date   12:03   27.92 .436
05997>       [XIMP=.11:TIMP=.21]
05998>       [LOSS= 2 :CN= 71.0]
05999>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06000>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06001> # slope estimated at 2% based on backyard swales.
06002> # Slp and Alp based on total pond area
06003> # xlap - a ponder tor
06004> # Slp - weighted average of pond and backyards
06005> 205:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06006>     CALIB STANDHYD     01:FRSA        5.07     .479 No date   12:04   40.18 .828
06007>       [XIMP=.44:TIMP=.47]
06008>       [LOSS= 2 :CN= 71.0]
06009>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06010>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
06011> #*****************************************************************
06012> # UNCONTROLLED AREAS
06013> #*****************************************************************
06014> #
06015> 205:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06016>   * CALIB STANDHYD     01:FRUA        1.35     .208 No date   12:11   24.61 .384
06017>       [XIMP=.02:TIMP=.10]
06018>       [LOSS= 2 :CN= 71.0]
06019>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06020>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06021> 205:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06022>   * CALIB STANDHYD     01:FRTB1       .76      .117 No date   12:11   24.61 .384
06023>       [XIMP=.02:TIMP=.14]
06024>       [LOSS= 2 :CN= 71.0]
06025>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06026>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06027> 205:0033----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06028>   * CALIB STANDHYD     01:FRTB2       .22      .034 No date   12:11   24.61 .384
06029>       [XIMP=.02:TIMP=.14]
06030>       [LOSS= 2 :CN= 71.0]
06031>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06032>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06033> 205:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06034>   * CALIB STANDHYD     01:FRUC1       .39      .061 No date   12:11   24.61 .384
06035>       [XIMP=.02:TIMP=.14]
06036>       [LOSS= 2 :CN= 71.0]
06037>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06038>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06039> 205:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06040>   * CALIB STANDHYD     01:FRUC2       .17      .028 No date   12:11   24.61 .384
06041>       [XIMP=.02:TIMP=.14]
06042>       [LOSS= 2 :CN= 71.0]
06043>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06044>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06045> 205:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06046>   * CALIB STANDHYD     01:FRUD        .58      .094 No date   12:11   24.61 .384
06047>       [XIMP=.02:TIMP=.14]
06048>       [LOSS= 2 :CN= 71.0]
06049>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06050>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06051> 205:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06052>   * CALIB STANDHYD     01:FRB       1.58      .255 No date   12:15   23.09 .380
06053>       [XIMP=.01:TIMP=.07]
06054>       [LOSS= 2 :CN= 71.0]
06055>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06056>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06057> 205:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06058>   * CALIB STANDHYD     01:FRSA        2.10     .339 No date   12:14   23.09 .380
06059>       [XIMP=.01:TIMP=.07]
06060>       [LOSS= 2 :CN= 71.0]
06061>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06062>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06063> 205:0039----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06064>   * CALIB STANDHYD     01:FRBA        .28      .031 No date   12:12   23.09 .380
06065>       [XIMP=.01:TIMP=.07]
06066>       [LOSS= 2 :CN= 71.0]
06067>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06068>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06069> 205:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06070>   * CALIB STANDHYD     01:FRBC        .83      .091 No date   12:14   23.09 .380
06071>       [XIMP=.01:TIMP=.07]
06072>       [LOSS= 2 :CN= 71.0]
06073>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06074>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06075> 205:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06076>   * CALIB STANDHYD     01:FRBD        1.17     .126 No date   12:13   23.09 .380
06077>       [XIMP=.01:TIMP=.07]
06078>       [LOSS= 2 :CN= 71.0]
06079>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06080>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06081> 205:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06082>   * CALIB STANDHYD     01:FRTB        .62      .068 No date   12:13   23.08 .380
06083>       [XIMP=.01:TIMP=.07]
06084>       [LOSS= 2 :CN= 71.0]
06085>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06086>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06087> #*****************************************************************
06088> # EXISTING flow - Upstream of Proposed Development
06089> #*****************************************************************
06090> # Total flow at node N-EX1
06091> 205:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06092>     ADD HYD            02:EX1       24.62    1.471 No date   12:00   26.47  n/a
06093>                      + 03:EXC1       .10      .082 No date   12:00   34.20  n/a
06094>                      + 04:EXC2       .01      .182 No date   12:00   37.47  n/a
06095>       [PT= 1.00]  SUM= 01:NEX1     24.79    1.565 No date   12:07   27.36  n/a
06096> # Typical Section based on proposed channel provided by AEL
06097> # 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.07
06098> # Route Node N-EX1 to d/s node N0
06099> 205:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06100>     ROUTE CHANNEL   -> 02:NEX1     24.79    1.565 No date   12:07   27.36  n/a
06101>       [PT= 1.00] out= 01:RNEX1     24.79    1.567 No date   12:11   27.36  n/a
06102>       [L/S/D=  322./ .85/0.810]
06103>       [Vtx= 1.2/Vbx=max=  .444]
06104> #*****************************************************************
06105> # TOTAL INFLOW TO COMMERCIAL POND #2E
06106> #*****************************************************************
06107> 205:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06108>     ADD HYD            02:EX4       .50      .073 No date   12:07   26.91  n/a
06109>                      + 03:C1       8.70    1.370 No date   12:10   48.66  n/a
06110>                      + 04:C2       5.44    1.068 No date   12:10   34.96  n/a
06111>                      + 05:PDC      1.67     .240 No date   12:30   50.15  n/a
06112>       [PT= 1.00]  SUM= 01:PDCin    16.71    2.441 No date   12:00   50.51  n/a
06113> 205:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06114>     ROUTE RESERVOIR -> 02:PDCin    16.71    2.441 No date   12:00   50.51  n/a
06115>       [RES= 1.00] out= 01:PDCout   16.71    2.441 No date   12:00   50.51  n/a
06116>              overflow <- 03:Over0     .00      .000 No date    0:00    .00  n/a
06117>       [MxStorage=.1954E+00, TotVolVol=.1089E+00, N-Ovf=    0, TotOutVf=     0.hrs]
06118> # Total flow at outlet of commercial pond
06119> 205:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06120>     ADD HYD            02:PDCout    16.71    2.441 No date   12:00   50.51  n/a
06121>                      - 03:FRBA      1.10      .845 No date   12:14   23.09  n/a
06122>       [VI= 1.00]  SUM= 01:SPDC     17.81    3.279 No date   12:10   48.82  n/a
06123> # Route pond outflow at pipe d/s of node N0
06124> # Typical Section based on proposed channel provided by AEL
06125> # 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.07
06126> 205:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06127>     ROUTE CHANNEL   -> 02:SPDC     17.81    3.279 No date   12:10   48.82  n/a
06128>       [RES= 1.00] out= 01:RPDC     17.80    3.467 No date   12:35   48.82  n/a
06129>       [L/S/D=  760./ .25/2.000]
06130>       [Vbx=  .590/Vmax=  .34]
06131> # Total channel flow at pipe d/s of node N0
06132> 205:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06133>     ADD HYD            02:RSPDC     17.80    3.467 No date   12:35   48.82  n/a
06134>                      + 03:FRPBE      .25      .017 No date   12:10   23.09  n/a
06135>                      + 04:FRPBT      .03      .041 No date   12:14   23.09  n/a
06136>       [VI= 1.00]  SUM= 01:sN0      18.08    3.493 No date   12:32   47.13  n/a
06137> # ------------
06138> # Total flow at node N0
06139> # (Note that EX2 will be about dividing to proposed channel)
06140> 205:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06141>     ADD HYD            02:sN0       18.08    3.493 No date   12:32   47.13  n/a
06142>                      - 03:RNEX1     28.79    1.567 No date   12:11   27.36  n/a
```

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                    +  34:EX2          9.59      .238 No date    12:18   22.15  n/a
                    +  05:C3           .94      .061 No date    12:10   82.61  n/a
      [DT= 1.00]  SUM=  01:E3          55.98     2.081 No date    12:18   32.33  n/a
# Typical section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
$ Route SW draining at N8 to n/a node B EX2
 205:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N8          55.98     2.081 No data    12:17   33.33  c/a
        ADD HYD            02:N8          55.98     1.986 No data    12:17   33.33  c/a
                    +  01:FE1B           .87      .074 No data    12:15   23.08  c/a
      [DT= 1.00]  SUM=  01:EX2          57.85     2.059 No data    12:17   33.00  c/a
# Route Node N-EX2 to Node N1
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atzel
# Manning's n is Channel not maintained, light brush on banks
# slope = 0.05% as per plan provided by Atzel.
 205:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N1EX2       57.85     2.059 No data    12:17   33.00  c/a
    + [RT= 1.00] out<- 01:N1EX2         57.85     1.727 No data    12:22   33.00  c/a
      [V/S/n= 75./ .050/.035]
      [Vmax= .519:Dmax= 1.356]
*******************************************************************************
* Residential Development - Phase 1 and 2
*******************************************************************************
# Total flow at node N-PK1
 205:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:PK1          4.06      .141 No data    12:05   22.18  n/a
                    +  01:FR1A           .24      .018 No data    12:01   27.92  n/a
      [ST= 1.00]  SUM=  01:EPK1          4.30      .154 No data    12:05   22.48  n/a
# Volume to ponding area in PK1
# Qw=.566 m3/s (wetlands as per SCS 100yr Existing conditions
# Culvert from Inlet 1
# Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n = 0.012, in at control nomograph
# Hydraulic head = 0.9m, Qw=.516
 205:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CONFLUX JUNCHYD    01:EPK1         1.53      .251 No data    12:05   23.48  n/a
        Major System /   02:EPXIM1         .00      .000 No data    0:00     .00  n/a
        Minor System \   03:NPXIMn        4.50      .254 No data    12:05   22.48  n/a
      [MJSyste=.000CF=0C, TotCurVol=.000CF=0C, N-Ovl=    0, TotOutVol=     0.11%]
# Input to in at 1 pipe
 205:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR1B          .25      .025 No data    12:00   27.92  n/a
                    +  03:EPXIMn        4.50      .254 No data    12:05   22.48  n/a
      [DC= 1.00]  SUM=  01:In1            4.75      .260 No data    12:05   23.08  n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In1          4.75      .260 No data    12:05   23.08  n/a
        [RT= 1.00] out<- 01:Pin1          4.75      .260 No data    12:05   23.08  n/a
        [L/S/n=  65./1.900/.012]
        [Vmax= 2.670:Tmax=  .038]
        [Dia=  .600:Dused=  .600]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 205:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR2A          1.51      .074 No data    12:04   27.92  n/a
        [RT= 1.00] out<- 01:CT2           1.51      .074 No data    12:04   27.92  n/a
        [L/S/n=  13./ .400/.012]
        [Vmax= 1.738:Tmax=  .083]
        [Dia=  .500:Dused=  .500]
# Input to Inlet 2 pipe
 205:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR2B          1.17      .050 No data    12:04   27.92  c/a
                    +  03:CT2           1.51      .074 No data    12:04   28.52  c/a
      [DC= 1.00]  SUM=  01:In2            2.68      .123 No data    12:04   27.98  c/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2          2.68      .123 No data    12:04   27.98  n/a
        [RT= 1.00] out<- 01:Pin2          2.68      .123 No data    12:05   27.98  n/a
        [L/S/n=  75./ .060/.012]
        [Vmax= 1.012:Tmax=  .414]
        [Dia=  .500:Dused=  .500]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 205:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR3A          .48      .023 No data    12:02   27.92  n/a
      [RT= 1.00] out<- 01:CT3           .48      .023 No data    12:02   27.92  n/a
      [V/S/n=  11./ .400/.013]
      [Vmax=  .387:Tmax=  .049]
      [Dia=  .300:Dused=  .300]
# Input to Inlet 3 pipe
 205:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR3B          .52      .026 No data    12:02   27.92  n/a
                    +  03:In3           .45      .023 No data    12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:In3            .97      .049 No data    12:02   27.92  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In3          .97      .049 No data    12:02   27.92  c/a
        [RT= 1.00] out<- 01:Pin3          .97      .048 No data    12:03   27.92  n/a
        [L/S/n=  75./ 200/.012]
        [Vmax= .756:Tmax=  .116]
        [Dia=  .500:Dused=  .500]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 205:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR4B          .65      .032 No data    12:03   27.92  n/a
        [RT= 1.00] out<- 01:CT4           .65      .032 No data    12:03   27.92  n/a
        [V/S/n=  13./ .400/.013]
        [Vmax=  .512:Tmax=  .123]
        [Dia=  .500:Dused=  .500]
# Input to Inlet 4 pipe
 205:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR4B          .65      .032 No data    12:03   27.92  n/a
                    +  03:In4           .71      .035 No data    12:03   27.92  n/a
      [DC= 1.00]  SUM=  01:In4            1.36      .067 No data    12:03   27.92  n/a
# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In4          1.36      .067 No data    12:03   27.92  n/a
        [RT= 1.00] out<- 01:Pin4          1.36      .067 No data    12:03   27.92  n/a
        [L/S/n=  65./1.900/.012]
        [Vmax= 1.812:Tmax=  .036]
        [Dia=  .500:Dused=  .500]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 205:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR5A          .66      .032 No data    12:03   27.92  n/a
        [RT= 1.00] out<- 01:CT5           .66      .032 No data    12:03   27.92  n/a
        [L/S/n=  13./ .400/.013]
        [Vmax=  .509:Tmax=  .119]
        [Dia=  .500:Dused=  .500]
# Input to Inlet 5 pipe
 205:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR5B          .06      .003 No data    12:00   27.92  n/a
                    +  03:CT5           .66      .032 No data    12:03   27.92  n/a
      [DT= 1.00]  SUM=  01:In5            1.12      .055 No data    12:02   27.92  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5          1.12      .055 No data    12:02   27.92  n/a
        [RT= 1.00] out<- 01:Pin5          1.12      .055 No data    12:03   27.92  n/a
        [L/S/n=  75./1.890/.012]
        [Vmax= 1.709:Tmax=  .110]
        [Dia=  .500:Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 205:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5A          1.43      .068 No data    12:04   27.92  n/a
        [RT= 1.00] out<- 01:Pin6          1.43      .068 No data    12:04   27.92  n/a
        [L/S/n=  13./ .400/.012]
        [Vmax= 1.106:Tmax=  .179]
        [Dia=  .500:Dused=  .500]
# Input to Inlet 6 pipe
 205:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR6A          .93      .045 No data    12:03   27.92  c/a
                    +  03:In5           1.43      .068 No data    12:06   27.92  c/a
      [DT= 1.00]  SUM=  01:In6            2.36      .113 No data    12:06   27.92  c/a
# Pipe from Inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In6          2.36      .113 No data    12:06   27.92  n/a
        [RT= 1.00] out<- 01:Pin6          2.36      .112 No data    12:06   27.92  n/a
        [V/S/n=  70./ .100/.013]
        [Vmax= 1.162:Tmax=  .251]
        [Dia=  .500:Dused=  .500]
# VOLUME TO POND ULTIMATE RESIDENTIAL
 205:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:Pin1          5.05      .240 No data    12:05   23.11  n/a
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                    -  04:Pin2        2.74     .129 No date   12:05   28.81  n/a
                    -  04:Pin3         .97     .048 No_date   12:03   27.92  n/a
                    -  05:Pin4        1.36     .067 No_date   12:03   27.92  n/a
                    -  06:Pin5        1.12     .055 No_date   12:03   27.92  n/a
                    -  07:Pin6        2.36     .112 No_date   12:04   27.92  n/a
                    -  08:POn         5.93     .428 No_date   12:04   60.15  n/a
      [VT= 1.80]  SUM=  01:POND1in   16.63    1.116 No_date   12:04   29.94  n/a
 # Pond outflow for ultimate conditions using weir  6|  .6| 3.0
 20b:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 09:POND1n     6.63    1.116 No_date   12:04   29.94  n/a
      [RET= 1.00] out<- 01:POout       6.63    .073 No_date   12:29   29.93  n/a
            overflow <= 08:ovrQ         .00    .000 No_date   00:00    .00  n/a
      (VaSloLoad=.aSoutlo, TotVolVo =.000Ac*ft, R-Cv=    0, TotDuOut=     0.0zs)
 # Simulating SCS 100 yr conditions with subsequence of outflow weir
 # updated for weir .6| .6| 3.0
 #ROUTE RESERVOIR     SHYDout-["POout"] ,SHYDin-["PONDin"] ,
                      RET-[1](min),
                           TABLE of ( OUTFLOW-STORAGE ) values
                                      (cms) - (ha-m)
                                    [   0.0 ,  0.0 ]
                                     0.00201 , 1.1200
                                     0.20  , 1.8110
                                     0.33  , 2.0150
                                    [   -1  ,  -1  ]  (max twenty pts)
                           HYYouve= "ovrQ" ,
 # Route pond output through first set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=80 mm dia)
 # HDPE smooth wall pipe Manning's n   0.012
 20b:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE  -> 02:POout1         0.63    .073 No_date   12:29   29.93  n/a
      [RET= 1.00] out<- 01:POout       0.63    .073 No_date   12:30   29.93  n/a
      [L/S/n=   75./ .2000/.012]
      [Vmax=  .840:DmAx=  .15]
      [Din=  .780:DuseD=  .780]
 # Flow c/s of outlet culverts
 20b:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Pr7b1        .26     .017 No_date   12:12   34.6   n/a
                    -  03:PR7B2        .22     .010 No_date   12:11   34.6   n/a
                    -  04:Pout1      18.83     .073 No_date   14:38   29.93  n/a
      [DT= 1.00]  SUM=  01:Pout      19.21     .075 No_date   14:12   29.77  n/a
 # Route outflow through set of Culverts
 # 2 x 600 cm verts simulated with 1 culvert of equivalent capacity (.780 mm dia
 # HDPE smooth wall pipe Manning's n = 0.012
 20b:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE  -> 02:Pout2          19.21    .075 No_date   14:12   29.77  n/a
      [RET= 1.00] out<- 01:Cout        19.21    .075 No_date   14:12   29.77  n/a
      [L/S/n    15./ .600/.012]
      [Vmax= 1.08:Vmax=  .156]
      [Din=  .156:DuseD=  .780]
 # Flow c/s of second set of outflow pipes
 20b:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:PR7C1         .59     .038 No_date   12:12   34.61  n/a
                    -  03:PR7C2         .17     .008 No_date   12:11   34.61  n/a
                       04:Cout2       19.97     .075 No_date   14:12   29.77  n/a
      [DT= 1.00]  SUM=  01:Pout2       19.77     .091 No_date   12:14   29.63  n/a
 # Route outflow through second set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=80 mm dia)
 # HDPE smooth wall pipe Manning's n   0.012
 20b:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE  -> 02:Pout3          19.77    .091 No_date   12:14   29.63  n/a
      [RET= 1.00] out<- 01:PoutF       19.77    .090 No_date   12:14   29.63  n/a
      [L/S/n=   75./ .2000/.012]
      [Vmax=  .908:Vmax=  .1265]
      [Din=  .186:DuseD=  .780]
 # Total flow at node N1 (Shields MS along Sales Barn Rd)
 20b:0080----------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:NMEA2        37.80    1.727 No_date   12:02   33.80  n/a
                    -  03:PoutF        19.77     .090 No_date   12:14   29.63  n/a
                    -  04:EX7          .35     .022 No_date   12:03   30.05  n/a
                    -  05:PR7D         .58     .013 No_date   12:11   24.61  n/a
                    -  06:PR11         .62     .026 No_date   12:13   27.05  n/a
      [VT= 1.80]  SUM=  01:N1         18.93     .850 No_date   12:12   32.81  n/a
 # ROUTE N1 to N2
 # Typical Section based on Shields MS Yew Ditch 2:1 banks
 # provided by Atrel
 # Manning's n is channel not maintained, light brush on banks
 # Slope   0.05% as per plan provided by Atrel.
 20b:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1         18.93    1.498 No_date   12:12   32.81  n/a
      [RET= 1.00] out<- 01:N2H         18.93    1.498 No_date   12:30   32.81  n/a
      [L/S/n=  349./ .0300/.025]
      [Vmax=  .577:Vmax=  1.318]
 # WATER from residential area at R1 intensity
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 20b:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:PR7A         1.35     .059 No_date   12:14   34.61  n/a
                    +  03:PR8          1.35     .055 No_date   12:15   33.05  n/a
      [VT= 1.80]  SUM=  01:N21         2.73     .114 No_date   12:14   33.83  n/a
 # Added VOLUME from external area contributing to N3
 20b:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:RR1         78.93    1.498 No_date   12:30   32.81  n/a
                    +  03:N21          2.73     .114 No_date   12:14   33.84  n/a
                    +  04:EX5           .52     .032 No_date   12:06   37.21  n/a
                    +  05:EX6           .51     .020 No_date   12:04   28.75  n/a
                    +  06:EX7A          .22     .008 No_date   12:00   43.43  n/a
      [VT= 1.80]  SUM=  01:N3         82.91    1.617 No_date   12:27   31.80  n/a
 # ROUTE N3 to NCIRB
 # Typical Section based on Shields MS Yew Ditch 2:1 banks
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Slope   0.05% as per plan provided by Atrel.
 20b:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3         82.91    1.617 No_date   12:27   31.80  n/a
      [RET= 1.00] out<- 01:N3          82.91    1.729 No_date   12:56   31.80  n/a
      [L/S/n=  415./ .050/.035]
      [Vmax=  .360:DmAx= 1.242]
 # Flow at Student Node NCR128 for Comparison
 # Routes N1 plus EX1
 20b:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:RR1         82.93    1.728 No_date   12:56   31.80  n/a
                    +  03:EX1         21.40     .123 No_date   12:48   22.18  n/a
      [DT= 1.00]  SUM=  01:NCR128     104.21    1.85  No_date   12:47   29.83  n/a
 # AREA CHECK
 #
 20b:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:EX1         24.62    1.471 No_date   12:38   26.61  n/a
                    +  03:EX2         21.09     .130 No_date   12:38   22.18  n/a
                    +  04:EX3         21.30     .127 No_date   12:48   22.18  n/a
                    +  05:EX4           .50     .024 No_date   12:32   26.91  n/a
                    +  06:EX5           .52     .032 No_date   12:06   37.23  n/a
                    +  07:EX6           .51     .020 No_date   12:04   28.75  n/a
                    +  08:EX7           .49     .027 No_date   12:03   30.05  n/a
                    +  09:FR1A          .24     .013 No_date   12:01   27.92  n/a
                    +  10:FR1B          .55     .028 No_date   12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:Cut1       58.52    1.938 No_date   12:09   24.41  n/a
 20b:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Cut1        58.52    1.938 No_date   12:09   24.41  n/a
                    +  03:FR2A          1.57     .074 No_date   12:04   27.92  n/a
                    +  04:FR2B          1.19     .056 No_date   12:04   27.92  n/a
                    +  05:FR3A          .65     .023 No_date   12:02   27.92  n/a
                    +  06:FR3B          .50     .020 No_date   12:02   27.92  n/a
                    +  07:FR4A          .71     .035 No_date   12:03   27.92  n/a
                    +  08:FR4B          .82     .032 No_date   12:04   27.92  n/a
                    +  09:FR5A          .66     .032 No_date   12:04   27.92  n/a
                    +  10:FR5B          .46     .023 No_date   12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:Cut2       64.71    2.219 No_date   12:09   24.74  n/a
 20b:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Cut2        64.71    2.219 No_date   12:09   24.74  n/a
                    +  03:FR6A          1.47     .068 No_date   12:04   27.92  n/a
                    +  04:FR6B          .93     .045 No_date   12:03   27.92  n/a
                    +  05:FR7A          1.35     .059 No_date   12:16   24.61  n/a
                    +  06:FR7B1          .56     .017 No_date   12:12   24.61  n/a
                    +  07:FR7B2          .22     .010 No_date   12:11   24.61  n/a
                    +  08:FR7C1          .59     .038 No_date   12:12   24.61  n/a
                    +  09:FR7C2          .17     .008 No_date   12:11   24.61  n/a
                    +  10:FR7D           .58     .014 No_date   12:11   24.61  n/a
      [DT= 1.00]  SUM=  01:Cut3       69.86    2.408 No_date   12:09   24.84  n/a
 20b:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Cut3        69.86    2.409 No_date   12:09   24.84  n/a
                    +  03:FR8          1.36     .055 No_date   12:15   23.05  n/a
                    +  04:FR9A         1.10     .042 No_date   12:14   24.05  n/a
                    +  05:FR9B1         .25     .011 No_date   12:12   23.05  n/a
                    +  06:FR9B2        1.00     .041 No_date   12:14   23.05  n/a
                    +  07:FR10          1.00     .074 No_date   12:15   23.05  n/a
                    +  08:FR11          .62     .026 No_date   12:13   23.05  n/a
                    +  09:PK1          4.26     .243 No_date   12:35   22.18  n/a
                    +  10:PKa          6.03     .429 No_date   12:00   50.15  n/a
      [DT= 1.00]  SUM=  01:Cut4       85.37    3.283 No_date   12:07   25.40  n/a
 20b:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Cut4        85.37    3.283 No_date   12:07   25.40  n/a
                    +  03:C1           8.30    1.126 No_date   12:00   48.60  n/a
                    +  04:C2           6.44    1.058 No_date   12:00   54.96  n/a
                    +  05:C3            .24     .057 No_date   12:00   62.51  n/a
                    +  06:EXC1         1.10     .082 No_date   12:00   54.95  n/a
                    +  07:EXC2         1.07     .102 No_date   12:00   57.47  n/a
                    +  08:EXC3          .22     .028 No_date   12:00   63.42  n/a
                    +  09:Pkc          1.53     .240 No_date   12:00   50.15  n/a
```

```
       [Ia= 1.00]  sUM=  01:Tot3      104.21     5.175 Ho_date   12:01    29.61 r/s
*******************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* Also 24 hours type 2, from City of Ottawa
  ** END OF RUN : 209
*******************************************************************************
*
*
*
*
*
  RUN COMMAND:
  210:C0C1-------------------------------------------------------------------
       START
        [TZERO =     .00 hrs on        0]
        [METOUT=    2     (1-Imperial, 2-metric output)]
        [NSTORM=    1 ]
        [NRUN    210 ]
*******************************************************************************
*  SWMHYMO Ver 5.02/Jan 2007 <RETRO / INPUT DATA FILE
*******************************************************************************
*  Project Name: [Greely Village Center]     Project Number: [647-07]
*  Date        : 04-09-2008
*  Made by     : [JMP]
*  Company     : JFSAinc.
*  License #   :  2547402
*******************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION 8
* Filename stands for: Greely, Commercial, Proposed
*******************************************************************************
  210:0002-------------------------------------------------------------------
       READ STORM
        Filename = story.307
        Comment  = 10 years SCS Type 2 Storm 24 hours step 10 min, City of Otta
        [SDT=10.00:ZDUR=  24.00:PTOT=  74.35]
*******************************************************************************
* Existing flow - McEvoy Branch at Shield Creek - Areas
* Area d/s of proposed development (residential)
* CN**5, Ximp = 0.0, Tp=..h, X.MAP=45, TIMP=45, see SC002 as per Stantec
* Area partially adjusted based on Arrel drawings. Ip adjusted accordingly.
*******************************************************************************
* d/s of Bank St.as per Arrel - with modified boundaries and Tp.
  210:C0C3-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX1        24.82     1.871 No_date   12:08    33.69 .652
        [CN= 75.0: N= 3.00]
        [Tp=  .23:UC= 1.00]
*******************************************************************************
* Existing flow - External areas d/s of Bank St.
* CN*=69, as per Stantec see SC001.
* Area partially adjusted based on Arrel drawings.
*******************************************************************************
* Areas External to Development
  210:C0C4-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX2         9.69      .286 No_date   12:17    29.39 .587
        [CN= 69.0: N= 3.00]
        [Tp=  .67:UC= 1.00]
  210:C0C5-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX3        21.80      .948 No_date   12:48    28.38 .382
        [CN= 69.0: N= 3.00]
        [Tp=  .93:UC= 1.00]
* Slope, Clmp, Area from Arrel Drawing
* CN from Stantec (SC001)
* Ximp = Timp - 10%
  210:C0C6-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD     01:EX4         .53      .032 No_date   12:07    35.31 .665
         [XIMP=.11:TIMP=.22]
         [LOSS= 2 :CN= 69.0]
         [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.50 ha = 0.40
* CN* 69, as per Stantec see SC001.
* Slope is estimated at 1%
* ZDT based on centroid of area due to elongated shape = 600m/2 = 300
  210:C0C7-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD     01:EX5         .52      .044 No_date   12:06    64.90 .665
        [XIMP=.40:TIMP=.40]
        [LOSS= 2 :CN= 69.0]
        [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  300.:MNI .045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.1 ha /0.51 ha = 0.20
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* ZDT based on centroid of area due to elongated shape = 300m/2 = 177
  210:0008-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD     01:EX6         .51      .032 No_date   12:04    35.69 .680
         XIMP=.20:TIMP=.39]
         [LOSS= 2 :CN= 69.0]
         [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Salesbarn Rd
* Timp = Ximp = 0.05 ha /0.39 ha = 0.23
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* ZDT based on centroid of area due to elongated shape = 175m/2 = 112.5
  210:C0C9-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD     01:EX7         .39      .028 No_date   12:03    37.05 .669
         [XIMP=.23:TIMP=.23]
         [LOSS= 2 :CN= 69.0]
         [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: [AImp= 1.57:SLPI=1.00:LGI= 177.:MNI .045:SCI=   .0]
*******************************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
*******************************************************************************
* CN = 79 as per fair grass cover with C soil type for Lot soil: CN*=61
* XIMP = TIMP to be conservative
*******************************************************************************
  210:0010-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:C1          8.38     1.709 No_date   12:00    57.16 .773
         [XIMP .63:TIMP .63]
         [SLP=1.00:UC= 1.00]
         [LOSS= 2 :CN= 79.0]
  210:0011-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:C2          6.34     1.248 No_date   12:00    64.42 .866
         [XIMP .79:TIMP .79]
         [SLP=1.00:UC= 1.00]
         [LOSS= 2 :CN= 79.0]
  210:0012-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:C3          .24      .060 No_date   12:00    72.68 .978
         [XIMP .98:TIMP .98]
         [SLP 1.00:UC= 1.00]
         [LOSS= 2 :CN= 79.0]
* Ximp = Imp ha/total area = 0.79/1.13 ha = .70
  210:0013-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:EX8         1.10      .137 No_date   12:00    71.00 .962
         XIMP=.70:TIMP=.70]
         SLP=1.00:UC= 1.00]
         LOSS= 2 :CN= 71.0]
* Ximp = Imp ha/total area = 0.35/1.67 ha = .35
  210:0014-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:EX10        1.07      .126 No_date   12:00    65.28 .609
         [XIMP=.35:TIMP=.35]
         [SLP=1.00:UC= 1.00]
         [LOSS= 2 :CN= 71.0]
* Ximp = Imp ha/total area = 0.170./.2Ha = .90
  210:C0C8-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:EX13        .22      .033 No_date   12:00    51.80 .857
         [XIMP=.90:TIMP=.90]
         [SLP 1.00:UC= 1.00]
         [LOSS= 2 :CN= 71.0]
*******************************************************************************
* Commercial Pond (POND)
* Slope estimated at 1% based on elevations around pond.
* Timp and Ximp based on total pond area
* Ximp = A pond/A tot (1.0/1.57)
  210:0016-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN STANDHYD    01:POND        1.57      .285 No_date   12:00    59.20 .796
         [XIMP=.67:TIMP=.67]
         [SLP=1.00:UC= 1.00]
         [LOSS= 2 :CN= 71.0]
##############################################################################
*******************************************************************************
* PROPOSED RESIDENTIAL SUBDIVISIONS - Residential Area Phase 1 and 2
*******************************************************************************
* CN*=69, as per Stantec see SC001.
* Tp estimated with Upland Method.
  210:0017-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DRE ON NASHYD      01:PR1         4.26      .313 No_date   12:05    28.39 .382
         [CN= 69.0: N= 3.00]
         [Tp   10.0T: 1.00]
*******************************************************************************
* AREAS GOING TO RESIDENTIAL POND (POND)
```

```
*----------------------------------------------------------------------------
*
 210:0015----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR1A          .24      .018 No_date   12:01   35.04 .471
        [XIMP .11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0019----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR1B          .09      .006 No_date   12:09   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0020----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR2A          1.57      .101 No_date   12:04   35.01 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0021----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR2B          1.17      .075 No_date   12:07   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0022----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR3A          .45      .031 No_date   12:02   35.04 .471
        [XIMP .11:TIMP .21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0023----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR3B          .52      .036 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0024----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR4A          .71      .049 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0025----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR4B          .63      .043 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0026----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR5A          .66      .045 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0027----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR5B          .50      .034 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0028----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR6A          1.43      .092 No_date   12:04   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0029----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR6B          .93      .061 No_date   12:03   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
# slope estimate at 2: based on backyard swales.
# IApp and XIMP based on total pond area
# XIMP = A pond/A tot
# TIMP = weighted average of pond and backyards
 210:0030----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR9A          5.90      .389 No_date   12:03   28.32 .450
        [XIMP=.44:TIMP=.49]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
*
 210:0031----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7A          1.37      .081 No_date   12:07   35.04 .471
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0032----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7B          .36      .021 No_date   12:10   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0033----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7C          .22      .015 No_date   12:09   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0034----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7D          .39      .026 No_date   12:13   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0035----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7C2         .17      .011 No_date   12:09   35.04 .471
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0036----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7D          .30      .019 No_date   12:10   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0037----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8           1.38      .087 No_date   12:13   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0038----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8A          1.10      .052 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0039----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8B          .20      .015 No_date   12:10   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0040----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR9A          .60      .043 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0041----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR10          1.97      .141 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0042----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR11          .62      .044 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
# UNCONTROLLED AREAS
*----------------------------------------------------------------------------
*
 210:0031----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7A          1.37      .081 No_date   12:07   35.04 .471
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0032----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7B          .36      .021 No_date   12:10   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0033----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C          .22      .015 No_date   12:09   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0034----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7D          .39      .026 No_date   12:13   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0035----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C2         .17      .011 No_date   12:09   35.04 .471
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0036----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7D          .30      .019 No_date   12:10   35.04 .471
        [XIMP=.03:TIMP=.14]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0037----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8           1.38      .087 No_date   12:13   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0038----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8A          1.10      .052 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0039----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8B          .20      .015 No_date   12:10   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0040----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR9A          .60      .043 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0041----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR10          1.97      .141 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0042----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR11          .62      .044 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
# EXISTING flow - Upstream of Proposed Development
*----------------------------------------------------------------------------
# Total flow at node X-FX1
 210:0043----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:EX1           24.62     1.671 No_date   12:00   31.99  n/a
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                    +  03:EXC1        1.10      .112 No data   12:00   41.86  n/a
                    +  04:EXC2        1.07      .126 No data   12:00   45.28  n/a
      [DT= 1.00]  SUM=  01:EXC       26.79     1.994 No data   12:07   54.49  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
# Route Node N-EX1 to S/S node NC
 2:0:0044----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:NEX1       26.79     1.994 No date   12:07   54.49  n/a
       [RT= 1.00] out=  01:ENEX1      26.79     1.994 No date   12:16   54.49  n/a
       [L/S/n=  312./ .850/.030]
       [Vmax= 1.346:Lmax=  .495]
#*******************************************************************************
# TOTAL INFLOW TO COMMERCIAL POND Pts
#*******************************************************************************
 210:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:EX4        .50      .032 No date   12:00   45.61  n/a
                    +  03:C1         8.39     1.350 No date   12:00   57.46  n/a
                    +  04:C2         9.39     1.249 No date   12:00   64.42  n/a
                    +  05:EC         7.57      .795 No date   12:00   58.20  n/a
      [DT= 1.00]  SUM   01:PDCin     18.71     2.913 No date   12:00   58.55  n/a
 210:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:PDCin     18.71     2.913 No date   12:00   58.55  n/a
       [RT= 1.00] out=  01:PDCout     18.71      .599 No date   12:21   58.55  n/a
                 overflow =  0.00cvg2          .00      .000 No date    0:00    .00  n/a
       (MxStoMeas=.486:Min)  TotOvFlVol=.000E+00, R-Vol=     0, DetTurDur=     0.0hrs)
# Total flow at outlet of commercial pond
 210:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:EOCout      6.11      .599 No date   12:21   58.55  n/a
                    +  03:FRUA       1.10      .082 No date   12:12   28.67  n/a
      [DT= 1.00]  SUM=  01:POut      7.81      .654 No date   12:17   57.01  n/a
# Route pond outflow at pipe n/s of node EO
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.75%, Manning's n is 0.03
 210:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:POut      7.81      .654 No date   12:17   57.01  n/a
       [RT= 1.00] out=  01:RdOut     7.81      .622 No date   12:31   57.01  n/a
       [L/S/n=  760./ .750/.030]
       [Vmax=  .540:Lmax=  .394]
# Total channel flow at pipe n/s of node EO
 210:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:ASPDC       17.81      .622 No date   12:31   57.01  n/a
                    +  03:FRSB1       .25      .031 No date   12:12   29.67  n/a
                    +  04:FRSB2       .21      .030 No date   12:12   29.67  n/a
      [DT= 1.00]  SUM   01:SO        18.06      .665 No date   12:27   55.87  n/a
# ************
# Total flow at node EO
# (Note that EX2 will be sheet draining to proposed channel)
 210:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         03:ASWO       18.06      .665 No date   12:27   55.87  n/a
                    +  03:RNEX1      16.75     1.526 No date   12:10   54.49  n/a
                    +  04:EX2         9.39      .795 No date   12:17   28.52  n/a
                    +  05:C7          .54      .050 No date   12:09   72.68  n/a
      [DT= 1.00]  SUM   01:NO        55.98     2.713 No date   12:19   40.85  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
# Route SW draining at NO to S/S node N-EX2
 2:0:0051----------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:RNO       55.98     2.713 No date   12:19   40.85  n/a
       [RT= 1.00] out=  01:RNO       55.98     2.086 No date   12:17   40.85  n/a
       [L/S/n=  434./ .400/.030]
       [Vmax=  .731:Lmax=  .570]
# Total flow at node N-EX2
 210:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:RNO        55.98     2.086 No date   12:17   40.85  n/a
                    +  03:FR10        1.84      .101 No date   12:13   28.97  n/a
                    +  04:NEX2       57.85     2.895 No date   12:16   40.19  n/a
      [DT= 1.00]  SUM=  01:NEX2      57.85     2.895 No date   12:16   40.19  n/a
# Route Node N-EX2 to Node N1
# Typical Section based on Shields RJ Ave Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.6%, as per plan provided by Atrel.
 210:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
      ROUTE CHANNEL   -> 02:NEX2       57.85     2.895 No date   12:16   40.48  n/a
       [RT= 1.00] out=  01:RNEX2      57.85     2.794 No date   12:20   40.48  n/a
       [L/S/n=  210./ .050/.035]
       [Vmax=  .386:Lmax=  1.549]
#*******************************************************************************
# Residential Development - Phase 1 and 2
#*******************************************************************************
# Total flow at node N-PK.
 2:0:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         01:PK1         4.26      .313 No date   12:05   28.69  n/a
                    +  02:FRLA        .24      .016 No date   12:00   35.04  n/a
                    +  03:FRLB        .30      .020 No date   12:00   35.04  n/a
                    +  04:FRLC        .30      .020 No date   12:00   35.04  n/a
      [DT= 1.00]  SUM=  01:NPK1      5.09      .369 No data   12:05   29.63  n/a
# Pipe from inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 2:0:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In1        5.09      .363 No data   12:05   29.63  n/a
       [RT= 1.00] out=  01:In1        5.09      .362 No data   12:05   29.63  n/a
       [L/S/n=  85./1.600/.012]
       [Vmax= 2.862:Lmax=  .272]
       [Din=  .600:Dsize=  .600]
# Culvert from inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 2:0:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR2A       1.57      .101 No data   12:04   35.04  n/a
       [RT= 1.00] out=  01:CIL2       1.57      .101 No data   12:04   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.274:Lmax=  .219]
       [Din=  .450:Dsize=  .450]
# Input to inlet 2 pipe
 2:0:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:FR2B       1.17      .075 No data   12:03   35.01  n/a
                    +  03:C1n2       1.57      .101 No data   12:04   35.15  n/a
      [DT= 1.00]  SUM=  01:In2       2.74      .175 No data   12:04   35.10  n/a
# Pipe from inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
      ROUTE PIPE      -> 02:In2        2.74      .175 No data   12:04   35.10  n/a
       [RT= 1.00] out=  01:Pond       2.74      .172 No data   12:05   35.10  n/a
       [L/S/n=  15./ .400/.012]
       [Vmax= 1.881:Lmax=  .192]
       [Din=  .500:Dsize=  .500]
# CH over from inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 210:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR3A        .45      .031 No data   12:02   35.04  n/a
       [RT= 1.00] out=  01:CIn3        .45      .031 No data   12:02   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax=  .679:Lmax=  .115]
       [Din=  .300:Dsize=  .300]
# Input to inlet 3 pipe
 210:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:FR3B        .22      .014 No data   12:02   35.01  n/a
                    +  03:C1n3       .45      .031 No data   12:02   35.04  n/a
      [DT= 1.00]  SUM   01:In3       .67      .045 No data   12:02   35.04  n/a
# Pipe from inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 2:0:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In3        .67      .045 No data   12:02   35.04  n/a
       [RT= 1.00] out=  01:Pln3       .67      .045 No data   12:02   35.04  n/a
       [L/S/n=  75./ .200/.012]
       [Vmax=  .852:Dmax=  .206]
       [Din=  .300:Dsize=  .300]
# Culvert from inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 210:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR4A        .71      .047 No data   12:02   35.04  n/a
       [RT= 1.00] out=  01:CIn4        .71      .046 No data   12:02   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax=  .993:Lmax=  .143]
       [Din=  .300:Dsize=  .300]
# Input to inlet 1 pipe
 210:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD         02:FR4B        .65      .043 No data   12:02   35.04  n/a
                    +  03:C1n4       .71      .046 No data   12:02   35.04  n/a
      [DT= 1.00]  SUM=  01:In4       1.36      .089 No data   12:02   35.04  n/a
# Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 2:0:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
```

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06973>       ROUTE PIPE      -> 02:In4          1.36      .088 No_date   12:02   35.04  n/a
06974>         [RO= 1.00] outc= 01:Pin4         1.36      .087 No_date   12:03   35.04  n/a
06975>         [L/S/n=   65./1.900/.012]
06976>         [Vmax= 7.071:Dmax=  .114]
06977>         [Dia=  .500:Dused=  .500]
06978> # Culvert from Inlet 5
06979> # HDPE smooth wall pipe Manning's n = 0.012
06980> 210:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06981>       ROUTE PIPE      -> 02:Pin5          .66      .043 No_date   12:02   35.04  n/a
06982>         [RO= 1.00] outc= 01:Out5          .66      .043 No_date   12:02   35.04  n/a
06983>         [L/S/n=   13./ .400/.012]
06984>         [Vmax=  .871:Dmax=  .176]
06985>         [Dia=  .500:Dused=  .500]
06986> # Input to Inlet 5 pipe
06987> 210:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06988>       ADD HYD         02:PIN5          .66      .043 No_date   12:02   35.04  n/a
06989>                     + 03:Cin5          .66      .043 No_date   12:02   35.04  n/a
06990>         [DT= 1.00]  SUM= 01:In5          1.32      .085 No_date   12:02   35.04  n/a
06991> # Pipe from Inlet 5 - Route to pond
06992> # HDPE smooth wall pipe Manning's n = 0.012
06993> 210:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06994>       ROUTE PIPE      -> 02:In5          1.12      .075 No_date   12:02   35.04  n/a
06995>         [RO= 1.00] outc= 01:Pin5          1.12      .075 No_date   12:03   35.04  n/a
06996>         [L/S/n=   75./1.600/.012]
06997>         [Vmax= 1.868:Dmax=  .128]
06998>         [Dia=  .500:Dused=  .500]
06999> # Culvert from Inlet 6
07000> # HDPE smooth wall pipe Manning's n = 0.012
07001> 210:0070----------------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
07002>       ROUTE PIPE      -> 02:Pin6          1.43      .092 No_date   12:04   35.04  n/a
07003>         [RO= 1.00] outc= 01:Cin6          1.43      .092 No_date   12:04   35.04  n/a
07004>         [L/S/n=   13./ .400/.012]
07005>         [Vmax= 1.205:Dmax=  .206]
07006>         [Dia=  .500:Dused=  .500]
07007> # Input to Inlet 6 pipe
07008> 210:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07009>       ADD HYD         02:PIN6          .43      .061 No_date   12:03   35.04  n/a
07010>                     + 03:Cin6          1.43      .092 No_date   12:04   35.04  n/a
07011>         [DT= 1.00]  SUM= 01:In6          2.36      .153 No_date   12:04   35.04  n/a
07012> # Pipe from Inlet 6 - Route to pond
07013> # HDPE smooth wall pipe Manning's n = 0.012
07014> 210:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07015>       ROUTE PIPE      -> 02:In6          2.36      .153 No_date   12:04   35.04  n/a
07016>         [RO= 1.00] outc= 01:Pin6          2.36      .152 No_date   12:05   35.04  n/a
07017>         [L/S/n=   70./ .300/.012]
07018>         [Vmax= 1.228:Dmax=  .303]
07019>         [Dia=  .500:Dused=  .500]
07020> # VOLUME TO POND ULTIMATE RESIDENTIAL
07021> 210:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07022>       ADD HYD         02:Pin1          5.05      .362 No_date   12:05   35.04  n/a
07023>                     + 03:Pin2          7.08      .510 No_date   12:05   35.04  n/a
07024>                     + 04:Pin3          .27      .054 No_date   12:03   35.04  n/a
07025>                     + 05:Pin4          1.36      .089 No_date   12:08   35.04  n/a
07026>                     + 06:Pin5          1.12      .075 No_date   12:03   35.04  n/a
07027>                     + 07:Pin6          2.36      .152 No_date   12:05   35.04  n/a
07028>                     + 08:Vol           5.03      .530 No_date   12:03   48.31  n/a
07029>         [DT= 1.00]  SUM= 01:POND1n    28.63     1.435 No_date   12:04   37.13  n/a
07030> #  Pond outflow for ultimate conditions using Weir .6/.6/ 3.0
07031> 210:0074----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07032>       ROUTE RESERVOIR -> 02:POND1n    28.63     1.435 No_date   12:04   37.13  n/a
07033>         [RI= 1.00] outc= 01:POut     28.63      .698 No_date   14:16   37.13  n/a
07034>              overflow <- 01:ov-Q          .00      .638 No_date   0:00     .00  n/a
07035>       [MaxStaRead=.4800E+00, TacOviVol=.8000E+00, M-Ovf=    0, TotDurOvf=    0.hrs]
07036> # Simulating SCS 100 yr hydrograph with submergence of outflow weir
07037> # updated for we.r .6/ .6/ 3.0
07038> #ROUTE RESERVOIR     NHYDout ["POut"] ,NHYDin=["POND1n"] ,
07039> #                    RDC=[1](min),
07040> #                           TABLE of [ OUTFLOW-STORAGE ] values
07041> #                                      (cms) - (ha-m)
07042> #                                  [   0.0 ,   0.0 ]
07043> #                                  0.00001 , 0.1209
07044> #                                  0.50    , 3.8130
07045> #                                  0.65    , 7.0105
07046> #                                  [   -1  ,   -1  ]   (max twenty pts)
07047> #                              NHYDouts=["OutQ"] ,
07048> # Route pond output through final set of pipes
07049> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
07050> # HDPE smooth wall pipe Manning's n = 0.012
07051> 210:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07052>       ROUTE PIPE      -> 02:POut1     28.63      .959 No_date   11:16   37.13  n/a
07053>         [RO= 1.00] outc= 01:Pout1     28.63      .959 No_date   11:17   37.13  n/a
07054>         [L/S/n=   75./ .200/.012]
07055>         [Vmax=  .823:Dmax=  .214]
```

```
07056>         [Dia=  .780:Dused=  .780]
07057> # Flow o/s of outlet on weir
07058> 210:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07059>       ADD HYD         02:rn7a1         .56      .073 No_date   12:10   31.44  n/a
07060>                     + 03:rn7a2         .28      .035 No_date   12:09   31.44  n/a
07061>                     + 04:Pout1       18.63      .099 No_date   14:17   37.13  n/a
07062>         [DT= 1.00]  SUM= 01:Pout     19.21      .102 No_date   14:06   36.96  n/a
07063> # Route outflow through set of culverts
07064> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia)
07065> # HDPE smooth wall pipe Manning's n = 0.012
07066> 210:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07067>       ROUTE PIPE      -> 02:Pout     19.21      .102 No_date   14:06   36.96  n/a
07068>         [RO= 1.00] outc= 01:Cout     19.21      .102 No_date   14:07   36.96  n/a
07069>         [L/S/n=   13./ .400/.012]
07070>         [Vmax= 1.186:Dmax=  .182]
07071>         [Dia=  .780:Dused=  .780]
07072> # Flow o/s of second set of outflow pipes
07073> 210:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07074>       ADD HYD         02:TRIC1         .19      .025 No_date   12:10   37.46  n/a
07075>                     + 03:rn72a         .07      .011 No_date   12:00   31.44  n/a
07076>                     + 04:Cout        19.21      .102 No_date   14:07   36.96  n/a
07077>         [DT= 1.00]  SUM= 01:Pout2    19.47      .115 No_date   12:11   36.89  n/a
07078> # Route outflow through second set of pipes
07079> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
07080> # HDPE smooth wall pipe Manning's n = 0.012
07081> 210:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07082>       ROUTE PIPE      -> 02:Pout     19.47      .115 No_date   12:11   36.89  n/a
07083>         [RO= 1.00] outc= 01:Pout2    19.47      .115 No_date   12:11   36.89  n/a
07084>         [L/S/n=   66./ .200/.012]
07085>         [Vmax=  .871:Dmax=  .224]
07086>         [Dia=  .780:Dused=  .780]
07087> # Total flow at node B1 (Whole MU along Valley Burn Rd)
07088> 210:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07089>       ADD HYD         02:PMEX2        57.85     2.294 No_date   12:20   40.49  n/a
07090>                     + 03:PoutF        39.77      .116 No_date   12:13   36.88  n/a
07091>                     + 04:EX7          .59      .038 No_date   12:05   31.08  n/a
07092>                     + 05:rn7b         .28      .035 No_date   12:10   31.44  n/a
07093>                     + 06:PM11         .62      .036 No_date   12:11   29.87  n/a
07094>         [DT= 1.00]  SUM= 01:B1       78.93     2.467 No_date   12:20   38.43  n/a
07095> # ROUTE B1 to B3
07096> # Typical Section based on Sheikh ME Yee Drwh 3:1 parks
07097> # provided by Aitel
07098> # Manning's n is Channel not maintained, light brush on banks
07099> # Slope = 0.05% as per plan provided by Aitel.
07100> 210:0081----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07101>       ROUTE CHANNEL   -> 02:B1         78.93     2.467 No_date   12:20   38.43  n/a
07102>    *    [RC= 1.00] outc= 01:PB1       78.93     1.887 No_date   12:28   38.43  n/a
07103>         [L/S/n=  350./ .050/.035]
07104>         [Vmax=  .194:Dmax=  .467]
07105> # VOLUME from residential area at B3 inlet
07106> 210:0082----------------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
07107>       ADD HYD         01:rn7A          1.38      .081 No_date   12:12   31.44  n/a
07108>                     + 03:rn8          1.38      .077 No_date   12:13   29.87  n/a
07109>         [DT= 1.00]  SUM= 01:B31        2.75      .157 No_date   12:12   30.65  n/a
07110> # Added VOLUME from external area contributing to B3
07111> 210:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07112>       ADD HYD         02:B31          78.93     1.987 No_date   12:28   38.43  n/a
07113>                     + 03:EX5          2.33      .157 No_date   12:12   30.65  n/a
07114>                     + 04:EX6          .51      .044 No_date   12:06   44.96  n/a
07115>                     + 05:EX8          .51      .032 No_date   12:04   35.69  n/a
07116>                     + 06:EXC3         .22      .033 No_date   12:00   51.80  n/a
07117>         [DT= 1.00]  SUM= 01:B3       82.51     2.137 No_date   12:27   38.16  n/a
07118> # ROUTE B3 to EX128
07119> # Typical Section based on Sheikh ME Yee Drwh 3:1 banks
07120> # provided by Aitel
07121> # Manning's n is Channel not maintained, light brush on banks
07122> # Slope = 0.05% as per plan provided by Aitel.
07123> 210:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07124>       ROUTE CHANNEL   -> 02:B3         82.51     2.137 No_date   12:27   38.16  n/a
07125>         [RC= 1.00] outc= 01:PB3       82.51     1.797 No_date   12:48   32.18  n/a
07126>         [L/S/n=  4.5./ .050/.035]
07127>         [Vmax=  .382:Dmax= 1.386]
07128> # Flow at Stantec node DCB128 for comparison
07129> # Routed B3 plus EX3
07130> 210:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07131>       ADD HYD         02:PB3          82.51     1.797 No_date   12:48   38.18  n/a
07132>                     + 03:EX3          51.58      .545 No_date   12:48   31.19  n/a
07133>         [DT= 1.00]  SUM= 01:DCB128   134.09     2.342 No_date   12:48   36.98  n/a
07134> # AREA CHECK
07135> #
07136> 210:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07137>       ADD HYD         02:EX1          24.62     1.871 No_date   12:08   33.68  n/a
07138>                     + 03:EX2          9.85      .286 No_date   13:32   28.34  n/a
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07139>                    +  40:EX3       21.10      .545 No_date   12:45   28.36  n/a
07140>                    +  05:EX4        .50      .012 No_date   12:02   15.61  n/a
07141>                    +  06:EX5        .62      .040 No_date   12:06   16.96  n/a
07142>                    +  07:EX6        .61      .013 No_date   12:05   15.65  n/a
07143>                    +  08:EX7        .49      .025 No_date   12:05   17.08  n/a
07144>                    +  09:FR1A       .4       .0 6 No_date   12:01   15.04  n/a
07145>                    +  10:FR1B       .55      .036 No_date   12:02   15.04  n/a
07146>       [DT= 1.00]  SUM=  01:Tot1     58.52   2.480 No_date   12:09   31.02  n/a
07147> 210:6087---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07148>     ADD HYD             02:Tot2     58.72   2.489 No_date   12:09   31.02  n/a
07149>                    +  03:FR2A       1.57      .101 No_date   12:04   15.04  n/a
07150>                    +  04:FR2B       1.17      .075 No_date   12:03   15.04  n/a
07151>                    +  05:FR3A        .45      .031 No_date   12:02   15.04  n/a
07152>                    +  06:fr3B        .52      .034 No_date   12:02   15.04  n/a
07153>                    |  07:fr4A        .71      .047 No_date   12:02   15.04  n/a
07154>                    |  08:fr4B        .85      .043 No_date   12:02   15.04  n/a
07155>                    |  09:FR5A        .66      .043 No_date   12:02   15.04  n/a
07156>                    +  10:FR5B        .46      .031 No_date   12:02   15.04  n/a
07157>       [DC= 1.00]  SUM=  01:Tot2     64.71   2.863 No_date   12:09   31.41  n/a
07158> 210:6088---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07159>     ADD HYD             02:Tot2     64.71   2.863 No_date   12:09   31.41  n/a
07160>                    |  03:FR6A        1.43      .009 No_date   12:04   15.04  n/a
07161>                    |  04:FR6B         .93      .061 No_date   12:03   15.04  n/a
07162>                    +  05:fr7A        1.35      .061 No_date   12:2    31.44  n/a
07163>                    +  06:fr7b1       .36       .023 No_date   12:0    31.44  n/a
07164>                    +  07:FR7B2       .23       .015 No_date   12:09   31.44  n/a
07165>                    +  08:FR7C1       .59       .025 No_date   12:10   31.44  n/a
07166>                    +  09:FR7C2       .17       .011 No_date   12:09   31.44  n/a
07167>                    +  10:FR7D        .56       .019 No_date   12:10   31.44  n/a
07168>       [DT= 1.00]  SUM=  01:Tot1     69.16   3.183 No_date   12:09   31.53  n/a
07169> 210:6089---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07170>     ADD HYD             03:Tot3     69.16   3.183 No_date   12:09   31.53  n/a
07171>                    |  04:FR8         1.58      .017 No_date   12:03   29.67  n/a
07172>                    +  04:fr9A        1.10      .062 No_date   12:2    29.67  n/a
07173>                    +  05:fr9b1       .25       .015 No_date   12:10   29.67  n/a
07174>                    +  06:fr9b2       1.06      .057 No_date   12:12   29.67  n/a
07175>                    +  07:fr1C        1.87      .103 No_date   12:12   29.67  n/a
07176>                    +  08:FR1C        .62       .036 No_date   12:11   29.67  n/a
07177>                    +  05:FR1         0.26      .013 No_date   12:05   28.38  n/a
07178>                    |  10:FOu         5.03      .530 No_date   12:09   58.31  n/a
07179>       [DT= 1.00]  SUM=  01:Tot4     85.37   4.260 No_date   12:07   32.93  n/a
07180> 210:6090---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07181>     ADD HYD             02:Tot4     85.37   4.260 No_date   12:07   32.23  n/a
07182>                    +  03:C1         8.58      1.350 No_date   12:00   97.46  n/a
07183>                    +  04:C2         6.54      1.210 No_date   12:00   64.42  n/a
07184>                    |  05:C3         .94       .060 No_date   12:00   72.69  n/a
07185>                    |  06:EXC       1.10      .112 No_date   12:00   21.80  n/a
07186>                    +  07:EXC2       1.97      .126 No_date   12:00   45.73  n/a
07187>                    +  08:EXC3        .22      .033 No_date   12:00   5.86   n/a
07188>                    +  09:EXc        1.57      .255 No_date   12:00   56.22  n/a
07189>       [DT= 1.00]  SUM=  01:Tot5     104.27  6.020 No_date   12:01   36.57  n/a
07190> *****************************************************************************
07191> * Simulations with 4 hour Chicago from City of Ottawa
07192> * SCS 24 hours type I, from City of Ottawa
07193> **  SCS or SCS : 224
07194>
07195> *****************************************************************************
07196>
07197>
07198>
07199>
07200>
07201> RUN:COMMAND*
07202> 225:0001-------------------------------------------------------------------------
07203>     START
07204>       [TZERO =     .00 hrs on        0]
07205>       [METOUT=    2     1:Imperial, 2 Metric output]
07206>       [NSTORM=    1 ]
07207>       [NRUN  =  225 ]
07208> *****************************************************************************
07209> *  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
07210> *****************************************************************************
07211> *  Project Name: [Greely Village Center]    Project Number: [647-01]
07212> *  Date        : 04/09/2008
07213> *  Modeller    : [JRK]
07214> *  Company     : JFSAInc.
07215> *  License #   : 1647402
07216> *****************************************************************************
07217> *
07218> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
07219> * Proposed Ultimate Conditions. OPTION B
07220> * Filename stands for: Greely, Commercial, Proposed
07221> *****************************************************************************
07222> 225:0002-------------------------------------------------------------------------
07223>     READ STORM
07224>       Filename = storm.00!
07225>       Comment  = 25 years SCS Type 2 Storm 24 hours Rimp 10 min, City of Ott
07226>       [SDT=10.00:SDUR=  24.00:PTOT=  56.89]
07227> *****************************************************************************
07228> * Existing flow - McEvoy branch of Shield Creek - Areas
07229> * Area 0/s of proposed development (residential)
07230> * CN=75, slope   0.8, Tp 0.16, XIMP=5, TIMP=15, see SC002 as per Stantec
07231> * Area partially adjusted based on Attrel drawings. Tp adjusted accordingly.
07232> *****************************************************************************
07233> * 0/s of Bank St..as per Attrel - with modified boundaries and Tp.
07234> 225:0003-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07235>     DESIGN EASEYD       01:EX1        24.62     2.693 No_date    12:08   72.80 .797
07236>       [CN= 75.0: R= 3.00]
07237>       [Tp   .23 DT=  1.00]
07238> *****************************************************************************
07239> * Existing flow - Externa. areas 0/s of Bank St.
07240> * CN'=80, as per Stantec see SC001
07241> * Area partially adjusted based on Attrel drawings.
07242> *****************************************************************************
07243> * Areas External to development
07244> 225:0004-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07245>     DESIGN EASEYD       01:EX2         5.89      .384 No_date    12:17   36.54 .421
07246>       [CN= 80.0: R= 3.00]
07247>       [Tp   .67:DT= 1.00]
07248> 225:0005-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07249>     DESIGN EASHYD       01:EX3        21.40     1.307 No_date    12:10   36.54 .421
07250>       [CN= 80.0: R= 3.00]
07251>       [Tp=  .83:DT= 1.00]
07252> * Slope, Tlmp, Area from Attrel Drawing
07253> * CN from Stantec (SC001)
07254> * Ximp   Timp = 10:
07255> 225:0006-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07256>     CALIB STANDHYD      01:EX4         .50      .044 No_date    12:00   40.75 .497
07257>       [XIMP=.11:TIMP=.22]
07258>       [CN2= 2 :CN= 69.0]
07259>       [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=   .0]
07260>       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=   50.:MNI=.045:SCI=   .0]
07261> * Road and road side ditch along projected residential development Parkway Ro
07262> * Timp   Ximp = 0.21 ha /0.52 ha = 0.40
07263> * CN'=68, as per Stantec see SC001.
07264> * Slope is estimated at 1%
07265> * LGI based on centroid of area due to elongated shape   500m/2   300
07266> 225:0007-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07267>     CALIB STANDHYD      01:EX5         .52      .050 No_date    12:05   54.78 .631
07268>       [XIMP=.40:TIMP=.40]
07269>       [CN2= 2 :CN=  68.0]
07270>       [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=   .0]
07271>       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  500.:MNI=.045:SCI=   .0]
07272> * Road and road side ditch along projected residential development Sw wahern Ro
07273> * Timp   Ximp   0.1 ha /0.51 ha   0.20
07274> * CN'=68, as per Stantec see SC001.
07275> * Slope is estimated at 1%
07276> * LGI based on centroid of area due to elongated shape   354m/2   177
07277> 225:0008-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07278>     CALIB STANDHYD      01:EX6         .61      .047 No_date    12:04   44.61 .513
07279>       [XIMP=.20:TIMP=.20]
07280>       [CN2= 2 :CN= 69.0]
07281>       [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=   .0]
07282>       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
07283> * Road and road side ditch along projected residential development Sulloway Ro
07284> * Timp = Ximp = 0.06 ha /0.34 ha = 0.2)
07285> * CN'=60, as per Stantec see SC001.
07286> * Slope is estimated at 1%
07287> * LGI based on centroid of area due to elongated shape = 170m/2 = 170.5
07288> 225:0009-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07289>     CALIB STANDHYD      01:EX7         .39      .028 No_date    12:03   48.13 .561
07290>       [XIMP=.23:TIMP=.23]
07291>       [CN2= 2 :CN= 69.0]
07292>       [Pervious    area: [Ape= 4.67:SLPP 1.00:LGP   40.:MNP=.250:SCP=   .0]
07293>       [Tpervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
07294> *****************************************************************************
07295> * PROPOSED COMMERCIAL DEVELOPMENT
07296> *****************************************************************************
07297> * CN   79 as per fair grass cover with C soil type for top soil: CN'=71
07298> * XIMP  TIMP to be conservative.
07299> *****************************************************************************
07300> 225:0010-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07301>     DESIGN STANDHYD     01:C1          1.30      1.629 No_date    12:05   69.58 .788
07302>       [XIMP=.63:TIMP=.63]
07303>       [SCP=1.00:CN= 1.00]
07304>       [CN2= 2 :CN= 71.0]
```

```
07305>  225:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07306>       DESIGN STANDHYD     01:C2          6.34     1.484 No_date   12:08   68.10 .676
07307>         [XIMP=.79:TIMP=.79]
07308>         [sLP 1.00:DT= 1.00]
07309>         [Loss= 2 :CN= 71.0]
07310>  225:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07311>       DESIGN STANDHYD     01:C3          .94      .070 No_date   12:00   85.13 .989
07312>         [XIMP=.98:TIMP=.98]
07313>         [SLP= 1.00:DT= 1.00]
07314>         [Loss= 2 :CN= 71.0]
07315> #  imp = imp ha/total area = 0.30/1.10 ha = .27
07316>  225:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07317>       DESIGN STANDHYD     01:EXC1        1.10      .140 No_date   12:06   51.38 .591
07318>         [XIMP .27:TIMP .27]
07319>         [sLP 1.00:DT= 1.00]
07320>         [Loss= 2 :CN= 71.0]
07321> #  imp = imp ha/total area = 0.35/1.07 ha = .35
07322>  225:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07323>       DESIGN STANDHYD     01:EXC2        1.07      .159 No_date   12:06   55.18 .635
07324>         [XIMP=.35:TIMP=.35]
07325>         [SLP=1.00:DT= 1.00]
07326>         [Loss= 2 :CN= 71.0]
07327> #  imp = imp ha/total area = 0.11/0.22ha = .50
07328>  225:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07329>       DESIGN STANDHYD     01:EXC3         .22      .040 No_date   12:00   62.32 .717
07330>         [XIMP .50:TIMP .50]
07331>         [SLP 1.00:DT= 1.00]
07332>         [Loss= 2 :CN= 71.0]
07333> *****************************************************************************
07334> # Commercial pond (PDc)
07335> # slope estimated at 1% based on elevations around pond.
07336> # Timp and Ximp based on total pond area
07337> # ximp = A pond/A tot (1.04/1.57)
07338>  225:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07339>       DESIGN STANDHYD     01:PDc         1.57      .341 No_date   12:00   88.88 .876
07340>         [XIMP .67:TIMP=.67]
07341>         [SLP=1.00:DT= 1.00]
07342>         [Loss= 2 :CN= 71.0]
07343> ***************************************************************************
07344> *****************************************************************************
07345> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
07346> *****************************************************************************
07347> # CN's=65, as per Stantec dec 8/2001.
07348> # Ip calculated with Uplan method.
07349>  225:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07350>       DESIGN NASHYD       01:P1          4.26      .405 No_date   12:05   36.54 .621
07351>         [CN= 69.6: N= 3.00]
07352>         [Tp=  .18:TP= 1.00]
07353> ***************************************************************************
07354> # AREAS GOING TO RESIDENTIAL POND (PDc)
07355> *****************************************************************************
07356> #
07357>  225:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07358>       CALIB STANDHYD      01:P01A         .94      .070 No_date   12:01   44.24 .509
07359>         [XIMP=.21:TIMP=.21]
07360>         [Loss= 2 :CN= 71.0]
07361>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07362>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07363>  225:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07364>       CALIB STANDHYD      01:P01B         .53      .050 No_date   12:02   44.24 .509
07365>         [XIMP=..1:TIMP=.21]
07366>         [Loss= 2 :CN= 71.0]
07367>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07368>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07369>  225:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07370>       CALIB STANDHYD      01:P01A         .51      .122 No_date   12:04   44.24 .509
07371>         [XIMP=..1:TIMP=.21]
07372>         [Loss= 2 :CN= 71.0]
07373>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07374>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07375> 225:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07376>       CALIB STANDHYD      01:P02B         1.17      .103 No_date   12:04   40.73 .509
07377>         [XIMP=..1:TIMP=.21]
07378>         [Loss= 2 :CN= 71.0]
07379>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07380>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07381>  225:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07382>       CALIB STANDHYD      01:P03A         .45      .041 No_date   12:02   40.24 .509
07383>         [XIMP=.11:TIMP=.21]
07384>         [Loss= 2 :CN= 71.0]
07385>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07386>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
07387>  225:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07388>       CALIB STANDHYD      01:P03B         .52      .047 No_date   12:02   44.24 .509
07389>         [XIMP=..1:TIMP=.21]
07390>         [Loss= 2 :CN= 71.0]
07391>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07392>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07393>  225:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07394>       CALIB STANDHYD      01:P04A         .71      .064 No_date   12:02   44.24 .509
07395>         [XIMP=.11:TIMP=.21]
07396>         [Loss= 2 :CN= 71.0]
07397>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07398>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07399>  225:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07400>       CALIB STANDHYD      01:P04B         .65      .059 No_date   12:02   44.24 .509
07401>         [XIMP=.11:TIMP=.21]
07402>         [Loss= 2 :CN= 71.0]
07403>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07404>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07405>  225:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07406>       CALIB STANDHYD      01:P05A         .66      .059 No_date   12:02   44.24 .509
07407>         [XIMP=.11:TIMP=.21]
07408>         [Loss= 2 :CN= 71.0]
07409>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07410>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07411>  225:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07412>       CALIB STANDHYD      01:P05B         .46      .042 No_date   12:00   44.24 .509
07413>         [XIMP=..1:TIMP=.21]
07414>         [Loss= 2 :CN= 71.0]
07415>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07416>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07417>  225:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07418>       CALIB STANDHYD      01:P06A         1.43      .125 No_date   12:04   44.24 .509
07419>         [XIMP=..1:TIMP=.21]
07420>         [Loss= 2 :CN= 71.0]
07421>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07422>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07423>  225:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07424>       CALIB STANDHYD      01:P06B         .91      .080 No_date   12:04   44.24 .509
07425>         [XIMP=..1:TIMP=.21]
07426>         [Loss= 2 :CN= 71.0]
07427>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07428>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07429> # slope estimated at 2% based on backyard swales.
07430> # Timp and Ximp based on total pond area
07431> # ximp = A pond/A tot
07432> # Timp = weighted average of pond and backyards
07433>  225:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07434>       CALIB STANDHYD      01:PDc         5.03      .586 No_date   12:04   58.67 .676
07435>         [XIMP=.44:TIMP=.47]
07436>         [Loss= 2 :CN= 71.0]
07437>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07438>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07439> *****************************************************************************
07440> # UNCONTROLLED AREAS
07441> *****************************************************************************
07442> #
07443>  225:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07444>   *  CALIB STANDHYD      01:PR1A         .16      .112 No_date   12:10   60.35 .601
07445>         [XIMP=.00:TIMP=.14]
07446>         [Loss= 2 :CN= 71.0]
07447>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07448>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07449> 225:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07450>   *  CALIB STANDHYD      01:PR1B         .16      .047 No_date   12:02   40.45 .404
07451>         [XIMP=.00:TIMP=.14]
07452>         [Loss= 2 :CN= 71.0]
07453>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07454>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07455>  225:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07456>   *  CALIB STANDHYD      01:PR7B2        .22      .029 No_date   12:08   40.35 .404
07457>         [XIMP=.00:TIMP=.14]
07458>         [Loss= 2 :CN= 71.0]
07459>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07460>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
07461>  225:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07462>   *  CALIB STANDHYD      01:PR7C1        .38      .035 No_date   12:08   40.35 .404
07463>         [XIMP=.02:TIMP=.14]
07464>         [Loss= 2 :CN= 71.0]
07465>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07466>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
07467>  225:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07468>   *  CALIB STANDHYD      01:PR7C2        .17      .015 No_date   12:08   40.35 .404
07469>         [XIMP=.02:TIMP=.14]
07470>         [Loss= 2 :CN= 71.0]
```

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[Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
[Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
225:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:FR8          1.38      .107 No_date   12:11   38.30 .481
   [XIMP=.01:TIMP=.16]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
225:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:FR8A         1.19      .087 No_date   12:10   38.30 .481
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
225:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:FR8B         1.00      .079 No_date   12:10   38.30 .481
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
225:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:FR10         1.87      .149 No_date   12:11   38.30 .481
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
225:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:FR11         .67      .053 No_date   12:10   38.30 .481
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
*****************************************************************************
* EXISTING Flow - Upstream of Proposed Development
*****************************************************************************
* Total flow at node K-EX1
 225:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02:EX1         24.67     3.797 No_date   12:08   47.87 n/a
                     + 03:EX2          1.10      .168 No_date   12:06   55.19 n/a
                     + 04:EX3          1.80      .158 No_date   12:06   55.19 n/a
    [DI= 1.00]  SUM=  01:NEX1        26.77     4.067 No_date   12:07   47.71 n/a
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.85%, Manning's n is 0.03
* Route Node A-Exi to D/S node K0
 225:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NEX1        26.77     3.967 No_date   12:07   47.71 n/a
     [EOC  1.00] out<- 01:RNEX1       26.77     3.967 No_date   12:16   47.71 n/a
      [I/S/n=  312./ .050/.030]
      [Vmax= 1.436:Dmax=  .352]
*****************************************************************************
* TOTAL INFLOW TO COMMERCIAL POND PEC
*****************************************************************************
 225:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V. R.C.
    ADD HYD            03:EX1          .60      .044 No_date   12:02   42.76 n/a
                     + 04:C1          8.19     1.629 No_date   12:03   68.50 n/a
                     + 05:C2          8.14     1.484 No_date   12:03   76.10 n/a
                     + 06:Pin         1.27      .341 No_date   12:03   70.79 n/a
    [DT= 1.00]  SUM=  01:PinIn       18.71     3.955 No_date   12:03   70.79 n/a
225:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR -> 02:PinIn      18.71     3.955 No_date   12:03   70.79 n/a
     [RDT= 1.00] out<- 01:POutlet    18.71      .823 No_date   12:17   70.79 n/a
           overflow <- 03:Ovrfl        .00      .000 No_date    0:00    .00 n/a
   [MxStaVol=.6b4E+03, TotOvfVol=.3000E+03, k-ovf=    0, TotDurOvf      0.hrs]
* Total flow at outlet of commercial pond
 225:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02 EOUtlet      18.71     .823 No_date   12:17   70.79 n/a
                     + 03:FR8A         1.38      .107 No_date   12:10   38.30 n/a
                     + 04:FR8B         1.00      .079 No_date   12:10   38.30 n/a
    [DT  1.00]  SUM=  01:FR8          21.81     1.008 No_date   12:14   68.78 n/a
* Route pond outflow at pipe d/s of node K0
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.25%, Manning's n is 0.03
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225:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:R-3C       17.81     .902 No_date   12:14   68.78 n/a
     [EOC= 1.00] out<- 01:RnPOc      17.81     .846 No_date   12:29   68.78 n/a
      [L/S/n=  380./ .250/.030]
      [Vmax=  .697:Dmax=  .456]
* Total channel flow at pipe d/s of node K0
 225:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02:FnPOc        17.81     .846 No_date   12:26   68.78 n/a
                     + 03:FR8B1         .25      .021 No_date   12:05   38.30 n/a
                     + 04:FRN52        1.38      .107 No_date   12:10   38.30 n/a
    [DT= 1.00]  SUM=  01:nuN2         19.44     .968 No_date   12:25   66.18 n/a
* ************
* Total flow at node N0
* (Note that EX2 will be sheet draining to proposed channel)
 225:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02:nuN          19.44     .968 No_date   12:25   66.18 n/a
                     + 03:RJNEX1      26.77     3.870 No_date   12:19   45.71 n/a
                     + 04:EX2          7.89      .484 No_date   12:10   56.54 n/a
                     + 05:C3           .24      .018 No_date   12:00   45.13 n/a
    [DT= 1.00]  SUM=  01:N0           55.98     3.869 No_date   12:16   50.48 n/a
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.40%, Manning's n is 0.03
* Route 2YR draining at N0 to d/s node K-EX2
 225:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:N0          55.98     3.869 No_date   12:16   50.48 n/a
     [EOC  1.00] out<- 01:RN0        55.98     3.722 No_date   12:16   50.48 n/a
      [I/S/n=  924./ .400/.030]
      [Vmax= 1.060:Dmax=  .951]
* Total flow at node K-EX2
 225:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02:nN0          55.98     3.722 No_date   12:16   50.48 n/a
                     + 03:FR10         1.87      .149 No_date   12:11   38.30 n/a
    [DT  1.00]  SUM=  01:NEX2         57.85     3.853 No_date   12:15   50.09 n/a
* Route Node K-EX2 to Node N1
* Typical Section Based on Shields MD Vee Ditch (1) banks
* provided by Alex.
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Alex.
 225:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NEX2        57.85     3.853 No_date   12:15   50.09 n/a
     [RDT= 1.00] out<- 01:RNEX2       57.85     3.685 No_date   12:31   50.00 n/a
      [I/S/n=  253./ .050/.035]
      [Vmax=  .354:Dmax= 1.751]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node K-PH1
 225:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            03:PH1          4.26      .405 No_date   12:05   55.55 n/a
                     + 04:FR1A         .26      .022 No_date   12:01   44.24 n/a
    [D/= 1.00]  SUM=  01:N.K1         4.50      .426 No_date   12:05   55.55 n/a
* Volume to ponding area in cAd
* Q=0.525 m3/s required as per sce 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.%, HDPE smooth walls
* Manning's n = 0.012, inlet control nomograph
* Tyraulic head = 1.0m, Q=0.610
 225:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    COMPUTE DUALSYS    01:N.K1         4.50      .426 No_date   12:05   55.55 n/a
       Major System /  02:NPKIN1       .00      .000 No_date    0:00    .00 n/a
       Minor System \  03:NPKIN2      4.50      .426 No_date   12:05   55.95 n/a
     [MajSysCap= .3000E+00, TotOvfVol=.3000E+03, N-Ovf=    0, TotDurOvf      0.hrs]
* Input to inlet 1 pipe
 225:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD            02:nIn1          .56      .050 No_date   12:02   44.24 n/a
                     + 03:NPKINL       4.50      .426 No_date   12:05   55.95 n/a
    [DT  1.00]  SUM=  01:In1           5.05      .475 No_date   12:05   57.75 n/a
* Pipe from inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 225:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE      -> 02:inl         5.05      .475 No_date   12:05   57.75 n/a
     [EOC  1.00] out<- 01:Pin1        5.05      .475 No_date   12:05   57.75 n/a
      [I/S/n=  65./1.000/.012]
      [Vmax= 3.065:Dmax=  .197]
      [Dia=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 225:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE PIPE      -> 02:FR2A        1.07      .133 No_date   12:04   44.24 n/a
     [EOC  1.00] out<- 01:CIn2        1.07      .133 No_date   12:04   44.24 n/a
      [I/S/n=  11./ .400/.012]
      [Vmax= 1.325:Dmax=  .254]
      [Dia=  .500:Dused=  .500]
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07637> # input to inlet 2 pipe
07638> 225:0059----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07639>      ADD HYD                02:FR2B        1.17      .103 No_date   12:04   44.24  n/a
07640>                           + 03:C1n2        1.57      .133 No_date   12:04   44.37  n/a
07641>      [02  1.00]  SUM=  01:In2           2.74      .236 No_date   12:04   44.31  n/a
07642> # Pipe from inlet 2 - Route to pond
07643> # HDPE smooth wall pipe Manning's n = 0.012
07644> 225:0060----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07645>      ROUTE PIPE       -> 02:In2         2.74      .236 No_date   12:04   44.31  n/a
07646>   *  [RCP= 1.00] outs= 01:Pin2          2.74      .232 No_date   12:04   44.31  n/a
07647>      [L/S/n=   75./ .200/.012]
07648>      [Vmax= 1.715:Dmax=  .45]
07649>      [Din=  .500:Dused=  .450]
07650> # Culvert from Inlet 3
07651> # HDPE smooth wall pipe Manning's n = 0.012
07652> 225:0061----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07653>      ROUTE PIPE       -> 02:FR3A         .45      .041 No_date   12:02   44.24  n/a
07654>        RCP= 1.00] outs= 01:Cin3          .45      .041 No_date   12:02   44.24  n/a
07655>        [L/S/n=   12./ .400/.012]
07656>      [Vmax=  .562:Dmax=  .135]
07657>      [Din=  .500:Dused=  .500]
07658> # Input to Inlet 3 pipe
07659> 225:0062----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07660>      ADD HYD                02:FR3B         .52      .047 No_date   12:02   44.24  n/a
07661>                           + 03:Cin3         .45      .041 No_date   12:02   44.24  n/a
07662>      [02= 1.00]  SUM=  01:In3           .97      .088 No_date   12:02   44.24  n/a
07663> # Pipe from Inlet 3 - Route to pond
07664> # HDPE smooth wall pipe Manning's n = 0.012
07665> 225:0063----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07666>      ROUTE PIPE       -> 02:In3          .97      .088 No_date   12:02   44.24  n/a
07667>        [RCP= 1.00] outs= 01:Pin3          .97      .087 No_date   12:03   44.24  n/a
07668>        [L/S/n=   75./ .200/.012]
07669>      [Vmax=  .825:Dmax=  .215]
07670>      [Din=  .500:Dused=  .500]
07671> # Culvert from Inlet 4
07672> # HDPE smooth wall pipe Manning's n   0.012
07673> 225:0064----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07674>      ROUTE PIPE       -> 02:FR4A         .71      .064 No_date   12:02   44.24  n/a
07675>        [RCP= 1.00] outs= 01:CIn4          .71      .064 No_date   12:03   44.24  n/a
07676>        [L/S/n=   75./ .400/.012]
07677>      [Vmax= 1.009:Dmax=  .265]
07678>      [Din=  .500:Dused=  .500]
07679> # Input to Inlet 4 pipe
07680> 225:0065----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07681>      ADD HYD                02:FR4B         .65      .057 No_date   12:02   44.24  n/a
07682>                           + 03:CIn4         .71      .064 No_date   12:03   44.24  n/a
07683>      [02  1.00]  SUM=  01:In4           1.36      .121 No_date   12:03   44.24  n/a
07684> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
07685> # HDPE smooth wall pipe Manning's n   0.012
07686> 225:0066----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07687>      ROUTE PIPE       -> 02:In4          1.36      .123 No_date   12:03   44.24  n/a
07688>        [RCP= 1.00] outs= 01:Pin4          1.36      .123 No_date   12:03   44.24  n/a
07689>        [L/S/n=   65./1.000/.012]
07690>      [Vmax= 2.038:Dmax=  .155]
07691>      [Din=  .500:Dused=  .500]
07692> # Culvert from Inlet 5
07693> # HDPE smooth wall pipe Manning's n = 0.012
07694> 225:0067----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07695>      ROUTE PIPE       -> 02:FR5A         .66      .060 No_date   12:02   44.24  n/a
07696>        [RCP= 1.00] outs= 01:CIn5          .66      .060 No_date   12:03   44.24  n/a
07697>        [L/S/n=   15./ .400/.012]
07698>      [Vmax= 1.069:Dmax=  .163]
07699>      [Din=  .500:Dused=  .500]
07700> # Input to Inlet 5 pipe
07701> 225:0068----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07702>      ADD HYD                02:FR5B         .46      .032 No_date   12:02   44.24  n/a
07703>                           + 03:CIn5         .66      .060 No_date   12:03   44.24  n/a
07704>      [02= 1.00]  SUM=  01:In5           1.12      .102 No_date   12:02   44.24  n/a
07705> # Pipe from Inlet 5 - Route to pond
07706> # HDPE smooth wall pipe Manning's n = 0.012
07707> 225:0069----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07708>      ROUTE PIPE       -> 02:In5          1.12      .102 No_date   12:02   44.24  n/a
07709>        RCP= 1.00] outs= 01:Pin5          1.12      .102 No_date   12:03   44.24  n/a
07710>        [L/S/n=   75./1.000/.012]
07711>      [Vmax= 2.038:Dmax=  .150]
07712>      [Din=  .500:Dused=  .500]
07713> # Culvert from Inlet 6
07714> # HDPE smooth wall pipe Manning's n = 0.012
07715> 225:0070----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07716>      ROUTE PIPE       -> 02:FR6A        1.03      .095 No_date   12:04   44.24  n/a
07717>        [RCP= 1.00] outs= 01:CIn6          1.03      .095 No_date   12:04   44.24  n/a
07718>        [L/S/n=   15./ .400/.012]
07719>      [Vmax= 1.365:Dmax=  .265]
07720>      [Din=  .500:Dused=  .500]
07721> # Input to Inlet 6 pipe
07722> 225:0071----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07723>      ADD HYD                02:FR6B         .93      .082 No_date   12:03   44.24  n/a
07724>                           + 03:CIn6         1.43      .125 No_date   12:04   44.24  n/a
07725>      [02= 1.00]  SUM=  01:In6           2.36      .207 No_date   12:04   44.24  n/a
07726> # Pipe from Inlet 6 - Route to pond
07727> # HDPE smooth wall pipe Manning's n = 0.012
07728> 225:0072----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07729>      ROUTE PIPE       -> 02:In6          2.36      .207 No_date   12:04   44.24  n/a
07730>        [RCP= 1.00] outs= 01:Pin6          2.36      .206 No_date   12:04   44.24  n/a
07731>        [L/S/n=   75./ .300/.012]
07732>      [Vmax= 1.295:Dmax=  .380]
07733>      [Din=  .500:Dused=  .500]
07734> # VOLUME TO BOND ULTIMATE RESIDENTIAL
07735> 225:0073----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07736>      ADD HYD                02:Pin_           5.05      .475 No_date   12:05   47.79  n/a
07737>                           + 03:Pin2         2.74      .232 No_date   12:04   44.38  n/a
07738>                           + 04:Pin3          .97      .087 No_date   12:03   44.24  n/a
07739>                           + 05:Pin4         1.36      .123 No_date   12:03   44.24  n/a
07740>                           + 06:Pin5         1.12      .102 No_date   12:03   44.24  n/a
07741>                           + 07:Pin6         2.36      .206 No_date   12:04   44.24  n/a
07742>                           + 08:Pin          5.04      .650 No_date   12:03   58.82  n/a
07743>      [Pi= 1.00]  SUM=  01:UNdin        18.63     1.874 No_date   12:04   48.39  n/a
07744> #  Pond outflow for ultimate conditions using weir .6, .6; 3.0
07745> 225:0074----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07746>      ROUTE RESERVOIR -> 02:PONDin     18.63     1.874 No_date   12:05   48.39  n/a
07747>        [EOC  1.00] outs= 01:Pout        10.67      .737 No_date    0:00    .00  n/a
07748>             overflow <  03:ovr)          .00      .000 No_date    0:00    .00  n/a
07749>      (HxSrcHead=-5320F-00, TarCurVol=.000CF100, H-Out=    0, TotDirOut=    0.0cfs)
07750> # Simulating 3CB 100 yr conditions with submergence of outflow weir
07751> # updated for weir .6; .6; 3.0
07752> *ROUTE RESERVOIR     NHYDname("PONDin") ,NHYDin=("PONDin") ,
07753> *                    RVT=[1](min),
07754> *                              TABLE OF ( OUTFLOW-STORAGE ) values
07755> *                                        (cms) - (ha-m)
07756> *                                      [   0.0 ,   0.0
07757> *                                       0.00001 , 1.1709
07758> *                                       0.28    , 1.6110
07759> *                                       0.45    , 2.0195
07760> *                                       [   -1  ,   -1  ]  (max twenty pts)
07761> *                              NHYDout=("Pout") .
07762> # Route pond output through first set of pipes
07763> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (1750 cms e/a)
07764> # HDPE smooth wall pipe Manning's n = 0.012
07765> 225:0075----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07766>      ROUTE PIPE       -> 02:POnds      18.63      .137 No_date   14:06   46.39  n/a
07767>        [RCP= 1.00] outs= 01:Pout1       18.63      .137 No_date   14:06   46.39  n/a
07768>        [L/S/n=   75./ .200/.012]
07769>      [Vmax= 1.834:Dmax=  .750]
07770>      [Din=  .780:Dused=  .750]
07771> # Flow o/s of outlet culverts
07772> 225:0076----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07773>      ADD HYD                02:FR7B1          .36      .032 No_date   12:00   18.55  n/a
07774>                           + 03:FR7B2          .22      .020 No_date   12:00   18.55  n/a
07775>                           + 01:Pout1        18.63      .137 No_date   14:06   46.39  n/a
07776>      [02= 1.00]  SUM   01:Pout          19.21      .191 No_date   14:00   46.21  n/a
07777> # Route outflow through set of culverts
07778> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 cms e/a
07779> # HDPE smooth wall pipe Manning's n = 0.012
07780> 225:0077----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07781>      ROUTE PIPE       -> 02:Pout       19.21      .141 No_date   14:00   46.21  n/a
07782>        [RCP= 1.00] outs= 01:Cout        19.21      .141 No_date   13:58   46.21  n/a
07783>        [L/S/n=   15./ .600/.012]
07784>      [Vmax= 1.368:Dmax=  .215]
07785>      [Din=  .780:Dused=  .780]
07786> # Flow o/s of second set of outflow pipes
07787> 225:0078----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07788>      ADD HYD                02:FR7C1          .39      .035 No_date   12:08   40.35  n/a
07789>                           + 03:FR7C2          .17      .015 No_date   12:08   40.35  n/a
07790>                           + 04:Cout         19.21      .141 No_date   13:58   46.21  n/a
07791>      [02= 1.00]  SUM   01:Pout2         19.77      .191 No_date   13:1    46.04  n/a
07792> # Route outflow through second set of pipes
07793> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 cms e/a)
07794> # HDPE smooth wall pipe Manning's n = 0.012
07795> 225:0079----------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07796>      ROUTE PIPE       -> 02:Pout2      19.77      .760 No_date   13:1    46.04  n/a
07797>        [EOC  1.00] outs= 01:Pout2        19.77      .140 No_date   12:12   46.04  n/a
07798>        [L/S/n=   65./ .600/.012]
07799>      [Vmax= 1.054:Dmax=  .275]
07800>      [Din=  .780:Dused=  .780]
07801> # Total flow at node 01 (Shield MD along Owl ex Barr Rd)
07802> 225:0080----------------ID:NHYD-------AREA     QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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                ADD HYD                02:RNEX2     57.65    2.969 No_date    12:21    50.0s  n/a
                                     + 03:Route     19.77     .160 No_date    12:12    46.04  n/a
                                     + 04:EX7         .55     .036 No_date    12:03    46.13  n/a
                                     + 05:FR7D        .36     .022 No_date    12:08    46.35  n/a
                                     + 06:FR11        .62     .050 No_date    12:10    48.30  n/a
      [QI= 1.00]  SUM=  01:h1       78.93    3.210 No_date    12:21    48.92  n/a
# ROUTE N1 to N3
# Typical Section Based on Shields ND Vee Ditch 3:1 Banks
# provided by Ariel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Ariel.
 225:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1       78.93    3.210 No_date    12:21    48.92  n/a
   [RT= 1.00] sub-  01:RN1       78.93    3.210 No_date    12:21    48.92  n/a
                    [L/S/n= 349.2 .050/.035]
                    [Vmax= .55:Tmax= 1.634]
# VOLUME from residential area at N1 intensity
 225:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:RN1       78.93    3.210 No_date    12:21    48.92  n/a
                           + 03:FR8        1.38     .107 No_date    12:11    38.30  n/a
      [QI= 1.00]  SUM=  01:N31      80.31    3.317 No_date    12:21    48.92  n/a
# Added VOLUME from external area contributing to N3
 225:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:RN1       78.93    3.210 No_date    12:21    48.92  n/a
                           + 03:RN3        2.73     .218 No_date    12:10    39.31  n/a
                           + 04:EX5         .52     .036 No_date    12:05    54.78  n/a
                           + 05:EX6         .51     .043 No_date    12:04    44.61  n/a
                           + 06:EXC3        .22     .030 No_date    12:06    62.32  n/a
      [QI= 1.00]  SUM=  07:N3       82.91    3.483 No_date    12:21    48.85  n/a
# ROUTE N3 to SC12B
# Typical Section Based on Shields ND Vee Ditch 3:1 Banks
# provided by Ariel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Ariel.
 225:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3       82.91    3.483 No_date    12:21    48.85  n/a
   [RT= 1.00] sub-  01:RN2       82.91    3.483 No_date    12:21    48.85  n/a
                    [L/S/n= 415.7 .050/.035]
                    [Vmax= .372:Tmax= 1.815]
# Flow at Stantec model SC8128 for comparison
# Routed N3 plus EX3
 225:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:RN3       82.91    3.483 No_date    12:21    48.85  n/a
                           + 03:EX3        21.33     .787 No_date    12:08    36.56  n/a
      [QI= 1.00]  SUM=  01:SC12B    104.25    4.269 No_date    12:21    46.18  n/a
# AREA CHECK
#
 225:0101----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:EX1       24.62    1.388 No_date    12:08    42.87  n/a
                           + 03:EX2         9.89     .384 No_date    12:17    36.54  n/a
                           + 04:EX3        21.33     .787 No_date    12:08    36.56  n/a
                           + 05:EX4         .53     .044 No_date    12:07    47.06  n/a
                           + 06:EX5         .52     .036 No_date    12:05    54.78  n/a
                           + 07:EX6         .51     .043 No_date    12:04    44.61  n/a
                           + 08:EX7         .39     .028 No_date    12:03    46.13  n/a
                           + 09:FR1A        .24     .023 No_date    12:01    46.24  n/a
                           + 10:FR1B        .15     .015 No_date    12:01    46.24  n/a
      [QI= 1.00]  SUM=  01:Tot1      58.52    3.197 No_date    12:09    49.10  n/a
 225:0102----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:Tot1      58.52    3.197 No_date    12:09    49.86  n/a
                           + 03:FR1A        .27     .133 No_date    12:04    46.24  n/a
                           + 04:FR2B       2.17     .103 No_date    12:04    46.24  n/a
                           + 05:FR3B        .45     .041 No_date    12:02    46.24  n/a
                           + 06:FR3D        .52     .047 No_date    12:02    46.24  n/a
                           + 07:FR4A        .11     .006 No_date    12:02    46.24  n/a
                           + 08:FR4B        .65     .059 No_date    12:02    46.24  n/a
                           + 09:FR5A        .56     .050 No_date    12:02    46.24  n/a
                           + 10:FR5B        .46     .042 No_date    12:02    46.24  n/a
      [QI= 1.00]  SUM=  01:Tot2      64.71    3.712 No_date    12:09    48.10  n/a
 225:0088----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:Tot2      64.71    3.712 No_date    12:09    48.10  n/a
                           + 03:FR6A        1.43     .125 No_date    12:04    44.24  n/a
                           + 04:FR6E         .83     .072 No_date    12:03    44.24  n/a
                           + 05:FR7A        1.75     .153 No_date    12:03    48.35  n/a
                           + 06:FR7B1        .36     .032 No_date    12:08    48.35  n/a
                           + 07:FR7B2        .27     .024 No_date    12:08    48.35  n/a
                           + 08:FR7C1        .39     .035 No_date    12:08    48.35  n/a
                           + 09:FR7C2        .17     .015 No_date    12:08    48.35  n/a
                           + 10:FR7D         .30     .027 No_date    12:08    48.35  n/a
      [QI= 1.00]  SUM=  01:Tot3      69.86    4.151 No_date    12:09    48.20  n/a
 225:0089----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:Tot2      69.86    4.151 No_date    12:09    48.20  n/a
                           + 03:FR8         1.38     .107 No_date    12:11    38.30  n/a
                           + 04:FR9A        7.10     .587 No_date    12:10    38.30  n/a
                           + 05:FR9B        .95      .079 No_date    12:08    38.30  n/a
                           + 06:FR9B2       .60      .049 No_date    12:10    38.30  n/a
                           + 07:FR10        1.87     .143 No_date    12:11    38.46  n/a
                           + 08:FR11        .62      .050 No_date    12:10    38.30  n/a
                           + 09:PK          1.26     .105 No_date    12:05    36.54  n/a
                           + 10:Pav         5.87     .660 No_date    12:03    58.62  n/a
      [QI= 1.00]  SUM=  01:Tot4      85.91    5.503 No_date    12:07    41.00  n/a
 225:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:Tot4      85.91    5.503 No_date    12:07    41.00  n/a
                           + 03:C1          8.40    1.672 No_date    12:00    60.50  n/a
                           + 04:C2          6.44    1.484 No_date    12:00    74.10  n/a
                           + 05:C3           .24     .070 No_date    12:00    85.13  n/a
                           + 06:EXC1        1.10     .140 No_date    12:00    51.38  n/a
                           + 07:EXC2        1.87     .156 No_date    12:00    66.19  n/a
                           + 08:EXC3         .22     .030 No_date    12:00    62.32  n/a
                           + 09:DA          1.87     .341 No_date    12:00    70.46  n/a
      [QI= 1.00]  SUM=  01:Tot5     101.31    8.610 No_date    12:01    46.17  n/a
#*********************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
# SCS 24 hours type 2, from City of Ottawa
  ** END OF RUN : 249
#
#---------------------------------------------------------------------

 RUN:COMMAND#
 250:0001----------------------------------------------------------------
      START
       [TRACE =    .00 hrs on        0]
       [METOUT    2    (1-Imperial, 2-metric output)]
       [NSTORM    1 ]
       [NRTN   = 250 ]
#*********************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <RSTAN> / "INPUT DATA FILE"
#*********************************************************************
#  Project Name: [Greely Village Center]    Project Number: [XXX-XX]
#  Date        : 04-05-2008
#  Modeller    : [JRR]
#  Company     : JFSAinc.
#  License #   :  2047402
#*********************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Flowrate conditions  OPTION B
# Filename stands for: Greely, Commercial , Proposed
#*********************************************************************
 250:0002----------------------------------------------------------------
      READ STORM
       Filename = storm.601
       Comment  = 50 years SCS Type 2 Storm 24 Hours step 10 min. City of Ottawa
       [SDT=0.00:SDUR=  24.00:PTOT=  56.53]
#*********************************************************************
# Existing flow - McKitty Branch of Shield Creek - Areas
# Area c/s of proposed development (residential)
# CN=75, slope = 0.8, Tp=0.16, XIMP=0, TIMP=15, see SC002 as per Stantec
# Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
#*********************************************************************
# c/s of Bank St.as per Atrel - with modified boundaries and Tp.
 250:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ORDIGK RAINYD     01:EX1       24.62    1.012 No_date    12:07    30.25  .521
       [CN= 75.0: N= 3.00]
       [Tp=  .25:Str= 1.00]
#*********************************************************************
# Existing flow - External areas c/s of Bank St.
# CN*=59, as per Stantec see SC003.
# Area partially adjusted based on Atrel drawings.
#*********************************************************************
# Areas External to development
 250:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ORDIGK RAINYD     01:EX2        9.89     .455 No_date    12:17    29.18  .447
       [CN= 59.0: N= 3.00]
       [Tp=  .67:Str= 1.00]
 250:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN RAINYD     01:EX3       21.33     .838 No_date    12:48    43.18  .447
       [CN= 69.0: N= 3.00]
       [Tp=  .33:Str= 1.00]
# Slope, Timp, Area from Atrel drawing
# CN from Stantec (SC001)
# Ximp = Timp = 10%
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07969> 250:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07970>      CALIB STANDHYD    01:EX4          .58     .054 No date   12:07   49.96 .519
07971>       [XIMP=.11:TIMP=.22]
07972>       [LOSS= 2 :CN= 69.0]
07973>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07974>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
07975> # Road and road side ditch along projected residential development Parkway Rd
07976> # Ilmp = Ximp = 0.22 ha /0.52 ha = 0.42
07977> # CN*=69, as per Stantec sec 3C001.
07978> # Slope is estimated at 1%
07979> # IGI based on centroid of area due to elongated shape = 600m/2 = 300
07980> 250:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07981>      CALIB STANDHYD    01:EX5          .57     .065 No date   12:05   62.56 .648
07982>       [XIMP=.40:TIMP=.40]
07983>       [LOSS= 2 :CN= 69.0]
07984>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07985>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 300.:MNI=.045:SCI=   .0]
07986> # Road and road side ditch along projected residential development SalesBarn Rd
07987> # Ilmp = Ximp = 0.1 ha /0.51 ha = 0.20
07988> # CN*=69, as per Stantec sec 3C001.
07989> # Slope is estimated at 1%
07990> # IGI based on centroid of area due to elongated shape = 354m/2 = 177
07991> 250:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07992>      CALIB STANDHYD    01:EX6          .51     .061 No date   12:04   51.76 .536
07993>       [XIMP=.20:TIMP=.20]
07994>       [LOSS= 2 :CN= 69.0]
07995>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07996>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
07997> # Road and road side ditch along projected residential development SalesBarn Rd
07998> # Ilmp = Ximp = 0.09 ha /0.39 ha = 0.23
07999> # CN*=69, as per Stantec sec 3C001.
08000> # Slope is estimated at 1%
08001> # IGI based on centroid of area due to elongated shape = 275m/2 = 137.5
08002> 250:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08003>      CALIB STANDHYD    01:EX7          .59     .063 No date   12:03   53.38 .553
08004>       [XIMP=.23:TIMP=.23]
08005>       [LOSS= 2 :CN= 69.0]
08006>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08007>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
08008> #*******************************************************************************
08009> # PROPOSED COMMERCIAL DEVELOPMENT
08010> #*******************************************************************************
08011> # CN = 79 as per full grass cover with C soil type for Lot xx11; CN*=2
08012> # XIMP & TIMP to be conservative
08013> #*******************************************************************************
08014>  250:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08015>      DESIGN STANDHYD   01:C1          5.30    1.861 No date   12:09   77.12 .799
08016>       [XIMP=.83:TIMP=.83]
08017>       [SLP=1.00:DT= 1.00]
08018>       [LOSS= 2 :CN= 71.0]
08019>  250:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08020>      DESIGN STANDHYD   01:C2          8.14    1.668 No date   12:09   45.10 .387
08021>       [XIMP=.79:TIMP=.79]
08022>       [SLP=1.00:DT= 1.00]
08023>       [LOSS= 2 :CN= 71.0]
08024>  250:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08025>      DESIGN STANDHYD   01:C3          .24     .078 No date   12:09   84.72 .981
08026>       [XIMP=.98:TIMP=.98]
08027>       [SLP=1.00:DT= 1.00]
08028>       [LOSS= 2 :CN= 71.0]
08029> #  Imp = Imp ha/total area = 0.30/1.10 ha = .27
08030>  250:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08031>      DESIGN STANDHYD   01:EX01        1.10     .155 No date   12:09   59.01 .541
08032>       [XIMP=.27:TIMP=.27]
08033>       [SLP=1.00:DT= 1.00]
08034>       [LOSS= 2 :CN= 71.0]
08035> #  Imp = Imp ha/total area = 0.35/1.07 ha = .35
08036>  250:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08037>      DESIGN STANDHYD   01:EX02        1.07     .181 No date   12:09   69.03 .653
08038>       [XIMP=.35:TIMP=.35]
08039>       [SLP=1.00:DT= 1.00]
08040>       [LOSS= 2 :CN= 71.0]
08041> #  Imp = Imp ha/total area = 0.11/0.20ha = .58
08042>  250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08043>      DESIGN STANDHYD   01:EX03         .20     .046 No date   12:09   78.54 .743
08044>       [XIMP=.50:TIMP=.50]
08045>       [SLP=1.00:DT= 1.00]
08046>       [LOSS= 2 :CN= 71.0]
08047> #*******************************************************************************
08048> # Commercial pond (POc)
08049> # slope estimated at 1% based on elevations around pond.
08050> # Timp and Ximp based on total pond area
08051> # ximp = A pond/A tot (1.04/1.87)
08052>  250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08053>      DESIGN STANDHYD   01:POc          1.87     .384 No date   12:09   79.13 .820
08054>       [XIMP=.67:TIMP=.67]
08055>       [SLP=1.00:DT= 1.00]
08056>       [LOSS= 2 :CN= 71.0]
08057> ##########################################################################
08058> #*******************************************************************************
08059> # PROPOSED RESIDENTIAL SUBDIVISIONS - Residential Area Phase 1 and 2
08060> #*******************************************************************************
08061> # CN*=69, as per Stantec sec 3C001.
08062> # Tp estimated with Upland Method.
08063>  250:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08064>      DESIGN NASHYD     01:PR1          4.26     .480 No date   12:05   48.18 .487
08065>       [CN= 69.0] N= 3.00]
08066>       [Tp=  .18:DT= 1.00]
08067> #*******************************************************************************
08068> # AREAS GOING TO RESIDENTIAL POND (PDA)
08069> #*******************************************************************************
08070> #
08071>  250:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08072>      CALIB STANDHYD    01:PR1A         .74     .078 No date   12:01   51.62 .525
08073>       [XIMP=.11:TIMP=.21]
08074>       [LOSS= 2 :CN= 71.0]
08075>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08076>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08077>  250:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08078>      CALIB STANDHYD    01:PR1B         .52     .061 No date   12:03   51.62 .525
08079>       [XIMP=.11:TIMP=.21]
08080>       [LOSS= 2 :CN= 71.0]
08081>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08082>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08083>  250:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08084>      CALIB STANDHYD    01:PR2A         1.53     .180 No date   12:04   51.62 .525
08085>       [XIMP=.11:TIMP=.21]
08086>       [LOSS= 2 :CN= 71.0]
08087>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08088>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08089>  250:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08090>      CALIB STANDHYD    01:PR2B         1.17     .138 No date   12:04   51.62 .525
08091>       [XIMP=.11:TIMP=.21]
08092>       [LOSS= 2 :CN= 71.0]
08093>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08094>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08095>  250:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08096>      CALIB STANDHYD    01:PR3A         .45     .050 No date   12:07   51.62 .525
08097>       [XIMP=.11:TIMP=.21]
08098>       [LOSS= 2 :CN= 71.0]
08099>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08100>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08101>  250:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08102>      CALIB STANDHYD    01:PR3B         .52     .058 No date   12:02   51.62 .525
08103>       [XIMP=.11:TIMP=.21]
08104>       [LOSS= 2 :CN= 71.0]
08105>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08106>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08107>  250:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08108>      CALIB STANDHYD    01:PR4A         .71     .079 No date   12:03   51.62 .525
08109>       [XIMP=.11:TIMP=.21]
08110>       [LOSS= 2 :CN= 71.0]
08111>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08112>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
08113>  250:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08114>      CALIB STANDHYD    01:PR4B         .62     .072 No date   12:03   51.62 .525
08115>       [XIMP=.11:TIMP=.21]
08116>       [LOSS= 2 :CN= 71.0]
08117>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08118>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
08119>  250:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08120>      CALIB STANDHYD    01:PR5A         .66     .077 No date   12:03   51.62 .525
08121>       [XIMP=.11:TIMP=.21]
08122>       [LOSS= 2 :CN= 71.0]
08123>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08124>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
08125>  250:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08126>      CALIB STANDHYD    01:PR5B         .46     .052 No date   12:02   51.62 .525
08127>       [XIMP=.11:TIMP=.21]
08128>       [LOSS= 2 :CN= 71.0]
08129>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08130>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08131>  250:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08132>      CALIB STANDHYD    01:PR6A         1.43     .163 No date   12:04   51.62 .525
08133>       [XIMP=.11:TIMP=.21]
08134>       [LOSS= 2 :CN= 71.0]
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0811&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0811&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0811&> 250:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0811&>    CALIB STANDHYD     01:FR60          .93      .096 No_date   12:03   51.62 .555
0811&>       [XIMP=.11:TIMP=.21]
0811&>       [Loss= 2 :CN= 71.0]
0811&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0811&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0811&> # slope estimated at 2  based on backward analysis.
0811&> # Tlag and Xlag based on total pond area
0811&> # xlag = A pond/A tot
0811&> # Tlag = weighted average of pond and tributaries
0811&> 250:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0811&>    CALIB STANDHYD     01:FR30          .93      .173 No_date   12:02   66.75 .691
0811&>       [XIMP=.44:TIMP=.47]
0811&>       [Loss= 2 :CN= 71.0]
0811&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0811&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0811&> #*************************************************************************
0811&> # UNCONTROLLED AREAS
0811&> #*************************************************************************
0811&> #
0812&> 250:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR7A          1.35      .178 No_date   12:09   47.54 .492
0812&>       [XIMP=.02:TIMP=.14]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR7B2         .99      .024 No_date   12:07   47.53 .492
0812&>       [XIMP=.02:TIMP=.14]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR7C1         .39      .043 No_date   12:07   47.53 .492
0812&>       [XIMP=.02:TIMP=.14]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR7C2         .27      .029 No_date   12:07   47.53 .492
0812&>       [XIMP=.02:TIMP=.14]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR7D          .50      .053 No_date   12:07   47.53 .492
0812&>       [XIMP=.02:TIMP=.14]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR8           1.38      .232 No_date    7:16   49.26 .489
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR9A          .10      .107 No_date   12:09   45.28 .469
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR9B1         .55      .078 No_date   12:07   45.28 .469
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    CALIB STANDHYD     01:FR9B2         1.96      .278 No_date   12:09   45.28 .469
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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0812&>    * CALIB STANDHYD     01:FR10          1.87      .176 No_date   12:10   45.28 .469
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> 250:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    * CALIB STANDHYD     01:FR11          .62      .062 No_date   12:08   45.28 .469
0812&>       [XIMP=.01:TIMP=.07]
0812&>       [Loss= 2 :CN= 71.0]
0812&>       [Pervious     area: TApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
0812&>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
0812&> #*************************************************************************
0812&> # EXISTING T/W - Upstream of Proposed Development.
0812&> #*************************************************************************
0812&> # Total flow at node B-EX1
0812&> 250:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:EX1          26.62     2.812 No_date   12:01   50.15 n/a
0812&>                     + 03:EX2           1.10      .105 No_date   12:03   59.01 n/a
0812&>                     + 04:EX3           1.07      .101 No_date   12:03   63.08 n/a
0812&>       [IT= 1.00]  SUM= 01:NEX1        28.79     3.009 No_date   12:07   51.12 n/a
0812&> # Typical Section Based on proposed channel provided by AEL
0812&> # 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
0812&> # Route Node B-EX1 to D/S node B0
0812&> 250:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ROUTE CHANNEL      -> 01:NEX1        28.79     3.009 No_date   12:07   51.12 n/a
0812&>       [B0= 1.00] outc= 01:xNEX1        28.79     2.922 No_date   12:10   51.12 n/a
0812&>       [1/S/n= 212./ .850/.030]
0812&>       [Vmax= 1.499:Lmax=  .090]
0812&> #*************************************************************************
0812&> # TOTAL INFLOW TO COMMERCIAL POND PDc
0812&> #*************************************************************************
0812&> 250:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:EX4            .50      .054 No_date   12:02   46.98 n/a
0812&>                     + 03:C3            8.40     1.647 No_date   12:00   77.12 n/a
0812&>                     + 04:C2            8.34     1.668 No_date   12:00   80.16 n/a
0812&>                     + 05:FDc           1.57      .388 No_date   12:00   79.15 n/a
0812&>       [IT= 1.00]  SUM= 01:FDc1a       18.71     3.852 No_date   12:00   79.55 n/a
0812&> 250:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ROUTE RESERVOIR -> 02:FDc1a        18.71     3.852 No_date   12:00   79.55 n/a
0812&>       [RTI= 1.00] outc= 01:FDCout     18.71     1.009 No_date   12:15   79.04 n/a
0812&>              overflow <- 03:OvrD         .00      .000 No_date    0:00    .00 n/a
0812&>       [MaxStOced .6111E+00, TotCumVol= .3603E+03, K-Cvr=    0, TriErrVol=    0.hrs]
0812&> # Total flow at outlet of commercial pond
0812&> 250:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:FDCout       18.71     1.009 No_date   12:15   79.04 n/a
0812&>                     + 03:EX9A          1.10      .107 No_date   12:09   45.28 n/a
0812&>       [IT= 1.00]  SUM= 01:DPDc        19.81     1.108 No_date   12:12   77.43 n/a
0812&> # Route pond outflow at pipe d/s of node E0
0812&> # Typical Section Based on proposed channel provided by AEL
0812&> # 0:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.02
0812&> 250:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ROUTE CHANNEL      -> 02:DPDc        19.81     1.108 No_date   12:12   77.43 n/a
0812&>       [E0= 1.00] outc= 01:EXPDc        19.81     1.064 No_date   12:18   77.43 n/a
0812&>       [1/S/n= 166./ .250/.020]
0812&>       (Vmax= .695:Lmax= .58)
0812&> # Total channel flow at pipe d/s of node E0
0812&> 250:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:EXPDc        19.81     1.064 No_date   12:23   77.43 n/a
0812&>                     + 03:FR9B1         .55      .078 No_date   12:07   45.28 n/a
0812&>                     + 04:FR9B2        1.96      .278 No_date   12:09   45.28 n/a
0812&>       [IC= 1.00]  SUM= 01:xE0         19.06     1.111 No_date   12:26   75.82 n/a
0812&> # ************
0812&> # Total flow at node E0
0812&> # [Note that EX2 will be about draining to proposed channel]
0812&> 250:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:usE0         19.06     1.111 No_date   12:26   75.82 n/a
0812&>                     + 03:EDEX1         26.79     2.922 No_date   12:10   51.12 n/a
0812&>                     + 04:EX2           9.89      .455 No_date   12:37   43.28 n/a
0812&>                     + 05:C1            .24       .078 No_date   12:00   94.72 n/a
0812&>       [IT= 1.00]  SUM= 01:E0          55.98     4.263 No_date   12:12   58.14 n/a
0812&> # Typical Section Based on proposed channel provided by AEL
0812&> # 4:1 bank slopes, Long Slope = 0.45%, Manning's n is 0.04
0812&> # Route SW Ditching at E0 to D/S node B-EX2
0812&> 250:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ROUTE CHANNEL      -> 01:E0          55.98     4.263 No_date   12:12   58.14 n/a
0812&>       [FS= 1.00] outc= 01:xE0          55.98     4.098 No_date   12:15   58.14 n/a
0812&>       [1/S/n= 234./ .400/.040]
0812&>       [Vmax= 1.233:Lmax=  .813]
0812&> # Total flow at node B-EX2
0812&> 250:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0812&>    ADD HYD            02:EX5          56.98     4.098 No_date   12:15   58.14 n/a
0812&>                     + 03:FR10          1.87      .176 No_date   12:10   45.28 n/a
0812&>       [IT= 1.00]  SUM= 01:BEX2        57.85     4.256 No_date   12:15   57.75 n/a
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08300> # Route Name N:XX2 to Node X1
08301> # Typical Section based on Shields MD Veo Ditch 3:1 banks
08302> # provided by Alkal
08303> # Manning's n is Channel not maintained, light brush on banks
08304> # Slope = 0.05% as per plan provided by Area...
08305> 250:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08306>      ROUTE CHANNEL    -> 02:RSV2        57.86     4.256 No_date   12:15   57.73  n/a
08307>   +  [RET= 1.00] out<- 01:RNEX2       57.86     3.448 No_date   12:22   57.73  n/a
08308>      [L/S/n=  2.5:./ .050/.035]
08309>      [Vmax=  .350:Dmax=  1.851]
08310> #*******************************************************************************
08311> # Residential Development - Phase 1 And 2
08312> #*******************************************************************************
08313> # Total flow at node N-PK
08314> 250:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08315>      ADD HYD          02:PK        4.98      .486 No_date   12:05   43.18  n/a
08316>                     + 03:PR_A       .24      .028 No_date   12:01   51.62  n/a
08317>                     + 04:PR_B       .24      .028 No_date   12:01   51.62  n/a
08318>      [DT= 1.00]  SUM= 01:NPK1       4.92     .508 No_date   12:05   43.69  n/a
08319> # Vs zone to ponding area in PK1
08320> # Qe=.566 ac/s required as per SCS 100yr Existing conditions
08321> # Culvert from Inlet 1
08322> # Assuming outlet culvert is 600 mm, S.Slope = .2%, HDPE smooth walls
08323> # Manning's n = 0.012, inlet control nomograph
08324> # Hydraulic head = 0.9m, Qe=.566
08325> 250:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08326>      COMPUTE DUALEYD  01:DUA1        4.05      .508 No_date   12:05   45.07  n/a
08327>          Major System /  02:MAJN1       .00      .000 No_date   00:00    .00  n/a
08328>          Minor System \  03:MPK1Mn      1.50      .566 No_date   12:05   45.64  n/a
08329>      [X]System .0000E+00, Orifice*Vol=.3.0000E+00, R-Curve=    0, TailwaterDir=    0.0deg
08330> # Input to Inlet 1 pipe
08331> 250:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08332>      ADD HYD          02:PK1E          .05      .061 No_date   12:05   51.67  n/a
08333>                     + 03:MPK1Mn       1.50      .506 No_date   12:05   45.64  n/a
08334>      [QC= 1.00]  SUM   01:In1         5.05      .566 No_date   12:05   44.50  n/a
08335> # Pipe from Inlet 1 - Route to pond
08336> # HDPE smooth wall pipe Manning's n = 0.012
08337> 250:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08338>      ROUTE PIPE       -> 02:In1         5.05      .566 No_date   12:05   44.50  n/a
08339>      [RET= 1.00] out<- 01:Pin1        5.05      .566 No_date   12:05   44.50  n/a
08340>      [L/S/n=  65./1.600/.012]
08341>      [Vmax= 3.191:Dmax=  .600]
08342>      [Din=  .600:Dused=  .600]
08343> # Culvert from Inlet 2
08344> # HDPE smooth wall pipe Manning's n = 0.012
08345> 250:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08346>      ROUTE PIPE       -> 02:PR2A        1.57      .168 No_date   12:04   51.62  n/a
08347>      [RET= 1.00] out<- 01:Pin2        1.57      .168 No_date   12:04   51.62  n/a
08348>      [L/S/n=  13./ .400/.012]
08349>      [Vmax=  .402:Dmax=  .293]
08350>      [Din=  .500:Dused=  .500]
08351> # Input to Inlet 2 pipe
08352> 250:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08353>      ADD HYD          02:PR2E          1.17      .126 No_date   12:04   51.62  n/a
08354>                     + 03:CIn2         .57      .168 No_date   12:04   51.76  n/a
08355>      [2]  1.00]  SUM   01:In2         1.74      .294 No_date   12:04   51.70  n/a
08356> # Pipe from Inlet 2 - Route to pond
08357> # HDPE smooth wall pipe Manning's n = 0.012
08358> 250:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08359>      ROUTE PIPE       -> 02:In2         1.74      .294 No_date   12:04   51.70  n/a
08360>   +  [RET= 1.00] out<- 01:Pin2        1.74      .260 No_date   12:04   51.70  n/a
08361>      [L/S/n=  75./ .300/.012]
08362>      [Vmax= 1.174:Dmax=  .469]
08363>      [Din=  .500:Dused=  .500]
08364> # Culvert from Inlet 3
08365> # HDPE smooth wall pipe Manning's n = 0.012
08366> 250:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08367>      ROUTE PIPE       -> 02:PR3A         .45      .030 No_data   12:02   51.62  n/a
08368>      [RET= 1.00] out<- 01:CIn3         .45      .030 No_data   12:02   51.62  n/a
08369>      [L/S/n=  5./ .400/.012]
08370>      [Vmax= 1.017:Dmax=  .149]
08371>      [Din=  .150:Dused=  .150]
08372> # Input to Inlet 3 pipe
08373> 250:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08374>      ADD HYD          02:PR3B          .57      .058 No_data   12:02   51.62  n/a
08375>                     + 03:CIn3         .45      .030 No_data   12:02   51.62  n/a
08376>      [2]= 1.00]  SUM   01:In3         .91      .085 No_data   12:02   51.62  n/a
08377> # Pipe from Inlet 3 - Route to pond
08378> # HDPE smooth wall pipe Manning's n = 0.012
08379> 250:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08380>      ROUTE PIPE       -> 02:In3          .57      .169 No_data   12:01   51.62  n/a
08381>      [RET= 1.00] out<- 01:Pin3         .57      .169 No_data   12:01   51.62  n/a
08382>      [L/S/n=  75./ .200/.012]
08383>      [Vmax=  .971:Dmax=  .277]
08384>      [Din=  .500:Dused=  .500]
08385> # Culvert from Inlet 4
08386> # HDPE smooth wall pipe Manning's n = 0.012
08387> 250:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08388>      ROUTE PIPE       -> 02:PR4A         .71      .079 No_data   12:03   51.62  n/a
08389>      [RET= 1.00] out<- 01:CIn4         .71      .079 No_data   12:03   51.62  n/a
08390>      [L/S/n=  13./ .400/.012]
08391>      [Vmax= 1.150:Dmax=  .182]
08392>      [Din=  .500:Dused=  .500]
08393> # Input to Inlet 4 pipe
08394> 250:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08395>      ADD HYD          02:PR4B          .65      .072 No_data   12:03   51.62  n/a
08396>                     + 03:CIn4         .71      .079 No_data   12:03   51.62  n/a
08397>      [DT= 1.00]  SUM   01:In4         1.36      .151 No_data   12:03   51.62  n/a
08398> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
08399> # HDPE smooth wall pipe Manning's n = 0.012
08400> 250:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08401>      ROUTE PIPE       -> 02:In4         1.36      .151 No_data   12:03   51.62  n/a
08402>      [RET= 1.00] out<- 01:Pin4         1.36      .151 No_data   12:03   51.62  n/a
08403>      [L/S/n=  55./1.900/.012]
08404>      [Vmax= 2.427:Dmax=  .176]
08405>      [Din=  .500:Dused=  .500]
08406> # Culvert from Inlet 5
08407> # HDPE smooth wall pipe Manning's n = 0.012
08408> 250:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08409>      ROUTE PIPE       -> 02:PR5A         .66      .073 No_data   12:03   51.62  n/a
08410>      [RET= 1.00] out<- 01:CIn5         .66      .073 No_data   12:03   51.62  n/a
08411>      [L/S/n=  13./ .400/.012]
08412>      [Vmax= 1.133:Dmax=  .182]
08413>      [Din=  .500:Dused=  .500]
08414> # Input to Inlet 5 pipe
08415> 250:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08416>      ADD HYD          02:PR5B          .46      .052 No_data   12:02   51.62  n/a
08417>                     + 03:CIN5         .66      .073 No_data   12:03   51.62  n/a
08418>      [DT= 1.00]  SUM   01:In5         1.12      .125 No_data   12:03   51.62  n/a
08419> # Pipe from Inlet 5 - Route to pond
08420> # HDPE smooth wall pipe Manning's n = 0.012
08421> 250:0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08422>      ROUTE PIPE       -> 02:In5         1.12      .125 No_data   12:03   51.62  n/a
08423>      [RET= 1.00] out<- 01:Pin5         1.12      .125 No_data   12:03   51.62  n/a
08424>      [L/S/n=  75./1.600/.012]
08425>      [Vmax= 2.163:Dmax=  .167]
08426>      [Din=  .200:Dused=  .500]
08427> # Culvert from Inlet 6
08428> # HDPE smooth wall pipe Manning's n = 0.012
08429> 250:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08430>      ROUTE PIPE       -> 02:PR6A         .43      .155 No_data   12:04   51.62  n/a
08431>      [RET= 1.00] out<- 01:CIn6         .43      .155 No_data   12:04   51.62  n/a
08432>      [L/S/n=  13./ .400/.012]
08433>      [Vmax= 1.873:Dmax=  .277]
08434>      [Din=  .500:Dused=  .500]
08435> # Input to Inlet 6 pipe
08436> 250:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08437>      ADD HYD          02:PR6B          .93      .109 No_data   12:03   51.62  n/a
08438>                     + 03:CIn6         1.43      .155 No_data   12:04   51.62  n/a
08439>      [DT= 1.00]  SUM   01:In6         2.36      .252 No_data   12:03   51.62  n/a
08440> # Pipe from Inlet 6 - Route to pond
08441> # HDPE smooth wall pipe Manning's n = 0.012
08442> 250:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08443>      ROUTE PIPE       -> 02:In6         2.36      .252 No_data   12:03   51.62  n/a
08444>   +  [RET= 1.00] out<- 01:Pin6         2.36      .249 No_data   12:05   51.62  n/a
08445>      [L/S/n=  70./ .300/.012]
08446>      [Vmax= 1.339:Dmax=  .425]
08447>      [Din=  .500:Dused=  .327]
08448> # VOLUME TO POND ULTIMATE RESIDENTIAL
08449> 250:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08450>      ADD HYD          01:Pin1          5.05      .586 No_data   12:05   44.52  n/a
08451>                     + 03:Pin2         2.74      .294 No_data   12:04   51.77  n/a
08452>                     + 04:Pin3          .97      .107 No_data   12:03   51.62  n/a
08453>                     + 05:Pin4         1.36      .151 No_data   12:03   51.62  n/a
08454>                     + 06:Pin5         1.12      .125 No_data   12:03   51.62  n/a
08455>                     + 07:Pin6         2.36      .249 No_data   12:05   51.62  n/a
08456>                     + 08:PCo          5.63      .775 No_data   12:00   69.75  n/a
08457>      [DT= 1.00]  SUM=  01:POND-n      18.63     2.242 No_data   12:04   53.81  n/a
08458> #  Pond outflow for ultimate conditions using wsl .6:.6: 3.0
08459> 250:0074---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08460>      ROUTE RESERVOIR -> 02:POND-n      18.63     2.242 No_data   12:04   53.81  n/a
08461>      [RET= 1.00] out<- 01:POut1        18.63      .169 No_data   17:51   57.41  n/a
08462>                overflow <- 03:over       .00      .000 No_data   00:00     .00  n/a
08463>      [X]Stor/Sed .6:.6:3.0, Tailwater= .0000E+00, R-Curve=    0, TailwaterDir=    0.0deg
08464> # Simulating SCS 100 yr conditions with subsequence of outflow weir
08465> # updated loc weir .6: .6: 3.0
08466> ROUTE RESERVOIR     3HRIout ["POut1" ,NHYD=n="POND-n" ,
```

```
08467> *                    RDT=1 ||(min),
08468> *                          TABLE of | OUTFLOW-STORAGE ) values
08469> *                                   (cms) - (ha-m)
08470> *                                |   0.0 ,   0.0 |
08471> *                                 0.00001 , 1.1209
08472> *                                 0.20  , 1.8110
08473> *                                 0.33  , 2.0195
08474> *                                |   -1  ,  -1   |  (max twenty pts)
08475> *                           RHIDOVF ["OVF\"] ,
08476> * Route pond output through first set of pipes
08477> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
08478> * HDPE smooth wall pipe Manning's n = 0.012
08479> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08480>     ROUTE PIPE     -> 02:Pout     18.63     .169 No_date   12:51   53.81  n/a
08481>       [RO= 1.00] out<- 01:Pout1    18.63     .169 No_date   12:51   53.81  n/a
08482>       [L/S/n=  72.7 :20C/.012]
08483>       [Vmax= 1.077:Dmax=  .283]
08484>       [Din=  .750:Dused=  .780]
08485> * Flow o/s of outlet culverts
08486> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08487>     ADD HYD                02:EXTE1      .36     .040 No_date   12:07   47.53  n/a
08488>                          + 03:EXTE2      .12     .024 No_date   12:07   47.53  n/a
08489>                          + 04:Pout1    18.63     .169 No_date   13:04   53.81  n/a
08490>       [DT= 1.00]  SUM=   01:Pout     19.11     .175 No_date   13:49   53.82  n/a
08491> * Route outflow through set of Culverts
08492> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
08493> * HDPE smooth wall pipe Manning's n = 0.012
08494> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08495>     ROUTE PIPE     -> 02:Pout     19.11     .175 No_date   13:49   53.82  n/a
08496>       [RO= 1.00] out<- 01:Pout1    19.11     .175 No_date   13:39   53.82  n/a
08497>       [L/S/n=  71.7 :40C/.012]
08498>       [Vmax= 1.392:Dmax=  .240]
08499>       [Din=  .750:Dused=  .780]
08500> * Flow o/s of second set of outflow pipes
08501> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08502>     ADD HYD                02:EXTC1      .19     .043 No_date   12:07   47.53  n/a
08503>                          + 03:EXTC2      .17     .019 No_date   12:07   47.53  n/a
08504>                          + 04:Pout     19.11     .175 No_date   13:39   53.82  n/a
08505>       [DT= 1.00]  SUM=   01:Pout2    19.77     .198 No_date   12:10   53.45  n/a
08506> * Route outflow through second set of pipes
08507> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
08508> * HDPE smooth wall pipe Manning's n = 0.012
08509> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08510>     ROUTE PIPE     -> 02:Pout2    19.77     .198 No_date   12:10   53.45  n/a
08511>       [RO= 1.00] out<- 01 RoutE    19.77     .187 No_date   12:11   53.45  n/a
08512>       [L/S/n=  66.7 :20C/.012]
08513>       [Vmax= 1.177:Dmax=  .308]
08514>       [Din=  .750:Dused=  .780]
08515> * Total flow at node N1 (Shiels RD along Zelex Burn Rd)
08516> 250:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08517>     ADD HYD                02:RMEA2    57.85    3.449 No_date   12:22   57.73  n/a
08518>                          + 03:RoutE    19.77     .187 No_date   12:11   53.45  n/a
08519>                          + 04:EXT      1.39     .043 No_date   12:07   47.53  n/a
08520>                          + 05:FP7D       .90     .031 No_date   12:07   47.53  n/a
08521>                          + 06:FR11       .61     .062 No_date   12:08   47.28  n/a
08522>       [DT= 1.00]  SUM=   01:N1       81.61    3.611 No_date   12:22   56.50  n/a
08523> * ROUTE N1 to N3
08524> * Typical Section based on Shields RD Vee Ditch 3:1 Banks
08525> * provided by Atrel
08526> * Manning's n is Channel not maintained, light brush on banks
08527> * Slope = 0.08  as per plan provided by Atrel.
08528> 250:0N1----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08529>     ROUTE CHANNEL  -> 02:N1       78.83    3.711 No_date   12:22   56.50  n/a
08530>   *   [RO= 1.00] out<- 01:RN1      78.83    3.037 No_date   12:39   56.50  n/a
08531>       [L/S/n=  348.7 :.050/.035]
08532>       [Vmax=  .352:Dmax= 1.080]
08533> * VOLUME from residential area at N3 interim
08534> 250:0N3----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08535>     ADD HYD                02:FR3A       1.35     .125 No_date   12:09   47.53  n/a
08536>                          + 03:FR3       1.38     .132 No_date   12:10   45.28  n/a
08537>       [DT= 1.00]  SUM=   01:N31      2.73     .209 No_date   12:09   46.38  n/a
08538> * Added VOLUME from external area contributing to N3
08539> 250:0N3----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08540>     ADD HYD                02:RN1        78.83    3.037 No_date   12:39   56.50  n/a
08541>                          + 03:N31        2.73     .209 No_date   12:09   46.38  n/a
08542>                          + 04:EX5         .52     .065 No_date   12:05   49.50  n/a
08543>                          + 05:EX6         .51     .057 No_date   12:05   51.16  n/a
08544>                          + 06:EXC1        .37     .046 No_date   12:00   70.58  n/a
08545>       [DT= 1.00]  SUM=   01:N3       83.01    3.249 No_date   12:36   56.21  n/a
08546> * ROUTE N3 to EC120
08547> * Typical Section based on Shields RD Vee Ditch 3:1 Banks
08548> * provided by Atrel
08549> * Manning's n is Channel not maintained, light brush on banks
08550> * Slope = 0.08  as per plan provided by Atrel.
08551> 250:0EX3----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08552>     ROUTE CHANNEL  -> 02:N3       83.01    3.202 No_date   12:36   56.21  n/a
08553>   *   [RO= 1.00] out<- 01:RN3      83.01    3.001 No_date   12:47   56.21  n/a
08554>       [L/S/n=  415.7 :.050/.035]
08555>       [Vmax=  .359:Dmax= 1.693]
08556> * Flow at Studies node EC120 for comparison
08557> * Routed N3 plus EX3
08558> 250:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08559>     ADD HYD                02:RN3        82.91    2.801 No_date   12:47   56.21  n/a
08560>                          + 03:EX3       21.30     .838 No_date   12:46   43.18  n/a
08561>       [DT= 1.00]  SUM=   01:EC120   104.21    3.639 No_date   12:47   53.04  n/a
08562> * AREA CHECK
08563> *
08564> 250:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08565>     ADD HYD                02:EX1        24.62    2.812 No_date   12:07   50.26  n/a
08566>                          + 03:EX2        9.88     .455 No_date   12:37   43.18  n/a
08567>                          + 01:EX3       21.30     .838 No_date   12:46   43.18  n/a
08568>                          + 04:EX4         .50     .054 No_date   12:02   49.96  n/a
08569>                          + 05:EX5         .52     .065 No_date   12:05   49.50  n/a
08570>                          + 07:EX6         .51     .057 No_date   12:05   51.16  n/a
08571>                          + 08:EA7         .39     .043 No_date   12:03   50.38  n/a
08572>                          + 09:FR1A        .24     .028 No_date   12:01   51.62  n/a
08573>                          + 10:FR1B        .58     .081 No_date   12:03   51.62  n/a
08574>       [DT= 1.00]  SUM=   01:Tot1     58.52    3.786 No_date   12:09   46.64  n/a
08575> 250:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08576>     ADD HYD                02:Tot1       58.52    3.786 No_date   12:09   46.64  n/a
08577>                          + 01:FR2S       1.57     .168 No_date   12:04   51.62  n/a
08578>                          + 03:FR3S       1.17     .124 No_date   12:04   51.62  n/a
08579>                          + 05:FR4A        .45     .056 No_date   12:02   51.62  n/a
08580>                          + 06:FR4B        .62     .050 No_date   12:02   51.62  n/a
08581>                          + 07:FR4A        .71     .075 No_date   12:03   51.62  n/a
08582>                          + 08:FR4B        .68     .072 No_date   12:03   51.62  n/a
08583>                          + 09:FR5A        .68     .073 No_date   12:03   51.62  n/a
08584>                          + 10:FR5B        .46     .052 No_date   12:02   51.62  n/a
08585>       [DT= 1.00]  SUM=   01:Tot2     64.77    4.494 No_date   12:08   47.13  n/a
08586> 250:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08587>     ADD HYD                02:Tot2       64.77    4.494 No_date   12:08   47.13  n/a
08588>                          + 03:FR6A        1.41     .151 No_date   12:04   51.62  n/a
08589>                          + 04:FR6B         .93     .099 No_date   12:04   51.62  n/a
08590>                          + 05:FR7A        1.32     .138 No_date   12:06   47.91  n/a
08591>                          + 06:FR7B1        .76     .080 No_date   12:07   47.53  n/a
08592>                          + 07:FR7B2        .27     .029 No_date   12:07   47.53  n/a
08593>                          + 08:FR7C1        .39     .043 No_date   12:07   47.53  n/a
08594>                          + 09:FR7C2        .17     .019 No_date   12:07   47.53  n/a
08595>                          + 10:FR7D         .30     .033 No_date   12:07   47.53  n/a
08596>       [DT= 1.00]  SUM=   01:Tot3     68.06    4.941 No_date   12:08   47.28  n/a
08597> 250:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08598>     ADD HYD                02:Tot3       68.06    4.941 No_date   12:08   47.28  n/a
08599>                          + 03:FR8        1.35     .131 No_date   12:10   45.28  n/a
08600>                          + 04:FR9A       1.10     .107 No_date   12:06   45.28  n/a
08601>                          + 05:FR9B1       .25     .026 No_date   12:07   45.28  n/a
08602>                          + 06:FR9B2      1.00     .098 No_date   12:06   45.28  n/a
08603>                          + 07:FR10       1.87     .176 No_date   12:10   45.28  n/a
08604>                          + 08:FR11        .62     .062 No_date   12:08   45.28  n/a
08605>                          + 09:FR1        1.76     .080 No_date   12:05   47.19  n/a
08606>                          + 10:FD1        6.08     .173 No_date   12:00   65.15  n/a
08607>       [DT= 1.00]  SUM=   01:Tot4     85.37    6.844 No_date   12:07   46.68  n/a
08608> 220:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08609>     ADD HYD                02:Tot4       85.37    6.844 No_date   12:07   46.68  n/a
08610>                          + 03:C1         8.30    1.847 No_date   12:00   77.12  n/a
08611>                          + 04:C2         6.79    1.668 No_date   12:00   80.16  n/a
08612>                          - 05:C3          .26     .078 No_date   12:00   84.72  n/a
08613>                          - 06:FXC        1.18     .185 No_date   12:00   69.01  n/a
08614>                          - 07:FXC2       1.07     .181 No_date   12:00   69.05  n/a
08615>                          - 08:EX13        .22     .046 No_date   12:00   70.58  n/a
08616>                          - 09:FDU        1.07     .386 No_date   12:00   78.13  n/a
08617>       [DT= 1.00]  SUM=   01:Tot5     104.21   10.072 No_date   12:01   55.04  n/a
08618> *************************************************************************
08619> * Simulations with 6 hour Chicago from City of Ottawa
08620> * SCS 24 hours type 2, from City of Ottawa
08621>   ** END OF RUN : 298
08622>
08623> *************************************************************************
08624>
08625>
08626>
08627>
08628>
08629> SUB:CUSTOMJOB
08630> 280:0001----------------------------------------------------------------------
08631>       START
08632>       [TAREA =    .80 hra on      1]
```

```
08633>        [METOUT    2    [1=Imperial, 2=Metric output]]
08634>        [NSTORM=   ]
08635>        [NRUN   = 295 ]
08636> r*******************************************************************************
08637> r  SWMHYMO Version 07/Jan 2001 <BETA> / INPUT DATA FILE
08638> r*******************************************************************************
08639> r  Project Name: [Greely Village Center]    Project Number: [601-07]
08640> r  Date       : 04-09-2008
08641> r  Modeller   : [JSA]
08642> r  Company    : JFSA Inc.
08643> r  License #  :  2647402
08644> r*******************************************************************************
08645> r
08646> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
08647> # Proposed Ultimate conditions. OPTION 5
08648> # Filename stands for: Greely, Commercial, Proposed
08649> #*******************************************************************************
08650> 'ZZZ:0000----------------------------------------------------------------------
08651>      READ STORM
08652>       Filename= storm.001
08653>       Comment= 100 years SCS Type I Storm 24 Hours Step 10 min, City of Ott
08654>       [SDT=10.00:SNR=  .74:SPICI= 105.73]
08655> r*******************************************************************************
08656> # Existing flow - McEvoy Branch of Shield Creek - Areas
08657> # Area u/s of proposed development (residential)
08658> # CN=75, slope   0.5, Tp=0.76, XINP=5, TIMP=5, see SC002 as per Stantec
08659> # Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
08660> #*******************************************************************************
08661> # u/s of Bank St.as per Atrel - with modified boundaries and Tp
08662> 'ZZZ:0001----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08663>      DESIGN NASHYD      01:EX1       24.62     3.274 No_date   12:07   50.3  .598
08664>        [CN= 75.0: N= 3.00]
08665>        [Tp=  .2:UC= 1.00]
08666> #*******************************************************************************
08667> # Existing flow - External areas d/s of Bank St.
08668> # CN=69, as per Stantec see SC001
08669> # Area partially adjusted based on Atrel drawings.
08670> #*******************************************************************************
08671> # Areas External to development
08672> 'ZZZ:0004----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08673>      DESIGN NASHYD      01:EX2        9.89      .551 No_date   12:57   50.4  .408
08674>        [Ch= 59.3: N= 3.00]
08675>        [Tp=  .67:UC= 1.00]
08676> 'ZZZ:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08677>      DESIGN NASHYD      01:EX3       21.80     .984 No_date   12:47   50.4  .473
08678>        CN= 60.0: N= 3.00]
08679>        Tp=  .33:UC= 1.00]
08680> # Slope, Clmn, Area from Atrel Drawing
08681> # Ch from Stantec (2.0:C1)
08682> # Ximp = Timp = 10%
08683> 'ZZZ:0006----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08684>      CALIB STANDHYD     01:EX4        .59      .065 No_date   12:03   57.8  .567
08685>        [XIMP=.1:TIMP=.02]
08686>        [LOSS= 2 :CN= 69.0]
08687>        [Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08688>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08689> # Road and road side ditch along projected residential development Parkway Rd
08690> # Tlag = Xlag = 0.71 ha /0.52 ha = 0.40
08691> # CN=69, as per Stantec see SC001.
08692> # S ope is estimated at 1%
08693> # 'GI' based on centroid of area due to elongated shape = 600m/2 = 300
08694> 'ZZZ:0007----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08695>      CALIB STANDHYD     01:EX5        .52      .076 No_date   12:04   70.9  .665
08696>        [XIMP=.40:TIMP=.40]
08697>        [LOSS= 2 :CN= 69.0]
08698>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08699>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08700> # Road and road side ditch along projected residential development Salmalarn Rd
08701> # Tlag = Ximp = 0.1 ha /0.51 ha = 0.20
08702> # CN=69, as per Stantec see SC001
08703> # Slope is estimated at 1%
08704> # 'GI' based on centroid of area due to elongated shape = 354m/2 = 177
08705> 'ZZZ:0008----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08706>      CALIB STANDHYD     01:EX6        .51      .061 No_date   12:01   59.5  .558
08707>        [XIMP=.20 TIMP=.20]
08708>        [LOSS= 2 :CN= 61.0]
08709>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08710>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08711> # Road and road side ditch along projected residential development Fallcobarn Rd
08712> # Tlag = Xlag = 0.69 ha /0.75 ha = 0.92
08713> # CN=69, as per Stantec see SC001.
08714> # S ope is estimated at 1%
08715> # 'GI' based on centroid of area due to elongated shape = 375m/2 = 187.5

08716> 'ZZZ:0009----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08717>      CALIB STANDHYD     01:EX7        .78      .091 No_date   12:03   61.2  .624
08718>        [XIMP=.23:TIMP=.23]
08719>        [LOSS= 2 :CN= 68.9]
08720>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08721>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08722> r*******************************************************************************
08723> # PROPOSED COMMERCIAL DEVELOPMENT
08724> r*******************************************************************************
08725> # CN   79 as per fair grass cover with C soil type for top soil; CN=71
08726> # XIMP   TIMP to be conservative
08727> r*******************************************************************************
08728> 'ZZZ:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08729>      DESIGN STANDHYD    01:C1         5.30     2.096 No_date   12:00   66.2  .809
08730>        [XIMP=.65:TIMP=.83]
08731>        [SLP=1.00:DT=  1.00]
08732>        [LOSS= 2 :CN= 71.0]
08733> 'ZZZ:0011----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08734>      DESIGN STANDHYD    01:C2         6.34     1.867 No_date   12:00   64.2  .808
08735>        [XIMP=.79:TIMP=.79]
08736>        [SLP=1.00:DT=  1.00]
08737>        [LOSS= 2 :CN= 71.0]
08738> 'ZZZ:0012----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08739>      DESIGN STANDHYD    01:C3         .94      .116 No_date   12:00   64.2  .808
08740>        [XIMP=.66:TIMP=.66]
08741>        [SLP=1.00:DT=  .00]
08742>        [LOSS= 2 :CN= 71.0]
08743> # Ximp = Imp ha/total area = 0.30/1.13 ha = .27
08744> 'ZZZ:0013----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08745>      DESIGN STANDHYD    01:EXC1       1.10      .193 No_date   12:00   67.2  .808
08746>        [XIMP=.27:TIMP=.27]
08747>        [SLP 1.00 DT  1.00]
08748>        [LOSS= 2 :CN= 71.0]
08749> # Ximp = Imp ha/total area = 0.45/1.67 ha = .35
08750> 'ZZZ:0014----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08751>      DESIGN STANDHYD    01:EXC2        .67      .110 No_date   12:00   71.5  .873
08752>        [XIMP=.35:TIMP=.35]
08753>        [SLP=1.00:DT= 1.00]
08754>        [LOSS= 2 :CN= 71.0]
08755> # Ximp = Imp ha/total area   0.11/0.22ha   50
08756> 'ZZZ:0015----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08757>      DESIGN STANDHYD    01:EXC3        .22      .053 No_date   12:00   77.4  .124
08758>        [XIMP=.50:TIMP=.50]
08759>        [SLP=1.00:DT= 1.00]
08760>        [LOSS= 2 :CN= 71.0]
08761> r*******************************************************************************
08762> # Commercial pond (POC)
08763> # Slope estimated at 1% based on elevations around pond.
08764> # Timp and Ximp based on total pond area
08765> # ximp = A pond/A tot (1.04/1.67)
08766> 'ZZZ:0016----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08767>      DESIGN STANDHYD    01:POC        1.67      .434 No_date   12:07   48.6  .429
08768>        [XIMP=.67:TIMP=.67]
08769>        [SLP 1.00:DT  1.00]
08770>        [LOSS= 2 :CN= 71.0]
08771> ##############################################################################
08772> r*******************************************************************************
08773> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
08774> r*******************************************************************************
08775> # CN=69, as per Stantec see SC001.
08776> # Tp estimated with Sp and Manning.
08777> 'ZZZ:0017----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08778>      DESIGN NASHYD      01:PR1        4.26      .563 No_date   12:05   50.4  .673
08779>        [CN= 60.0: N= 3.00]
08780>        [Tp=  .18:UC= 1.00]
08781> r*******************************************************************************
08782> # AREAS GOING TO RESIDENTIAL POND (POC)
08783> r*******************************************************************************
08784> r
08785> 'ZZZ:0018----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08786>      CALIB STANDHYD     01:R1A         .24      .034 No_date   12:02   59.6  .558
08787>        [XIMP=.11:TIMP=.21]
08788>        [LOSS= 2 :CN= 71.0]
08789>        [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08790>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08791> ZZZ:0019----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08792>      CALIB STANDHYD     01:R1B         .56      .079 No_date   12:03   59.6  .558
08793>        [XIMP=.11:TIMP=.21]
08794>        [LOSS= 2 :CN= 71.0]
08795>        [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08796>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
08797> ZZZ:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08798>      CALIB STANDHYD     01:R2A         .59      .082 No_date   12:04   59.6  .558
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08795>       [XIMP=.11:TIMP=.21]
08806>       [LOSS= 2 :CN= 71.0]
08817>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08828>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08839> 299:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08840>     CALIB STANDHYD     01:PR1B        .17      .151 No_date   12:03   59.68 .559
08851>       [XIMP=.11:TIMP=.21]
08862>       [LOSS= 2 :CN= 71.0]
08873>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08884>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08895> 299:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08906>     CALIB STANDHYD     01:PR3A        .45      .361 No_date   12:02   59.68 .559
08917>       [XIMP=.11:TIMP=.21]
08928>       [LOSS= 2 :CN= 71.0]
08939>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08950>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08961> 299:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08972>     CALIB STANDHYD     01:PR3B        .02      .071 No_date   12:03   59.68 .559
08983>       [XIMP=.11:TIMP=.21]
08994>       [LOSS= 2 :CN= 71.0]
09005>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09016>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09027> 299:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09038>     CALIB STANDHYD     01:PR4A        .71      .566 No_date   12:03   59.68 .559
09049>       [XIMP=.11:TIMP=.21]
09060>       [LOSS= 2 :CN= 71.0]
09071>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09082>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09093> 299:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09104>     CALIB STANDHYD     01:PR4B        .85      .666 No_date   12:03   59.68 .559
09115>       [XIMP=.11:TIMP=.21]
09126>       [LOSS= 2 :CN= 71.0]
09137>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09148>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09159> 299:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09170>     CALIB STANDHYD     01:PR5A        .36      .000 No_date   12:03   59.68 .559
09181>       [XIMP=.11:TIMP=.21]
09192>       [LOSS= 2 :CN= 71.0]
09203>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09214>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09225> 299:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09236>     CALIB STANDHYD     01:PR5B        .66      .662 No_date   12:02   58.68 .559
09247>       [XIMP=.11:TIMP=.21]
09258>       [LOSS= 2 :CN= 71.0]
09269>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09280>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09291> 299:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09302>     CALIB STANDHYD     01:PR6A        1.63      .187 No_date   12:04   59.68 .559
09313>       [XIMP=.12:TIMP=.21]
09324>       [LOSS= 2 :CN= 71.0]
09335>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09346>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09357> 299:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09368>     CALIB STANDHYD     01:PR6B        .93      .121 No_date   12:03   59.68 .559
09379>       [XIMP=.11:TIMP=.21]
09390>       [LOSS= 2 :CN= 71.0]
09401>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09412>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
09423> # slpe estimated at 1% based on backyard swales.
09434> # Limp and Ximp based on total pond area
09445> # ximp = A pond/A tot
09456> # limp - weighted average of pond and backyard.
09467> 299:0030---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09468>     CALIB STANDHYD     01:PR7A        5.07      .390 No_date   12:02   75.91 .707
09479>       [XIMP=.10:TIMP=.47]
09490>       [LOSS= 2 :CN= 71.0]
09501>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09512>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
09523> #*******************************************************************************
09534> # UNCONTROLLED AREAS
09545> #*******************************************************************************
09556> #
09567> 299:0031---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09578>   * CALIB STANDHYD     01:PR7A        1.89      .168 No_date   12:08   55.40 .519
09589>       [XIMP=.03:TIMP=.14]
09600>       [LOSS= 2 :CN= 71.0]
09611>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09622>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
09633> 299:0032---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09644>   * CALIB STANDHYD     01:PR7B        .76      .067 No_date   12:08   55.40 .519
09655>       [XIMP=.03:TIMP=.14]
09666>       [LOSS= 2 :CN= 71.0]
09677>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09688>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
09699> 299:0033---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09710>   * CALIB STANDHYD     01:PR8A        1.10      .098 No_date   12:08   55.40 .519
09721>       [XIMP=.03:TIMP=.14]
09732>       [LOSS= 2 :CN= 71.0]
09743>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09754>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
09765> 299:0034---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09776>   * CALIB STANDHYD     01:PR8B        .29      .026 No_date   12:07   52.92 .495
09787>       [XIMP=.01:TIMP=.07]
09798>       [LOSS= 2 :CN= 71.0]
09809>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09820>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
09831> 299:0035---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09842>   * CALIB STANDHYD     01:PR9A        1.10      .100 No_date   12:08   52.92 .495
09853>       [XIMP=.01:TIMP=.07]
09864>       [LOSS= 2 :CN= 71.0]
09875>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09886>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
09897> 299:0036---------------ID:EHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09908>   * CALIB STANDHYD     01:PR9B        1.00      .090 No_date   12:08   52.92 .495
09919>       [XIMP=.01:TIMP=.07]
09930>       [LOSS= 2 :CN= 71.0]
09941>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09952>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
09963> #*******************************************************************************
09974> # EX1:2YR Flow - Upstream of Proposed Development
09985> #*******************************************************************************
09996> # Total flow at node P-EX1
10007> 299:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
10018>     ADD HYD            02:EX1        21.62     3.271 No_date   12:07   58.31  n/a
10029>                      + 03:EXC1        1.10      .193 No_date   12:06   67.29  n/a
10040>                      + 04:EXC2        1.07      .210 No_date   12:06   71.51  n/a
10051>     [02- 1.00]  SUM=  01:NEX1       23.79     3.501 No_date   12:07   59.01  n/a
10062> # Typical section based on proposed channel provided by AM
10073> # 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
10084> # Route Node N-EX1 to d/s node B0
10095> 299:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
10106>     ROUTE CHANNEL   -> 02:NEX1       23.79     3.501 No_date   12:07   59.01  n/a
10117>       [QEI= 1.00] outx= 01:NEX1       23.79     3.498 No_date   12:10   59.01  n/a
10128>       [L/Z/n=  312./ .850/.030]
10139>       [Vmax= 1.557;Dmax=  .636]
10150> #*******************************************************************************
10161> # TOTAL INFLOW TO COMMERCIAL POND B0:
10172> #*******************************************************************************
10183> 299:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
10194>     ADD HYD            02:EX4        .30      .055 No_date   12:02   57.83  n/a
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08965>                    +  01:C1        8.30    2.086 No_date   12:00   86.24  n/a
08966>                    +  04:C2        6.84    1.867 No_date   12:00   84.81  n/a
08967>                    +  06:PNo       1.67     .434 No_date   12:00   88.46  n/a
08968>       [DT= 1.00]  SUM=  01:PEOln   16.71   4.450 No_date   12:00   85.90  n/a
08969> 299:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08970>      ROUTE RESERVOIR -> 02:RESln   16.71   4.450 No_date   12:00   85.90  n/a
08971>        [RDT= 1.00] outs= 01:RESout  16.71   1.212 No_date   12:13   85.90  n/a
08972>              maxFlow <= 03:OvrQ      .00    .000 No_date    0:00    .00  n/a
08973>       [MxStoUsed=.56e7E-08, StrtOvrVol .0000E+00, N-Ovr=    0, TotOurOvr=      0.hrs]
08974> * Total flow at outlet of commercial pond
08975> 299:0047----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08976>      ADD HYD                 02:PDCont   16.71   1.212 No_date   12:13   86.00  n/a
08977>                            + 03:FR9A     1.10     .141 No_date   12:08   82.95  n/a
08978>       [DT= 1.00]  SUM=  01:ndOut  17.81   1.336 No_date   12:13   86.00  n/a
08979> * Route pond outflow at pipe d/s of node N6
08980> * Typical section based on proposed channel provided by ASL
08981> * 4:1 bank slopes, Long Slope = 0.2%, Manning's n is 0.03
08982> 299:0048----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08983>      ROUTE CHANNEL   -> 02:rdOut   17.81   1.336 No_date   12:10   86.68  n/a
08984>        [RDT= 1.00] outs= 01:RdPDo  17.81   1.216 No_date   12:21   84.69  n/a
08985>        [./s/n=  260./ .250/.030]
08986>        [Vmax=  .771:Dmax=  .545]
08987> * Total channel flow at pipe d/s of node K1
08988> 299:0049----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08989>      ADD HYD                 02:RdPDc    17.81   1.216 No_date   12:21   86.68  n/a
08990>                            + 03:FR9B1     .05     .032 No_date   12:07   82.95  n/a
08991>                            + 04:FR9B2    1.06     .170 No_date   12:08   82.95  n/a
08992>       [DT= 1.00]  SUM=  01:nsK1    18.96   1.348 No_date   12:19   84.47  n/a
08993> * ************
08994> * Total flow at node N8
08995> * (Note that EX2 will be shown draining to proposed channel)
08996> 299:0050----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08997>      ADD HYD                 01:ex80     19.06   1.348 No_date   12:19   84.47  n/a
08998>                            + 03:BNEX1    36.79   3.689 No_date   12:16   87.31  n/a
08999>                            + 04:EX2      9.80     .654 No_date   12:32   86.46  n/a
09000>                            + 05:C5       .94     .086 No_date   12:06   84.87  n/a
09001>       [DT= 1.00]  SUM=  01:N8      55.99   5.037 No_date   12:11   86.46  n/a
09002> * Typical Section based on proposed channel provided by ASL
09003> * 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
09004> * Route SW draining at N8 to d/s node K-EX2
09005> 299:0051----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09006>      ROUTE CHANNEL   -> 02:N8        55.99   5.037 No_date   12:11   86.46  n/a
09007>        [RDT= 1.00] outs= 01:RN8       55.99   4.851 No_date   12:15   86.46  n/a
09008>        [./s/n=  424./ .400/.030]
09009>        [Vmax= 1.298:Dmax=  .672]
09010> * Total flow at node N-EX2
09011> 299:0052----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09012>      ADD HYD                 02:RN2      55.99   4.851 No_date   12:15   86.46  n/a
09013>                            + 03:FR1B      .87     .215 No_date   12:09   82.95  n/a
09014>       [DT= 1.00]  SUM=  01:NEX2    57.85   5.037 No_date   12:14   86.03  n/a
09015> * Route Node N-EX2 to Node N1
09016> * Typical Section based on Shields Rd Toe Ditch 3:1 Banks
09017> * provided by Artel
09018> * Manning's n is Channel not maintained, light brush on banks
09019> * Slope = 0.6% as per plan provided by Artel.
09020> 299:0053----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09021>      ROUTE CHANNEL   -> 02:NEX2    57.85   5.037 No_date   12:14   86.03  n/a
09022>        [RDT= 1.00] outs= 01:RNEX2     57.85   4.849 No_date   12:21   86.03  n/a
09023>        [./s/n=  255./ .060/.035]
09024>        [Vmax=  .540:Dmax= 1.917]
09025> *********************************************************************
09026> * Residential Development - Phase 1 and 2
09027> *********************************************************************
09028> * Total flow at node N-PK1
09029> 299:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09030>      ADD HYD                 02:PK1      4.06     .584 No_date   12:05   86.48  n/a
09031>                            + 03:FR1A      .24     .034 No_date   12:02   89.68  n/a
09032>       [DT= 1.00]  SUM=  01:NPK1     4.50    .595 No_date   12:05   86.57  n/a
09033> * Volume to ponding area in PK1
09034> * Q=0.34A m3/s required as per SCS 100yr Existing conditions
09035> * Culvert from Inlet 1
09036> * Assuming outlet culvert is 400 mm, slope = 1.0%, HDPE smooth walls
09037> * Manning's n = 0.012, inlet control nomograph
09038> * Hydraulic head = 0.9m, Q=0.34m
09039> 299:0055----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09040>      COMPUTE DEALEYD    01:NK1      4.50    .595 No_date   12:05   86.57  n/a
09041>         Major System /  02:NKINf     .00    .000 No_date    0:00    .00  n/a
09042>         Minor System \  03:NKINn    4.50    .595 No_date   12:05   86.57  n/a
09043>       [VjSystm=.0000E+00, TotOvrVol=.0000E+00, N-Ovr=    0, TotOurOvr=      0.hrs]
09044> * Input to Inlet 1 pipe
09045> 299:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09046>      ADD HYD                 01:NPKINn   4.50    .595 No_date   12:05   86.57  n/a
09047>                            + 03:FR1B      .87     .215 No_date   12:09   82.95  n/a
09048>       [DT= 1.00]  SUM=  01:In1      5.37    .810 No_date   12:05   85.97  n/a
09049> * Pipe from inlet 1 - Route to pond
09050> * HDPE smooth wall pipe Manning's n = 0.012
09051> 299:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09052>      ROUTE PIPE      -> 02:In1       5.37    .810 No_date   12:05   85.97  n/a
09053>        [RDT= 1.00] outs= 01:Pln       5.37    .808 No_date   12:05   85.97  n/a
09054>        [L/S/n=  86./1.600/.012]
09055>        [Vmax= 3.801:Dmax=  .403]
09056>        [Dia=  .400:Dused=  .400]
09057> * Culvert from Inlet 2
09058> * HDPE smooth wall pipe Manning's n = 0.012
09059> 299:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09060>      ROUTE PIPE      -> 02:PR2A      1.57    .195 No_date   12:04   89.68  n/a
09061>        [RDT= 1.00] outs= 01:CIn2      1.57    .195 No_date   12:04   89.68  n/a
09062>        [./s/n=  16./ .430/.012]
09063>        [Vmax= 1.482:Dmax=  .328]
09064>        [Dia=  .500:Dused=  .500]
09065> * Input to Inlet 2 pipe
09066> 299:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09067>      ADD HYD                 01:PR2B     1.11     .137 No_date   12:04   89.68  n/a
09068>                            + 03:CIn2     1.63     .195 No_date   12:04   89.68  n/a
09069>       [DT= 1.00]  SUM=  01:In2      2.74    .340 No_date   12:04   89.71  n/a
09070> * Flow from Inlet 2 - Route to pond
09071> * HDPE smooth wall pipe Manning's n = 0.012
09072> 299:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09073>      ROUTE PIPE      -> 02:In2       2.74    .348 No_date   12:04   89.77  n/a
09074> *    [RDT= 1.00] outs= 01:Pln2      2.74    .342 No_date   12:05   89.77  n/a
09075>        [./s/n=  72./ .200/.012]
09076>        [Vmax= 1.248:Dmax=  .523]
09077>        [Dia=  .500:Dused=  .467]
09078> * Culvert from Inlet 3
09079> * HDPE smooth wall pipe Manning's n = 0.012
09080> 299:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09081>      ROUTE PIPE      -> 02:PR3A      .45     .061 No_date   12:02   89.68  n/a
09082>        [RDT= 1.00] outs= 01:CIn3      .45     .061 No_date   12:02   89.68  n/a
09083>        [L/S/n=  13./ .400/.012]
09084>        [Vmax= 1.073:Dmax=  .160]
09085>        [Dia=  .500:Dused=  .500]
09086> * Input to Inlet 3 pipe
09087> 299:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09088>      ADD HYD                 02:PR3B      .52     .071 No_date   12:02   89.68  n/a
09089>                            + 03:CIn3      .45     .061 No_date   12:02   89.68  n/a
09090>       [DT= 1.00]  SUM=  01:In3      .97     .131 No_date   12:02   89.68  n/a
09091> * Pipe from inlet 3 - Route to pond
09092> * HDPE smooth wall pipe Manning's n = 0.012
09093> 299:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09094>      ROUTE PIPE      -> 02:In3       .97     .131 No_date   12:02   89.68  n/a
09095>        [RDT= 1.00] outs= 01:Pln3      .97     .129 No_date   12:03   89.68  n/a
09096>        [L/S/n=  75./ .200/.012]
09097>        [Vmax= 1.014:Dmax=  .314]
09098>        [Dia=  .500:Dused=  .500]
09099> * Culvert from Inlet 4
09100> * HDPE smooth wall pipe Manning's n = 0.012
09101> 299:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09102>      ROUTE PIPE      -> 02:PR4A      .71     .096 No_date   12:03   89.68  n/a
09103>        [RDT= 1.00] outs= 01:CIn4      .71     .096 No_date   12:03   89.68  n/a
09104>        [L/S/n=  13./ .400/.012]
09105>        [Vmax= 1.221:Dmax=  .211]
09106>        [Dia=  .500:Dused=  .500]
09107> * Input to Inlet 4 pipe
09108> 299:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09109>      ADD HYD                 02:PR4B      .65     .088 No_date   12:03   89.68  n/a
09110>                            + 03:CIn4      .71     .096 No_date   12:03   89.68  n/a
09111>       [DT= 1.00]  SUM=  01:In4      1.36    .183 No_date   12:03   89.68  n/a
09112> * Plc from Inlet 5 (ULTIMATE CONDITIONS) - Route to pond
09113> * HDPE smooth wall pipe Manning's n = 0.012
09114> 299:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09115>      ROUTE PIPE      -> 02:In4       1.36    .183 No_date   12:03   89.68  n/a
09116>        [RDT= 1.00] outs= 01:Pln4      1.36    .184 No_date   12:03   89.68  n/a
09117>        [L/S/n=  65./1.900/.012]
09118>        [Vmax= 2.566:Dmax=  .357]
09119>        [Dia=  .500:Dused=  .500]
09120> * Culvert from Inlet 5
09121> * HDPE smooth wall pipe Manning's n = 0.012
09122> 299:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09123>      ROUTE PIPE      -> 02:PR5A      .66     .090 No_date   12:03   89.68  n/a
09124>        [RDT= 1.00] outs= 01:CIn5      .66     .090 No_date   12:03   89.68  n/a
09125>        [L/S/n=  13./ .400/.012]
09126>        [Vmax= 1.195 Dmax=  .193]
09127>        [Dia=  .500:Dused=  .500]
09128> * Input to Inlet 5 pipe
09129> 299:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09130>      ADD HYD                 02:PR5B      .46     .062 No_date   12:02   89.68  n/a
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                    |  ca:C1c5          .66     .050 Bo_date   12:03   59.68  n/a
         [T= 1.00]  SUM=  C1:in5         1.12     .151 No_date   12:02   59.68  n/a
# Pipe from inlet 5 - route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 299:0069----------------I1:NHYI-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
      ROUTE PIPE      -> 02:in5         1.12     .151 No_date   12:02   59.68  n/a
        [RT= 1.00] out<- 01:pin5        1.12     .151 No_date   12:03   59.68  n/a
        [L/S/n=   75./1.800/.012]
        [Vmax= 2.287:Xmax=   .165]
        [Din=  .500:Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 299:0070----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in6         1.42     .187 No_date   12:04   59.68  n/a
        [RT= 1.00] out<- 01:in6         1.42     .187 No_date   12:04   59.68  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax= 1.436:Xmax=  .315]
        [Din=  .500:Dused=  .500]
# Input to Inlet 6 pipe
 299:0071----------------I1:NHY1-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           02:PB6A         .63     .121 No_date   12:01   59.68  n/a
                      + 03:CIL6         1.43     .187 No_date   12:04   59.68  n/a
        [I= 1.00]  SUM=  01:in6         2.06     .308 No_date   12:04   59.68  n/a
# Pipe from Inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 299:0077----------------I1:NHY1-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:in6         2.06     .387 No_date   12:07   59.68  n/a
    *   [R/T= 1.00] out<- C1:Pi06       2.06     .308 No_date   12:04   59.68  n/a
        [L/S/n    70./ .400/.012]
        [Vmax= 1.480:Xmax=  .462]
        [Din=  .500:Dused=  .500]
# VOLUME TO POND ULTIMATE RESIDENTIAL
 299:0003----------------I1:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           02:Pin1         5.05     .660 No_date   12:05   59.68  n/a
                      + 03:Pin2         2.98     .365 No_date   12:05   59.68  n/a
                      + 04:Pin3          .97     .129 No_date   12:05   59.68  n/a
                      + 05:Pin4         1.56     .193 No_date   12:04   59.68  n/a
                      + 06:Pin5         1.17     .151 No_date   12:03   59.68  n/a
                      + 07:Pin6         2.36     .304 No_date   12:04   59.68  n/a
                      +  08:POn         5.03     .890 No_date   12:02   75.51  n/a
        [DT= 1.00]  SUM=  01:POND1in    18.63    2.690 No_date   12:03   61.89  n/a
#  Pond routing for ultimate conditions using weir .6; .6; 3.0
 299:0074----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:vOut1in    18.63    2.656 No_date   12:07   61.89  n/a
        [RT= 1.00] out<- 01:rPout       18.63     .211 No_date   13:43   61.89  n/a
                 overflow <- 03:ovr0      .00     .000 No_date   00:00    .00  n/a
        [MaxLtUsed=.6971E+00, TotOvfVol=.000E+00, %-Ovf=    0, To_Jur_Cvf=    0.hrs]
# Simulating SCS 100 yr conditions with summergenge of outflow well
# Update for weir .6; .6; 3.0
ROUTE RESERVOIR     NHYDout=["rOut"] ,NHYDin=["POND1in"] )
                    RD/F=[1](ft|m),
                                TABLE of ( OUTFLOW-STORAGE ) values
                                            (cms)    (ha-m)
                                          (   0.0 ,   0.0 )
                                           0.09001 , 1.1209
                                           0.10  , 1.8110
                                           0.33  , 2.0195
                                          (   -1  ,   -1  )   (max twenty pts)
                            NHYDovf ["ovr0"] ,
# Route pond output through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equiva ent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n = 0.012
 299:0075----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:rPout       18.63     .211 No_date   13:43   61.89  n/a
        [RT= 1.00] out<- 01:Pout1       18.63     .211 No_date   13:44   61.89  n/a
        [L/S/n=   75./ .900/.012]
        [Vmax= 1.143:Xmax=  .419]
        [Din=  .780:Dused=  .780]
# Flow o/s of outlet culverts
 299:0076----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           01:PR3A1        .58     .047 No_date   12:07   59.43  n/a
                      + 02:PR3A2        .22     .030 No_date   12:06   59.43  n/a
                      + 04:Pout1      18.63     .211 No_date   13:44   61.89  n/a
        [DT= 1.00]  SUM=  01:Out1       19.21     .218 No_date   13:37   61.89  n/a
# Route outflow through set of culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 299:0077----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:rPout       19.21     .218 No_date   13:37   61.89  n/a
        [RT= 1.00] out<- C1:Out1        19.21     .218 No_date   13:37   61.89  n/a
        [L/S/n=   12./ .400/.012]
        [Vmax= 1.479:Xmax=  .268]
        [D.n=  .780:Dused=  .780]
```

```
# Flow o/s of second set of outflow pipes
 299.0078----------------I0:NHY0-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:PR2C1        .59     .051 No_date   12:07   59.40  n/a
                      + 03:PR2C2        .17     .013 No_date   12:08   59.40  n/a
                      + 04:Cout        19.21     .218 No_date   13:37   61.89  n/a
        [DT= 1.00]  SUM=  01:Pout2      19.77     .242 No_date   12:10   61.51  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n = 0.012
 299:0079----------------I0:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout2      19.77     .242 No_date   12:10   61.51  n/a
        [RT= 1.00] out<- C1:PoutP       19.77     .241 No_date   12:11   61.51  n/a
        [L/S/n=   65./ .200/.012]
        [Vmax= 1.185:Xmax=  .345]
        [Din=  .780:Dused=  .780]
# Total flow at node P1 (Shield MD along Sales Barn Rd)
 299:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:NHX2         87.45    4.032 No_date   12:21   68.03  n/a
                      + 03:routP        19.77     .241 No_date   12:11   61.51  n/a
                      + 04:EX7          .39       .021 No_date   12:00   61.28  n/a
                      + 05:ex7a         .30       .040 No_date   12:06   55.40  n/a
                      + 06:PR1C         .62       .035 No_date   12:05   59.95  n/a
        [DT= 1.00]  SUM=  01:N1         70.93    4.355 No_date   12:18   64.73  n/a
# ROUTE N1 to N3
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope   0.05% as per plan provided by Atrel.
 299:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V. R.C.
      ROUTE CHANNEL   -> 02:N1          78.93    4.355 No_date   12:18   64.73  n/a
    *   [RD= 1.00] out<- 01:CH1         78.93    3.495 No_date   12:33   64.73  n/a
        [L/S/n=  348./ .050/.035]
        [Vmax=  .350:Fmax= 1.862]
# VOLUME from residential area at E3 interim
 299.0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           02:PR7A         1.77     .160 No_date   12:08   55.40  n/a
                      + 03:PR8          1.38     .161 No_date   12:09   52.95  n/a
        [DT= 1.00]  SUM=  01:NYI        3.15     .178 No_date   12:08   54.18  n/a
# Added VOLUME from external area contributing to N3
 299:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           03:RN3          78.93    3.495 No_date   12:33   64.73  n/a
                      + 04:N3I          2.73     .328 No_date   12:08   54.16  n/a
                      + 04:EX5          .82      .079 No_date   12:04   70.98  n/a
                      + 05:EX6          .21      .061 No_date   12:04   55.58  n/a
                      + 06:EX03         .22      .051 No_date   12:00   70.46  n/a
        [DT= 1.00]  SUM=  01:N3         83.91    3.669 No_date   12:33   64.45  n/a
# ROUTE N3 to EX120
# Typical Section based on Shields MD Vee Ditch 3:1 Banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 299:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 07:N3          83.91    3.669 No_date   12:46   64.62  n/a
    *   [RD= 1.00] out<- 08:RN4         82.91    3.099 No_date   12:46   64.62  n/a
        [L/S/n=  415./ .050/.035]
        [Vmax=  .352:Fmax= 1.777]
# Flow at studio 3000 HCP119 for comparison
# Routed N3 plus EX3
 299:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:RN3          83.91    3.099 No_date   12:46   64.62  n/a
                      + 03:EX3          21.36     .984 No_date   12:47   50.48  n/a
        [DT= 1.00]  SUM=  01:HCP119     104.21    4.079 No_date   12:44   61.58  n/a
# AREA CHECK
#
 299:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           02:EX1          24.62    1.071 No_date   12:07   58.31  n/a
                      + 03:EX2          5.89      .434 No_date   12:17   50.48  n/a
                      + 04:EX3          21.36     .984 No_date   12:47   50.48  n/a
                      + 05:EX4          .80       .065 No_date   12:02   57.83  n/a
                      + 06:EX5          .82       .079 No_date   12:04   70.98  n/a
                      + 07:EX6          .21       .061 No_date   12:04   55.58  n/a
                      + 08:EX7          .39       .051 No_date   12:03   61.29  n/a
                      + 09:PR1A         .56       .035 No_date   12:05   59.68  n/a
                      + 10:PR1B         .06       .005 No_date   12:03   59.68  n/a
        [TOT= 1.00]  SUM=  01:Tot1      56.52    4.867 No_date   12:08   54.39  n/a
 299:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD           02:Tot1         56.52    4.867 No_date   12:08   54.39  n/a
                      - 03:PR2A         1.57      .159 No_date   12:04   59.68  n/a
                      - 04:PR2B         1.17      .151 No_date   12:03   59.68  n/a
                      - 05:PR3A          .45      .061 No_date   12:02   59.68  n/a
                      - 06:PR3B          .52      .071 No_date   12:03   59.68  n/a
                      - 07:PR4A          .71      .096 No_date   12:03   59.68  n/a
                      - 08:PR4B          .65      .088 No_date   12:03   59.68  n/a
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                        +  69:rb5A        .66      .050 No_date   12:05   59.68  n/a
                        +  10:rb5B        .16      .060 No_date   12:05   59.68  n/a
      [DT= 1.00]  SUM=  01:Tot2       61.71     5.161 No_date   12:08   94.81  n/a
 299:0088---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot2       64.71     5.161 No_date   12:08   94.81  n/a
                       -  93:rb7A        1.43      .187 No_date   12:04   59.68  n/a
                       -  94:rb6B         .92      .121 No_date   12:03   59.68  n/a
                       -  95:rb7A        1.35      .160 No_date   12:08   55.40  n/a
                       -  96:PR7B1        .36      .027 No_date   12:07   55.40  n/a
                       -  97:PR7B2        .23      .030 No_date   12:06   55.40  n/a
                       -  98:PR7C1        .39      .051 No_date   12:07   55.40  n/a
                       -  99:PR7C2        .17      .021 No_date   12:06   55.40  n/a
                       -  10:PR7D         .36      .046 No_date   12:06   55.40  n/a
      [DT  1.00]  SUM=  01:Tot3       66.86     5.811 No_date   12:08   55.03  n/a
 299:0089---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             03:Tot3       66.86     5.811 No_date   12:08   55.03  n/a
                       +  01:rb8        1.38      .161 No_date   12:09   52.95  n/a
                       +  04:PR8A       1.10      .131 No_date   12:08   51.05  n/a
                       +  07:PR8B1       .25      .032 No_date   12:07   51.05  n/a
                       +  08:PR8B2      1.00      .120 No_date   12:08   51.05  n/a
                       +  07:rb10       1.87      .215 No_date   12:09   52.95  n/a
                       +  08:PR11        .62      .075 No_date   12:08   51.05  n/a
                       +  09:PR2        4.26      .563 No_date   12:05   53.48  n/a
                       +  10:PIC        5.05      .580 No_date   12:05   75.51  n/a
      [1= 1.00]  SUM=  01:Tot4       85.57     7.814 No_date   12:08   55.53  c/a
 299:0090---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             07:Tot4       85.57     7.846 No_date   12:08   55.53  c/a
                       +  03:C1         8.30     2.986 No_date   12:03   86.34  c/a
                       +  04:C2         6.34     1.867 No_date   12:03   94.87  c/a
                       +  05:C3          .74      .306 No_date   12:03  104.87  c/a
                       +  06:EXC1       1.30      .199 No_date   12:03   67.28  c/a
                       +  07:EXC7       1.07      .210 No_date   12:03   71.52  c/a
                       +  08:EXC4        .22      .053 No_date   12:03   79.46  c/a
                       +  09:EXC       1.37      .436 No_date   12:03   88.95  c/a
      [A= 1.00]  SUM=  01:Tot5      100.01    11.907 No_date   12:01   61.63  c/a
+**********************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours type 2, from City of Ottawa
* Simulations with July 1, 1979 Historical Event, City of Ottawa
  ** END OF RUN : 300
**********************************************************************
 BCN:CONDUNOF
 301:0007---------------------------------------------------------------------
      START
       [ZERO =    .00 hrs on        0]
       [METOUT=   2     (1 Imperial, 2 metric output)]
       [NSTORM=   1 ]
       [NRUN   300 ]
+**********************************************************************
*  SWMHYMO Version 3.01 Jan 2001 (DOS32) / .INP/.OUT DATA FILE
*+*********************************************************************
*  Project Name: [Greely Village Centre]    Project Number: [60?-07]
*  Date        : 04-09-2008
*  Modeller    : [JRE]
*  Company     : JFSAinc
*  License #   : 2540160
*+*********************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate Conditions  OPTION B
* Filename stands for: Greely, Commercial, Proposed
*+*********************************************************************
 301:0002---------------------------------------------------------------------
      READ STORM
       Filename = storm.00
       Comment  = July 1st, 1979 storm (5M) - Ottawa International Airport Area
       [SCS 5.00:STORM=   1.00:PIC%=  83.95]
+**********************************************************************
* Existing flow - Mahrer branch of Shield Creek - Areas
* Area s/s of proposed development (residential)
* CN=+59, slope = 0.8, Tp 0.16, XIMP=%, TIMP=%, new SCS0. as per Stantec
* Area partially adjusted based on Attel drawings. Tp adjusted accordingly.
+**********************************************************************
* s/s of Bank St.as per Attel  with modified boundaries and Tp.
 301:0001---------------ID:NHYD--------AREA-----QPEAK-Tpeak_hh:mm----R.V.-R.C.-
     DESIGN HASHYD       01:EX1        94.69     5.006 No_date    1:44   40.71 .485
      [CN= 75.0, N= 3.00]
      [Ia=  .23:AT= 1.00]
+**********************************************************************
* Existing flow - External areas s/s of Bank St.
* CN= 68, as per Stantec see SCH01.
* Area partially adjusted based on Attel  drawings.
+**********************************************************************
* Areas External  to development
 301:0004---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD       01:EX2        9.89      .807 No_date    2:13   34.61 .412
      [CN= 69.0: N= 3.00]
      [Ia=  .67:AT= 1.00]
 301:0005---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD       01:EX3       21.30     1.116 No_date    2:27   34.61 .412
      [CN= 69.0: N= 3.00]
      [Ia=  .67:AT= 1.00]
* Slope, Tchp, Area from Attel Drawing
* CN from Stantec (SCH01)
* Ximp = Timp = 1.0
 301:0006---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:EX4         .50      .038 No_date    1:41   40.64 .484
      [XIMP=.11:TIMP=.22]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  300.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Tchp = Ximp = 0.31 ha /0.52 ha = 0.60
* CN=+59, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 600m/2 = 300
 301:0007---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:EX5         .52      .040 No_date    1:41   52.08 .625
      [XIMP=.10:TIMP=.40]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  300.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tchp = Ximp = 0.1 ha /0.5? ha = 0.20
* CN=+69, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 354m/2 = 177
 301:0008---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:EX6         .51      .050 No_date    1:13   62.50 .766
      [XIMP= .20 TIMP .20]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tchp = Ximp = 0.05 ha /0.5? ha = 0.20
* CN=+69, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 275m/2 = 137.5
 301:0009---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:EX7         .38      .040 No_date    1:41   49.08 .598
      [XIMP=.27:TIMP=.27]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
+**********************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
+**********************************************************************
* CN   75 as per fair grass cover with C soil type for 5yr as it; CN=?
* XIMP = TIMP to be conservative
+**********************************************************************
 301:0010---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:C1          0.36     1.686 No_date    1:11   65.91 .885
      [XIMP= .67:TIMP=.67]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
 301:0011---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     02:C2          6.34     1.513 No_date    1:50   77.39 .871
      [XIMP=.79:TIMP=.79]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
 301:0012---------------ID:NHYD--------AREA-----QPEAK-Tpeak_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     03:C3          .74      .000 No_date    1:30   82.26 .979
      [XIMP=.98:TIMP=.98]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
* Imp = Imp ha/Total area - 0.30/1.10 ha = .27
 301:0013---------------ID:NHYD--------AREA-----QPEAK-Tpeak_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     04:EXC1        1.30      .149 No_date    1:30   49.13 .585
      [XIMP=.27:TIMP=.27]
      [SLP=1.00:LT= 1.00]
```

```
[LOSS= 2 :CN= 71.0]
# Ximp = Imp ha/total area = 0.35/1.07 ha  .33
 10:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.-
     DESIGN STANDHYD     01:EXC2         1.07     .104 No data     1:39   52.86 .829
       [XIMP=.33:TIMP=.33]
       [SLP=1.00:DC= 1.00]
       [LOSS= 2 :CN= 71.0]
# Ximp = Imp ha/total area = 0.11/0.32ha = .33
 301:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:EXC3         .22     .041 No data     1:30   58.86 .713
       [XIMP=.50:TIMP=.50]
       [SLP=1.00:DC= 1.00]
       [LOSS= 2 :CN= 71.0]
#*************************************************************************
# Commercial pond (PDC)
# slope estimated at 1% based on elevations around pond.
# Timp and Ximp based on total pond area
# Ximp = A pond/A tot (1.04/1.07)
 301:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:PDC          1.51     .347 No data     1:30   67.79 .807
       [XIMP=.97:TIMP=.97]
       [SLP=1.00:DC= 1.00]
       [LOSS= 2 :CN= 71.0]
#*************************************************************************
#*************************************************************************
# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
#*************************************************************************
# CN*-89, as per Stantec see SCS01.
# Tp estimated with Uplard Method.
 301:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:PR1          5.06     .408 No data     1:42   34.81 .412
       [CN= 65.0: N= 3.0]
       [Tp=  .10:DT= 1.00]
#*************************************************************************
# AREAS GOING TO RESIDENTIAL POND (PD1)
#*************************************************************************
#
 301:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR1A         .74     .109 No data     1:41   42.07 .501
       [XIMP=.17:TIMP=.20]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR1B         .66     .067 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.20]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR2A         1.67     .183 No data     1:42   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR2B         1.17     .131 No data     1:42   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR3A         .45     .050 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR3B         .52     .063 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.20]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR4A         .71     .085 No data     1:42   42.07 .501
       [XIMP=.11:TIMP=.20]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR4B         .63     .078 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
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       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR5A         .64     .079 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=.00:LGI=  65.:MNI=.045:SCI=   .0]
 301:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR5B         .48     .059 No data     1:41   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR6A         .45     .104 No data     1:42   42.07 .501
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR6B         .38     .042 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR7A         .39     .045 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR7B         .22     .026 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR8A         .74     .088 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0033----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR8B         .38     .045 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR9A         .74     .088 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR9B         .39     .046 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR10         .30     .035 No data     1:42   38.24 .455
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR2          1.35     .145 No data     1:35   38.24 .430
       [XIMP=.01:TIMP=.97]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 301:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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09629>   *  CALIB STANDHYD     01:FR9A        1.10      .116 No date    1:45   36.25 .432
09630>        [XIMP=.01:TIMP=.01]
09631>        [LOSS= 2 :CN= 71.0]
09632>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=   40.:NHP=.250:SCP=    .0]
09633>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=   82.:NHI=.015:SCI=    .0]
09634> 301:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09635>   *  CALIB STANDHYD     01:FR9B1       .25      .028 No date    1:43   36.25 .432
09636>        [XIMP=.01:TIMP=.01]
09637>        [LOSS= 2 :CN= 71.0]
09638>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=   40.:NHP=.250:SCP=    .0]
09639>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=   82.:NHI=.015:SCI=    .0]
09640> 301:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09641>   *  CALIB STANDHYD     01:FR9B2       1.80      .196 No date    1:45   36.25 .432
09642>        [XIMP=.01:TIMP=.01]
09643>        [LOSS= 2 :CN= 71.0]
09644>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=   40.:NHP=.250:SCP=    .0]
09645>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=   82.:NHI=.015:SCI=    .0]
09646> 301:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09647>   *  CALIB STANDHYD     01:FR11        .62      .067 No date    1:44   36.25 .432
09648>        [XIMP=.01:TIMP=.01]
09649>        [LOSS= 2 :CN= 71.0]
09650>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=   40.:NHP=.250:SCP=    .0]
09651>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=   82.:NHI=.015:SCI=    .0]
09652> *************************************************************************
09653> * EXISTING flow - Upstream of Proposed Development
09654> *************************************************************************
09655> * Total flow at node N-EX1
09656> 301:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09657>      ADD HYD            02:EX1        24.62     3.098 No date    1:46   48.71  n/a
09658>                       + 03:EX01        1.10      .138 No date    1:30   48.17  n/a
09659>                       + 04:EX02        1.07      .143 No date    1:30   47.86  n/a
09660>      [DT= 1.00]  SUM   01:NEX1        26.79     3.312 No date    1:45   48.61  n/a
09661> * Typical section based on proposed channel provided by AEL
09662> * 4:1 bank slopes, Long Slope = 0.8%, Manning's n = 0.03
09663> * Route Node N-EX1 to N/A node N0
09664> 301:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09665>      ROUTE CHANNEL   -> 02:NX0        26.79     3.262 No date    1:48   48.54  n/a
09666>        [RT= 1.00  n= <- 01:NEX1       26.79     3.292 No date    1:46   48.54  n/a
09667>        [L/S/n=  812./ .850/.030]
09668>        [Vmax= 1.617:Dmax=  .622]
09669> *************************************************************************
09670> * TOTAL INFLOW TO COMMERCIAL POND 20c
09671> *************************************************************************
09672> 301:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09673>      ADD HYD            03:EX4         .50      .068 No date    1:41   46.84  n/a
09674>                       + 01:C1         8.30     1.885 No date    1:31   65.93  n/a
09675>                       + 04:C2         6.84     1.012 No date    1:36   73.28  n/a
09676>                       + 05:C2c        1.57      .347 No date    1:30   67.39  n/a
09677>      [DI= 1.00]  SUM   01:EXCin      16.71     3.686 No date    1:31   69.18  n/a
09678> 301:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09679>      ROUTE RESERVOIR -> 02:EXCin      16.71     3.085 No date    1:31   69.18  n/a
09680>        [RDT= 1.00] outs<- 01:EXCout    16.71     1.356 No date    2:01   68.10  n/a
09681>              Qstarflow <- 03:Qvar0      .00      .000 No date    0:00    .00  n/a
09682>      [MaxStorage .7238E+00, TotOverVol-.0000E+00, N-Over=    0, TotTimOver=    0.hrs]
09683> * Total flow at outlet of commercial pond
09684> 301:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09685>      ADD HYD            02:EXCout      16.71     1.356 No date    2:01   68.10  n/a
09686>                       + 03:FR9A        1.10      .116 No date    1:45   36.25  n/a
09687>      [DT= 1.00]  SUM   01:FR9Bc        17.81     1.448 No date    2:00   66.20  n/a
09688> * Route pond outflow at pipe d/s of node N0
09689> * Typical section based on proposed channel provided by AEL
09690> * All bank slopes, Long Slope = 0.25%, Manning's n is 0.03
09691> 301:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09692>      ROUTE CHANNEL   -> 02:EXDc       17.81     1.410 No date    1:58   66.20  n/a
09693>        [RDT= 1.00] outs<- 01:RDEDc     17.81     1.417 No date    2:04   66.20  n/a
09694>        [L/S/n=  3960./  250/.030]
09695>        [Vmax=  .797:Dmax=  .510]
09696> * Total channel flow at pipe d/s of node N0
09697> 301:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09698>      ADD HYD            02:RdPnd       17.81     1.417 No date    2:04   66.20  n/a
09699>                       + 03:FR9B1        .25      .028 No date    1:43   36.25  n/a
09700>                       + 04:FR9B2       1.80      .196 No date    1:45   36.75  n/a
09701>      [DT= 1.00]  SUM   01:NoN0        19.86     1.614 No date    2:00   64.24  n/a
09702> * ************
09703> * Total flow at node N0
09704> * [Note that EX2 will be sheet draining to proposed channel]
09705> 301:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09706>      ADD HYD            02:osN0        19.86     1.614 No date    2:00   64.24  n/a
09707>                       + 03:RESV1       94.09     5.987 No date    1:06   47.51  n/a
09708>                       + 04:EX2         3.09      .681 No date    1:33   54.61  n/a
09709>                       + 05:C3          .24       .020 No date    1:30   47.25  n/a
09710>      [PC= 1.00]  SUM=  01:N0          98.08     5.102 No date    1:45   48.27  n/a
09711> * Typical Section based on proposed channel provided by AEL
09712> * All bank slopes, Long Slope = 0.64%, Manning's n is 0.03
09713> * Route SW draining at N0 to LS d/s node N-EX2
09714> 301:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09715>      ROUTE CHANNEL   -> 02:N0         98.08     5.102 No date    1:45   48.22  n/a
09716>        [RDT= 1.00] outs<- 01:NN2       97.98     5.011 No date    1:53   48.22  n/a
09717>        [L/S/n=  324./ .640/.030]
09718>        [Vmax= 1.293:Dmax=  .877]
09719> * Total flow at node N-EX2
09720> 301:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09721>      ADD HYD            02:NN2         98.08     5.011 No date    1:53   48.22  n/a
09722>                       + 03:EX2         1.47      .193 No date    1:46   46.75  n/a
09723>      [DT= 1.00]  SUM=  01:NEX2        97.85     5.193 No date    1:53   47.83  n/a
09724> * Route Node N-EX2 to Node N1
09725> * Typical Section based on Shields HE Veg Ditch 3:1 banks
09726> * provided by Arrel
09727> * Manning's n is Channel, not retrained, light brush on banks
09728> * Slope = 0.8% as per plan provided by Arrel.
09729> 301:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09730>      ROUTE CHANNEL   -> 02:NEX2       97.85     5.193 No date    1:53   47.83  n/a
09731>    *   [RDT= 1.00] outs<- 01:RNEX2     97.85     4.987 No date    2:01   47.83  n/a
09732>        [L/S/n=  253./ .050/.035]
09733>        [Vmax= .349:Dmax= 1.063]
09734> *************************************************************************
09735> * Residential Development - Phase 1 and 2
09736> *************************************************************************
09737> * Total flow at node N-PR1
09738> 301:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09739>      ADD HYD            01:PR1          .24      .198 No date    1:42   54.67  n/a
09740>                       + 01:TR1A         .04      .029 No date    1:41   42.07  n/a
09741>      [DT= 1.00]  SUM=  01:NPR1         4.50      .617 No date    1:49   35.0   n/a
09742> * Volume to ponding area in PR1
09743> * Q=0.585 m3/s required as per SCH 100yr Existing conditions
09744> * Culvert from Inlet 1
09745> * Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
09746> * Manning's n = 0.012, Inlet control numerical
09747> * Hydraulic Head - 0.5m, Q=0.610
09748> 301:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09749>      COMPUTE DUALHYD    01:NEX1         4.50      .527 No date    1:32   35.01  n/a
09750>        Major System /   02:NPX1Mj        .00      .000 No date    0:00     .0   n/a
09751>        Minor System \   03:NPX1Mn       4.50      .527 No date    1:32   35.07  n/a
09752>      [MjSysStor-.3000E-00, TotOverVol-.0000E-00, N-Over=    0, TotTimOver=    0.hrs]
09753> * Input to Inlet 1 pipe
09754> 301:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09755>      ADD HYD            02:FR1B         .28      .047 No date    1:41   42.07  n/a
09756>                       + 03:NrSlMn      4.50      .527 No date    1:42   35.01  n/a
09757>      [DT= 1.00]  SUM   01:In1          4.65      .565 No date    1:42   35.95  n/a
09758> * Pipe from Inlet 1 - Route to pond
09759> * HDPE smooth wall pipe Manning's n = 0.012
09760> 301:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09761>      ROUTE PIPE      -> 02:In1        4.65      .565 No date    1:42   35.95  n/a
09762>        [RDT= 1.00] outs<- 01:Pin1     4.65      .560 No date    1:47   35.46  n/a
09763>        [L/S/n=  65./1.600/.012]
09764>        [Vmax= 3.225:Dmax=  .432]
09765>        [Dia=  .600:Dused=  .600]
09766> * Culvert from Inlet 2
09767> * HDPE smooth wall pipe Manning's n = 0.012
09768> 301:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09769>      ROUTE PIPE      -> 01:FR2A       1.17      .137 No date    1:42   42.07  n/a
09770>        [RDT= 1.00] outs<- 01:CIn2     1.53      .183 No date    1:47   42.46  n/a
09771>        [L/S/n=  13./ .400/.012]
09772>        [Vmax= 1.470:Dmax=  .310]
09773>        [Dia=  .500:Dused=  .500]
09774> * Input to Inlet 2 pipe
09775> 301:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09776>      ADD HYD            02:FR2B         .17      .137 No date    1:42   42.07  n/a
09777>                       + 03:CIn2        1.53      .183 No date    1:47   42.46  n/a
09778>      [DT= 1.00]  SUM   01:In2          1.70      .197 No date    1:47   42.46  n/a
09779> * Pipe from Inlet 2 - Route to pond
09780> * HDPE smooth wall pipe Manning's n = 0.012
09781> 301:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09782>      ROUTE PIPE      -> 02:In2        1.70      .321 No date    1:42   42.46  n/a
09783>    *   [RDT= 1.00] outs<- 01:Pin2     1.70      .318 No date    1:42   42.46  n/a
09784>        [L/S/n=  75./ .200/.012]
09785>        [Vmax= 1.223:Dmax=  .567]
09786>        [Dia=  .300:Dused=  .617]
09787> * Culvert from Inlet 3
09788> * HDPE smooth wall pipe Manning's n = 0.012
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05765>  101:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05766>       ROUTE PIPE      -> 02:PIP4          .45     .086 No_date    1:41   42.07  n/a
05767>         [RDT= 1.00] outs= 01:Cin4          .45     .086 No_date    1:41   42.07  n/a
05768>         [I/O/n=   13./ .400/.012]
05769>         (Vmax= 1.048:Dmax=  .186)
05770>         [Din=  .500:Dused=  .500)
05771> # Input to inlet 3 pipe
05772>  30:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05773>       ADD HYD           02:PIP3           .52     .103 No_date    1:41   42.07  n/a
05774>                       + 01:Cin3           .45     .086 No_date    1:41   42.07  n/a
05775>         [02  1.00]  SUM=  01:Cin3         .97     .118 No_date    1:41   42.07  n/a
05776> # Pipe from inlet 3 - Route to pond
05777> # HDPE smooth wall pipe Manning's n = 0.012
05778>  301:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05779>       ROUTE PIPE      -> 02:Lin3          .97     .118 No_date    1:41   42.07  n/a
05780>         [RDT= 1.00] outs= 01:Cin7          .97     .118 No_date    1:41   42.07  n/a
05781>         [L/S/n=   75./ .200/.012]
05782>         (Vmax= .891:Dmax=  .292)
05783>         [Din=  .500:Dused=  .500)
05784> # Culvert from inlet 6
05785> # HDPE smooth wall pipe Manning's n = 0.012
05786>  301:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05787>       ROUTE PIPE      -> 02:PIA4          .71     .086 No_date    1:42   42.07  n/a
05788>         [RDT= 1.00] outs= 01:Cin4          .71     .086 No_date    1:42   42.07  n/a
05789>         [L/S/n=   13./ .400/.012]
05790>         (Vmax= 1.177:Dmax=  .187)
05791>         [Din=  .500:Dused=  .500)
05792> # Input to inlet 4 pipe
05793>  301:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05794>       ADD HYD           02:PIA4           .65     .078 No_date    1:41   42.07  n/a
05795>                       + 01:Cin4           .71     .086 No_date    1:42   42.07  n/a
05796>         [01= 1.00]  SUM=  01:Cin4         1.36     .163 No_date    1:42   42.07  n/a
05797> # Pipe from inlet 4 (OUTFALL CONDITIONS) - Route to pond
05798> # HDPE smooth wall pipe Manning's n = 0.012
05799>  301:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05800>       ROUTE PIPE      -> 02:Lin4          1.36     .163 No_date    1:42   42.07  n/a
05801>         [RDT= 1.00] outs= 01:Pin4          1.36     .163 No_date    1:42   42.07  n/a
05802>         [L/S/n=   65./1.900/.012]
05803>         [Vmax= 2.484:Dmax=  .186)
05804>         [Din=  .500:Dused=  .500)
05805> # Culvert from inlet 5
05806> # HDPE smooth wall pipe Manning's n = 0.012
05807>  301:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05808>       ROUTE PIPE      -> 02:PIA5          .66     .079 No_date    1:41   42.07  n/a
05809>         [RDT= 1.00] outs= 01:Cin5          .66     .079 No_date    1:42   42.07  n/a
05810>         [L/S/n=   13./ .400/.012]
05811>         [Vmax= 1.156:Dmax=  .189]
05812>         [Din=  .500:Dused=  .500)
05813> # Input to inlet 5 pipe
05814>  301:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05815>       ADD HYD           02:PIB5           .46     .056 No_date    1:41   42.07  n/a
05816>                       + 03:Cin5           .66     .079 No_date    1:42   42.07  n/a
05817>         [01= 1.00]  SUM=  01:Lin5         1.12     .135 No_date    1:41   42.07  n/a
05818> # Pipe from inlet 5 - Route to pond
05819> # HDPE smooth wall pipe Manning's n = 0.012
05820>  301:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05821>       ROUTE PIPE      -> 02:Lin5          1.12     .135 No_date    1:41   42.07  n/a
05822>         [RDT= 1.00] outs= 01:Pin5          1.12     .135 No_date    1:42   42.07  n/a
05823>         [L/S/n=   75./1.400/.012]
05824>         (Vmax= 2.210:Dmax=  .274)
05825>         [Din=  .500:Dused=  .500)
05826> # Culvert from inlet 6
05827> # HDPE smooth wall pipe Manning's n = 0.012
05828>  301:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05829>       ROUTE PIPE      -> 02:PIA6          1.43     .167 No_date    1:42   42.07  n/a
05830>         [RDT= 1.00] outs= 01:Cin6          1.43     .167 No_date    1:42   42.07  n/a
05831>         [L/S/n=   13./ .400/.012]
05832>         (Vmax= 1.401:Dmax=  .282)
05833>         [Din=  .500:Dused=  .500)
05834> # Input to inlet 6 pipe
05835>  301:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05836>       ADD HYD           02:PIB6           .53     .111 No_date    1:41   42.07  n/a
05837>                       + 03:Cin6           .43     .167 No_date    1:42   42.07  n/a
05838>         [01= 1.00]  SUM=  01:Lin6         2.36     .278 No_date    1:42   42.07  n/a
05839> # Pipe from inlet 6 - Route to pond
05840> # HDPE smooth wall pipe Manning's n = 0.012
05841>  301:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05842>       ROUTE PIPE      -> 02:Lin6          2.36     .278 No_date    1:42   42.07  n/a
05843>         [RDT= 1.00] outs= 01:Pin6          2.36     .277 No_date    1:42   42.07  n/a
05844>         [L/S/n=   75./ .300/.012]
05845>         [Vmax= 1.373:Dmax=  .415]
05846>         [Din=  .500:Dused=  .500)
05847> # VOLUME TO POND ULTIMATE RESIDENTIAL

05848>  301:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05849>       ADD HYD           02:Pin1           5.05     .594 No_date    1:42   36.05  n/a
05850>                       + 03:Pin2           2.74     .318 No_date    1:42   42.75  n/a
05851>                       + 04:Pin3            .97     .118 No_date    1:42   42.07  n/a
05852>                       + 05:Pin4           1.36     .163 No_date    1:42   42.07  n/a
05853>                       + 06:Pin5           1.12     .135 No_date    1:42   42.07  n/a
05854>                       + 07:Pin6           1.43     .167 No_date    1:42   42.07  n/a
05855>                       + 08:Pin7           5.04     .791 No_date    1:57   96.21  n/a
05856>         [I1= 1.00]  SUM=  01:COMBIN      18.63    2.335 No_date    1:42   44.36  n/a
05857> #  Pond outflow for ultimate conditions using weir .6: .6: 3.0
05858>  302:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05859>       ROUTE RESERVOIR -> 02:POND1A       18.63    2.335 No_date    1:42   44.36  n/a
05860>         [RDT= 1.00] outs= 01:POut          18.63    .218 No_date    2:48   44.32  n/a
05861>               overflow <- 03:Overq          .00     .000 No_date    0:00    .00  n/a
05862>         (MaxStorage=.70ac-ft, InitVol=0.000ac-ft, H-Init=    .0, Ter-Ovr=    0.xxx)
05863> # Simulating 025 100 yr conditions with submergence of outlow weir
05864> # updated for weir .6: .6; 3.0
05865> &ROUTE RESERVOIR     RHYDout-["POut"] ,RHYDin-["POND1A"] ,
05866> &                    RUI-[1]/min),
05867> &                          TABLE OF ( OUTFLOW-STORAGE ) Values
05868> &                                    (cms) - (ha-m)
05869> &                                  [   0.0 ,   0.0 ;
05870> &                                   0.00001 , 1.1258
05871> &                                   0.38  , 1.8138
05872> &                                   0.65  , 2.3108
05873> &                                   [---  ,  --  ;   (max twenty pts)
05874> &                          RHYDovf-["OvrQ"] ,
05875> # Route pond output through first set of pipes
05876> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia)
05877> # HDPE smooth wall pipe Manning's n = 0.012
05878>  301:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05879>       ROUTE PIPE      -> 02:POut          18.63     .218 No_date    2:48   44.15  n/a
05880>         [RDT= 1.00] outs= 01:Pout1         18.63     .218 No_date    2:48   44.15  n/a
05881>         [L/S/n=   75./ .300/.012]
05882>         (Vmax= 1.153:Dmax=  .325]
05883>         [Din=  .750:Dused=  .750)
05884> # Flow s/s of outlet culverts
05885>  101:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05886>       ADD HYD           01:PIA1           .56     .062 No_date    1:42   38.24  n/a
05887>                       + 03:PIA2           .22     .026 No_date    1:42   38.24  n/a
05888>                       + 04:Pout1        18.63     .218 No_date    2:48   44.32  n/a
05889>         [DI  1.00]  SUM=  01:Pout         19.21     .225 No_date    2:36   44.17  n/a
05890> # Route outflow through set of culverts
05891> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~750 mm dia
05892> # HDPE smooth wall pipe Manning's n = 0.012
05893>  301:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05894>       ROUTE PIPE      -> 02:Out           19.21     .225 No_date    2:36   44.17  n/a
05895>         [RDT= 1.00] outs= 01:Out          19.21     .225 No_date    2:36   44.17  n/a
05896>         [L/S/n=   13./ .400/.012]
05897>         (Vmax= 1.494:Dmax=  .274)
05898>         [Din=  .750:Dused=  .750)
05899> # Flow s/s of second set of outflow pipes
05900>  101:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05901>       ADD HYD           02:PIC1           .39     .045 No_date    1:42   38.24  n/a
05902>                       + 03:PIC2           .17     .020 No_date    1:42   38.24  n/a
05903>                       + 04:Out1         19.21     .225 No_date    2:36   44.17  n/a
05904>         [DI= 1.00]  SUM=  01:Pout2        19.77     .251 No_date    2:07   44.00  n/a
05905> # Route outflow through second set of pipes
05906> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia)
05907> # HDPE smooth wall pipe Manning's n = 0.012
05908>  301:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05909>       ROUTE PIPE      -> 02:Pout2        19.77     .251 No_date    2:07   44.00  n/a
05910>         [RDT= 1.00] outs= 01:PoutF        19.77     .251 No_date    2:07   44.00  n/a
05911>         [L/S/n=   65./ .200/.012]
05912>         [Vmax= 1.156:Dmax=  .357]
05913>         [Din=  .750:Dused=  .750]
05914> # Total flow at node B1 (Vehicle RD along Water Dura Rd)
05915>  301:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05916>       ADD HYD           02:EXEX2          57.95    4.587 No_date    2:01   47.93  n/a
05917>                       + 03:PoutF          19.77     .251 No_date    2:07   44.00  n/a
05918>                       + 04:EX7             .59     .046 No_date    1:41   44.00  n/a
05919>                       + 05:PIA3            .56     .035 No_date    1:42   38.24  n/a
05920>                       + 06:PIB1            .82     .067 No_date    1:44   38.25  n/a
05921>         [I1= 1.00]  SUM=  01:N1           78.93    4.739 No_date    2:01   46.72  n/a
05922> # ROUTE B1 to N1
05923> # Typical Section based on Suburbs RD Vee Ditch 3:1 banks
05924> # provided by Atrel
05925> # Manning's n is channel not maintained, light brush on banks
05926> # Slope = 0.65% as per plan provided by Atrel
05927>  301:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05928>       ROUTE CHANNEL   -> 02:N1            78.93    4.739 No_date    2:01   46.72  n/a
05929>         [RDT= 1.00] outs= 01:N1           78.93    3.938 No_date    2:16   46.72  n/a
05930>         [L/S/n=  349./ .050/.035]
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                (Vmax= .345:Dmax= 1.808)
* VOLUME from residential area at N3 interim
 101:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:FR7A      1.35      .150 No date    1:44   39.30  n/a
                    + 03:FR8       1.38      .145 No date    1:45   36.75  n/a
      [IT= 1.00]  SUM=  03:N3      2.73      .294 No date    1:45   47.24  n/a
* Added VOLUMES from external area contributing to N3
 101:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:N1       78.63     3.938 No date    2:10   46.72  n/a
                    + 03:N31      2.73      .294 No date    1:45   47.24  n/a
                    + 04:EX6      .62       .068 No date    1:41   42.68  n/a
                    + 05:EX5      .61       .065 No date    1:43   42.50  n/a
                    + 06:EXC3     .22       .041 No date    1:30   59.86  n/a
      [IT= 1.30]  SUM=  01:N3     82.91     4.185 No date    2:10   46.46  n/a
* ROUTE N3 to NC12S
* Typical Section based on Shade MH Vee Ditch 4:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.65' as per plan provided by Atrel.
 301:0084----------I:NHYD-------ARea----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:N3      82.91     4.185 No date    2:10   46.46  n/a
  *   [RIT= 1.00] Cord= 01:RN3    82.91     3.455 No date    2:15   46.46  n/a
      [I/S/n= .015/ .050/.035]
      [Vma= .35:Dmax= 1.842]
* Flow at Stanley node NCR12A for comparison
* Routed N3 plus EX3
 301:0085----------I:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:RN3      82.91     3.455 No date    2:10   46.46  n/a
                    + 03 EX3      21.30     1.118 No date    2:25   54.61  n/a
      [DC  1.00]  STM=  01:NCR12A 104.21    4.566 No date    2:10   49.84  n/a
* AREA CHECK
*
 301:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:EX1      14.82     1.098 No date    1:44   46.71  n/a
                    + 03:EX2      9.69      .607 No date    2:18   54.61  n/a
                    + 04:EX3      21.30     1.118 No date    2:25   54.61  n/a
                    + 05:EX4      .50       .058 No date    1:41   46.64  n/a
                    + 06:EX5      .62       .068 No date    1:41   52.45  n/a
                    + 07:EX6      .61       .065 No date    1:43   42.50  n/a
                    + 08:EX7      .69       .064 No date    1:41   44.03  n/a
                    + 09:FR1A     .94       .082 No date    1:41   42.07  n/a
                    + 10:FR1B     .58       .067 No date    1:41   42.07  n/a
      [IT= 1.00]  SUM=  01:Tot1   58.52     4.193 No date    1:47   37.62  n/a
 301:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:Tot1     58.52     4.193 No date    1:47   37.62  n/a
                    + 03:FR2A     1.57      .181 No date    1:42   42.07  n/a
                    + 04:FR2B     1.17      .135 No date    1:42   42.07  n/a
                    + 05:FR3A     .45       .052 No date    1:41   42.07  n/a
                    + 06:FR3B     .52       .060 No date    1:41   42.07  n/a
                    + 07:FR4A     .71       .082 No date    1:42   42.07  n/a
                    + 08:FR4B     .65       .075 No date    1:41   42.07  n/a
                    + 09:FR5A     .66       .076 No date    1:41   42.07  n/a
                    + 10:FR5B     .46       .053 No date    1:41   42.07  n/a
      [IT= 1.00]  SUM=  01:Tot2   64.71     5.088 No date    1:45   35.04  n/a
 301:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:Tot2     64.71     5.088 No date    1:45   35.04  n/a
                    + 03:FR6A     1.43      .167 No date    1:42   42.07  n/a
                    + 04:FR6B     .93       .111 No date    1:42   42.07  n/a
                    + 05:FR7A     1.35      .150 No date    1:44   38.24  n/a
                    + 06:FF7B1    .36       .042 No date    1:42   38.24  n/a
                    + 07:FF7B2    .22       .026 No date    1:42   38.24  n/a
                    + 08:FF7C1    .19       .045 No date    1:41   35.19  n/a
                    + 09:FF7C2    .17       .040 No date    1:41   35.19  n/a
                    + 10:FF7D     .33       .045 No date    1:41   35.19  n/a
      [IT= 1.00]  SUM=  01:Tot3   69.86     5.670 No date    1:45   35.19  n/a
 301:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD           02:Tot3     69.86     5.670 No date    1:45   35.19  n/a
                    + 03:FF8      1.38      .145 No date    1:45   36.25  n/a
                    + 04:FF8A     1.10      .116 No date    1:45   36.25  n/a
                    + 05:FF8B1    .25       .078 No date    1:45   36.25  n/a
                    + 06:FF8B2    1.08      .106 No date    1:45   36.25  n/a
                    . 07:FR10     1.67      .193 No date    1:46   36.25  n/a
                    . 08:FR11     .82       .087 No date    1:44   36.22  n/a
                    . 09:FR1      4.26      .498 No date    1:42   34.81  n/a
                    . 10:FR9      5.03      .751 No date    1:37   56.25  n/a
      [IT= 1.00]  SUM=  01:Tot4   85.57     7.919 No date    1:44   38.93  n/a
 301:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:Tot4     85.57     7.919 No date    1:44   38.93  n/a
                    + 03:C2       8.86      .656 No date    1:31   60.93  n/a
                    + 04:C3       6.54      .912 No date    1:30   73.39  n/a
                    + 05:C4       .24       .070 No date    1:30   82.25  n/a
                    + 06:EX11     1.10      .168 No date    1:30   89.75  n/a
                    + 07:EX12     1.87      .161 No date    1:30   57.88  n/a
                    - 08:EXC1     .22       .041 No date    1:30   59.86  n/a
                    - 09:FR6      1.67      .193 No date    1:46   36.25  n/a
      [DT= 1.00]  STM=  01:Tot5   104.31    10.501 No date    1:41   51.01  n/a
*******************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours Type 2, from City of Ottawa
* Simulations with July 1, 1979 Historical Event, City of Ottawa
 301:0092----------------------------------------------------------------------
    File2h
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0083 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0082 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0081 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0084 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0085 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0076 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0087 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0088 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0079 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0090 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0041 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 001:0042 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0031 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0032 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0033 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0034 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0035 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0036 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0037 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0038 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0039 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0040 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0041 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 002:0042 CALIB STANDHYD
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10127>       *** WARNING: For areas with impervious ratios below
10128>                    20%, this routine may not be applicable.
10129>  005:0031 CALIB STANDHYD
10130>       *** WARNING: For areas with impervious ratios below
10131>                    20%, this routine may not be applicable.
10132>  005:0032 CALIB STANDHYD
10133>       *** WARNING: For areas with impervious ratios below
10134>                    20%, this routine may not be applicable.
10135>  005:0033 CALIB STANDHYD
10136>       *** WARNING: For areas with impervious ratios below
10137>                    20%, this routine may not be applicable.
10138>  005:0034 CALIB STANDHYD
10139>       *** WARNING: For areas with impervious ratios below
10140>                    20%, this routine may not be applicable.
10141>  005:0035 CALIB STANDHYD
10142>       *** WARNING: For areas with impervious ratios below
10143>                    20%, this routine may not be applicable.
10144>  005:0036 CALIB STANDHYD
10145>       *** WARNING: For areas with impervious ratios below
10146>                    20%, this routine may not be applicable.
10147>  005:0037 CALIB STANDHYD
10148>       *** WARNING: For areas with impervious ratios below
10149>                    20%, this routine may not be applicable.
10150>  005:0038 CALIB STANDHYD
10151>       *** WARNING: For areas with impervious ratios below
10152>                    20%, this routine may not be applicable.
10153>  005:0039 CALIB STANDHYD
10154>       *** WARNING: For areas with impervious ratios below
10155>                    20%, this routine may not be applicable.
10156>  005:0040 CALIB STANDHYD
10157>       *** WARNING: For areas with impervious ratios below
10158>                    20%, this routine may not be applicable.
10159>  005:0041 CALIB STANDHYD
10160>       *** WARNING: For areas with impervious ratios below
10161>                    20%, this routine may not be applicable.
10162>  005:0042 CALIB STANDHYD
10163>       *** WARNING: For areas with impervious ratios below
10164>                    20%, this routine may not be applicable.
10165>  010:0031 CALIB STANDHYD
10166>       *** WARNING: For areas with impervious ratios below
10167>                    20%, this routine may not be applicable.
10168>  010:0032 CALIB STANDHYD
10169>       *** WARNING: For areas with impervious ratios below
10170>                    20%, this routine may not be applicable.
10171>  010:0033 CALIB STANDHYD
10172>       *** WARNING: For areas with impervious ratios below
10173>                    20%, this routine may not be applicable.
10174>  010:0034 CALIB STANDHYD
10175>       *** WARNING: For areas with impervious ratios below
10176>                    20%, this routine may not be applicable.
10177>  010:0035 CALIB STANDHYD
10178>       *** WARNING: For areas with impervious ratios below
10179>                    20%, this routine may not be applicable.
10180>  010:0036 CALIB STANDHYD
10181>       *** WARNING: For areas with impervious ratios below
10182>                    20%, this routine may not be applicable.
10183>  010:0037 CALIB STANDHYD
10184>       *** WARNING: For areas with impervious ratios below
10185>                    20%, this routine may not be applicable.
10186>  010:0038 CALIB STANDHYD
10187>       *** WARNING: For areas with impervious ratios below
10188>                    20%, this routine may not be applicable.
10189>  010:0039 CALIB STANDHYD
10190>       *** WARNING: For areas with impervious ratios below
10191>                    20%, this routine may not be applicable.
10192>  010:0040 CALIB STANDHYD
10193>       *** WARNING: For areas with impervious ratios below
10194>                    20%, this routine may not be applicable.
10195>  010:0041 CALIB STANDHYD
10196>       *** WARNING: For areas with impervious ratios below
10197>                    20%, this routine may not be applicable.
10198>  010:0042 CALIB STANDHYD
10199>       *** WARNING: For areas with impervious ratios below
10200>                    20%, this routine may not be applicable.
10201>  025:0031 CALIB STANDHYD
10202>       *** WARNING: For areas with impervious ratios below
10203>                    20%, this routine may not be applicable.
10204>  025:0032 CALIB STANDHYD
10205>       *** WARNING: For areas with impervious ratios below
10206>                    20%, this routine may not be applicable.
10207>  025:0033 CALIB STANDHYD
10208>       *** WARNING: For areas with impervious ratios below
10209>                    20%, this routine may not be applicable.
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10210>  025:0034 CALIB STANDHYD
10211>       *** WARNING: For areas with impervious ratios below
10212>                    20%, this routine may not be applicable.
10213>  025:0035 CALIB STANDHYD
10214>       *** WARNING: For areas with impervious ratios below
10215>                    20%, this routine may not be applicable.
10216>  025:0036 CALIB STANDHYD
10217>       *** WARNING: For areas with impervious ratios below
10218>                    20%, this routine may not be applicable.
10219>  025:0037 CALIB STANDHYD
10220>       *** WARNING: For areas with impervious ratios below
10221>                    20%, this routine may not be applicable.
10222>  025:0038 CALIB STANDHYD
10223>       *** WARNING: For areas with impervious ratios below
10224>                    20%, this routine may not be applicable.
10225>  025:0039 CALIB STANDHYD
10226>       *** WARNING: For areas with impervious ratios below
10227>                    20%, this routine may not be applicable.
10228>  025:0040 CALIB STANDHYD
10229>       *** WARNING: For areas with impervious ratios below
10230>                    20%, this routine may not be applicable.
10231>  025:0041 CALIB STANDHYD
10232>       *** WARNING: For areas with impervious ratios below
10233>                    20%, this routine may not be applicable.
10234>  025:0042 CALIB STANDHYD
10235>       *** WARNING: For areas with impervious ratios below
10236>                    20%, this routine may not be applicable.
10237>  050:0031 CALIB STANDHYD
10238>       *** WARNING: For areas with impervious ratios below
10239>                    20%, this routine may not be applicable.
10240>  050:0032 CALIB STANDHYD
10241>       *** WARNING: For areas with impervious ratios below
10242>                    20%, this routine may not be applicable.
10243>  050:0033 CALIB STANDHYD
10244>       *** WARNING: For areas with impervious ratios below
10245>                    20%, this routine may not be applicable.
10246>  050:0034 CALIB STANDHYD
10247>       *** WARNING: For areas with impervious ratios below
10248>                    20%, this routine may not be applicable.
10249>  050:0035 CALIB STANDHYD
10250>       *** WARNING: For areas with impervious ratios below
10251>                    20%, this routine may not be applicable.
10252>  050:0036 CALIB STANDHYD
10253>       *** WARNING: For areas with impervious ratios below
10254>                    20%, this routine may not be applicable.
10255>  050:0037 CALIB STANDHYD
10256>       *** WARNING: For areas with impervious ratios below
10257>                    20%, this routine may not be applicable.
10258>  050:0038 CALIB STANDHYD
10259>       *** WARNING: For areas with impervious ratios below
10260>                    20%, this routine may not be applicable.
10261>  050:0039 CALIB STANDHYD
10262>       *** WARNING: For areas with impervious ratios below
10263>                    20%, this routine may not be applicable.
10264>  050:0040 CALIB STANDHYD
10265>       *** WARNING: For areas with impervious ratios below
10266>                    20%, this routine may not be applicable.
10267>  050:0041 CALIB STANDHYD
10268>       *** WARNING: For areas with impervious ratios below
10269>                    20%, this routine may not be applicable.
10270>  050:0042 CALIB STANDHYD
10271>       *** WARNING: For areas with impervious ratios below
10272>                    20%, this routine may not be applicable.
10273>  050:0060 ROUTE PIPE      ->
10274>       *** WARNING: New pipe size used for routing.
10275>  100:0031 CALIB STANDHYD
10276>       *** WARNING: For areas with impervious ratios below
10277>                    20%, this routine may not be applicable.
10278>  100:0032 CALIB STANDHYD
10279>       *** WARNING: For areas with impervious ratios below
10280>                    20%, this routine may not be applicable.
10281>  100:0033 CALIB STANDHYD
10282>       *** WARNING: For areas with impervious ratios below
10283>                    20%, this routine may not be applicable.
10284>  100:0034 CALIB STANDHYD
10285>       *** WARNING: For areas with impervious ratios below
10286>                    20%, this routine may not be applicable.
10287>  100:0035 CALIB STANDHYD
10288>       *** WARNING: For areas with impervious ratios below
10289>                    20%, this routine may not be applicable.
10290>  100:0036 CALIB STANDHYD
10291>       *** WARNING: For areas with impervious ratios below
10292>                    20%, this routine may not be applicable.
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10253>  100:0041 CALIB STANDHYD
10254>       *** WARNING: For areas with impervious ratios below
10255>                    20%, this routine may not be applicable.
10256>  100:0038 CALIB STANDHYD
10257>       *** WARNING: For areas with impervious ratios below
10258>                    20%, this routine may not be applicable.
10259>  100:0039 CALIB STANDHYD
10260>       *** WARNING: For areas with impervious ratios below
10261>                    20%, this routine may not be applicable.
10262>  100:0040 CALIB STANDHYD
10263>       *** WARNING: For areas with impervious ratios below
10264>                    20%, this routine may not be applicable.
10265>  100:0041 CALIB STANDHYD
10266>       *** WARNING: For areas with impervious ratios below
10267>                    20%, this routine may not be applicable.
10268>  100:0042 CALIB STANDHYD
10269>       *** WARNING: For areas with impervious ratios below
10270>                    20%, this routine may not be applicable.
10271>  100:0060 ROUTE PIPE     ->
10272>       *** WARNING: Pipe size used for routing.
10273>  100:0057 ROUTE PIPE     ->
10274>       *** WARNING: Pipe size used for routing.
10275>  202:0041 CALIB STANDHYD
10276>       *** WARNING: For areas with impervious ratios below
10277>                    20%, this routine may not be applicable.
10278>  202:0032 CALIB STANDHYD
10279>       *** WARNING: For areas with impervious ratios below
10280>                    20%, this routine may not be applicable.
10281>  202:0033 CALIB STANDHYD
10282>       *** WARNING: For areas with impervious ratios below
10283>                    20%, this routine may not be applicable.
10284>  202:0034 CALIB STANDHYD
10285>       *** WARNING: For areas with impervious ratios below
10286>                    20%, this routine may not be applicable.
10287>  202:0035 CALIB STANDHYD
10288>       *** WARNING: For areas with impervious ratios below
10289>                    20%, this routine may not be applicable.
10290>  202:0036 CALIB STANDHYD
10291>       *** WARNING: For areas with impervious ratios below
10292>                    20%, this routine may not be applicable.
10293>  202:0037 CALIB STANDHYD
10294>       *** WARNING: For areas with impervious ratios below
10295>                    20%, this routine may not be applicable.
10296>  202:0038 CALIB STANDHYD
10297>       *** WARNING: For areas with impervious ratios below
10298>                    20%, this routine may not be applicable.
10299>  202:0039 CALIB STANDHYD
10300>       *** WARNING: For areas with impervious ratios below
10301>                    20%, this routine may not be applicable.
10302>  202:0040 CALIB STANDHYD
10303>       *** WARNING: For areas with impervious ratios below
10304>                    20%, this routine may not be applicable.
10305>  202:0041 CALIB STANDHYD
10306>       *** WARNING: For areas with impervious ratios below
10307>                    20%, this routine may not be applicable.
10308>  202:0042 CALIB STANDHYD
10309>       *** WARNING: For areas with impervious ratios below
10310>                    20%, this routine may not be applicable.
10311>  205:0041 CALIB STANDHYD
10312>       *** WARNING: For areas with impervious ratios below
10313>                    20%, this routine may not be applicable.
10314>  205:0032 CALIB STANDHYD
10315>       *** WARNING: For areas with impervious ratios below
10316>                    20%, this routine may not be applicable.
10317>  205:0033 CALIB STANDHYD
10318>       *** WARNING: For areas with impervious ratios below
10319>                    20%, this routine may not be applicable.
10320>  205:0034 CALIB STANDHYD
10321>       *** WARNING: For areas with impervious ratios below
10322>                    20%, this routine may not be applicable.
10323>  205:0035 CALIB STANDHYD
10324>       *** WARNING: For areas with impervious ratios below
10325>                    20%, this routine may not be applicable.
10326>  205:0036 CALIB STANDHYD
10327>       *** WARNING: For areas with impervious ratios below
10328>                    20%, this routine may not be applicable.
10329>  205:0037 CALIB STANDHYD
10330>       *** WARNING: For areas with impervious ratios below
10331>                    20%, this routine may not be applicable.
10332>  205:0038 CALIB STANDHYD
10333>       *** WARNING: For areas with impervious ratios below
10334>                    20%, this routine may not be applicable.
10335>  205:0039 CALIB STANDHYD
10336>       *** WARNING: For areas with impervious ratios below
10337>                    20%, this routine may not be applicable.
10338>  205:0040 CALIB STANDHYD
10339>       *** WARNING: For areas with impervious ratios below
10340>                    20%, this routine may not be applicable.
10341>  205:0042 CALIB STANDHYD
10342>       *** WARNING: For areas with impervious ratios below
10343>                    20%, this routine may not be applicable.
10344>  202:0042 CALIB STANDHYD
10345>       *** WARNING: For areas with impervious ratios below
10346>                    20%, this routine may not be applicable.
10347>  202:0043 CALIB STANDHYD
10348>       *** WARNING: For areas with impervious ratios below
10349>                    20%, this routine may not be applicable.
10350>  202:0044 CALIB STANDHYD
10351>       *** WARNING: For areas with impervious ratios below
10352>                    20%, this routine may not be applicable.
10353>  202:0045 CALIB STANDHYD
10354>       *** WARNING: For areas with impervious ratios below
10355>                    20%, this routine may not be applicable.
10356>  202:0046 CALIB STANDHYD
10357>       *** WARNING: For areas with impervious ratios below
10358>                    20%, this routine may not be applicable.
10359>  202:0047 CALIB STANDHYD
10360>       *** WARNING: For areas with impervious ratios below
10361>                    20%, this routine may not be applicable.
10362>  202:0048 CALIB STANDHYD
10363>       *** WARNING: For areas with impervious ratios below
10364>                    20%, this routine may not be applicable.
10365>  202:0049 CALIB STANDHYD
10366>       *** WARNING: For areas with impervious ratios below
10367>                    20%, this routine may not be applicable.
10368>  202:0050 CALIB STANDHYD
10369>       *** WARNING: For areas with impervious ratios below
10370>                    20%, this routine may not be applicable.
10371>  202:0051 CALIB STANDHYD
10372>       *** WARNING: For areas with impervious ratios below
10373>                    20%, this routine may not be applicable.
10374>  202:0052 CALIB STANDHYD
10375>       *** WARNING: For areas with impervious ratios below
10376>                    20%, this routine may not be applicable.
10377>  202:0053 CALIB STANDHYD
10378>       *** WARNING: For areas with impervious ratios below
10379>                    20%, this routine may not be applicable.
10380>  202:0054 CALIB STANDHYD
10381>       *** WARNING: For areas with impervious ratios below
10382>                    20%, this routine may not be applicable.
10383>  202:0055 CALIB STANDHYD
10384>       *** WARNING: For areas with impervious ratios below
10385>                    20%, this routine may not be applicable.
10386>  202:0056 CALIB STANDHYD
10387>       *** WARNING: For areas with impervious ratios below
10388>                    20%, this routine may not be applicable.
10389>  202:0057 CALIB STANDHYD
10390>       *** WARNING: For areas with impervious ratios below
10391>                    20%, this routine may not be applicable.
10392>  202:0058 CALIB STANDHYD
10393>       *** WARNING: For areas with impervious ratios below
10394>                    20%, this routine may not be applicable.
10395>  202:0059 CALIB STANDHYD
10396>       *** WARNING: For areas with impervious ratios below
10397>                    20%, this routine may not be applicable.
10398>  202:0060 CALIB STANDHYD
10399>       *** WARNING: For areas with impervious ratios below
10400>                    20%, this routine may not be applicable.
10401>  202:0061 CALIB STANDHYD
10402>       *** WARNING: For areas with impervious ratios below
10403>                    20%, this routine may not be applicable.
10404>  202:0062 CALIB STANDHYD
10405>       *** WARNING: For areas with impervious ratios below
10406>                    20%, this routine may not be applicable.
10407>  202:0063 CALIB STANDHYD
10408>       *** WARNING: For areas with impervious ratios below
10409>                    20%, this routine may not be applicable.
10410>  202:0064 CALIB STANDHYD
10411>       *** WARNING: For areas with impervious ratios below
10412>                    20%, this routine may not be applicable.
10413>  202:0065 CALIB STANDHYD
10414>       *** WARNING: For areas with impervious ratios below
10415>                    20%, this routine may not be applicable.
10416>  202:0066 CALIB STANDHYD
10417>       *** WARNING: For areas with impervious ratios below
10418>                    20%, this routine may not be applicable.
10419>  202:0067 CALIB STANDHYD
10420>       *** WARNING: For areas with impervious ratios below
10421>                    20%, this routine may not be applicable.
10422>  202:0068 CALIB STANDHYD
10423>       *** WARNING: For areas with impervious ratios below
10424>                    20%, this routine may not be applicable.
10425>  202:0069 CALIB STANDHYD
10426>       *** WARNING: For areas with impervious ratios below
10427>                    20%, this routine may not be applicable.
10428>  202:0070 CALIB STANDHYD
10429>       *** WARNING: For areas with impervious ratios below
10430>                    20%, this routine may not be applicable.
10431>  202:0071 CALIB STANDHYD
10432>       *** WARNING: For areas with impervious ratios below
10433>                    20%, this routine may not be applicable.
10434>  202:0072 CALIB STANDHYD
10435>       *** WARNING: For areas with impervious ratios below
10436>                    20%, this routine may not be applicable.
10437>  202:0073 CALIB STANDHYD
10438>       *** WARNING: For areas with impervious ratios below
10439>                    20%, this routine may not be applicable.
10440>  202:0074 CALIB STANDHYD
10441>       *** WARNING: For areas with impervious ratios below
10442>                    20%, this routine may not be applicable.
10443>  202:0075 CALIB STANDHYD
10444>       *** WARNING: For areas with impervious ratios below
10445>                    20%, this routine may not be applicable.
10446>  202:0076 CALIB STANDHYD
10447>       *** WARNING: For areas with impervious ratios below
10448>                    20%, this routine may not be applicable.
10449>  202:0077 CALIB STANDHYD
10450>       *** WARNING: For areas with impervious ratios below
10451>                    20%, this routine may not be applicable.
10452>  202:0078 CALIB STANDHYD
10453>       *** WARNING: For areas with impervious ratios below
10454>                    20%, this routine may not be applicable.
10455>  202:0079 CALIB STANDHYD
10456>       *** WARNING: For areas with impervious ratios below
10457>                    20%, this routine may not be applicable.
10458>  202:0080 CALIB STANDHYD
10459>       *** WARNING: For areas with impervious ratios below
10460>                    20%, this routine may not be applicable.
10461>  202:0081 CALIB STANDHYD
10462>       *** WARNING: For areas with impervious ratios below
10463>                    20%, this routine may not be applicable.
10464>  202:0082 CALIB STANDHYD
10465>       *** WARNING: For areas with impervious ratios below
10466>                    20%, this routine may not be applicable.
10467>  202:0083 CALIB STANDHYD
10468>       *** WARNING: For areas with impervious ratios below
10469>                    20%, this routine may not be applicable.
10470>  202:0084 CALIB STANDHYD
10471>       *** WARNING: For areas with impervious ratios below
10472>                    20%, this routine may not be applicable.
10473>  202:0085 CALIB STANDHYD
10474>       *** WARNING: For areas with impervious ratios below
10475>                    20%, this routine may not be applicable.
10476>  202:0086 CALIB STANDHYD
10477>       *** WARNING: For areas with impervious ratios below
10478>                    20%, this routine may not be applicable.
10479>  202:0087 CALIB STANDHYD
10480>       *** WARNING: For areas with impervious ratios below
10481>                    20%, this routine may not be applicable.
10482>  210:0038 CALIB STANDHYD
10483>       *** WARNING: For areas with impervious ratios below
10484>                    20%, this routine may not be applicable.
10485>  210:0036 CALIB STANDHYD
10486>       *** WARNING: For areas with impervious ratios below
10487>                    20%, this routine may not be applicable.
10488>  210:0037 CALIB STANDHYD
10489>       *** WARNING: For areas with impervious ratios below
10490>                    20%, this routine may not be applicable.
10491>  210:0039 CALIB STANDHYD
10492>       *** WARNING: For areas with impervious ratios below
10493>                    20%, this routine may not be applicable.
10494>  210:0040 CALIB STANDHYD
10495>       *** WARNING: For areas with impervious ratios below
10496>                    20%, this routine may not be applicable.
10497>  210:0041 CALIB STANDHYD
10498>       *** WARNING: For areas with impervious ratios below
10499>                    20%, this routine may not be applicable.
10500>  210:0042 CALIB STANDHYD
10501>       *** WARNING: For areas with impervious ratios below
10502>                    20%, this routine may not be applicable.
10503>  225:0031 CALIB STANDHYD
10504>       *** WARNING: For areas with impervious ratios below
10505>                    20%, this routine may not be applicable.
10506>  225:0032 CALIB STANDHYD
10507>       *** WARNING: For areas with impervious ratios below
10508>                    20%, this routine may not be applicable.
10509>  225:0033 CALIB STANDHYD
10510>       *** WARNING: For areas with impervious ratios below
10511>                    20%, this routine may not be applicable.
10512>  225:0034 CALIB STANDHYD
10513>       *** WARNING: For areas with impervious ratios below
10514>                    20%, this routine may not be applicable.
10515>  225:0035 CALIB STANDHYD
10516>       *** WARNING: For areas with impervious ratios below
10517>                    20%, this routine may not be applicable.
10518>  225:0036 CALIB STANDHYD
10519>       *** WARNING: For areas with impervious ratios below
10520>                    20%, this routine may not be applicable.
10521>  225:0037 CALIB STANDHYD
10522>       *** WARNING: For areas with impervious ratios below
10523>                    20%, this routine may not be applicable.
10524>  225:0038 CALIB STANDHYD
10525>       *** WARNING: For areas with impervious ratios below
10526>                    20%, this routine may not be applicable.
10527>  225:0039 CALIB STANDHYD
10528>       *** WARNING: For areas with impervious ratios below
10529>                    20%, this routine may not be applicable.
10530>  225:0040 CALIB STANDHYD
10531>       *** WARNING: For areas with impervious ratios below
10532>                    20%, this routine may not be applicable.
10533>  225:0041 CALIB STANDHYD
10534>       *** WARNING: For areas with impervious ratios below
10535>                    20%, this routine may not be applicable.
10536>  225:0042 CALIB STANDHYD
10537>       *** WARNING: For areas with impervious ratios below
10538>                    20%, this routine may not be applicable.
```

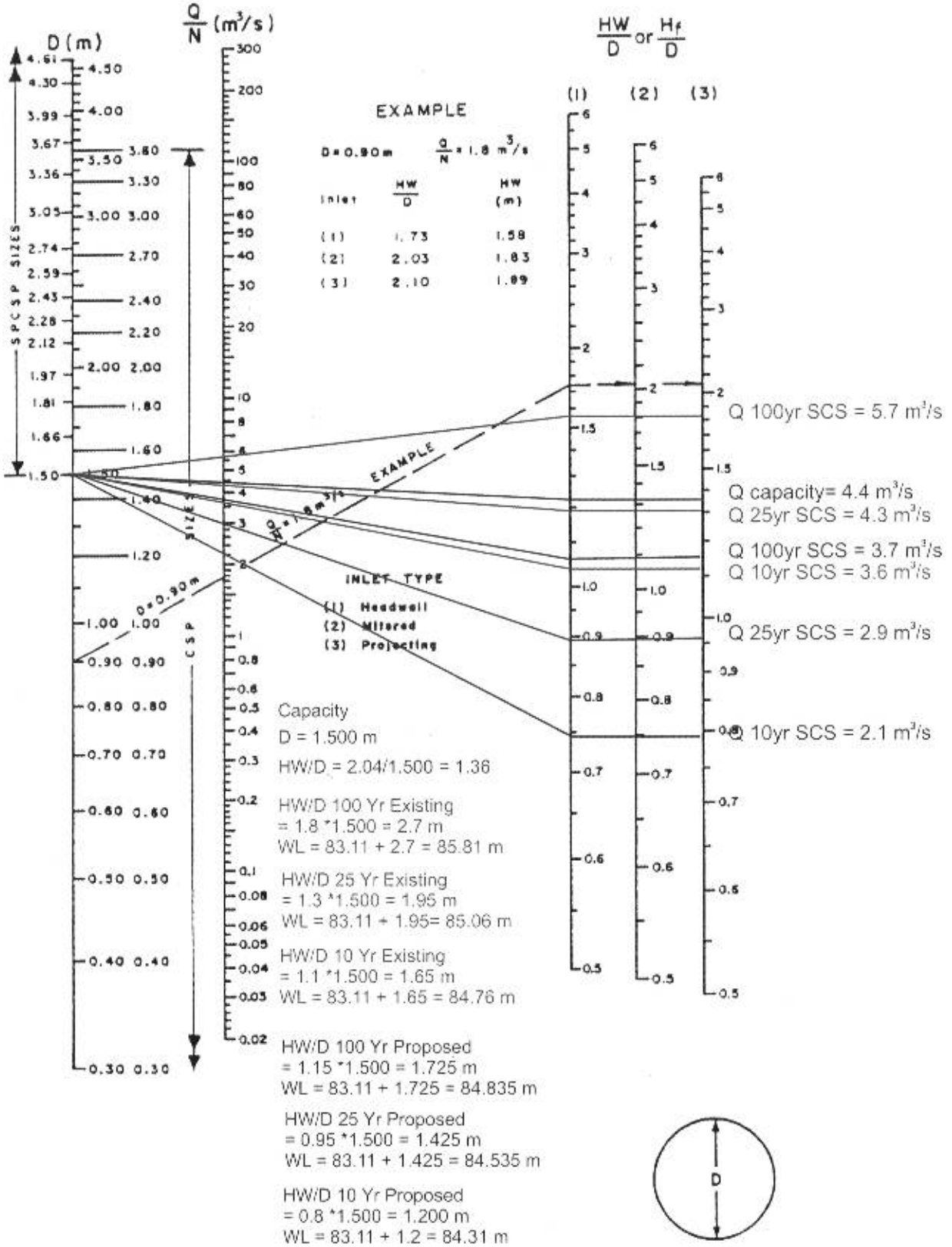
```
10459>  229:0069 ROUTE PIPE      =>
10460>       *** WARNING: New pipe size used for routing.
10461>  250:0031 CALIB STANDHYD
10462>       *** WARNING: For areas with impervious ratios below
10463>                    20%, this routine may not be applicable.
10464>  250:0032 CALIB STANDHYD
10465>       *** WARNING: For areas with impervious ratios below
10466>                    20%, this routine may not be applicable.
10467>  250:0033 CALIB STANDHYD
10468>       *** WARNING: For areas with impervious ratios below
10469>                    20%, this routine may not be applicable.
10470>  250:0034 CALIB STANDHYD
10471>       *** WARNING: For areas with impervious ratios below
10472>                    20%, this routine may not be applicable.
10473>  250:0035 CALIB STANDHYD
10474>       *** WARNING: For areas with impervious ratios below
10475>                    20%, this routine may not be applicable.
10476>  250:0036 CALIB STANDHYD
10477>       *** WARNING: For areas with impervious ratios below
10478>                    20%, this routine may not be applicable.
10479>  250:0037 CALIB STANDHYD
10480>       *** WARNING: For areas with impervious ratios below
10481>                    20%, this routine may not be applicable.
10482>  250:0038 CALIB STANDHYD
10483>       *** WARNING: For areas with impervious ratios below
10484>                    20%, this routine may not be applicable.
10485>  250:0039 CALIB STANDHYD
10486>       *** WARNING: For areas with impervious ratios below
10487>                    20%, this routine may not be applicable.
10488>  250:0040 CALIB STANDHYD
10489>       *** WARNING: For areas with impervious ratios below
10490>                    20%, this routine may not be applicable.
10491>  250:0041 CALIB STANDHYD
10492>       *** WARNING: For areas with impervious ratios below
10493>                    20%, this routine may not be applicable.
10494>  250:0042 CALIB STANDHYD
10495>       *** WARNING: For areas with impervious ratios below
10496>                    20%, this routine may not be applicable.
10497>  250:0060 ROUTE PIPE      =>
10498>       *** WARNING: New pipe size used for routing.
10499>  250:0027 ROUTE PIPE      =>
10500>       *** WARNING: New pipe size used for routing.
10501>  299:0031 CALIB STANDHYD
10502>       *** WARNING: For areas with impervious ratios below
10503>                    20%, this routine may not be applicable.
10504>  299:0032 CALIB STANDHYD
10505>       *** WARNING: For areas with impervious ratios below
10506>                    20%, this routine may not be applicable.
10507>  299:0033 CALIB STANDHYD
10508>       *** WARNING: For areas with impervious ratios below
10509>                    20%, this routine may not be applicable.
10510>  299:0034 CALIB STANDHYD
10511>       *** WARNING: For areas with impervious ratios below
10512>                    20%, this routine may not be applicable.
10513>  299:0035 CALIB STANDHYD
10514>       *** WARNING: For areas with impervious ratios below
10515>                    20%, this routine may not be applicable.
10516>  299:0036 CALIB STANDHYD
10517>       *** WARNING: For areas with impervious ratios below
10518>                    20%, this routine may not be applicable.
10519>  299:0037 CALIB STANDHYD
10520>       *** WARNING: For areas with impervious ratios below
10521>                    20%, this routine may not be applicable.
10522>  299:0038 CALIB STANDHYD
10523>       *** WARNING: For areas with impervious ratios below
10524>                    20%, this routine may not be applicable.
10525>  299:0039 CALIB STANDHYD
10526>       *** WARNING: For areas with impervious ratios below
10527>                    20%, this routine may not be applicable.
10528>  299:0040 CALIB STANDHYD
10529>       *** WARNING: For areas with impervious ratios below
10530>                    20%, this routine may not be applicable.
10531>  299:0041 CALIB STANDHYD
10532>       *** WARNING: For areas with impervious ratios below
10533>                    20%, this routine may not be applicable.
10534>  299:0042 CALIB STANDHYD
10535>       *** WARNING: For areas with impervious ratios below
10536>                    20%, this routine may not be applicable.
10537>  299:0060 ROUTE PIPE      =>
10538>       *** WARNING: New pipe size used for routing.
10539>  299:0072 ROUTE PIPE      =>
10540>       *** WARNING: New pipe size used for routing.
10541>  301:0031 CALIB STANDHYD
10542>       *** WARNING: For areas with impervious ratios below
10543>                    20%, this routine may not be applicable.
10544>  301:0032 CALIB STANDHYD
10545>       *** WARNING: For areas with impervious ratios below
10546>                    20%, this routine may not be applicable.
10547>  301:0033 CALIB STANDHYD
10548>       *** WARNING: For areas with impervious ratios below
10549>                    20%, this routine may not be applicable.
10550>  301:0034 CALIB STANDHYD
10551>       *** WARNING: For areas with impervious ratios below
10552>                    20%, this routine may not be applicable.
10553>  301:0035 CALIB STANDHYD
10554>       *** WARNING: For areas with impervious ratios below
10555>                    20%, this routine may not be applicable.
10556>  301:0036 CALIB STANDHYD
10557>       *** WARNING: For areas with impervious ratios below
10558>                    20%, this routine may not be applicable.
10559>  301:0037 CALIB STANDHYD
10560>       *** WARNING: For areas with impervious ratios below
10561>                    20%, this routine may not be applicable.
10562>  301:0038 CALIB STANDHYD
10563>       *** WARNING: For areas with impervious ratios below
10564>                    20%, this routine may not be applicable.
10565>  301:0039 CALIB STANDHYD
10566>       *** WARNING: For areas with impervious ratios below
10567>                    20%, this routine may not be applicable.
10568>  301:0040 CALIB STANDHYD
10569>       *** WARNING: For areas with impervious ratios below
10570>                    20%, this routine may not be applicable.
10571>  301:0041 CALIB STANDHYD
10572>       *** WARNING: For areas with impervious ratios below
10573>                    20%, this routine may not be applicable.
10574>  301:0042 CALIB STANDHYD
10575>       *** WARNING: For areas with impervious ratios below
10576>                    20%, this routine may not be applicable.
10577>  301:0060 ROUTE PIPE      =>
10578>       *** WARNING: New pipe size used for routing.
10579>  301:0072 ROUTE PIPE      =>
10580>       *** WARNING: New pipe size used for routing.
10581>  Simulation ended on 2008-12-19     at 8:47:7
10582> ------------------------------------------------------------------------
10583>
10584>
```

Appendix E

MTO Nomographs
for Existing Culvert
and Proposed Culverts

Culvert capacity at node N3

CHART D5 - 1G

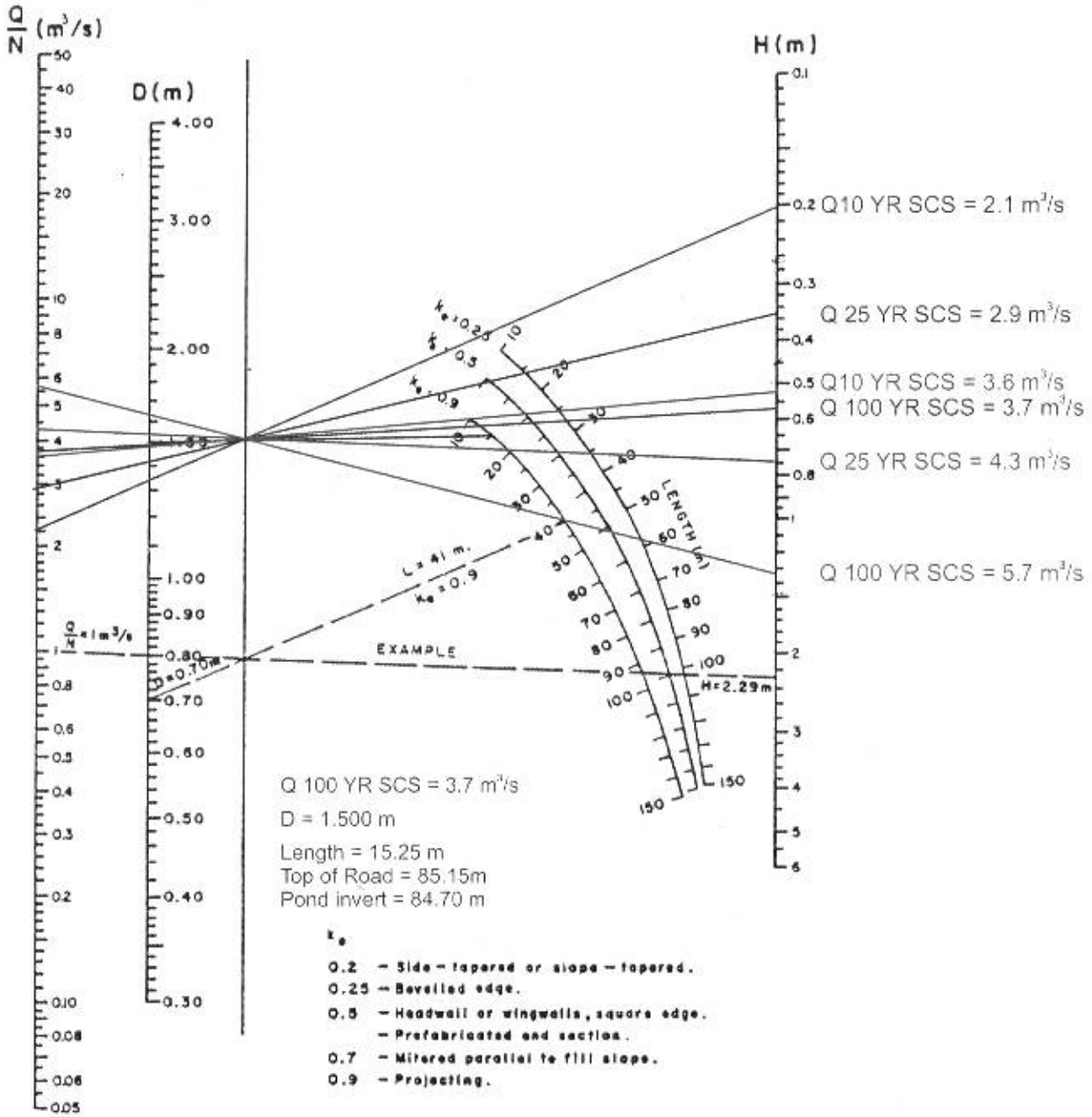


FHA 83 01
METRIC FHA 74 06 (51)

INLET CONTROL
CSP & SPCSP CULVERT

Culvert capacity at Parkway Rd culvert (node N3)

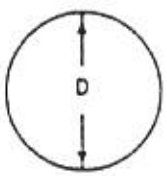
CHART D5 - 2C



Assuming
Channel WL downstream = 100 YR WL at Shield CK as per STANTEC = 84.30 m
Channel WL downstream = 25 YR WL at Shield CK as per STANTEC = 84.80 m
d/s channel invert = 82.89 m

Proposed:
WL 100 Q = 100 YR WL d/s + H m
WL + H = 84.30 m + 0.57 = 84.87 < 85.15 m
WL 25 Q = 25 YR Q + H m
WL + H = 84.30 m + 0.35 = 84.65 < 85.15 m OR 84.80 + 0.35 = 85.15 m
WL 10 Q = u/s 10 YR Q + H m
WL + H = 84.30 m + 0.20 = 84.50 < 85.15 m

Existing:
WL 100 Q = 100 YR WL d/s + H m
WL + H = 84.30 m + 1.35 = 85.65 > 85.15 m
WL 25 Q = 25 YR Q + H m
WL + H = 84.30 m + 0.75 = 85.05 < 85.15 m
WL 10 Q = u/s 10 YR Q + H m
WL + H = 84.30 m + 0.52 = 84.82 < 85.15 m



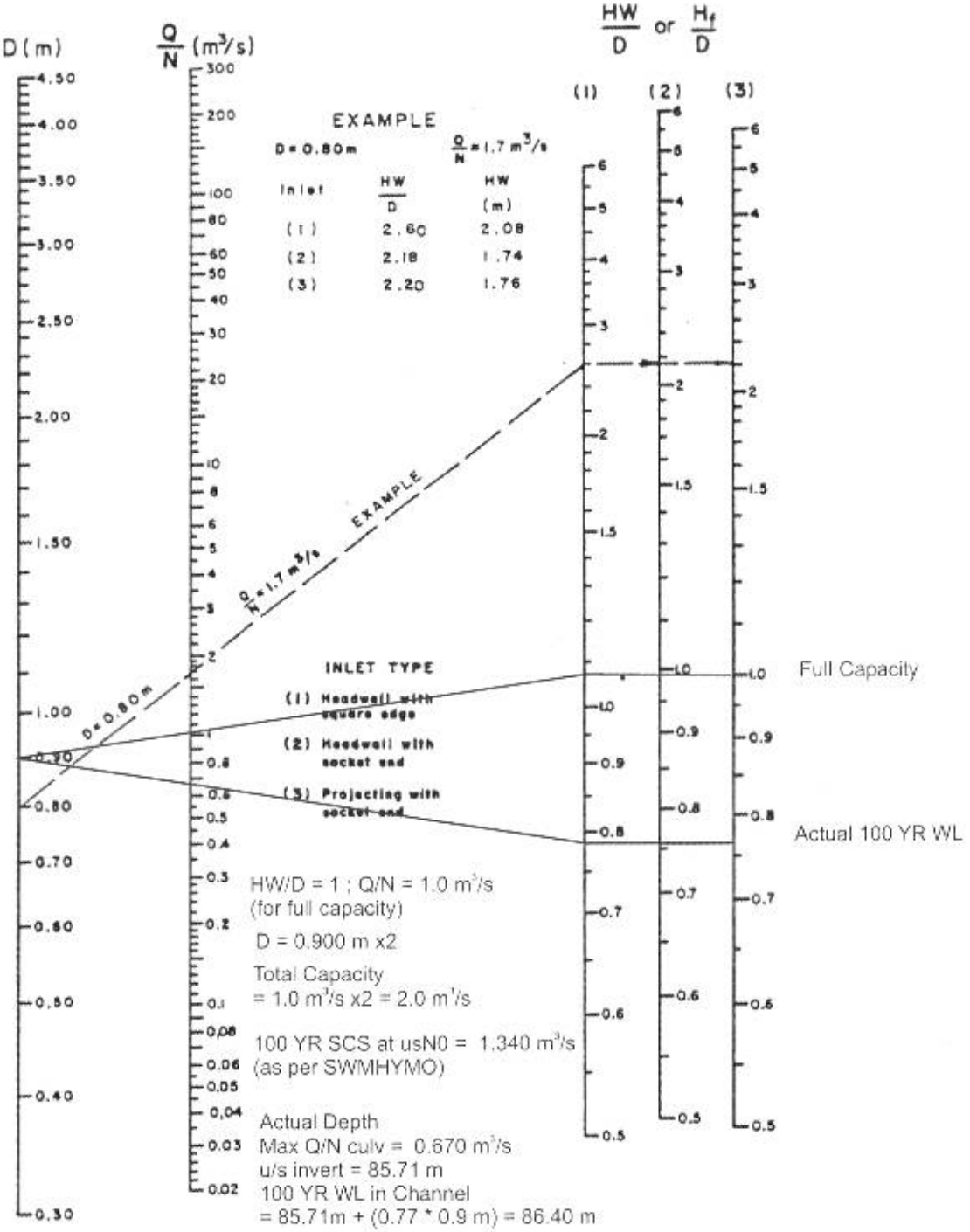
OUTLET CONTROL
CORRUGATED STEEL PIPE
FLOWING FULL
n = 0.024

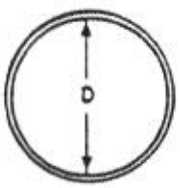
FHA 63 01
METRIC FHA 74 06 (51)

P 647-08
Dec 19, 2008

Culvert capacity upstream of Node N0

CHART D5 - 1E





FHA 64 05
METRIC FHA 74 06 (51)

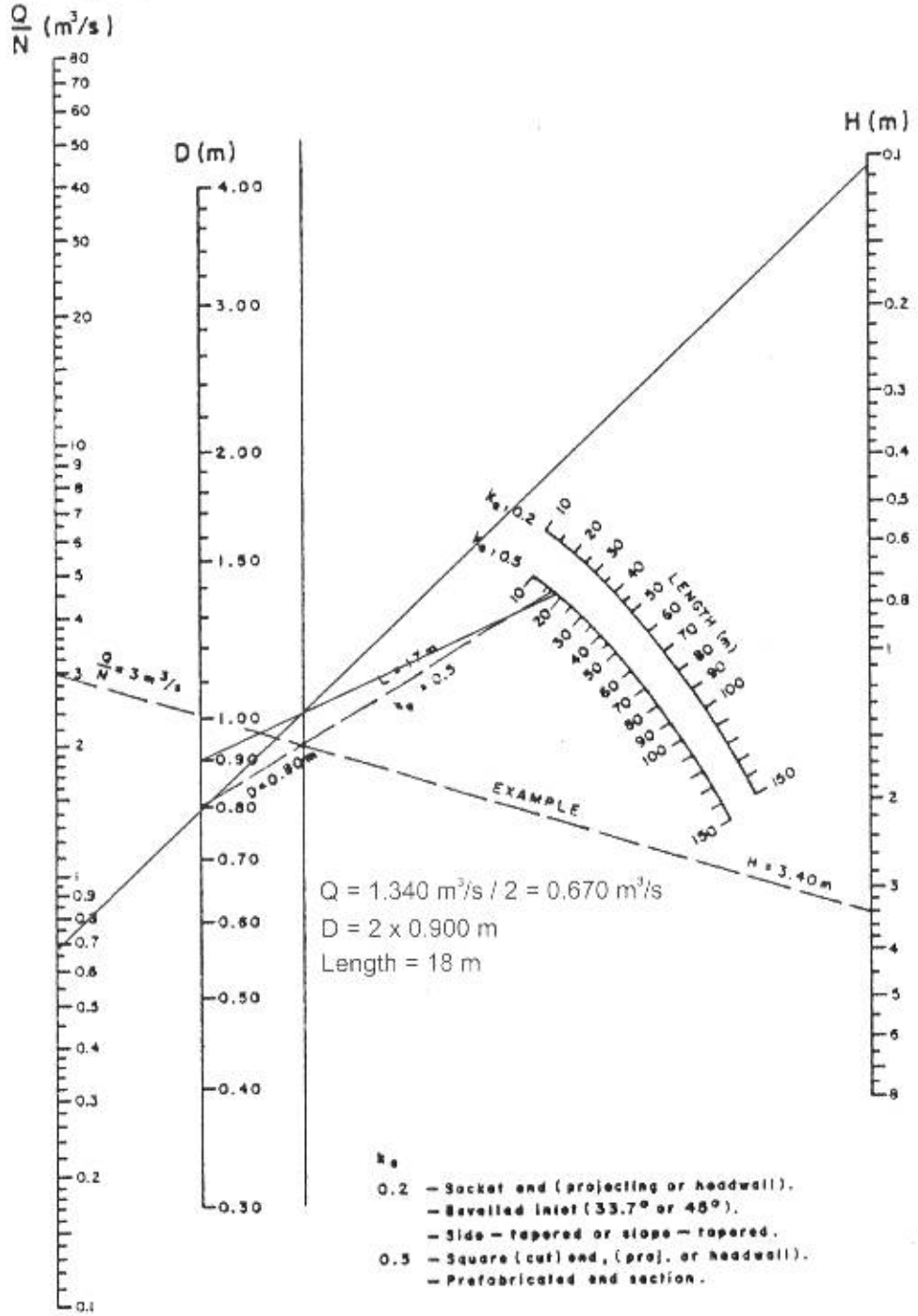
INLET CONTROL
CONCRETE PIPE CULVERT
HDPE

1985 05 16

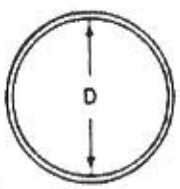
P 647-08
Dec 15, 2008

Culvert capacity upstream of node N0

CHART D5 - 2B



Assuming
Channel WL downstream = pipe obvert:



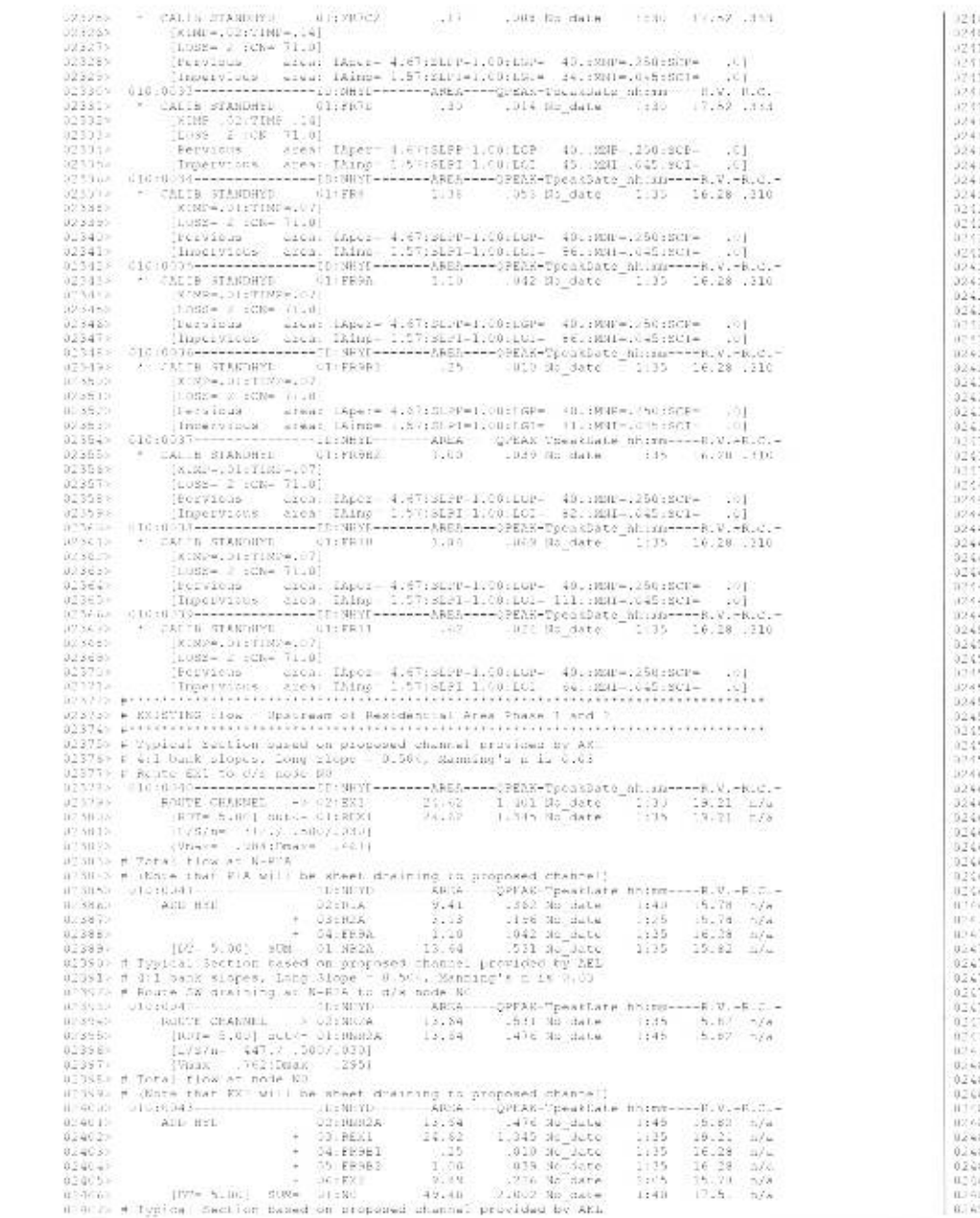
Max WL to permanent pool u/s = 87.15 m
H = 0.105 m
WL d/s 100 Q = d/s channel inv + d/s 100 yr WL + H m
WL d/s + H = 85.65 m + 0.872 + 0.105 = 86.63 < 87.15 m

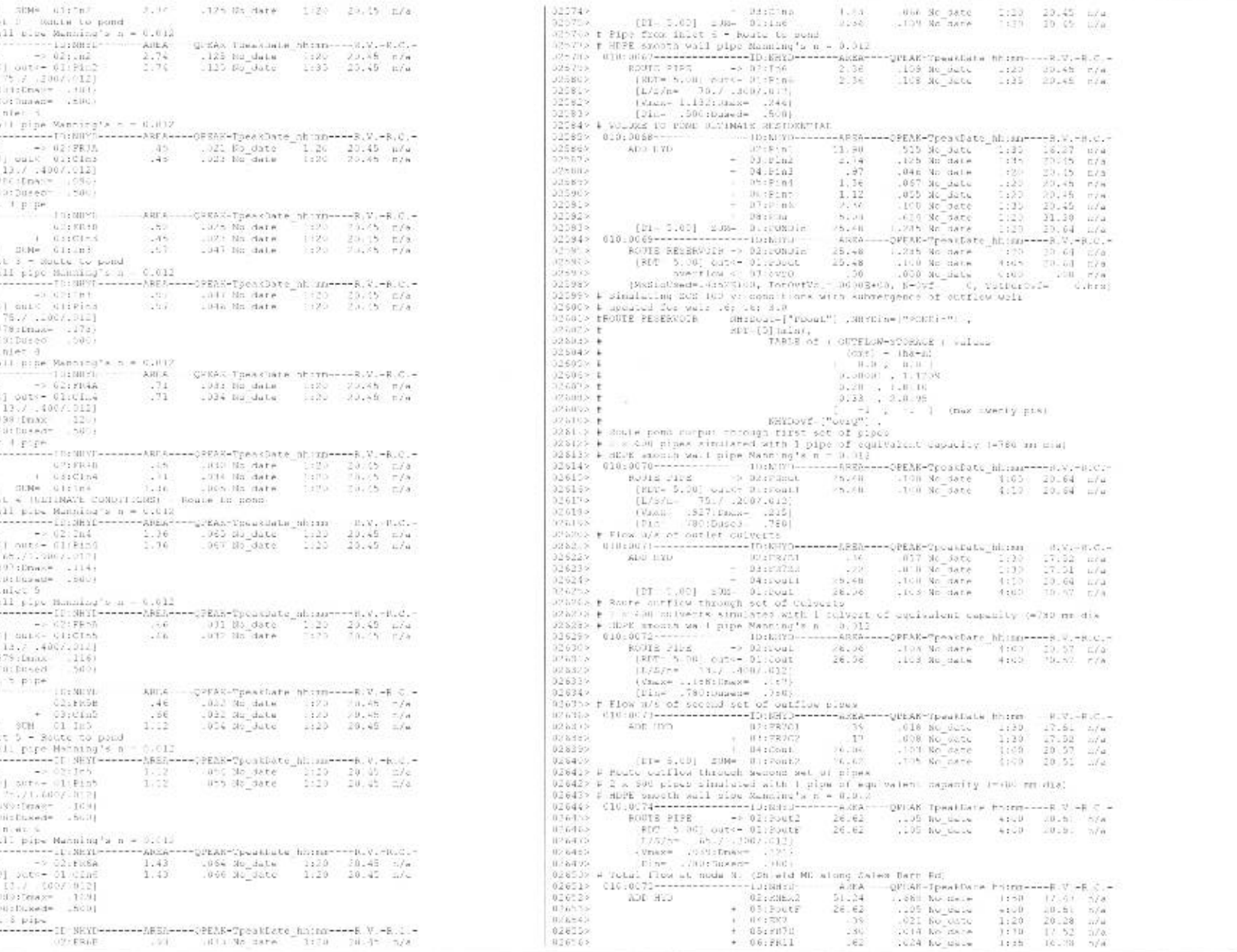
OUTLET CONTROL
CONCRETE PIPE CULVERT
FLOWING FULL
n = 0.012 = n HDPE

FHA 63 01
METRIC FHA 74 06 (51)

```
01993>       [I/S/=  .349./ .060/.035
01994>       (Vmax=  .345;Dmax=  1.50)
01995> * VOLUME from residential area at N3 interim
01996>  005:0077---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01997>       ADD HYD           02:PRVA        2.05      .340 No_date    1:35   13.28  n/a
01998>                       + 03:PRU         1.38      .075 No_date    1:30   12.34  n/a
01999>       [ID= 5.00]  SUM=  01:N3          3.43      .414 No_date    1:30   12.96  n/a
02000> * Added VOLUME from external area contributing to N3
02001>  005:0078---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02002>       ADD HYD           02:xN.         75.17    1.039 No_date    3:05   14.17  n/a
02003>                       + 03:N3I         2.73      .024 No_date    1:40   12.46  n/a
02004>                       + 04:EX5          .82      .046 No_date    1:30   11.61  n/a
02005>                       + 05:EX6          .51      .031 No_date    1:20   10.99  n/a
02006>       [IT  5.00]  SUM   01:N3         82.63    1.117 No_date    3:05   14.17  n/a
02007> * ROUTE N3 to NC12:
02008> * Typical Section based on Shields MD Voc Ditch 3:1 banks
02009> * provided by Arte.
02010> * Manning's n is Channel not maintained, light brush or banks
02011> * Slope = 0.05  as per plan provided by Arte.
02012>  005:0079---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02013>       ROUTE CHANNEL     -> 02:N3         82.63    1.117 No_date    3:05   14.17  n/a
02014>         ROC  5.00) Outs<- 01:NN3        82.63     .885 No_date    3:15   14.17  n/a
02015>         [I/S/=  .415./ .056/.035]
02016>         (Vmax=  .452;Dmax=  1.027)
02017> * Flow at Station node NC12/B for comparison
02018> * Routed N3 plus EX3
02019>  005:0080---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02020>       ADD HYD           02:EN3         82.63     .885 No_date    3:15   14.17  n/a
02021>                       + 03:EX2         21.30     .115 No_date    2:20   12.08  n/a
02022>       [IT= 5.00]  SUM=  01:NTR11       104.23    1.201 No_date    3:15   13.91  n/a
02023> * AREA CHECK
02024> *
02025>  005:0c1---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02026>       ADD HYD           02:EX.         24.62    1.461 No_date    1:30   19.21  .365
02027>                       + 03:EX2          9.89      .171 No_date    2:10   12.08  n/a
02028>                       + 04:EX3         21.30      .115 No_date    2:20   12.08  n/a
02029>                       + 05:EX4          .23      .019 No_date    1:20   15.44  n/a
02030>                       + 06:EX5          .52      .046 No_date    1:20   11.61  n/a
02031>                       + 07:EX6          .51      .031 No_date    1:20   10.99  n/a
02032>                       + 08:EX7          .79      .017 No_date    1:20   19.98  n/a
02033>                       + 09:PF1A         .22      .009 No_date    1:20   16.05  n/a
02034>                       + 10:PF1B         .59      .027 No_date    1:20   16.05  n/a
02035>       [IT= 5.00]  SUM=  01:Tot1       58.57    1.461 No_date    1:30   19.21  n/a
02036>  005:0c2---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02037>       ADD HYD           02:Tot1        58.57    1.461 No_date    1:30   19.21  n/a
02038>                       + 01:PF2A         1.57      .056 No_date    1:20   16.05  n/a
02039>                       + 02:PF2B         1.17      .042 No_date    1:20   16.05  n/a
02040>                       + 03:PF3B          .23      .017 No_date    1:20   16.05  n/a
02041>                       + 04:PF3A          .57      .020 No_date    1:20   16.05  n/a
02042>                       + 05:PF4A          .71      .026 No_date    1:20   16.05  n/a
02043>                       + 06:PF4B          .65      .024 No_date    1:20   16.05  n/a
02044>                       + 09:PF2A          .68      .025 No_date    1:20   16.05  n/a
02045>                       + 10:PF2B          .46      .017 No_date    1:20   16.05  n/a
02046>       [IT= 5.00]  SUM=  01:Tot2       64.71    1.570 No_date    1:30   19.12  n/a
02047>  005:0c3---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02048>       ADD HYD           01:Tot2        64.71    1.570 No_date    1:30   19.12  n/a
02049>                       + 02:PF6A         1.43      .05  No_date    1:20   16.05  n/a
02050>                       + 04:PF6B          .03      .004 No_date    1:20   16.05  n/a
02051>                       + 03:PF7A         1.35      .040 No_date    1:35   11.35  n/a
02052>                       + 06:PF7B1         .36      .011 No_date    1:35   11.35  n/a
02053>                       + 07:PF7B2         .21      .007 No_date    1:30   11.35  n/a
02054>                       + 08:PF8C1         .33      .011 No_date    1:35   11.35  n/a
02055>                       + 09:PF8C2         .11      .005 No_date    1:35   11.35  n/a
02056>                       + 10:PF7A          .36      .010 No_date    1:35   11.35  n/a
02057>       [01= 5.00]  SUM=  01:Tot3       69.86    1.730 No_date    1:35   19.00  n/a
02058>  005:0c4---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02059>       ADD HYD           02:Tot3        69.86    1.730 No_date    1:35   19.00  n/a
02060>                       + 01:PF8          1.38      .035 No_date    1:40   12.24  n/a
02061>                       + 03:PF8A         1.10      .028 No_date    1:35   12.24  n/a
02062>                       + 05:PF8B1         .25      .007 No_date    1:35   12.24  n/a
02063>                       + 06:PF8B2        1.80      .027 No_date    1:30   12.24  n/a
02064>                       + 07:PF10         1.04      .026 No_date    1:00   12.24  n/a
02065>                       + 08:PF11          .43      .011 No_date    1:35   12.15  n/a
02066>                       + 09:EX.          4.08      .170 No_date    1:30   17.00  n/a
02067>                       + 10:PF6          5.03      .466 No_date    1:05   29.87  n/a
02068>       [IT  5.00]  SUM   01:Tot4       80.34    2.332 No_date    1:35   14.30  n/a
02069>  005:0c5---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02070>       ADD HYD           02:Tot4        80.34    2.332 No_date    1:35   14.30  n/a
02071>                       + 03:EX1A         8.41      .274 No_date    1:40   12.08  n/a
02072>                       + 04:EX.          3.13      .137 No_date    1:30   12.08  n/a
02073>                       + 05:EX4          4.14      .15  No_date    1:30   12.08  n/a
02074>                       + 06:PF9B         2.21      .075 No_date    1:35   12.08  n/a
02075>       [01  5.00]  SUM   01:Tot5       104.23    2.924 No_date    1:30   13.50  n/a
02076> *************************************************************************
02077> * Simulations with 4 Look Chicago from City of Ottawa
02078>   ** END OF RUN :  5
02079>
02080> *************************************************************************
02081>
02082>
02083>
02084>
02085>
02086>  RUN:C5MXANDF
02087>  010:0001---------------------------------------------------------------
02088>       START
02089>         [TZERO =    .00 hrs on        0
02090>         [METOPT=    2    (1=Imperial, 2=metric output)
02091>         [NSTORM=    1 ]
02092>         [NRUN  =   10 ]
02093> *************************************************************************
02094> *  SWMM5/V5 Verth.02/Jan 2002 <BETA> / IBPCV DATA FILE
02095> *************************************************************************
02096> *  Project Name: [Greely Village Center]    Project Number: [847-01]
02097> *  Date        : 04 09 2008
02098> *  Modeller    : [JMR]
02099> *  Company     : JFSAinc.
02100> *  License #   : 2047402
02101> *************************************************************************
02102> *
02103> * SAMARIYXU model of the Greely Village Center - Residential Area - Phase 1
02104> * Proposed Ultimate conditions. SPT'08 F
02105> * Filename stands for: SAMarize - Greely, Residential, Phase 2, ultimate V2 with
02106> *
02107> *  December 15, 2008
02108> *  "a" at the end of filename: Added July 1st 1979 event.
02109> *************************************************************************
02110>  010:0002---------------------------------------------------------------
02111>       READ STORM
02112>         Filename = storm.001
02113>         Comment  = 10 years Chicago Storm 4 hours step 10 min, City of Ottawa
02114>         [SDT 10/30/SDOB    4.00:2000=  10.56]
02115> *************************************************************************
02116> * Existing flow - McEvoy Branch of Shield Creek - Areas
02117> * Area d/s of proposed development (residential)
02118> * CN*=75, Slope = 0.8, Tp=0.16, XIXP 5, YIMP-15, see EC001 as per Stantec
02119> * Area partially adjusted based on Artel drawings.
02120> *************************************************************************
02121> * d/s of Bank st.as per Artel - with new flow boundaries and Tp.
02122>  010:0003---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02123>       DESIGN XNSHYD     01:EX1         24.62    1.461 No_date    1:30   19.21  .365
02124>         [CN= 75.0: N= 3.00]
02125>         [Tp=  .25:UC= 5.00]
02126> *************************************************************************
02127> * Existing flow - External areas d/s of Bank st.
02128> * CN* 68, as per Stantec see EC001.
02129> * Area partially adjusted based on Artel drawings.
02130> *************************************************************************
02131> * Areas External to development
02132>  0.0:0004---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02133>       DESIGN XNSHYD     01:EX2          9.89      .226 No_date    2:00   19.78  .358
02134>         [CN= 68.0: N= 3.00]
02135>         [Tp=  .67:UC= 5.00]
02136>  0.0:0005---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02137>       DESIGN XNSHYD     01:EX3         21.30      .419 No_date    2:20   19.78  .358
02138>         [CN= 68.0: N= 3.00]
02139>         [Tp=  .83:UC= 5.00]
02140> * Slope, Flow, Area from Artel Drawing
02141> * C3 from Stantec (EC001)
02142> * Ximp - Timp = 20
02143>  0.0:0006---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02144>    *  CALIB STANDHYD    01:EX4          .50      .023 No_date    1:30   19.59  .335
02145>         [XIMP=  1:TIMP=  22]
02146>         [IOGR= 2 :CN= 68.0]
02147>         [Pervious     area: [Aper= 1.0:SlPP 1.00:LOP=  40.:RNP=.250:SCP=   .0]
02148>         [Impervious   area: [Aimp= 0.:SlPI 1.00:LOI=  20.:RNI=.040:SCI=   .0]
02149> * Road and road side ditch along proposed residential development Parkway rd
02150> * Timp - XIMP = 0.21 ha /0.57 ha = 0.40
02151> * CN* 68, as per Stantec see EC001.
02152> * Slope is estimated at 1%
02153> * Ximp - Timp = 20
02154>  0.0:0007---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02155>    *  CALIB STANDHYD    01:EX5          .52      .035 No_date    1:20   28.67  .504
02156>         [XIMP=.40:TIMP=.40]
02157>         [IOGR= 2 :CN= 68.0]
02158>         [Pervious     area: [Aper= 0.97:SlPP 1.00:LOP=  40.:RNP=.250:SCP=   .0]
```

```
02159>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02160> * Road and road side ditch along projected residential development Na eaharn Rd
02161> * Tlag  Xlag = 0.61 hr /0.51 ha = 0.20
02162> * CN* 69, as per Stantec sec 2C001.
02163> * Slope is estimated at 1
02164> * Xlag = Tlag = 10
02165> 010:0030----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02166>   * CALIB STANDHYD    01:EX6          .51      .021 No_date    1:20   19.17 .365
02167>       [XIMP=.10:TIMP=.20]
02168>       [Loss= 2 :CN= 69.0]
02169>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02170>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02171> * Road and road side ditch along projected residential development Na eaharn Rd
02172> * Tlag = Xlag = 0.60 hr /0.50 ha = 0.20
02173> * CN*=69, as per Stantec sec 2C001.
02174> * Slope is estimated at 1%
02175> * Xlag = Tlag = 10
02176> 010:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02177>   * CALIB STANDHYD    01:EX7          .39      .021 No_date    1:20   20.02 .386
02178>       [XIMP=.10:TIMP=.20]
02179>       [Loss= 2 :CN= 69.0]
02180>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02181>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02182> * Areas to be occupied by commercial development
02183> * CN*=89, as per Stantec sec 2C001.
02184> 010:0050----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02185>     DESIGN HASHYD      01:BA           9.41      .362 No_date    1:10   15.78 .382
02186>       [CN= 89.0: N= 3.00]
02187>       [Ia=   .31:SV= 5.00]
02188> 010:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02189>   * DESIGN HASHYD      01:BA           5.53      .196 No_date    1:25   16.75 .380
02190>       [CN= 89.0: N= 3.00]
02191>       [Ia=   .12:SV= 5.00]
02192> 010:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02193>     DESIGN HASHYD      01:BA           6.14      .262 No_date    1:10   15.78 .380
02194>       [CN= 89.0: N= 3.00]
02195>       [Ia=   .23:SV= 5.00]
02196> 010:0080----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02197>     DESIGN HASHYD      01:BA           8.01      .343 No_date    1:10   15.78 .380
02198>       [CN= 89.0: N= 3.00]
02199>       [Ia=   .18:SV= 5.00]
02200> ********************************************************************************
02201> *------------------------------------------------------------------------------*
02202> * EARTHCORE MULTIFAMILY SUBMASTERSHED - Residential Area Phase 1 and 2         *
02203> *------------------------------------------------------------------------------*
02204> * CN*=89, as per Stantec sec 2C001.                                            *
02205> * Tp estimated with Tp and Method.                                             *
02206> 010:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02207>     DESIGN HASHYD      01:BA1          4.26      .205 No_date    1:10   15.78 .380
02208>       [CN= 89.0: N= 3.00]
02209>       [Ia=   .18:SV= 5.00]
02210> *------------------------------------------------------------------------------*
02211> * AREAS GOING TO POND                                                          *
02212> *------------------------------------------------------------------------------*
02213> *
02214> 010:0095----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02215>   * CALIB STANDHYD    01:FR1A         .04      .001 No_date    1:20   20.05 .389
02216>       [XIMP=.11:TIMP=.21]
02217>       [Loss= 2 :CN= 71.0]
02218>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02219>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02220> 010:0100----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02221>   * CALIB STANDHYD    01:FR1B         .55      .026 No_date    1:20   20.05 .389
02222>       [XIMP=.11:TIMP=.21]
02223>       [Loss= 2 :CN= 71.0]
02224>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02225>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02226> 010:0110----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02227>     CALIB STANDHYD    01:FR1A         .57      .030 No_date    1:20   20.05 .389
02228>       [XIMP=.11:TIMP=.21]
02229>       [Loss= 2 :CN= 71.0]
02230>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02231>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02232> 010:0120----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02233>   * CALIB STANDHYD    01:FR1B         .13      .053 No_date    1:20   20.05 .389
02234>       [XIMP=.11:TIMP=.21]
02235>       [Loss= 2 :CN= 71.0]
02236>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02237>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02238> 010:0130----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02239>   * CALIB STANDHYD    01:FR2A         .45      .022 No_date    1:20   20.05 .389
02240>       [XIMP=.11:TIMP=.21]
02241>       [Loss= 2 :CN= 71.0]
02242>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02243>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02244> 010:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02245>   * CALIB STANDHYD    01:FR4B         .52      .025 No_date    1:20   20.45 .389
02246>       [XIMP=.11:TIMP=.21]
02247>       [Loss= 2 :CN= 71.0]
02248>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02249>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02250> 010:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02251>   * CALIB STANDHYD    01:FR4A         .71      .031 No_date    1:20   20.45 .389
02252>       [XIMP=.11:TIMP=.21]
02253>       [Loss= 2 :CN= 71.0]
02254>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02255>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02256> 010:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02257>   * CALIB STANDHYD    01:FR4B         .66      .031 No_date    1:20   20.45 .389
02258>       [XIMP=.11:TIMP=.21]
02259>       [Loss= 2 :CN= 71.0]
02260>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02261>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02262> 010:0030----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02263>   * CALIB STANDHYD    01:FR5A         .66      .031 No_date    1:20   20.45 .389
02264>       [XIMP=.11:TIMP=.21]
02265>       [Loss= 2 :CN= 71.0]
02266>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02267>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02268> 010:0024----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02269>   * CALIB STANDHYD    01:FR6B         .48      .023 No_date    1:20   20.45 .389
02270>       [XIMP=.11:TIMP=.21]
02271>       [Loss= 2 :CN= 71.0]
02272>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02273>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02274> 010:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02275>   * CALIB STANDHYD    01:FR6A         1.43      .064 No_date    1:20   20.45 .389
02276>       [XIMP=.11:TIMP=.21]
02277>       [Loss= 2 :CN= 71.0]
02278>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02279>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02280> 010:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02281>   * CALIB STANDHYD    01:FR6B         .93      .043 No_date    1:20   20.45 .389
02282>       [XIMP=.11:TIMP=.21]
02283>       [Loss= 2 :CN= 71.0]
02284>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02285>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02286> *------------------------------------------------------------------------------*
02287> * SLOPE ESTIMATED AT 2% BASED ON SWALEYARD SWALES.                             *
02288> * Tlag AND Xlag BASED ON TOTAL POND AREA                                       *
02289> * Xlag = A pond/A tot                                                          *
02290> * Tlag = weighted average of pond and swaleyards                               *
02291> 010:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02292>     CALIB STANDHYD    01:POn          5.02      .624 No_date    1:30   21.56 .586
02293>       [XIMP=.40:TIMP=.47]
02294>       [Loss= 2 :CN= 71.0]
02295>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0
02296>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02297> *------------------------------------------------------------------------------*
02298> * UNCONTROLLED AREAS                                                           *
02299> *------------------------------------------------------------------------------*
02300> *
02301> 010:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02302>   * CALIB STANDHYD    01:FR7A         1.35      .036 No_date    1:55   17.67 .333
02303>       [XIMP=.02:TIMP=.14]
02304>       [Loss= 2 :CN= 71.0]
02305>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  10.:MNP=.250:SCP=   .0
02306>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02307> 010:0080----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02308>   * CALIB STANDHYD    01:FR7B         .56      .027 No_date    1:50   17.67 .333
02309>       [XIMP=.02:TIMP=.14]
02310>       [Loss= 2 :CN= 71.0]
02311>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  10.:MNP=.250:SCP=   .0
02312>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02313> 010:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02314>   * CALIB STANDHYD    01:FR7C         .39      .018 No_date    1:50   17.67 .333
02315>       [XIMP=.02:TIMP=.14]
02316>       [Loss= 2 :CN= 71.0]
02317>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  10.:MNP=.250:SCP=   .0
02318>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02319> 010:0100----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02320>   * CALIB STANDHYD    01:FR7C1        .39      .018 No_date    1:50   17.67 .333
02321>       [XIMP=.02:TIMP=.14]
02322>       [Loss= 2 :CN= 71.0]
02323>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  10.:MNP=.250:SCP=   .0
02324>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0
02325> 010:0017----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

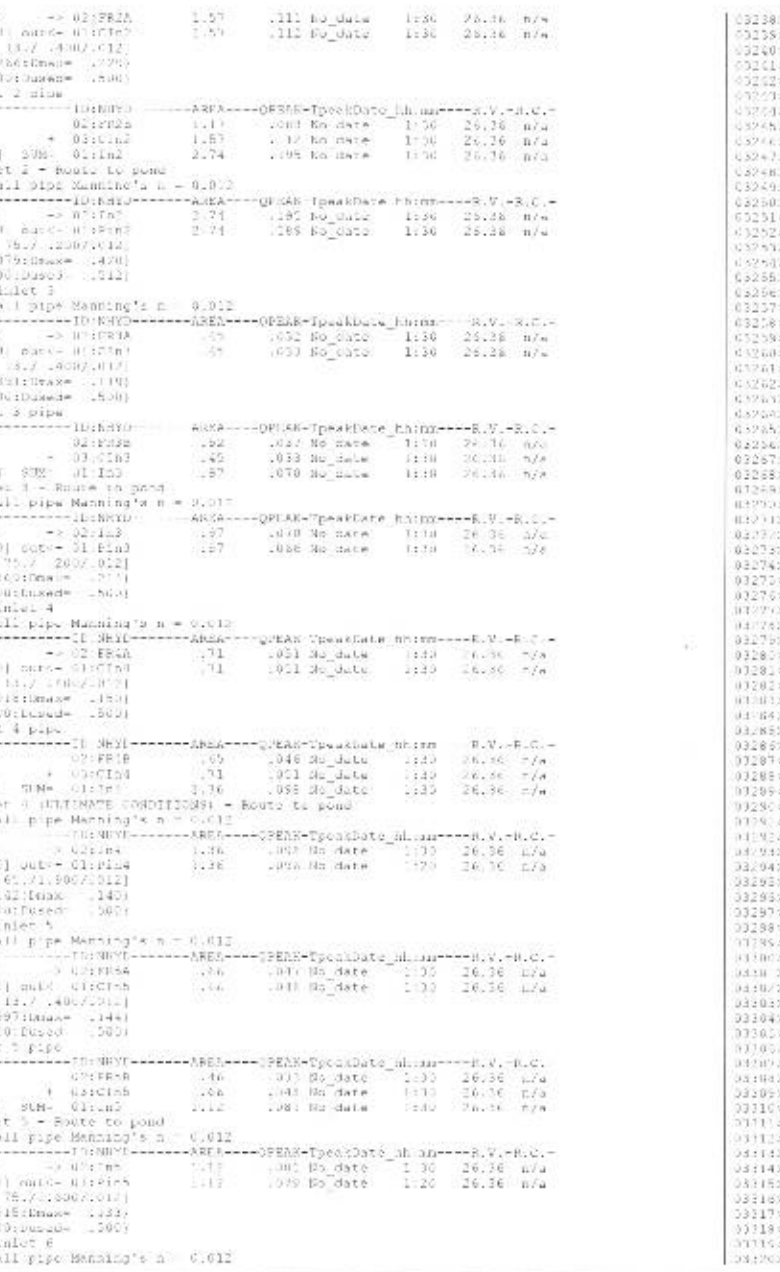




```
[37= 5.00]  SUM=  01:EX1        79.17    1.795 No Date     1:50   15.49  n/a
# ROUTE N. to N3
# Typical Gem for Baked or Shields MD Veg Ditch 3:1 Banks
# provided by Attel
# Manning's n is Channe  not maintained, light brush on banks
# Slope = 0.05  as per plan provided by Attel.
 01:0:0C04----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    > 02:RT1        79.17    1.795 No Date     1:50   15.49  n/a
       [RC= 5.00] out:= 01:OUT        79.17    1.415 No Date     2:00   15.49  n/a
       [L/S/n=  340./ .050/.035]
       [Vmax=  .268:Dmax= 1.292]
# VOLUME from residential area at 3D intersection
 010:0C77----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:FR/A        1.49     .048 No date     1:35   17.62  n/a
                       + 03:FR5         1.45     .052 No date     1:30   16.28  n/a
       [IT= 5.00]  SUM=  01:OUT        2.73     .100 No date     1:35   16.89  n/a
# Added volume from external area contributing to 3D
 010:0C78----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:RT1        79.17    1.415 No date     2:00   15.49  n/a
                       + 04:EX5         2.75     .100 No date     1:45   16.59  n/a
                       + 05:EX6          .82     .055 No date     1:20   26.57  n/a
                       + 06:EX7          .61     .021 No date     1:20   19.17  n/a
       [IT= 5.00]  SUM=  01:OUT        82.95    1.522 No date     1:50   15.50  n/a
# ROUTE N3 to N12B
# Typical Section based on Shields 4D Veg Ditch 3:1 banks
# provided by Attel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05  as per plan provided by Attel.
 010:0C79----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    > 02:OUT        82.95    1.522 No date     1:55   15.50  n/a
       R/T= 5.00] out:= 01:EX3        80.63    1.293 No date     2:10   15.50  n/a
       [L/S/n=  415./ .050/.035]
       [Vmax=  .350:Dmax= 1.212]
# Flow at Stantec node NCR12B for comparison
# Routed N3 plus EX)
 01C:0C80----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:EX3        80.63    1.293 No date     2:10   15.50  n/a
                       + 03:EX2        23.90     .458 No date     2:20   15.78  n/a
       [IC= 5.00]  SUM=  01:NCx12B    104.53    1.617 No date     2:15   17.94  n/a
# AREA CHECK
#
 01C:0C81----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:EX1        24.82    1.401 No date     2:20   19.21  n/a
                       + 03:EX2         9.89     .226 No date     2:05   15.78  n/a
                       + 04:EX3        21.30     .519 No date     2:20   15.78  n/a
                       + 05:EX4          .39     .073 No date     1:50   16.65  n/a
                       + 06:EX5          .69     .055 No date     1:50   16.59  n/a
                       + 07:EX6          .61     .021 No date     1:50   19.17  n/a
                       + 08:EX7          .19     .007 No date     1:50   20.78  n/a
                       + 09:FR1A         .14     .013 No date     1:50   20.95  n/a
                       + 10:FR1B         .55     .076 No date     1:50   20.45  n/a
       [IT= 5.00]  SUM=  01:Tot1       56.53    1.804 No date     1:35   17.47  n/a
# 01C:0C82----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:Tot1       56.52    1.804 No date     1:35   17.47  n/a
                       + 03:FR2A        1.37     .079 No date     1:35   20.42  n/a
                       + 04:FR2B        1.37     .053 No date     1:20   20.45  n/a
                       + 05:FR3A         .15     .021 No date     1:20   20.45  n/a
                       + 06:FR3B         .52     .035 No date     1:30   20.45  n/a
                       + 07:FR4A         .71     .053 No date     1:30   20.45  n/a
                       + 08:FR4B         .65     .038 No date     1:30   20.45  n/a
                       + 09:FR5A         .66     .031 No date     1:20   20.45  n/a
                       + 10:FR5B         .06     .022 No date     1:20   20.45  n/a
       [IT= 5.00]  SUM=  01:Tot2       63.71    2.062 No date     1:35   17.79  n/a
# 010:0C83----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:Tot2       64.71    2.062 No date     1:35   17.79  n/a
                       + 03:FR6A        1.42     .084 No date     1:20   20.45  n/a
                       + 04:FR6B         .93     .043 No date     1:20   20.42  n/a
                       + 05:FR7A        1.35     .056 No date     1:35   17.52  n/a
                       + 06:FR7B1        .26     .017 No date     1:50   17.52  n/a
                       + 07:FR7B2        .09     .010 No date     1:50   17.51  n/a
                       + 08:FR/C1        .39     .018 No date     1:50   17.51  n/a
                       + 09:FR7C2        .17     .008 No date     1:50   17.52  n/a
                       + 10:FR7D         .36     .014 No date     1:50   17.52  n/a
       [IT= 5.00]  SUM=  01:Tot3       69.86    2.307 No date     1:35   17.81  n/a
# 0.0:0C84----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD          > 02:Tot3       69.86    2.307 No date     1:35   17.81  n/a
                       + 01:FR1         1.73     .053 No date     1:35   16.78  n/a
                       + 01:FR5A        1.11     .091 No date     1:35   16.78  n/a
                       + 05:FR5B         .05     .010 No date     1:35   16.78  n/a
                       + 06:FR5C1        .80     .042 No date     1:35   16.78  n/a
                       + 07:FR/C2       1.84     .061 No date     1:35   16.78  n/a
                       + 08:FR/D1        .62     .024 No date     1:35   16.78  n/a
                       + 09:FR.          4.26     .221 No date     1:30   15.78  n/a
                       + 10:FR6          .63     .031 No date     1:20   20.45  n/a
       [IC= 5.00]  SUM=  01:NCR4       81.14    2.739 No date     1:35   17.49  n/a
# Simulations with 4 hour Chicago from City of Ottawa
 ** END OF FOR :  24
#
#
#
#
#
 RUN:C:\PVSWMM\
 Filename
      START
       [TZERO =    .00 hrs on        0
       [METRIC=    2    (1=Imperial, 2=metric output)]
       [METCON=    1 ]
       [MAXIT =   20 ]
#
# SWMM5/PCSWMM Ver:5.02/Jun 2001 <EPA> / INPUT DATA FILE
#
# Project Name: [Greely Village Center]    Project Number: [647-07]
# Date        : 04-03-2003
# Modeller    : [JAC]
# Company     : JFSAinc.
# License #   : 2047402
#
# SWMM/PCSWMM model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate conditions. OPTION B
# Filename stands for: GRP2u2a - Greely, Residential , Phase 2, Ultimate V2 Well
#
#  December 17, 2008
#  "a" at the end of filename= Added July 1st 1979 Event
#
 02B:0C02----------------------------------------------------------------------
      READ STORM
       Filename:   storm.001
       Comment:    25 years Chicago Storm & Data Step 10 min, City of Ottawa
       (SCF=10.00:SCUM=    4.00:PTOT=   61.77)
#
# Existing Flow - N-Every Branch of Shield Creek - Areas
# Area s/a of proposed development (residential)
# CN=+0, a-ope = 0.4, Tp=0.12, XTMP=-5, TIME 17, see SC002 as per Stantec
# Area partially adjusted based on Attel drawings.
#
# s/s of Eamo St.as per Attel - with modified boundaries and Tp.
 02C:0C01----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN BASEYD      01:EX1        24.82    1.867 No date     1:30   25.05  .493
       [CN= 75.0  N= 3.00]
       [Ia=  .23 IT= 5.00]
#
# Existing Flow - External areas s/s of Bank St.
# CN=+69, as per Stantec see SC001.
# Area partially adjusted based on Attel Drawing.
#
# Areas External  to development
 02B:0C04----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DES.SB BASEYD      01:EX2         9.89     .380 No date     1:05   20.81  .533
       [CN= 69.0  N= 3.00]
       [Ia=  .67 IT= 5.00]
 05B:0C05----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DES.SB BASEYD      01:EX3        21.30     .553 No date     2:20   20.81  .537
       [CN= 69.0  N= 3.00]
       [Ia=  .83 IT= 5.00]
# Slope, Tmp, Area from Attel Drawing
# CN from Stantec (SC001)
# Tmp = Tmp - 10
 07B:0C06----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      CALIB STANDHYD     20:EX4         1.50     .010 No date     1:30   25.10  .411
       [XIMP=.11:TIMP=.20]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: Aperv= 4.57:S.PP=1.00:GP=  60.:WBP=.250:SCP=  .0]
       [Impervious   area: Aimp= 1.57:S.PI=1.00:IGI=  98.:WBI=.040:SCI=  .0]
# Road and road side ditch along projected residential development Parkway #2
```

```
* Tinp = Xinp = 0.21 hs /0.57 hs = 0.40
* CN*=89, as per Stantec sec 3C001.
* Slope is estimated at 1
* Xinp = Tinp = 10:
025:0C07---------------10:NH3:-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX3          .52      .070 No_date     1:20   33.07 .535
       [XIMP=.39:TIMP=.49]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:XMI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales Barn Rd
* Tinp = Xinp = 0.09 hs /0.29 hs = 0.32
* CN*=89, as per Stantec sec 3C001.
* Slope is estimated at 2
* Xinp = Tinp = 10
025:0C08---------------10:NH3:-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX4          .21      .034 No_date     1:10   24.50 .422
       [XIMP=.12:TIMP=.28]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:XMI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales Barn Rd
* Tinp = Xinp = 0.09 hs /0.29 hs = 0.32
* CN*=89, as per Stantec sec 3C001.
* Slope is estimated at 2
* Xinp = Tinp = 10
025:0C09---------------10:NH4:-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX5          .19      .029 No_date     1:10   26.34 .422
       [XIMP=.12:TIMP=.28]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:XMI=.045:SCI=   .0]
* Area to be occupied by commercial development
* CN*=89, as per Stantec sec 3C001.
* Slope is estimated at 2
025:0C10---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN MANHYD       01:N.A          9.41      .436 No_date     1:10   28.83 .537
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
025:0C11---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * DESIGN MANHYD       01:N.A          5.13      .284 No_date     1:05   28.83 .537
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
025:0C12---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN MANHYD       01:N3B          5.14      .272 No_date     1:10   28.83 .537
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
025:0C13---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN MANHYD       01:N3B          5.21      .136 No_date     1:10   28.83 .537
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
*****************************************************************
*****************************************************************
* UNCONTROLLED RUNOFF TO EXISTING WETLANDS - Residential Area Phase 1 and 2
*****************************************************************
* CN* 69, as per Stantec sec 3C001.
* Tp estimated with Uplands Method.
025:0C14---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN MANHYD       01:EX1          4.26      .304 No_date     1:10   28.83 .537
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
*****************************************************************
* AREAS GOING TO POND
*****************************************************************
025:0C15---------------10:KHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR1A         .94      .013 No_date     1:10   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:XMI=.045:SCI=   .0]
025:0C16---------------10:NH3:-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR1B         .50      .099 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:XMI=.045:SCI=   .0]
025:0C17---------------10:NH3:-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR2A         1.07      .111 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:XMI=.045:SCI=   .0]
025:0C18---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR2B         1.17      .083 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:XMI=.045:SCI=   .0]
025:0C19---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR3A          .45      .032 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:XMI=.045:SCI=   .0]
025:0C20---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR4A          .71      .051 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  68.:XMI=.045:SCI=   .0]
025:0C22---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR4B          .85      .061 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:XMI=.045:SCI=   .0]
025:0C23---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR5A          .66      .047 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  64.:XMI=.045:SCI=   .0]
025:0C24---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR5B          .46      .033 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  52.:XMI=.045:SCI=   .0]
025:0C25---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR6A          .41      .030 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:XMI=.045:SCI=   .0]
025:0C26---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR6B          .91      .066 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  70.:XMI=.045:SCI=   .0]
# slope estimated at 2% based on backyard swales.
# Tinp and Xinp based on total pond area.
# Xinp = % pond/A tot
# Tinp = weighted average of pond and drainage
025:0C27---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:POL          5.81      .777 No_date     1:20   28.33 .622
       [XIMP=.44:TIMP=.47]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:XMI=.045:SCI=   .0]
*****************************************************************
* UNCONTROLLED AREAS
*****************************************************************
025:0C28---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR1A          .15      .021 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:XMI=.045:SCI=   .0]
025:0C29---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR1B          .16      .023 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:XMI=.045:SCI=   .0]
025:0C30---------------10:NHY0-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:U7B2          .22      .0.5 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
```

```
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0033----------------ID:KHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC1        .30      .076 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0034----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC2        .17      .047 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0035----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC3        .33      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0036----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC4        .13      .035 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0037----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC5        .35      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0038----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC6        .35      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0039----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC7        .35      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC8        .35      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0041----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC9        .35      .092 No date    1:30   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0042----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC10       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0043----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC11       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0044----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC12       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0045----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC13       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0046----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC14       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0047----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC15       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0048----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC16       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0049----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC17       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0050----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC18       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0051----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC19       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0052----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC20       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0053----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC21       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC22       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0055----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC23       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC24       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC25       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC26       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC27       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC28       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC29       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC30       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC31       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC32       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC33       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC34       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC35       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC36       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC37       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC38       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC39       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0072----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC40       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC41       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC42       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0075----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC43       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0076----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC44       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0077----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC45       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0078----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC46       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0079----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC47       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0080----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC48       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0081----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC49       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0082----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC50       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0083----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC51       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0084----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC52       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0085----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC53       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0086----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC54       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0087----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC55       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0088----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC56       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0089----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC57       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC58       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0091----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC59       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0092----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC60       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0093----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC61       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0094----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC62       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0095----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC63       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0096----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC64       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0097----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC65       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0098----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC66       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0099----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC67       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0100----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PRDC68       1.84      .461 No date    1:35   21.65 .354
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015
```



```
03321>       [Vmax= 1.02; Dmax=  .2e5]
03322>       [Qin=  .78Q; Qout=  .78Q]
03323> * Total flow at Node N1 (Shield MD along Bells Farm Rd)
03324>  025:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03325>      AED HYD            02:BAEA3     31.24    2.298 No_date     1:45   22.03  n/a
03326>                       + 03:RoutE     26.62     .156 No_date     5:50   26.35  n/a
03327>                       + 04:EX7        .39     .029 No_date     1:20   26.04  n/a
03328>                       + 05:FR7D       .70     .020 No_date     1:50   23.12  n/a
03329>                       + 06:FR7I       .62     .017 No_date     1:50   21.65  n/a
03330>       [It= 5.0s]  SUM= 01:N1        79.17    5.177 No_date     1:05   24.09  n/a
03331> * ROUTE N  to N1
03332> * Typical Section based on Shields MD Vee Ditch 3:1 banks
03333> * provided by Attel
03334> * Manning's n is Channel not maintained, light grass on banks
03335> * slope   0.05  as per plan provided by Attel.
03336>  025:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03337>      ROUTE CHANNEL   -> 02:N1        79.17    2.477 No_date     1:45   24.09  n/a
03338>  *   [dT= 5.0s] Qout-> 01:N4I       79.17    2.457 No_date     1:55   24.09  n/a
03339>       [L/Z/n=  849.7 .050/.035]
03340>       [Vmax=  .395; Dmax=  1.469]
03341> * VOLUME from residential area at N3 inserts
03342>  025:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03343>      AED HYD            02:FR7A      1.31     .086 No_date     1:50   22.12  n/a
03344>                       + 03:FR8        1.08     .075 No_date     1:35   21.65  n/a
03345>       [dT= 5.0s]  SUM= 01:N3I       2.39     .158 No_date     1:35   22.05  n/a
03346> * Added VOLUME from external area contributing to N3
03347>  025:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03348>      ADD HYD            02:N3I       79.17    2.457 No_date     1:55   24.09  n/a
03349>                       + 03:N3I        2.39     .158 No_date     1:35   22.05  n/a
03350>                       + 04:EA5         .52     .070 No_date     1:30   26.07  n/a
03351>                       + 05:EA6         .51     .034 No_date     1:30   24.80  n/a
03352>       [dT= 5.0s]  SUM= 01:N3        82.83    2.682 No_date     1:55   24.09  n/a
03353> * ROUTE N3 to N3120
03354> * Typical Section based on Shields MD Vee Ditch 3:1 banks
03355> * provided by Attel
03356> * Manning's n is Channel not maintained, light grass on banks
03357> * Slope = 0.05  as per plan provided by Attel.
03358>  025:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03359>      ROUTE CHANNEL   -> 02:N3        82.83    2.682 No_date     1:55   24.09  n/a
03360>       [dT= 5.0s] Qout-> 01:N3D       82.83    2.701 No_date     2:15   24.09  n/a
03361>       [L/Z/n=  915 /  .050/.035]
03362>       [Vmax=  .393; Dmax=  1.374]
03363> * Flow at Stanley node NCR174 for comparison
03364> * Rockland No plus EA5
03365>  025:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03366>      AED HYD            02:N3D       82.83    2.701 No_date     2:15   24.09  n/a
03367>                       + 03:EX5       21.36     .558 No_date     2:20   26.88  n/a
03368>       [dT= 5.0s]  SUM= 01:NCR129    104.19    3.257 No_date     2:15   25.42  n/a
03369> * AREA CHECK
03370> *
03371>  025:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03372>      ADD HYD            02:EA1       24.62    .867 No_date     1:50   25.06  n/a
03373>                       + 03:EA2        8.69     .332 No_date     2:05   26.83  n/a
03374>                       + 04:EX3       21.36     .558 No_date     2:20   26.83  n/a
03375>                       + 05:EX4         .56     .034 No_date     1:50   25.42  n/a
03376>                       + 06:EA5         .52     .018 No_date     1:50   23.07  n/a
03377>                       + 07:EA6         .51     .034 No_date     1:50   24.80  n/a
03378>                       + 08:EA7         .39     .029 No_date     1:20   26.04  n/a
03379>                       + 09:FR1A        .24     .017 No_date     1:50   26.26  n/a
03380>                       + 10:FR1b        .55     .039 No_date     1:50   26.26  n/a
03381>       [dT= 5.0s]  SUM= 01:Tot1      58.52    2.407 No_date     1:50   22.93  n/a
03382>  025:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03383>      ADD HYD            02:Tot1      58.52    2.407 No_date     1:50   22.93  n/a
03384>                       + 03:FR7A       1.59     .111 No_date     1:50   26.26  n/a
03385>                       + 04:FR7C       1.13     .061 No_date     1:50   25.26  n/a
03386>                       + 05:FR3A        .46     .032 No_date     1:50   26.26  n/a
03387>                       + 06:FR4a        .52     .037 No_date     1:50   26.26  n/a
03388>                       + 07:FR4A        .71     .051 No_date     1:50   26.26  n/a
03389>                       + 08:FR4s        .65     .046 No_date     1:50   26.26  n/a
03390>                       + 09:FR5A        .68     .047 No_date     1:50   26.26  n/a
03391>                       + 10:FR5s        .44     .033 No_date     1:50   26.26  n/a
03392>       [dT= 5.0s]  SUM= 01:Tot2      68.71    2.793 No_date     1:55   23.23  n/a
03393>  025:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03394>      ADD HYD            01:Tot2      68.71    2.793 No_date     1:55   23.23  n/a
03395>                       + 02:FR6A       1.46     .110 No_date     1:50   26.26  n/a
03396>                       + 04:FR6a        .95     .066 No_date     1:50   26.26  n/a
03397>                       + 05:FR7A       1.35     .026 No_date     1:50   26.26  n/a
03398>                       + 06:FR7b1       .36     .024 No_date     1:50   23.12  n/a
03399>                       + 07:FR7b2       .22     .015 No_date     1:50   23.12  n/a
03400>                       + 08:FR7C        .15     .009 No_date     1:50   21.65  n/a
03401>                       + 09:FR7CX       .17     .010 No_date     1:50   26.26  n/a
03402>                       + 10:FR7D        .30     .020 No_date     1:50   23.12  n/a
03403>       [dT= 5.0s]  SUM= 01:Tot3      68.86    2.836 No_date     1:50   23.23  n/a
03404>  025:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03405>      ADD HYD            02:Tot3      69.86    2.946 No_date     1:50   23.33  n/a
03406>                       + 03:FR8        1.25     .075 No_date     1:35   21.65  n/a
03407>                       + 04:FR3A        .46     .065 No_date     1:50   27.45  n/a
03408>                       + 05:FR3B1       .25     .015 No_date     1:50   21.65  n/a
03409>                       + 06:FR3B2      1.03     .059 No_date     1:50   27.45  n/a
03410>                       + 07:FR10       1.84     .101 No_date     1:35   27.45  n/a
03411>                       + 08:FR11        .62     .027 No_date     1:50   27.45  n/a
03412>                       + 09:FR1        4.26     .303 No_date     1:50   26.81  n/a
03413>                       + 10:FR9        9.65     .776 No_date     1:20   38.43  n/a
03414>       [dT= 5.0s]  SUM= 01:Tot4      85.36    4.263 No_date     1:50   23.51  n/a
03415>  025:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lnrm----R.V.-R.C.-
03416>      ADD HYD            02:Tot4      85.36    4.263 No_date     1:50   23.51  n/a
03417>                       + 03:FR1A       3.41     .180 No_date     1:50   26.83  n/a
03418>                       + 04:FR2A       3.13     .164 No_date     1:25   26.83  n/a
03419>                       + 05:FR3A       4.14     .217 No_date     1:50   26.81  n/a
03420>                       + 06:FR3B       7.21     .330 No_date     1:50   26.83  n/a
03421>       [dT= 5.0s]  SUM= 01:Tot5     104.23    5.329 No_date     1:50   23.43  n/a
03422> *****************************************************************************
03423> * Simulations with 4 hour Chicago from City of Ottawa
03424>  ** END OF RUN :  49
03425>
03426> *****************************************************************************
03427>
03428>
03429>
03430>
03431>
03432>  RUN:COMMAND4
03433>  050:0002----------------------------------------------------------------------
03434>      START
03435>       [TZERO=      .00 hrs on      0]
03436>       [METOUT=   2     (1 imperial, 2 metric output)]
03437>       [NSTORM=   1 ]
03438>       [NRUN  =  50 ]
03439> *****************************************************************************
03440> *  SWMHYMO Version 2.02 (Jan 2001 <BETA>) / INPUT DATA FILE
03441> *****************************************************************************
03442> *  Project Name: (Greely Village Center)     Project Number: (647-07)
03443> *  Date        : 04-09-2008
03444> *  Modeller    : (JHR)
03445> *  Company     : JFSAinc.
03446> *  License #   : 2507102
03447> *****************************************************************************
03448> *
03449> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
03450> * Proposed Ultimate conditions. Version 2
03451> * Filename stands for: GRP2u2a - Greely, Residential, Phase 2, ultimate v2 with
03452> *
03453> *  December 15, 2008
03454> *  "a" at the end of filename= Added July 1st 1979 Event
03455> *****************************************************************************
03456>  050:0003----------------------------------------------------------------------
03457>      READ STORM
03458>       [Filename = start.mm]
03459>       Comment  = 50 years Chicago Storm 4 Hours Step 10 min. City of Ottawa
03460>       [SDT=10.00;SDUR=  4.00;PTOT=  68.73]
03461> *****************************************************************************
03462> * Existing flow - McEvoy Branch of Shield Creek - Areas
03463> * Area c/s of proposed development (residential)
03464> * CN*=0, Xlag = 0.0, Tp=0.19, XIMP 5, TIMP 15, Sbc 0.002 as per Stanley
03465> * Area partially adjusted based on Attel drawings.
03466> *****************************************************************************
03467> * c/s of Bank St.as per Attel - with modified boundaries and Tp.
03468>  050:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03469>      DBSCS8 RAINHYD      01:EX1       24.62    .1.141 No_date     1:50   25.75  .935
03470>       [Ia=  75.0 ; S=  5.00]
03471>       [Tp=  .23;DT=  5.00]
03472> *****************************************************************************
03473> * Existing flow - External Areas c/s of Bank St.
03474> * CN*=80, as per Stanley see SCCAT.
03475> * Area partially adjusted based on Attel drawings.
03476> *****************************************************************************
03477> * Areas External to Development
03478>  050:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03479>      DBSCS8 RAINHYD      01:EX2       9.89     .364 No_data      2:05   24.09  .903
03480>       [Ia= 65.0 ; S=  5.00]
03481>       [Tp=  .6;DT=  5.00]
03482>  050:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03483>      DBSCS8 RAINHYD      01:EX3       21.49     .671 No_date      2:20   24.09  .903
03484>       [Ia= 65.0 ; S=  5.00]
03485> * Slope, Flop, Area from Attel Drawing
```

```
* CN (not Starter (SCS01)
* Ximp = Timp = 10
 050:0020----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX4          .63      .041 No date      1:30   29.07 .456
       [XIMP=.11:TIMP=.22]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
* Road and road side ditch along projected residential development Parkway B4
* Timp = Ximp = 0.01 ha /0.52 ha = 0.02
* CN-=69, as per Starter see SCS01.
* Slope is estimated at 1%
* Ximp = Timp = 10
 050:0019----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX3          .52      .081 No_date      1:26   35.19 .656
       [XIMP=.19:TIMP=.40]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
* Road and road side ditch along projected residential development Sale:Barr Bd
* Timp = Ximp = 0.01 ha /0.51 ha = 0.02
* CN-=69, as per Starter see SCS01.
* Slope is estimated at 1%
* Ximp = Timp = 10
 050:0018----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX2          .51      .071 No_date      1:30   29.92 .427
       [XIMP=.10:TIMP=.20]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
* Road and road side ditch along projected residential development Sale:Barr Bd
* Timp = Ximp = 0.00 ha /0.39 ha = 0.01
* CN-=69, as per Starter see SCS01.
* Slope is estimated at 1%
* Ximp = Timp = 10
 050:0005----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX1          .39      .034 No_date      1:20   30.65 .446
       [XIMP=.13:TIMP=.27]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
* Areas to be occupied by commercial development
* CN-=89, as per Starter see SCS01.
 050:0010----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DRAINAGE AREA1      01:A1           9.41      .526 No_date      1:40   24.92 .363
       [CN= 69.0: N= 3.00]
       [Ia= .31:IA= 5.00]
 050:0011----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * DESIGN BASIN1     01:B2A          3.79      .379 No_date      1:25   28.92 .363
       [CN= 69.0: N= 3.00]
       [Ia= .31:IA= 5.00]
 050:0011----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DRAINAGE AREA1      01:A1A          4.14      .329 No_date      1:40   24.92 .363
       [CN= 69.0: N= 3.00]
       [Ia= .31:IA= 5.00]
 050:0017----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN BASIN2       01:B1B          3.71      .165 No_date      1:30   28.92 .363
       [CN= 69.0: N= 3.00]
       [Ia= .18:IA= 5.00]
********************************************************************************
* AREAS GOING TO POND
********************************************************************************
*
 050:0015----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX1A         .14      .021 No_date      1:30   31.08 .402
       [XIMP=.12:TIMP=.24]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0016----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX1B         .08      .012 No_date      1:30   31.08 .402
       [XIMP=.12:TIMP=.24]
       [Loss= 2 :CN= 71.0]
*
 050:0021----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX2A         .71      .052 No_date      1:30   31.08 .402
       [XIMP=.12:TIMP=.24]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0022----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX4B         .65      .047 No_date      1:30   31.08 .402
       [XIMP=.11:TIMP=.22]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0023----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX5A         .66      .038 No_date      1:30   31.08 .402
       [XIMP=.11:TIMP=.22]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0024----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX5B         .66      .051 No_date      1:30   31.08 .402
       [XIMP=.11:TIMP=.22]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0025----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:FR6A         1.43      .125 No_date      1:30   31.08 .457
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0026----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:FR6B         .93      .082 No_date      1:30   31.08 .457
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
# slope estimated at 2% based on backyard swales.
# Timp and Ximp based on total pond area.
# Ximp = % pond/A tot
# Timp = weighted average of pond and backyards
 050:0027----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:FR5          5.03      .687 No_date      1:30   43.86 .633
       [XIMP=.44:TIMP=.47]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
*******************************************************************************
* UNCONTROLLED AREAS
*******************************************************************************
*
 050:0029----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:FR7A         1.35      .109 No_date      1:30   27.64 .402
       [XIMP=.30:TIMP=.34]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
 050:0030----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

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03e63>   *  CALIB STANDHYD     01:EB7B1        .36      .039 No_Date     1:30   27.64 .402
03e64>        [XIMP=.02:TIMP= .14]
03e65>        [CN=  2 :CN=  71.0]
03e66>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e67>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e68> 350:C033--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e69>   *  CALIB STANDHYD     01:EB7B2        .37      .039 No_Date     1:30   27.64 .402
03e6a>        [XIMP=.02:TIMP= .14]
03e6b>        [CN=  2 :CN=  71.0]
03e6c>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e6d>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e6e> 350:C034--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e6f>   *  CALIB STANDHYD     01:EB7C1        .38      .039 No_Date     1:30   27.64 .402
03e70>        [XIMP=.02:TIMP= .14]
03e71>        [CN=  2 :CN=  71.0]
03e72>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e73>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e74> 350:C035--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e75>   *  CALIB STANDHYD     01:EB7C2        .37      .039 No_Date     1:30   27.64 .402
03e76>        [XIMP=.02:TIMP= .14]
03e77>        [CN=  2 :CN=  71.0]
03e78>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e79>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e7a> 350:C036--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e7b>   *  CALIB STANDHYD     01:EB7D         .36      .039 No_Date     1:30   27.64 .402
03e7c>        [XIMP=.02:TIMP= .14]
03e7d>        [CN=  2 :CN=  71.0]
03e7e>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e7f>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e80> 350:C037--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e81>   *  CALIB STANDHYD     01:EB8          1.10      .102 No_Date     1:30   26.00 .378
03e82>        [XIMP=.01:TIMP=.07]
03e83>        [CN=  2 :CN=  71.0]
03e84>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e85>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e86> 350:C038--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e87>   *  CALIB STANDHYD     01:EB9          1.10      .102 No_Date     1:30   26.00 .378
03e88>        [XIMP=.01:TIMP=.07]
03e89>        [CN=  2 :CN=  71.0]
03e8a>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e8b>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e8c> 350:C039--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e8d>   *  CALIB STANDHYD     01:EB10         1.10      .102 No_Date     1:30   26.00 .378
03e8e>        [XIMP=.01:TIMP=.07]
03e8f>        [CN=  2 :CN=  71.0]
03e90>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e91>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e92> 350:C03A--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e93>   *  CALIB STANDHYD     01:EB11         1.10      .102 No_Date     1:30   26.00 .378
03e94>        [XIMP=.01:TIMP=.07]
03e95>        [CN=  2 :CN=  71.0]
03e96>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e97>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e98> 350:C03B--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e99>   *  CALIB STANDHYD     01:EB12         1.10      .102 No_Date     1:30   26.00 .378
03e9a>        [XIMP=.01:TIMP=.07]
03e9b>        [CN=  2 :CN=  71.0]
03e9c>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03e9d>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03e9e> 350:C03C--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03e9f>   *  CALIB STANDHYD     01:EB13         1.10      .102 No_Date     1:30   26.00 .378
03ea0>        [XIMP=.01:TIMP=.07]
03ea1>        [CN=  2 :CN=  71.0]
03ea2>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03ea3>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03ea4> 350:C03D--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03ea5>   *  CALIB STANDHYD     01:EB14         1.10      .102 No_Date     1:30   26.00 .378
03ea6>        [XIMP=.01:TIMP=.07]
03ea7>        [CN=  2 :CN=  71.0]
03ea8>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03ea9>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03eaa> 350:C03E--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03eab>   *  CALIB STANDHYD     01:EB15         1.10      .102 No_Date     1:30   26.00 .378
03eac>        [XIMP=.01:TIMP=.07]
03ead>        [CN=  2 :CN=  71.0]
03eae>        [Previous      area: IApvi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03eaf>        [Impervious    area: IAmp= 1.67:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
03eb0> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03eb1> * EXISTING Flow - Apartment or Residential Area Phase 1 and 2                   *
03eb2> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03eb3> * Typical Section based on proposed channel provided by AEL
03eb4> * 4:1 bank slopes, Long S lope = 0.50%, Manning's n is 0.03
03eb5> * Route EA1 to D/S node N0
03eb6>  350:C040--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03eb7>      ROUTE CHANNEL   -> 02:EA1       10.62      3.211 No_Date     1:50   29.75  n/a
03eb8>        [RIP= 5.00  n/a:= 0.:RX=       .0.0]      .0.0% No_Date     1:55   29.75  n/a
03eb9>        [L/S/n=  417./ .500/.030]
03eba>        [Vmax=  2.10:Emax=  .563]
03ebb> * Total flow at N-RYA
03ebc> * (Note that RIA will be sheet draining to proposed channel)
03ebd>  350:C041--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03ebe>      ADD HYD           02:rIA        9.41      .585 No_Date     1:40   24.92  n/a
03ebf>                      + 03:E2A        3.13      .315 No_Date     1:20   24.92  n/a
03ec0>                      + 04:FRSA       1.10      .082 No_Date     1:30   26.00  n/a
03ec1>      [DI  5.00]  SUM=  01:NR1A      13.64      .979 No_Date     1:40   25.01  n/a
03ec2>
03ec3>
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03f1e>
03f1f>
03f20>
03f21>
03f22>
03f23>
03f24>
03f25>
03f26>
03f27> # Typical Section based on proposed channel provided by AEL
03f28> # 4:1 bank slopes, Long S ope = 0.50%, Manning's n is 0.03
03f29> # Route SW draining at N-RXA to d/s node N0
03f2a>  350:C042--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f2b>      ROUTE CHANNEL   -> 02:NR2A       13.64      .979 No_Date     1:50   25.01  n/a
03f2c>        [RIP= 5.00] out<- 01:2NR2A      13.64      .890 No_Date     1:50   25.01  n/a
03f2d>        [L/S/n=  447./ .500/.030]
03f2e>        [Vmax=  .973 Emax=  .374]
03f2f> # Tota  flow at node N0
03f30> # (Note that RX2 will be sheet draining to proposed channel)
03f31>  350:C043--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f32>      ADD HYD           01:NR2A       13.64      .890 No_Date     1:50   25.01  n/a
03f33>                      + 02:RFX1       51.62     2.779 No_Date     1:30   29.72  n/a
03f34>                      + 04:FR1B1       .75      .020 No_Date     1:30   26.00  n/a
03f35>                      + 05:FR1B2      1.00      .025 No_Date     1:30   26.00  n/a
03f36>                      + 06:EA2        9.82      .368 No_Date     1:35   24.92  n/a
03f37>      [IT  5.00]  SUM=  01:N0        49.40     3.943 No_Date     1:30   27.38  n/a
03f38> # Typical Section based on proposed channel provided by AEL
03f39> # 4:1 bank slopes, Long S ope = 0.50%, Manning's n is 0.03
03f3a> # Route SW draining at N0 to d/s node N-FX2
03f3b>  350:C044--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f3c>      ROUTE CHANNEL   -> 02:N0        49.40      3.943 No_Date     1:30   27.38  n/a
03f3d>        [RIP= 5.00] out<- 01:2N0       49.40      3.943 No_Date     1:30   27.38  n/a
03f3e>        [L/S/n=  324./ .500/.030]
03f3f>        (Vmax=  3.219 Emax=  .661)
03f40> # Tota  flow at node N-FX2
03f41>  350:C045--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f42>      ADD HYD           02:N0         49.40     3.187 No_Date     1:40   27.38  n/a
03f43>                      + 01:FR10        1.84      .134 No_Date     1:30   26.00  n/a
03f44>      [IT= 5.00]  SUM=  01:NFX2       51.24     3.305 No_Date     1:40   27.33  n/a
03f45> # Route Node N-DX0 to Node N1
03f46> # Typical Section based on Shields ND Ves Etch 31' Banks
03f47> # provided by Attel
03f48> # Manning's n is channel not maintained, light brush on banks
03f49> # Slope = 0.40% as per plan provided by Attel.
03f4a>  350:C046--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f4b>      ROUTE CHANNEL   -> 01:NFX2      51.24      3.305 No_Date     1:40   27.33  n/a
03f4c>    *   [RIP= 5.00] out<- 01:2NX2      51.24      3.029 No_Date     1:50   27.33  n/a
03f4d>        [L/S/n=  253./ .040/.035]
03f4e>        (Vmax=  .357 Emax= 1.71)
03f4f> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03f50> # Residential Development - Phase 1 and 2                                      *
03f51> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03f52> * Total flow at node N-PA5
03f53>  350:C047--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f54>      ADD HYD           01:PA5        4.14      .326 No_Date     1:30   24.97  n/a
03f55>                      + 02:PA6        2.21      .160 No_Date     1:30   24.92  n/a
03f56>                      + 04:EA4         .50      .033 No_Date     1:30   29.97  n/a
03f57>      [IT= 5.00]  SUM=  01:NR1A       6.85      .519 No_Date     1:30   25.29  n/a
03f58> # Route Node NR1A to Node N-PK1
03f59> # Typical Section based on Mahony Branch Ves Ditch 1.5:' 4 spee
03f5a> # provided by Attel
03f5b> # Manning's n is channel not maintained, light brush on banks
03f5c> # Slope = 0.60% approximately as per Attel drawing (Rs-96.7)/A ft
03f5d>  350:C048--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f5e>      ROUTE CHANNEL   -> 03:NR1B       6.85      .536 No_Date     1:30   25.29  n/a
03f5f>        [RIP= 5.00] out<- 01:NR3E       6.85      .473 No_Date     1:40   25.29  n/a
03f60>        [L/S/n=  318./ .040/.050]
03f61>        (Vmax=  .896:Emax=  .215)
03f62> # Total flow at node N-PK1
03f63>  350:C049--------------ID:NHYD--------AREA    QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f64>      ADD HYD           02:PK1        4.29      .368 No_date     1:30   24.97  n/a
03f65>                      + 03:PUR3E      6.82      .472 No_date     1:40   25.30  n/a
03f66>                      + 04:FR1A        .24      .021 No_date     1:30   31.08  n/a
03f67>      [IT= 5.00]  SUM=  01:4PK1      11.35      .814 No_date     1:35   25.28  n/a
03f68> # Volume to ponding area in PK1
03f69> # 2.0.555 m3/s required as per SCS 100yr existing conditions
03f6a> # Culvert from Inlet 1
03f6b> # Assuming outlet culvert 1: 900 mm, slope = 1.2 , HDPE smooth walls
03f6c> # Manning's n = 0.011, inlet control monograph
03f6d> # Hydraulic head = 0.9m, Q=3.010
03f6e>  350:C050--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f6f>      COMPUTE PVALVED   01:NPK1       1.25      .014 No date     1:35   25.25  n/a
03f70>        Major System /  02:NEX1MJ      .00      .000 No_date     0:00      .00  n/a
03f71>        Minor System \  03:NEX1Mn     11.35      .813 No_date     1:35   25.28  n/a
03f72>       [M]Qmax=4.19 [Min], TotVolVal=.08E06 m3, M-Out=     0, TotDurOvf     0.hrs
03f73> # Input to Inlet 1 pipe
03f74>  350:C051--------------ID:NHYD--------AREA----QPEAK-TpeakDate h:m:s----R.V.-R.C.-
03f75>      ADD HYD           02:NR1B       .55      .049 No_date     1:30   31.08  n/a
03f76>                      + 03:NJ1Mn     11.35      .813 No_date     1:35   25.28  n/a
03f77>      [DT= 5.00]  SUM=  01:1J1       11.90      .859 No_date     1:35   25.56  n/a
03f78> # Pipe from Inlet 1 - Route to pond
03f79> # HDPE smooth wall pipe Manning's n = 0.012
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03819>  JA5:C0n2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03820>       ROUTE PIPE      -> 02:Pin1          1.98      .055 No_date    1:30   25.59  n/a
03821>         [RDT= 5.00] out<- 01:Pin          1.98      .043 No_date    1:30   25.59  n/a
03822>         [L/S/n=   65.7/1.600/.012]
03823>         [Vmax= 3.252:Dmax=  .430]
03824>         [Din=  .600:Dused=  .600]
03825> # Culvert from Inlet 2
03826> # HDPE smooth wall pipe Manning's n = 0.012
03827>  JA5:C0f2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03828>       ROUTE PIPE      -> 02:FR2A          1.57      .157 No_date    1:30   31.08  n/a
03829>         [RDT= 5.00] out<- 01:Cln2         1.57      .138 No_date    1:30   31.08  n/a
03830>         [L/S/n=   78.7 /.400/.012]
03831>         [Vmax= 1.335:Dmax=  .256]
03832>         [Din=  .450:Dused=  .450]
03833> # Input to Inlet 3 pipe
03834>  JA5:C0f4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03835>       ADD HYD         -> 02:FR3A          1.17      .102 No_date    1:30   31.08  n/a
03836>                        + 03:Cln2          1.57      .138 No_date    1:30   31.08  n/a
03837>         [D2  5.00]  SUM   01:In2           2.74      .240 No_date    1:30   31.08  n/a
03838> # Pipe from Inlet 2 - Route to pond
03839> # HDPE smooth wall pipe Manning's n = 0.012
03840>  JA5:C0f6---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03841>       ROUTE PIPE      -> 02:In2           2.74      .240 No_date    1:30   31.08  n/a
03842>  *    [RDT  5.00] out<- 01:Pin2          2.74      .233 No_date    1:30   31.08  n/a
03843>         [L/S/n=   75.7 /.200/.012]
03844>         [Vmax= 1.130:Dmax=  .454]
03845>         [Din=  .450:Dused=  .454]
03846> # Culvert from Inlet 3
03847> # HDPE smooth wall pipe Manning's n = 0.012
03848>  JA5:C0f8---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03849>       ROUTE PIPE      -> 02:FR3A          .75       .010 No_date    1:30   31.08  n/a
03850>         [RDT= 5.00] out<- 01:Cln3         .45       .038 No_date    1:30   31.08  n/a
03851>         [L/S/n=   45.7 /.400/.012]
03852>         [Vmax= .995:Dmax=  .313]
03853>         [Din=  .450:Dused=  .450]
03854> # Input to Inlet 4 pipe
03855>  JA5:C0fA---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03856>       ADD HYD         -> 02:FR4A          .52       .046 No_date    1:30   31.08  n/a
03857>                        + 03:Cln4          .45       .040 No_date    1:30   31.08  n/a
03858>         [D2  5.00]  SUM   01:In3           .97       .086 No_date    1:30   31.08  n/a
03859> # Pipe from Inlet 3 - Route to pond
03860> # HDPE smooth wall pipe Manning's n = 0.012
03861>  JA5:C0fC---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03862>       ROUTE PIPE      -> 02:In4           .97       .086 No_date    1:30   31.08  n/a
03863>         [RDT= 5.00] out<- 01:Pin4          .97       .069 No_date    1:30   31.08  n/a
03864>         [L/S/n=   72.7 /.200/.012]
03865>         [Vmax=  .814:Dmax=  .241]
03866>         [Din=  .450:Dused=  .500]
03867> # Culvert from Inlet 4
03868> # HDPE smooth wall pipe Manning's n = 0.012
03869>  JA5:C0fE---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03870>       ROUTE PIPE      -> 02:FR4A          .71       .063 No_date    1:30   31.08  n/a
03871>         [RDT= 5.00] out<- 01:Cln4          .71       .055 No_date    1:30   31.08  n/a
03872>         [L/S/n=   72.7 /.400/.012]
03873>         [Vmax= 1.001:Dmax=  .311]
03874>         [Din=  .450:Dused=  .500]
03875> # Input to Inlet 5 pipe
03876>  JA5:C0G2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03877>       ADD HYD         -> 02:FR5A          .65       .057 No_date    1:30   31.08  n/a
03878>                        + 03:Cln4          .71       .055 No_date    1:30   31.08  n/a
03879>         [D2  5.00]  SUM   01:In4           1.36      .120 No_date    1:30   31.08  n/a
03880> # Pipe from Inlet 4 (ELIMINATE CONDITION) - Route to pond
03881> # HDPE smooth wall pipe Manning's n = 0.012
03882>  JA5:C0G4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03883>       ROUTE PIPE      -> 02:In5           1.36      .120 No_date    1:30   31.08  n/a
03884>         [RDT= 5.00] out<- 01:Pin4          1.36      .119 No_date    1:30   31.08  n/a
03885>         [L/S/n=   65.7/1.600/.012]
03886>         [Vmax= 2.284:Dmax=  .437]
03887>         [Din=  .450:Dused=  .500]
03888> # Culvert from Inlet 5
03889> # HDPE smooth wall pipe Manning's n = 0.012
03890>  JA5:C0G6---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03891>       ROUTE PIPE      -> 02:FR5A          .06       .005 No_date    1:30   31.08  n/a
03892>         [RDT= 5.00] out<- 01:Cln5          .06       .005 No_date    1:30   31.08  n/a
03893>         [L/S/n=   13.7 /.400/.012]
03894>         [Vmax= 1.062:Dmax=  .181]
03895>         [Din=  .150:Dused=  .500]
03896> # Input to Inlet 6 pipe
03897>  JA5:C0G8---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03898>       ADD HYD         -> 02:FR6A          .46       .041 No_date    1:30   31.08  n/a
03899>                        + 03:Cln5          .06       .005 No_date    1:30   31.08  n/a
03900>         [D2  5.00]  SUM   01:In5           1.52      .109 No_date    1:30   31.08  n/a
03901> # Pipe from Inlet 5 - Route to pond
03902> # HDPE smooth wall pipe Manning's n = 0.012
03903>  JA5:C0GA---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03904>       ROUTE PIPE      -> 02:In6           1.52      .109 No_date    1:30   31.08  n/a
03905>         [RDT= 5.00] out<- 01:Pin6          1.52      .098 No_date    1:30   31.08  n/a
03906>         [L/S/n=   72.7 /.200/.012]
03907>         [Vmax= 1.142:Dmax=  .445]
03908>         [Din=  .500:Dused=  .500]
03909> # Culvert from Inlet 6
03910> # HDPE smooth wall pipe Manning's n = 0.012
03911>  JA5:C0GC---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03912>       ROUTE PIPE      -> 02:FR6A          1.41      .126 No_date    1:30   31.08  n/a
03913>         [RDT= 5.00] out<- 01:Cln6          1.41      .126 No_date    1:30   31.08  n/a
03914>         [L/S/n=   73.7 /.400/.012]
03915>         [Vmax= 1.384:Dmax=  .344]
03916>         [Din=  .450:Dused=  .500]
03917> # Input to Inlet 8 pipe
03918>  JA5:C0GE---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03919>       ADD HYD         -> 02:FR8A          .01       .001 No_date    1:30   31.08  n/a
03920>                        + 03:Cln6          1.41      .126 No_date    1:30   31.08  n/a
03921>         [D2  5.00]  SUM   01:In6           1.55      .128 No_date    1:30   31.08  n/a
03922> # Pipe from Inlet 6 - Route to pond
03923> # HDPE smooth wall pipe Manning's n = 0.012
03924>  JA5:C0H2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03925>       ROUTE PIPE      -> 02:In8           1.55      .128 No_date    1:30   31.08  n/a
03926>         [RDT= 5.00] out<- 01:Pin8          1.55      .128 No_date    1:30   31.08  n/a
03927>         [L/S/n=   78.7 /.200/.012]
03928>         [Vmax= 1.130:Dmax=  .454]
03929>         [Din=  .450:Dused=  .454]
03930> # VOLUME TO POND ULTIMATE RESIDENTIAL
03931>  JA5:C0H4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03932>       ADD HYD         -> 02:Pin1         11.96      .564 No_date    1:30   25.57  n/a
03933>                        + 03:Pin2          2.74      .263 No_date    1:30   31.08  n/a
03934>                        + 04:Pin3           .97       .092 No_date    1:30   31.08  n/a
03935>                        + 05:Pin5          1.36      .118 No_date    1:30   31.08  n/a
03936>                        + 06:Pin7          1.52      .096 No_date    1:30   31.08  n/a
03937>                        + 07:Pin8          2.36      .201 No_date    1:30   31.08  n/a
03938>                        + 08:FR9A          5.03      .887 No_date    1:30   25.86  n/a
03939>         [EI= 5.00]  SUM=  01:POND1-1      25.93     2.017 No_date    1:20   31.00  n/a
03940>  C50:0C60---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03941>       ROUTE RESERVOIR -> 02:POND1-1       25.48     1.017 No_date    1:20   31.00  n/a
03942>         [RDC  5.00] out<- 01:Pond1        25.48     1.015 No_date    1:20   31.00  n/a
03943>                 Overflow <- 03:Overflow      .00       .000 No_date    0:00    .00  n/a
03944>         [Max Stage=  .6328E+00, Total Vol=.8000E+00, Max Outf=     0, Total Outf     0.0000]
03945> # Simulating SCS 100 yr conditions with detailed routing of outflow weir
03946> # updated for weir .6, 1.0
03947> ROUTE RESERVOIR     ID,'Pond1',  ,'NEYDin',['P100Dia'],,
03948> #                   RDC= 5,[Unit],
03949> #                              TABLE OF ( OUTFLOW-STORAGE ) values
03950> #                                        (cms)    (ha-m)
03951> #                                      |   0.0  ,   0.0 |
03952> #                                       0.06001 , 1.120?
03953> #                                       0.20    , 1.9115
03954> #                                       0.61    , 2.0155
03955> #                                      |   .61   ,   1   |  [max twenty pts]
03956> #                             ID=['Pond1'],NEYDout=['P100Out'],
03957> # Route pond outgoing through first set of pipes
03958> # 2 x 900 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
03959> # HDPE smooth wall pipe Manning's n = 0.012
03960>  C50:0C70---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03961>       ROUTE PIPE      -> 02:Pout1       25.48      .179 No_date    1:30   31.02  n/a
03962>         [RDC  5.00] out<- 01:Out1       25.48      .179 No_date    1:30   31.02  n/a
03963>         [L/S/n=   75.7 /.200/.012]
03964>         [Vmax= 1.691:Dmax=  .782]
03965>         [Din=  .780:Dused=  .780]
03966> # Flow b/s of outlet culverts
03967>  C50:0C72---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03968>       ADD HYD         -> 02:FR7A1         .46       .036 No_date    1:30   27.64  n/a
03969>                        + 03:FR7A2         .22       .019 No_date    1:30   27.64  n/a
03970>                        + 04:Out1        25.48      .179 No_date    1:30   31.02  n/a
03971>         [TT= 5.00]  SUM   01:Pout        26.06      .183 No_date    1:30   30.94  n/a
03972> # Route outflow through set of culverts
03973> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=750 mm dia
03974> # HDPE smooth wall pipe Manning's n = 0.012
03975>  C50:0C72---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03976>       ROUTE PIPE      -> 02:Out         26.06      .183 No_date    1:30   30.94  n/a
03977>         [RDC  5.00] out<- 01:Out        26.06      .183 No_date    1:30   30.94  n/a
03978>         [L/S/n=   73 /.400/.012]
03979>         [Vmax= .414:Dmax=  .776]
03980>         [Din=  .780:Dused=  .780]
03981> # Flow b/s of second set of outlow pipes
03982>  C50:0C73---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03983>       ADD HYD         -> 03:FR7C1         .35       .033 No_date    1:30   27.64  n/a
03984>                        + 04:FR7C2         .17       .015 No_date    1:30   27.64  n/a
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                        +  01:Cout      26.66     .193 No_date    1:55   30.94  n/a
          ET= 5.00   SUM=  01:Pout2     26.62     .187 No_date    1:45   30.87  n/a
* Route curlow through second set of pipes
* 2 x 1400 pipes simulated with 1 pipe of equivalent capacity (.780 as sim)
* HDPE smooth wall pipe Manning's n   0.012
 <50:0074---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout2     26.62     .187 No date    1:45   30.87  c/a
        [ROT= 5.00] DUR= 01:Pout2     26.62     .187 No_date    1:45   30.87  r/a
          (.5/n=  45./ .380/.012)
          (Vmax= 1.10:Dmax=  .250)
          [D.u=  .75#:Dmax=  .78D)
* Total flow at Node N1 (Shield NO along Gates Barn Rd)
 <50:0075---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:RdsX2     51.24    2.908 No date    1:50   27.51  c/a
                      + 03:PoutP     26.62     .187 No date    1:45   30.87  r/a
                      + 04:EX7        .39     .034 No_date    1:30   26.65  r/a
                      + 05:FP7D       .19     .020 No_date    1:30   27.64  r/a
                      + 06:FR71       .62     .047 No_date    1:30   28.00  r/a
        [ET= 5.00]  SUM=  01:N7       79.17    3.135 No_date    1:50   28.52  r/a
* ROUTE N1 to N1
* Typical Section based on Shields Dr Vac Ditch 3:1 banks
* provided by Ariel
* Manning's n is channel not maintained, light brush or banks
* Slope =  0.03  as per plan provided by Ariel.
 <50:0076---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1        79.17    3.135 No_date    1:50   28.52  r/a
        [RCT= 5.00] DUR= 01:RN1       79.17    2.610 No_date    1:55   28.53  r/a
          (.5/n=  .040/ .050/.035)
          (Vmax=  .19#:Dmax= 1.00')
* VOLUME from residential area at N1 interim
 <50:0077---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:rN7A         .39     .102 No_date    1:30   27.60  n/a
                      + 03:FP8        1.38     .102 No_date    1:30   26.00  n/a
        [ET= 5.00]  SUM=  01:N7i        1.77     .211 No_date    1:30   26.81  n/a
* Added VOLUME from external area contributing to N7
 <50:0078---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:RN1        79.17    2.816 No_date    1:55   29.51  n/a
                      + 03:EX1         2.73     .21. No_date    1:30   28.41  n/a
                      + 04:EX7          .52     .081 No_date    1:25   26.19  n/a
                      + 05:EX5          .51     .047 No_date    1:30   28.32  n/a
        [ET= 5.00]  SUM=  01:N8       83.93    3.170 No_date    1:55   29.54  n/a
* ROUTE N7 to N1(2)
* Typical Section based on shields Dr Vac Ditch 3:1 banks
* provided by Ariel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.03  as per plan provided by Ariel.
 <50:0079---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3        82.83    2.770 No_date    1:55   29.54  n/a
        [RCT= 5.00] DUR= 01:RN3       82.83    2.282 No_date    2:05   29.04  n/a
          (.5/n=  .015/ .050/.035)
          (Vmax=  .19#:Dmax= 1.07')
* Flow at Shirley node N3(1)A for comparison
* Marked N3 plan FX3
 <50:0080---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:RN3        82.83    2.282 No_date    2:05   29.04  n/a
                      + 03:EX3        21.30     .871 No_date    2:20   24.92  n/a
        [ET= 5.00]  SUM=  01:PCB12B   104.23    2.922 No_date    2:05   27.40  n/a
* AREA CHECK
*
 <50:0081---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:EX1        24.62    2.242 No_date    1:50   29.75  n/a
                      + 03:EX2         5.89     .364 No_date    2:05   24.02  n/a
                      + 04:EX3        21.30     .871 No_date    2:20   24.92  n/a
                      + 05:EX4         .50     .037 No_date    1:30   25.97  n/a
                      + 06:EX5         .51     .047 No_date    1:30   28.19  n/a
                      + 07:EX6         .51     .048 No_date    1:30   30.12  n/a
                      + 08:EX7         .39     .034 No_date    1:30   26.65  n/a
                      + 09:FP1A        .24     .021 No_date    1:30   31.05  n/a
                      + 10:FP1B        .55     .049 No_date    1:30   31.05  n/a
        [ET= 5.00]  SUM=  01:To1      58.73    2.883 No_date    1:50   27.28  n/a
 <50:0082---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           01:To1        58.57    2.883 No_date    1:50   27.28  n/a
                      + 01:P2A         1.57     .133 No_date    1:30   31.05  n/a
                      + 04:rP2A        1.17     .100 No_date    1:30   31.05  n/a
                      + 05:rP3A         .45     .040 No_date    1:30   31.05  n/a
                      + 06:rP3b         .52     .046 No_date    1:30   31.05  n/a
                      + 07:rP4A         .71     .062 No_date    1:30   31.05  n/a
                      + 08:FP4b         .65     .057 No_date    1:30   31.05  n/a
                      + 09:rP5A         .66     .058 No_date    1:30   31.05  n/a
                      + 10:FP5b         .66     .061 No_date    1:30   31.05  n/a
        [ET= 5.00]  SUM=  01:To2      64.71    3.374 No_date    1:50   27.64  n/a
 <50:0083---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:To2        64.71    3.374 No_date    1:50   27.64  n/a
                      + 03:rN6A        1.44     .125 No_date    1:30   31.08  n/a
                      + 04:rN6a         .94     .082 No_date    1:30   31.08  n/a
                      + 05:rN7A        1.65     .144 No_date    1:30   27.64  n/a
                      + 06:rN7b1        .56     .038 No_date    1:30   27.64  n/a
                      + 07:rN7b2        .20     .014 No_date    1:30   27.64  n/a
                      + 08:FR7c1        .39     .034 No_date    1:30   27.64  n/a
                      + 09:FR7C2        .17     .015 No_date    1:30   27.64  n/a
                      + 10:FR77         .58     .025 No_date    1:30   27.64  n/a
        [P1= 5.00]  SUM=  01:To4      69.06    3.810 No_date    1:50   27.76  n/a
 <50:0084---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:To4        69.06    3.810 No_date    1:50   27.76  n/a
                      + 03:rN8         1.58     .102 No_date    1:30   26.08  n/a
                      + 04:rN9A        1.10     .087 No_date    1:30   26.08  n/a
                      + 05:FR8B1        .25     .020 No_date    1:30   26.08  n/a
                      + 06:FR8B2       1.00     .075 No_date    1:30   26.08  n/a
                      + 07:rP1C        1.84     .134 No_date    1:30   26.08  n/a
                      + 08:FR11         .62     .047 No_date    1:30   26.08  n/a
                      + 09:rK1         4.27     .305 No_date    1:30   26.97  n/a
                      + 10:rN5a        5.40     .387 No_date    1:30   43.28  n/a
        [ET= 5.00]  SUM=  01:To5      88.34    5.201 No_date    1:30   28.43  n/a
 <50:0085---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      ADD HYD           02:To4        88.34    5.201 No_date    1:30   28.43  n/a
                      + 03:B1A         8.41     .526 No_date    1:40   20.92  n/a
                      + 04:P2A         3.13     .319 No_date    1:35   26.92  n/a
                      + 05:P1B         3.14     .329 No_date    1:40   26.92  n/a
                      + 06:R1B         2.21     .185 No_date    1:40   26.92  n/a
        [P1= 5.00]  SUM=  01:To6     105.23    6.481 No_date    1:30   27.38  n/a
*************************************************************************
* Simulations with a Euro Chinook from City of Ottawa
** END OF RUN : 98
*************************************************************************
*
*
*
*
*
 RUN:C:\MRA\MD4
 100:0001---------------------------------------------------------------
      START
       |TZERO      .00 Hrs on        0|
       |METOUT=   2     (1=Imperial, 2=metric output)|
       |NSTORM=   1 |
       |NRUN  = 100
*************************************************************************
*  SWMM:MD Ver:5.007/Jan 08|1 <RETA> / INPUT DATA File
*************************************************************************
*  Project Name: Greely Village Center]    Project Number: [447-01]
*  Date        : 04-09-2008
*  Modeller    : [JRE]
*  Company     : JFSAinc.
*  License #   : 2047602
*************************************************************************
*
* SWMM:MD model of the Greely Village Center - Residential Area   Phase 2
* Proposed Ultimate conditions, 2YR/10R 8
* Filename stands for: MD/a/x   Greely, Residential, Phase 2, ultimate v2 weir
*
*  December 15, 2008
*  "a" at the end of filename: Added July 1st 1979 Event
*************************************************************************
 100:0002---------------------------------------------------------------
      READ STORM
       Filename = Storm.001
       Comment  = 100 years Chicago Storm 4 hours Step 10 min, City of Ottawa
       |Ptot=10.00:TOTP=   5.00:TDUR   75.00|
*************************************************************************
* Existing Flow - McEvoy Branch at Shields Creek - Areas
* Area C/s of proposed development (residential)
* CN*=75, slope   0.8, Ip-0.18, XIMP=45, TIMP=45, Area SCS01 as per Stantec
* Area partially adjusted based on Ariel drawings.
*************************************************************************
* c/s of Bank St.as per Ariel - with modified boundaries and To.
 100:0003---------------ID:NHYT-------AREA-----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
      JESIGN RAINFALL      01:EX1        24.62    2.651 No_date    1:30   34.87 .459
       |CN= 75.0: N= 2.00|
       |Ia=   .23:RC=  5.00|
*************************************************************************
* Existing Flow - External areas c/s of Bank St.
* CN*=60, as per Stantec sce SLC01.
* Area partially adjusted based on Ariel drawings.
*************************************************************************
* Areas External to development
```

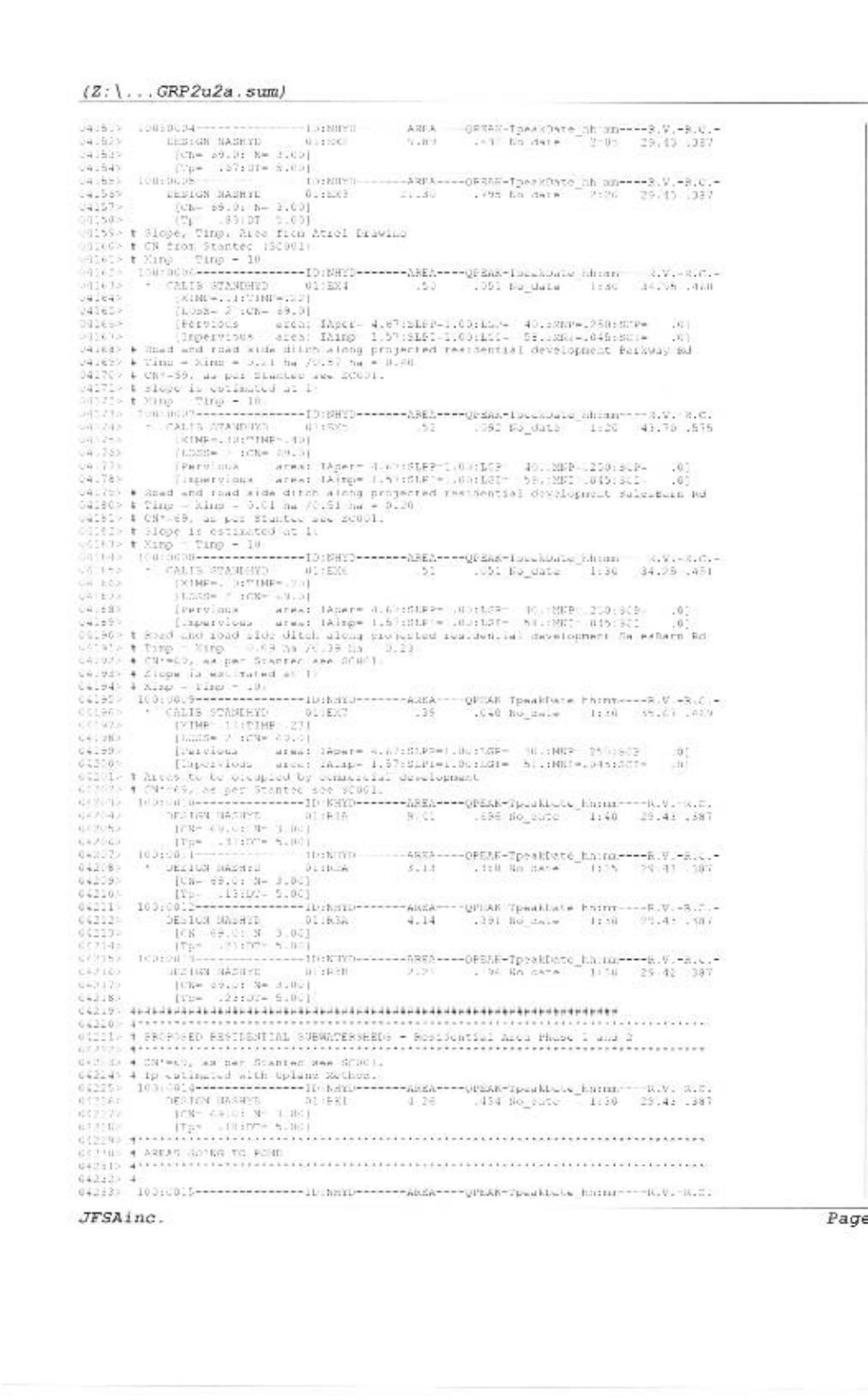

```
04317> *-----------------------------------------------------------------------
04318> *
04319>  100:0028--------------ID:RH1------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04320>    * CALIB STANDHYD     01:PR7A        1.30      .194 No date    1:30   32.5% .409
04321>        [XIMP=.02:TIMP=.15]
04322>        [LOSS= 2 :CN= 71.0]
04323>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04324>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04325>  100:0029--------------ID:RH2------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04326>    * CALIB STANDHYD     01:PR7B1       .96      .097 No date    1:30   32.5% .409
04327>        [XIMP=.02:TIMP=.15]
04328>        [LOSS= 2 :CN= 71.0]
04329>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04330>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04331>  100:0030--------------ID:RH3------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04332>    * CALIB STANDHYD     01:PR7B2       .52      .020 No date    1:30   32.5% .409
04333>        [XIMP=.02:TIMP=.15]
04334>        [LOSS= 2 :CN= 71.0]
04335>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04336>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04337>  100:0031--------------ID:RH4------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04338>    * CALIB STANDHYD     01:PR7C1       .39      .040 No date    1:30   32.5% .409
04339>        [XIMP=.02:TIMP=.15]
04340>        [LOSS= 2 :CN= 71.0]
04341>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04342>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04343>  100:0032--------------ID:RH5------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04344>    * CALIB STANDHYD     01:PR7C2       .17      .016 No date    1:30   32.5% .409
04345>        [XIMP=.02:TIMP=.14]
04346>        [LOSS= 2 :CN= 71.0]
04347>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04348>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
04349>  100:0033--------------ID:RH6------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04350>    * CALIB STANDHYD     01:PR7D        .56      .053 No date    1:30   32.5% .409
04351>        [XIMP=.02:TIMP=.14]
04352>        [LOSS= 2 :CN= 71.0]
04353>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04354>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04355>  100:0034--------------ID:RH7------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04356>    * CALIB STANDHYD     01:PR8         1.30      .126 No date    1:30   30.77 .405
04357>        [XIMP=.01:TIMP=.07]
04358>        [LOSS= 2 :CN= 71.0]
04359>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04360>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04361>  100:0035--------------ID:RH8------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04362>    * CALIB STANDHYD     01:PR9A        1.10      .102 No date    1:30   30.77 .405
04363>        [XIMP=.01:TIMP=.07]
04364>        [LOSS= 2 :CN= 71.0]
04365>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04366>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04367>  100:0036--------------ID:RH9------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04368>    * CALIB STANDHYD     01:PR9B        1.84      .168 No date    1:30   30.77 .405
04369>        [XIMP=.01:TIMP=.07]
04370>        [LOSS= 2 :CN= 71.0]
04371>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04372>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04373>  100:0037--------------ID:RH10-----AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04374>    * CALIB STANDHYD     01:PR5B2       1.00      .093 No date    1:30   30.77 .405
04375>        [XIMP=.01:TIMP=.07]
04376>        [LOSS= 2 :CN= 71.0]
04377>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04378>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04379>  100:0038--------------ID:RH11-----AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04380>    * CALIB STANDHYD     01:PR1C        1.84      .168 No date    1:30   30.77 .405
04381>        [XIMP=.01:TIMP=.07]
04382>        [LOSS= 2 :CN= 71.0]
04383>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04384>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04385>  100:0039--------------ID:RH12-----AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04386>    * CALIB STANDHYD     01:PR1         .62      .058 No date    1:30   30.77 .405
04387>        [XIMP=.01:TIMP=.07]
04388>        [LOSS= 2 :CN= 71.0]
04389>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04390>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
04391> *-----------------------------------------------------------------------
04392> * EXISTING flow - Upstream of Residential Area Phase 1 and 2
04393> *-----------------------------------------------------------------------
04394> * Typical Section based on proposed channel provided by AEL
04395> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04396> * Route EX1 to D/S node N1
04397>  100:0040--------------ID:RH13-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
04398>      ROUTE CHANNEL    -> 02:N1          1.84      .168 No date    1:30   34.87  n/a
04399>        [RT= 5.00] outs= 01:RX1         1.84      .168 No date    1:30   34.87  n/a
04400>        [L/S/n=  587./ .500/.030]
04401>        [Vmax=  1.15:Qmax=  .168]
04402> * Total flow at N-N1A
04403> * (Note that R1A will be sheet draining to proposed channel)
04404>  100:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04405>      ADD HYD            02:R1A         9.41      .681 No date    1:30   29.43  n/a
04406>                       + 03:N2A         3.15      .380 No date    1:25   29.43  n/a
04407>                       + 04:RX9A        1.38      .167 No date    1:30   30.77  n/a
04408>        [V= 5.00]  SUM=  01:NR1A        14.04     1.214 No date    1:30   29.53  n/a
04409> * Typical section based on proposed channel provided by AEL
04410> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04411> * Route SW draining at N-R2A to D/S node N6
04412>  100:0042--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04413>      ROUTE CHANNEL    -> 02:NR2A        14.04     1.214 No date    1:30   29.53  n/a
04414>        [RT= 5.00] outs= 01:NR2A        14.04     1.214 No date    1:30   29.53  n/a
04415>        [L/S/n=  587./ .500/.030]
04416>        [Vmax=  .9121:Qmax=  .405]
04417> * Total flow at node N3
04418> * (Note that EX2 will be sheet draining to proposed channel)
04419>  100:0043--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04420>      ADD HYD            02:RX9A        1.38      .167 No date    1:30   30.77  n/a
04421>                       + 03:PEA1       24.62     3.584 No date    1:35   34.87  n/a
04422>                       + 04:RX9E1       .25      .029 No date    1:30   30.77  n/a
04423>                       + 05:RX9E2      1.60      .193 No date    1:30   30.77  n/a
04424>                       + 06:EX2        5.89      .482 No date    2:05   28.11  n/a
04425>        [V= 5.00]  SUM=  01:N3          69.40     5.858 No date    1:55   32.20  n/a
04426> * Typical Section based on proposed channel provided by AEL
04427> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04428> * Route SW dividing at N6 to D/S node N EX3
04429>  100:0044--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04430>      ROUTE CHANNEL    -> 02:N6          69.40     5.858 No date    1:55   32.20  n/a
04431>        [RT= 5.00] outs= 01:RX7         69.40     5.858 No date    1:40   32.20  n/a
04432>        [L/S/n=  394./ .500/.030]
04433>        [Vmax=  1.274:Qmax=  .716]
04434> * Total flow at node N-EX3
04435>  100:0045--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04436>      ADD HYD            02:RX7         69.40     5.858 No date    1:40   32.20  n/a
04437>                       + 03:PEA_9       1.84      .161 No date    1:30   30.77  n/a
04438>        [V= 5.00]  SUM=  01:NEX3        71.24     5.950 No date    1:40   32.13  n/a
04439> * Route Node N-EX3 to Node N1
04440> * Typical Section based on Shields EX Yee Ditch 3:  Banks
04441> * provided by Atrel
04442> * Manning's n is Channel not maintained, light brush on banks
04443> * Slope = 0.65% as per plan provided by Atrel
04444>  100:0046--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04445>      ROUTE CHANNEL    -> 02:NEX3        71.24     5.950 No date    1:40   32.13  n/a
04446>    * [RT= 5.00] outs= 01:RNX2        71.24     5.950 No date    1:55   32.13  n/a
04447>        [L/S/n=  253./ .050/.032]
04448>        [Vmax=  .75] Qmax=  1.812]
04449> *-----------------------------------------------------------------------
04450> * Residential Development - Phase 1 and 2
04451> *-----------------------------------------------------------------------
04452> * Total flow at node N-N3E
04453>  100:0047--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04454>      ADD HYD            03:R3A         4.14      .392 No date    1:30   29.43  n/a
04455>                       + 03:R3B         2.71      .194 No date    1:30   29.42  n/a
04456>                       + 04:EX4          .90      .065 No date    1:30   34.87  n/a
04457>        [V= 5.00]  SUM=  01:NR3E        6.85      .652 No date    1:30   29.87  n/a
04458> * Route Node NR3E to Node N-EX1
04459> * Typical Section based on McCrory Branch Yee Ditch 1.5:1 slopes
04460> * provided by Atrel
04461> * Manning's n is Channel not maintained, light brush on banks
04462> * Slope = 0.80% approximately as per Atrel drawing (Z:\...\TBT
04463>  100:0048--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04464>      ROUTE CHANNEL    -> 02:NR3E        6.85      .652 No date    1:30   29.87  n/a
04465>        [RT= 5.00] outs= 01:RNR3B       6.85      .065 No date    1:55   29.87  n/a
04466>        [L/S/n=  313./ .080/.050]
04467>        [Vmax=  .67:Qmax=  .174]
04468> * Total flow at node N-EX1
04469>  100:0049--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04470>      ADD HYD            02:PR1         4.06      .431 No date    1:30   29.43  n/a
04471>                       + 03:PR3B        6.85      .967 No date    1:55   29.87  n/a
04472>                       + 04:RX1A         .24      .029 No date    1:30   30.77  n/a
04473>        [V= 5.00]  SUM=  01:NEX1        11.15     1.375 No date    1:35   29.81  n/a
04474> * Volume to ponding area in PX1
04475> * Q=0.666 m3/s required as per AOS 100yr Existing conditions
04476> * Culvert Iron in.ac 1
04477> * Assuming outlet culvert is 800 mm, slope = .7%, HDPE smooth walls
04478> * Manning's n = 0.012, Inlet control nomograph
04479> * Pyraulic head = 0.5m, Q 0.61C
04480>  100:0050--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hhmm----R.V.-R.C.-
04481>      COMPUTE BOX_HYD    01:NEX1        11.15     1.375 No date    1:35   29.81  n/a
04482>        Major System /   02:NEXIM        .00      .000 No date    0:00    .00  n/a
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```
04481>          Minor System \  0::NPX1Mn     11.35      .610 No_Date    1:25   30.33  n/a
04484>       (AjsysSio=.4267E+00, TotOvfVol .0000E+00, N-Ovf      0, TotDurOvf      0.hrs)
04485> # Input to inlet 1 pipe
04486> 100:0051<---------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
04487>      ADD HYD            02:FR1B       .55       .059 No date    1:40   36.21  n/a
04488>                       + 03:NPX1Mn    11.35      .610 No_date    1:25   33.55  n/a
04489>      [II  5.00]  SUM=  01:In1        11.90      .669 No_date    1:40   33.79  n/a
04490> # Pipe from inlet 1 - Route to pond
04491> # HDPE smooth wall pipe Manning's n = 0.012
04492> 100:0052<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04493>      ROUTE PIPE       -> 02:In1        11.90      .669 No_date    1:40   36.19  n/a
04494>       [RDT= 5.00] out<- 01:Pin1        11.90      .669 No_date    1:35   36.79  n/a
04495>       [I/S/n=  75./1.600/.012]
04496>       [Vmax= 5.081:Dmax=  .804]
04497>       [Din=  .600:Dused=  .600]
04498> # Culvert from Inlet 2
04499> # HDPE smooth wall pipe Manning's n = 0.012
04500> 100:0053<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04501>      ROUTE PIPE       -> 02:FR2A       1.57       .166 No_date    1:40   36.27  n/a
04502>       [RDT= 5.00] out<- 01:CIn2        1.57       .166 No_date    1:40   36.27  n/a
04503>       [I/S/n=  75./ .600/.012]
04504>       [Vmax= 3.391:Dmax=  .490]
04505>       [Din=  .600:Dused=  .600]
04506> # Input to inlet 2 pipe
04507> 100:0054<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04508>      ADD HYD            02:FR2B       1.17       .125 No_date    1:30   36.21  n/a
04509>                       + 03:CIn2       1.57       .166 No_date    1:40   36.27  n/a
04510>      [DT= 5.00]  SUM=  01:In2        2.74       .290 No_date    1:30   36.27  n/a
04511> # Pipe from inlet 2 - Route to pond
04512> # HDPE smooth wall pipe Manning's n = 0.012
04513> 100:0055<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04514>      ROUTE PIPE       -> 02:In2        2.74       .290 No_date    1:30   36.22  n/a
04515>   *   [RDT= 5.00] out<- 01:Pin2        2.74       .282 No_date    1:30   36.22  n/a
04516>       [I/S/n=  75./ .200/.012]
04517>       [Vmax= 3.193:Dmax=  .486]
04518>       [Din=  .500:Dused=  .504]
04519> # Culvert from Inlet 3
04520> # HDPE smooth wall pipe Manning's n = 0.012
04521> 100:0056<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04522>      ROUTE PIPE       -> 02:FR3A        .65       .068 No_date    1:30   36.21  n/a
04523>       [RDT= 5.00] out<- 01:CIn3        .65       .068 No_date    1:30   36.21  n/a
04524>       [I/S/n=  75./ .400/.012]
04525>       [Vmax= 1.805:Dmax=  .346]
04526>       [Din=  .500:Dused=  .500]
04527> # Input to inlet 3 pipe
04528> 100:0057<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04529>      ADD HYD            02:FR3B        .52       .056 No_date    1:30   36.21  n/a
04530>                       + 03:CIn3        .65       .068 No_date    1:30   36.21  n/a
04531>      [DT= 5.00]  SUM=  01:In3         .97       .100 No_date    1:30   36.21  n/a
04532> # Pipe from inlet 3 - Route to pond
04533> # HDPE smooth wall pipe Manning's n = 0.012
04534> 100:0058<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04535>      ROUTE PIPE       -> 02:In3         .97       .100 No_date    1:30   36.21  n/a
04536>       [RDT= 5.00] out<- 01:Pin3         .97       .100 No_date    1:30   36.21  n/a
04537>       [I/S/n=  75./ .200/.012]
04538>       [Vmax= 1.562:Dmax=  .271]
04539>       [Din=  .500:Dused=  .500]
04540> # Culvert from Inlet 4
04541> # HDPE smooth wall pipe Manning's n = 0.012
04542> 100:0059<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04543>      ROUTE PIPE       -> 02:FR4A        .71       .074 No_date    1:30   36.21  n/a
04544>       [RDT= 5.00] out<- 01:CIn4        .71       .077 No_date    1:30   36.21  n/a
04545>       [I/S/n=  75./ .400/.012]
04546>       [Vmax= 1.144:Dmax=  .285]
04547>       [Din=  .500:Dused=  .500]
04548> # Input to inlet 4 pipe
04549> 100:0060<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04550>      ADD HYD            02:FR4B        .65       .068 No_date    1:30   36.21  n/a
04551>                       + 03:CIn4        .71       .077 No_date    1:30   36.21  n/a
04552>      [DT= 5.00]  SUM=  01:In4         1.36       .146 No_date    1:30   36.21  n/a
04553> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
04554> # HDPE smooth wall pipe Manning's n = 0.012
04555> 100:0061<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04556>      ROUTE PIPE       -> 02:In4        1.36       .146 No_date    1:30   36.21  n/a
04557>       [RDT= 5.00] out<- 01:Pin4        1.36       .146 No_date    1:30   36.21  n/a
04558>       [I/S/n=  60.71.900/.012]
04559>       [Vmax= 3.402:Dmax=  .173]
04560>       [Din=  .300:Dused=  .500]
04561> # Culvert from Inlet 5
04562> # HDPE smooth wall pipe Manning's n = 0.012
04563> 103:0062<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04564>      ROUTE PIPE       -> 02:FR5A        .66       .070 No_date    1:30   36.21  n/a
04565>       [RDT= 5.00] out<- 01:CIn5        .66       .071 No_date    1:30   36.21  n/a
04566>       [I/S/n=  75./ .600/.012]
04567>       [Vmax= 1.139:Dmax=  .176]
04568>       [Din=  .500:Dused=  .500]
04569> # Input to inlet 5 pipe
04570> 103:0063<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04571>      ADD HYD            02:FR5B        .46       .049 No_date    1:30   36.21  n/a
04572>                       + 03:CIn5        .66       .071 No_date    1:30   36.21  n/a
04573>      [DT= 5.00]  SUM=  01:In5         1.12       .121 No_date    1:30   36.21  n/a
04574> # Pipe from inlet 5 - Route to pond
04575> # HDPE smooth wall pipe Manning's n = 0.012
04576> 100:0064<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04577>      ROUTE PIPE       -> 02:FR6A        1.43       .152 No_date    1:30   36.21  n/a
04578>       [RDT= 5.00] out<- 01:CIn6        1.43       .152 No_date    1:30   36.21  n/a
04579>       [I/S/n=  75./1.600/.012]
04580>       [Vmax= 2.166:Dmax=  .264]
04581>       [Din=  .500:Dused=  .500]
04582> # Culvert from Inlet 6
04583> # HDPE smooth wall pipe Manning's n = 0.012
04584> 100:0065<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04585>      ROUTE PIPE       -> 02:FR6A        1.43       .152 No_date    1:30   36.21  n/a
04586>       [RDT= 5.00] out<- 01:CIn6        1.43       .152 No_date    1:30   36.21  n/a
04587>       [I/S/n=  13./ .430/.013]
04588>       [Vmax= 2.186:Dmax=  .274]
04589>       [Din=  .500:Dused=  .500]
04590> # Input to inlet 6 pipe
04591> 100:0066<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04592>      ADD HYD            02:FR6B        .83       .089 No_date    1:30   36.21  n/a
04593>                       + 03:CIn6        1.43       .152 No_date    1:30   36.21  n/a
04594>      [DT= 5.00]  SUM=  01:In6         2.26       .257 No_date    1:30   36.21  n/a
04595> # Pipe from Inlet 6 - Route to pond
04596> # HDPE smooth wall pipe Manning's n = 0.012
04597> 100:0067<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04598>      ROUTE PIPE       -> 02:In6        2.26       .251 No_date    1:30   36.21  n/a
04599>   *   [RDT= 5.00] out<- 01:Pin6        2.26       .244 No_date    1:30   36.21  n/a
04600>       [I/S/n=  75./ .300/.012]
04601>       [Vmax= 1.337:Dmax=  .428]
04602>       [Din=  .500:Dused=  .521]
04603> # VOLUME TO POND ULTIMATE RESIDENTIAL
04604> 100:0068<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04605>      ADD HYD            02:Pi~1       11.60       .673 No_date    1:25   36.80  n/a
04606>                       + 03:Pi~2        2.74       .307 No_date    1:30   36.22  n/a
04607>                       + 04:Pin3         .97       .100 No_date    1:30   36.21  n/a
04608>                       + 05:Pin4        1.36       .144 No_date    1:30   36.21  n/a
04609>                       + 06:Pi~5        1.12       .117 No_date    1:30   36.21  n/a
04610>                       + 07:Pin6        2.26       .244 No_date    1:30   36.22  n/a
04611>                       + 08:PDo         5.03      1.036 No_date    1:20   49.65  n/a
04612>      [DT  5.00]  SUM   01:POUTin      25.48      2.382 No_date    1:20   36.34  n/a
04613> 100:0069<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04614>      ROUTE RESERVOIR -> 02:POUTin     25.48      2.382 No_date    1:20   36.34  n/a
04615>       [RRT= 5.00] out<- 01:POUT       25.48       231 No_date    3:30   36.34  n/a
04616>            overflow <- 03:ovrQ         .00       .000 No_date    0:00    .00  n/a
04617>       [XaStoAmax=.75:Ea=100, TotVolVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.hrs]
04618> # Simulating 2YR 10% yr conditions with submergence or outflow weir
04619> # Updated for wall .6: .6: 3.0
04620> $ROUTE RESERVOIR     RH:Jout-["POut"] ,RHside-["Qin1n"] ,
04621> $                    RDI [3]Half,
04622> $                          TABLE of ( OUTFLOW-STORAGE ) values
04623> $                                        (cfs) - (ac-ft)
04624> $                                          0.0 ,  0.0 )
04625> $                                         0.0000 , 1.1200
04626> $                                         0.20 , 1.8810
04627> $                                         0.33 , 2.0190
04628> $                                         [    -1 ,  -1  ]  (max twenty pts)
04629> $                               RHYDovf=["Qovr0"] ,
04630> # Route pond output through first set of pipes
04631> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 sq in)
04632> # HDPE smooth wall pipe Manning's n = 0.012
04633> 100:0070<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04634>      ROUTE PIPE       -> 02:POut       25.48       .231 No_date    3:40   36.34  n/a
04635>       [RDT= 5.00] out<- 01:Pout1      25.48       .230 No_date    3:45   36.34  n/a
04636>       [I/S/n=  65./ .200/.012]
04637>       [Vmax= ...7:Dmax=  .356]
04638>       [Din=  .780:Dused=  .780]
04639> # Flow s/s of outlet culverts
04640> 100:0071<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04641>      ADD HYD            02:FR7B        .36       .037 No_date    1:30   32.58  n/a
04642>                       + 03:FR7B2       .22       .025 No_date    1:25   32.58  n/a
04643>                       + 04:Pout1     25.48       .230 No_date    3:45   36.34  n/a
04644>      [DT  5.00]  SUM   01:Pout       26.06       .236 No_date    3:35   36.26  n/a
04645> # Route outflow through set of culverts
04646> # 2 x 800 culverts simulated with 1 culvert of equivalent capacity (=980 sq in
04647> # HDPE smooth wall pipe Manning's n = 0.012
04648> 100:0072<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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046649>       ROUTE PIPE      -> 02:Pout      26.06      .216 No date    1:15   36.21  n/a
046650>         [Adt= 2.00] out<- 01:Out2      26.06      .216 No date    1:15   36.21  n/a
046651>         [L/s/m=   15.7 (.400/.012)
046652>         [Vmax=  1.515:Qmax=   .281]
046653>         [Dim=  .780:Dused=  .780]
046654> # Flow c/s of second set of outflow pipes
046655>  100:0073---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046656>       ADD HYD           02:FRTC1       .38      .040 No date    1:10   32.58  n/a
046657>                       + 03:FRTC2       .17      .019 No date    1:25   32.58  n/a
046658>                       + 04:Cout       26.06      .216 No date    1:15   36.21  n/a
046659>         [FT= 5.00]  SUM= 01:Pout2     26.62      .241 No date    1:25   36.18  n/a
046660> # Route outflow through second set of pipes
046661> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
046662> # More smooth well pipe Manning's n = 0.012
046663>  100:0074---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046664>       ROUTE PIPE      -> 02:Pout2     26.62      .241 No date    1:25   36.18  n/a
046665>         [Adt= 2.00] out<- 01:Pout2     26.62      .241 No date    1:10   36.18  n/a
046666>         [L/s/m=   15.7 (.260/.012)
046667>         [Vmax= 1.184:Qmax=   .241]
046668>         [Dim=  .780:Dused=  .780]
046669> # Total flow at node N1 (Shield X2 along Sales Farm Rd)
046670>  100:0075---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046671>       ADD HYD           02:RMEX2       51.24     3.226 No date    1:05   32.15  n/a
046672>                       + 03:Pout2F      26.62      .241 No date    1:10   36.18  n/a
046673>                       + 04:EX7         1.39      .040 No date    1:10   26.60  n/a
046674>                       + 05:FRTD        1.30      .031 No date    1:10   32.58  n/a
046675>                       + 06:FR11        1.62      .036 No date    1:10   30.77  n/a
046676>         [FT= 5.00]  SUM= 01:N1         79.17     3.805 No date    1:05   33.51  n/a
046677> # ROUTE N1 to N3
046678> # Typical Section based on Shields X2 Vee Ditch 3:1 banks
046679> # provided by Atrel
046680> # Manning's n is Channel not maintained, light brush on banks
046681> # slope = 0.05% as per plan provided by Atrel.
046682>  100:0076---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046683>       ROUTE CHANNEL   -> 02:N1        79.17     3.805 No date    1:05   33.51  n/a
046684>         [Adt= 5.00] out<- 01:RN1       79.17     3.806 No date    1:05   33.51  n/a
046685>         [L/S/m=  245.7 (.050/.035)
046686>         [Vmax=  .353:Qmax=  1.735]
046687> # VOLUME from possible area at N3 intersection
046688>  100:0077---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046689>       ADD HYD           03:FR3A        1.35      .176 No date    1:10   32.58  n/a
046690>                       + 04:FR3         1.30      .176 No date    1:10   30.77  n/a
046691>         [FT= 5.00]  SUM= 01:N3         3.04      .260 No date    1:10   31.67  n/a
046692> # Added volume from external area contributing to N3
046693>  100:0078---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046694>       ADD HYD           02:RN1        79.17     3.806 No date    2:00   33.51  n/a
046695>                       + 03:N3          3.04      .260 No date    1:10   31.67  n/a
046696>                       + 04:RX5         .92       .082 No date    1:20   43.70  n/a
046697>                       + 05:RX6         .51       .051 No date    1:30   36.25  n/a
046698>         [FT= 5.00]  SUM= 01:N3         83.63     4.081 No date    2:00   33.57  n/a
046699> # ROUTE N3 to N12a
046700> # Typical Section based on shields X2 Vee Ditch 3:1 banks
046701> # provided by Atrel
046702> # Manning's n is Channel not maintained, light brush on banks
046703> # Slope = 0.05% as per plan provided by Atrel
046704>  100:0079---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046705>       ROUTE CHANNEL   -> 02:N3        83.63     4.081 No date    2:00   33.52  n/a
046706>         [Adt= 5.00] out<- 01:RN3       83.63     4.080 No date    2:00   33.52  n/a
046707>         [L/S/m=  415.7 (.050/.035)
046708>         [Vmax=  .363:Qmax= 1.860]
046709> # Flow at Stantec node NX-N12B for comparison
046710> # Routed N3 plus EX7
046711>  100:0080---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046712>       ADD HYD           02:RN7        82.93     3.964 No date    2:00   33.52  n/a
046713>                       + 03:EX7         27.30      .795 No date    2:10   29.43  n/a
046714>         [FT= 5.00]  SUM= 01:NCR12B     110.23    4.571 No date    2:10   32.68  n/a
046715> # AREA CHECK
046716> #
046717>  100:0081---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046718>       ADD HYD           02:EX2        24.60     1.041 No date    2:00   29.43  n/a
046719>                       + 03:EX2         5.89      .143 No date    2:05   29.43  n/a
046720>                       + 04:EX3        21.30      .795 No date    2:20   29.43  n/a
046721>                       + 05:EX4         .59       .051 No date    1:30   34.95  n/a
046722>                       + 06:EX5         .92       .082 No date    1:20   43.70  n/a
046723>                       + 07:EX6         .51       .051 No date    1:30   36.25  n/a
046724>                       + 08:EX7         .39       .040 No date    1:10   26.60  n/a
046725>                       + 09:FR1A        .24       .026 No date    1:30   36.21  n/a
046726>                       + 10:FR1B        .55       .059 No date    1:30   36.21  n/a
046727>         [FT= 5.00]  SUM= 01:Cat1      54.92     3.022 No date    1:35   32.57  n/a
046728>  100:0082---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046729>       ADD HYD           03:Cat1       54.92     3.022 No date    1:35   32.57  n/a
046730>                       + 01:FR2A        1.07      .165 No date    1:30   36.21  n/a
046731>                       + 02:FR2B        1.17      .126 No date    1:30   36.21  n/a
046732>                       + 05:FR3A        .97       .060 No date    1:30   36.21  n/a
046733>                       + 06:FR3B        .57       .036 No date    1:30   36.21  n/a
046734>                       + 07:FR4A        .77       .076 No date    1:30   36.21  n/a
046735>                       + 08:FR4B        .69       .069 No date    1:30   36.21  n/a
046736>                       + 09:FR5A        .69       .070 No date    1:30   36.21  n/a
046737>                       + 10:FR5B        .49       .049 No date    1:30   36.21  n/a
046738>         [ET= 5.00]  SUM= 01:Cat2      64.71     4.015 No date    1:30   32.65  n/a
046739>  100:0083---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046740>       ADD HYD           01:Cat2       64.71     4.015 No date    1:30   32.65  n/a
046741>                       + 03:FR6A        1.43      .150 No date    1:30   36.21  n/a
046742>                       + 04:FR6B         .93       .099 No date    1:30   36.21  n/a
046743>                       + 05:FR7A        1.30      .134 No date    1:30   32.58  n/a
046744>                       + 06:FR7B1        .36       .037 No date    1:30   32.58  n/a
046745>                       + 01:FR7C2        .21       .025 No date    1:25   32.58  n/a
046746>                       + 08:FR7C1        .05       .010 No date    1:30   32.58  n/a
046747>                       + 09:FR7C2        .17       .019 No date    1:25   32.58  n/a
046748>                       + 10:FR7D         .58       .061 No date    1:30   32.58  n/a
046749>         [FT= 5.00]  SUM= 01:Cat3      69.85     4.847 No date    1:30   32.65  n/a
046750>  100:0084---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046751>       ADD HYD           03:Cat3       69.85     4.847 No date    1:30   32.65  n/a
046752>                       + 01:FR8         1.30      .126 No date    1:30   28.77  n/a
046753>                       + 04:FR8A        1.10      .102 No date    1:30   30.77  n/a
046754>                       + 05:FR9A1        .25       .024 No date    1:30   30.77  n/a
046755>                       + 06:FR9A2       1.30      .093 No date    1:30   30.77  n/a
046756>                       + 07:FR10        1.84      .166 No date    1:30   30.77  n/a
046757>                       + 08:FR11         .62       .059 No date    1:30   30.77  n/a
046758>                       + 09:PK1         4.26      .454 No date    1:30   29.13  n/a
046759>                       + 10:PD          5.03      1.036 No date    1:30   49.65  n/a
046760>         [ET= 5.00]  SUM= 01:Tot1      85.34     6.237 No date    1:30   33.37  n/a
046761>  100:0085---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046762>       ADD HYD           03:Tot1       85.34     6.237 No date    1:30   33.37  n/a
046763>                       + 01:R1A         9.01      .696 No date    1:40   29.43  n/a
046764>                       + 04:R3A         5.33      .388 No date    1:25   28.43  n/a
046765>                       + 05:R3A         4.14      .301 No date    1:30   28.43  n/a
046766>                       + 06:R3B         2.21      .196 No date    1:30   29.62  n/a
046767>         [ET= 5.00]  SUM= 01:Tot3      106.23    7.772 No date    1:40   32.68  n/a
046768> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046769> * Simulations with 4 hour Chicago from City of Ottawa
046770> * 2yr 24 hours type 2, from City of Ottawa
046771>   ** END OF RUN : 201
046772> ----------------------------------------------------------------------------
046773>
046774>
046775>
046776>
046777>
046778> RUN:CONVANDE
046779>  200:0000---------------------------------------------------------------------
046780>       START
046781>         [TZERO =    .00 hrs on        0
046782>         [METOUT=    2     (1=Imperial, 2=metric output)]
046783>         [NSTORM=    1 ]
046784>         [NRUN   = 002 ]
046785> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046786> *  SWMHYMO Version 07/Jan 2001 <BETA> / INPUT DATA FILE
046787> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046788> *  Project Name: [Greely Village Center]    Project Number: [847-07]
046789> *  Date         : 04-09-2008
046790> *  Modeller     : [JDB]
046791> *  Company      : JFSAinc.
046792> *  License #    : 2547402
046793> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046794> *
046795> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
046796> * Proposed Ultimate conditions. OPTION B
046797> * Filename strings for GRP2u2a - Greely, Residential, Phase 2, Ultimate w/ weir
046798> *
046799> *  December 15, 2008
046800> *  "u" at the end of filename= Added July 1st 1975 Event
046801> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046802>  200:0002---------------------------------------------------------------------
046803>       READ STORM
046804>         Filename = storm.00
046805>         Comment  = 2 years 2YR Type 2 Storm 24 Hours Step 10 min, City of Ottaw
046806>         [SDT=10.00:SDUR=  24.00:STOT=  48.46]
046807> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046808> * Existing flow - McEvoy Branch of Shield Creek - Areas
046809> * Area a/s of proposed development (residential)
046810> * CN=75, Imp=0.10, XIMP=0, TIMP=15, see 90802 as per Stantec
046811> * Area partially adjusted based on Atrel drawings.
046812> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
046813> * a/s of Park Areas per Atrel - with modified boundaries and UL
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048015>  202:0003---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048016>       DESIGN NASHYD      01:EX1        34.82     .821 No_date   12:05   16.75 .348
048017>         |CN= 74.0: N= 6.00]
048018>         |Ia=  .24:IO= 5.00]
048019> #*******************************************************************************
048020> # Existing flow - External areas d/s of Bank St.
048021> # CN*ed, as per Stantec doc SC001.
048022> # Area partially adjusted based on Arcel drawings.
048023> #*******************************************************************************
048024> # Areas External to development
048025>  202:0004---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048026>       DESIGN NASHYD      01:EX2        9.80     .180 No_date   12:05   11.59 .247
048027>         |CN=  65.0: N=  7.00]
048028>         |Tp=  .37:UI= 5.00]
048029>  202:0005---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048030>       DESIGN NASHYD      01:EX3        21.30     .258 No_date   12:40   15.69 .282
048031>         |CN= 69.0: N= 6.00]
048032>         |Tp=  .85:UI= 5.00]
048033> # slope, Ylap, Area from Arcel Drawing
048034> # CN from Stantec (SC001)
048035> # Xlag   Tlag = 10
048036>  202:0006---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048037>    * CALIB STANDHYD     01:EX4         .50     .014 No_date   12:00   17.28 .357
048038>         |XIMP=.11:TIMP=.22]
048039>         |LOSS=  2 :CN=  68.0]
048040>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048041>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048042> # Road and road side ditch along projected residential development Parkway Rd
048043> # Timp = Ximp = 0.21 ha /0.67 ha = 0.40
048044> # CN*=69, as per Stantec doc SC001.
048045> # Slope is estimated at 2%
048046> # Xlag   Tlag = 10
048047>  202:0007---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
048048>    * CALIB STANDHYD     01:EX5         .62     .018 No_date   12:00   18.76 .491
048049>         |XIMP=.00:TIMP=.00]
048050>         |LOSS= 2 :CN= 69.0]
048051>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048052>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048053> # Road and road side ditch along projected residential development Silverbarn Rd
048054> # Timp = Ximp = 0.01 ha /0.51 ha =  0.02
048055> # CN*=69, as per Stantec doc SC001.
048056> # Slope is estimated at 1%
048057> # Xlag   Tlag = 10
048058>  202:0008---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
048059>    * CALIB STANDHYD     01:EX6         .51     .013 No_date   12:00   16.81 .347
048060>         |XIMP=.10:TIMP=.20]
048061>         |LOSS= 2 :CN= 68.0]
048062>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048063>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048064> # Road and road side ditch along projected residential development Silverbarn Rd
048065> # Timp = Ximp = 0.09 ha /0.39 ha = 0.23
048066> # CN*=69, as per Stantec doc SC001.
048067> # Slope is estimated at 1%
048068> # Xlag = Tlag = 10
048069>  202:0009---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048070>    * CALIB STANDHYD     01:EX7         .32     .007 No_date   12:00   11.96 .308
048071>         |XIMP=.13:TIMP=.25]
048072>         |LOSS= 2 :CN= 69.0]
048073>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048074>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048075> # Areas to be occupied by commercial development
048076> # CN* 69, as per Stantec, see SC001.
048077>  202:0010---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
048078>       DESIGN NASHYD      01:EX8         .41     .011 No_date   12:10   16.89 .282
048079>         |CN= 69.0: N= 6.00]
048080>         |Tp=  .13:UI= 5.00]
048081>  202:0011---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048082>    * DESIGN NASHYD      01:EX9         3.13     .133 No_date   12:00   13.69 .282
048083>         |CN= 69.0: N= 3.00]
048084>         |Tp=  .13:UI= 5.00]
048085>  202:0012---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048086>       DESIGN NASHYD      01:EX10        5.10     .115 No_date   12:05    9.69 .182
048087>         |CN= 65.0: N= 3.00]
048088>         |Tp=  .21:UI= 5.00]
048089>  202:0013---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048090>       DESIGN NASHYD      01:EX11        2.21     .057 No_date   12:05   13.69 .282
048091>         |CN= 69.0: N= 3.00]
048092>         |Tp=  .23:UI= 5.00]
048093> #*******************************************************************************
048094> #*******************************************************************************
048095> # PROPOSED RESIDENTIAL SUBWATERSHEDS  (Residential Area Phase 1 and 2
048096> #*******************************************************************************
048097> # CN*=69, as per Stantec doc SC001.
048098> # Tp estimated with Uplnd Method.
048099>  202:0014---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049000>       DESIGN NASHYD      01:PR1         4.25     .147 No_date   12:05   13.69 .282
049001>         |CN= 68.0: N= 3.00]
049002>         |Tp=  .38:UI= 5.00]
049003> #*******************************************************************************
049004> # AREAS GOING TO POND
049005> #*******************************************************************************
049006> #
049007>  202:0015---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049008>    * CALIB STANDHYD     01:PR1A        .24     .006 No_date   12:00   17.97 .371
049009>         |XIMP=.11:TIMP=.21]
049010>         |LOSS= 2 :CN= 71.0]
049011>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049012>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049013>  202:0016---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049014>    * CALIB STANDHYD     01:PR1B        .55     .016 No_date   12:00   17.97 .371
049015>         |XIMP=.11:TIMP=.21]
049016>         |LOSS= 2 :CN= 71.0]
049017>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049018>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049019>  202:0017---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
049020>    CALIB STANDHYD     01:PR2A        1.57     .042 No_date   12:00   17.97 .371
049021>         |XIMP=.11:TIMP=.21]
049022>         |LOSS= 2 :CN= 71.0]
049023>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049024>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049025>  202:0018---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
049026>       CALIB STANDHYD     01:PR2a        1.17     .032 No_date   12:00   17.97 .371
049027>         |XIMP=.11:TIMP=.21]
049028>         |LOSS= 2 :CN= 71.0]
049029>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049030>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049031>  202:0019---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
049032>    * CALIB STANDHYD     01:PR3A        .65     .018 No_date   12:00   17.97 .371
049033>         |XIMP=.11:TIMP=.21]
049034>         |LOSS= 2 :CN= 71.0]
049035>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049036>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049037>  202:0020---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049038>    * CALIB STANDHYD     01:PR3B        .52     .015 No_date   12:00   17.97 .371
049039>         |XIMP=.11:TIMP=.21]
049040>         |LOSS= 2 :CN= 71.0]
049041>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049042>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049043>  202:0021---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049044>       CALIB STANDHYD     01:PR4A        .71     .020 No_date   12:00   17.97 .371
049045>         |XIMP=.11:TIMP=.21]
049046>         |LOSS= 2 :CN= 71.0]
049047>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049048>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049049>  202:0022---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm    R.V. R.C.
049050>       CALIB STANDHYD     01:PR4B        .65     .018 No_date   12:00   17.97 .371
049051>         |XIMP=.11:TIMP=.21]
049052>         |LOSS= 2 :CN= 71.0]
049053>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049054>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049055>  202:0023---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049056>       CALIB STANDHYD     01:PR5A        .66     .019 No_date   12:00   17.97 .371
049057>         |XIMP=.11:TIMP=.21]
049058>         |LOSS= 2 :CN= 71.0]
049059>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049060>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049061>  202:0024---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049062>    * CALIB STANDHYD     01:PR5a        .46     .013 No_date   12:00   17.97 .371
049063>         |XIMP=.11:TIMP=.21]
049064>         |LOSS= 2 :CN= 71.0]
049065>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049066>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049067>  202:0025---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049068>       CALIB STANDHYD     01:PR6A        1.41     .039 No_date   12:00   17.97 .371
049069>         |XIMP=.11:TIMP=.21]
049070>         |LOSS= 2 :CN= 71.0]
049071>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049072>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049073>  202:0026---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049074>       CALIB STANDHYD     01:PR6B        .91     .025 No_date   12:00   17.97 .371
049075>         |XIMP=.11:TIMP=.21]
049076>         |LOSS= 2 :CN= 71.0]
049077>         |Pervious     area: |Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049078>         |Impervious   area: |Aimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049079> # slope estimated at 2% based on backyard swales.
049080> # Timp and Ximp based on total pond area.
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04981> * Simp = % pond/% tot
04982> * Timp = weighted average of pond and backyards
04983> 202:0.07+-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04984>       CALIB STANDHYD     01:POA          5.03      .284 No_date   12:00   20.20 .587
04985>         [XIMP=.44:TIMP=.67]
04986>         [LOSS= 2 :CN= 71.0]
04987>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04988>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
04989> *****************************************************************************
04990> * CONTROLLED AREAS
04991> *****************************************************************************
04992> *
04993> 202:0A/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04994>   * CALIB STANDHYD     01:PA/A         1.95      .081 No_date   12:15   15.15 .583
04995>         [XIMP=.62:TIMP=.14]
04996>         [LOSS= 2 :CN= 71.0]
04997>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04998>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
04999> 202:0B/A-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05000>   * CALIB STANDHYD     01:PA/B1        .38      .009 No_date   12:10   15.18 .333
05001>         [XIMP=.02:TIMP=.14]
05002>         [LOSS= 2 :CN= 71.0]
05003>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05004>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05005> 202:0B/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05006>   * CALIB STANDHYD     01:PB/B         .22      .005 No_date   12:10   15.18 .213
05007>         [XIMP=.02:TIMP=.14]
05008>         [LOSS= 2 :CN= 71.0]
05009>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05010>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05011> 202:0C/A-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05012>   * CALIB STANDHYD     01:PB/C         .39      .010 No_date   12:10   15.18 .213
05013>         [XIMP=.02:TIMP=.14]
05014>         [LOSS= 2 :CN= 71.0]
05015>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05016>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05017> 202:0C/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05018>   * CALIB STANDHYD     01:PB/D         .50      .012 No_date   12:10   15.18 .213
05019>         [XIMP=.02:TIMP=.14]
05020>         [LOSS= 2 :CN= 71.0]
05021>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05022>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05023> 202:0D/A-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05024>   * CALIB STANDHYD     01:PB/D         .50      .008 No_date   12:10   15.18 .213
05025>         [XIMP=.02:TIMP=.14]
05026>         [LOSS= 2 :CN= 71.0]
05027>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05028>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05029> 202:0D/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05030>   * CALIB STANDHYD     01:PB/E         1.58      .035 No_date   12:20   14.05 .250
05031>         [XIMP=.01:TIMP=.04]
05032>         [LOSS= 2 :CN= 71.0]
05033>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05034>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05035> 202:0E/A-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05036>   * CALIB STANDHYD     01:PB/A         1.10      .024 No_date   12:20   14.05 .250
05037>         [XIMP=.01:TIMP=.07]
05038>         [LOSS= 2 :CN= 71.0]
05039>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05040>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05041> 202:0E/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05042>   * CALIB STANDHYD     01:PB/B         .95      .005 No_date   12:15   14.05 .250
05043>         [XIMP=.01:TIMP=.07]
05044>         [LOSS= 2 :CN= 71.0]
05045>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05046>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05047> 202:0F/A-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05048>   * CALIB STANDHYD     01:PB/E         1.68      .037 No_date   12:20   14.05 .250
05049>         [XIMP=.01:TIMP=.07]
05050>         [LOSS= 2 :CN= 71.0]
05051>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05052>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05053> 202:0F/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05054>   * CALIB STANDHYD     01:PB/C         1.84      .038 No_date   12:20   14.05 .250
05055>         [XIMP=.0.:TIMP=.07]
05056>         [LOSS= 2 :CN= 71.0]
05057>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05058>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05059> 202:0G/B-------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05060>   * CALIB STANDHYD     01:PB/D         .82      .018 No_date   12:15   14.05 .250
05061>         [XIMP=.01:TIMP=.07]
05062>         [LOSS= 2 :CN= 71.0]
05063>         [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05064>         [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05065> ********************************************************************************
05066> * EXISTING flow - Upstream or Residential Area Phase  and 2
05067> ********************************************************************************
05068> # Typical Section based on proposed channel provided by ATA
05069> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.02
05070> # Route EA1 to D/S node B3
05071> 202:0040--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05072>       ROUTE CHANNEL   -> 02:EA1        24.62      .921 No_date   12:05   16.75  n/a
05073>         [RDT= 5.00] outs= 01:REA1       24.62      .857 No_date   12:10   16.75  n/a
05074>         [L/S/n=  312./ .500/.020]
05075>         [Vmax=  .582:Dmax=  .382]
05076> # Total flow at N-RZA
05077> # (Note that RZA will be about draining to proposed channel)
05078> 202:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05079>       ADD HYD         02:RZA          9.41      .231 No_date   12:10   17.69  n/a
05080>                     + 03:RZA          3.23      .133 No_date   12:00   11.68  n/a
05081>                     = 04:FRZA        12.63      .923 No_date   12:20   14.65  n/a
05082>         [DT= 5.00] SUM= 01:NRZA       13.66      .345 No_date   12:05   13.72  n/a
05083> # Typical Section based on proposed channel provided by ATA
05084> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
05085> # Route SW draining at N-RZA to d/s node N2
05086> 202:0042--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05087>       ROUTE CHANNEL   -> 02:NRZA       13.66      .345 No_date   12:05   13.72  n/a
05088>         [RDT= 5.00] outs= 01:NRR2A      13.64      .291 No_date   12:10   13.72  n/a
05089>         [L/S/n=  447./ .500/.030]
05090>         [Vmax=  .678:Dmax=  .240]
05091> # Total flow at node N2
05092> # (Note that EX2 will be about draining to proposed channel)
05093> 202:0043--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05094>       ADD HYD         02:NCR2A        13.64      .291 No_date   12:10   13.72  n/a
05095>                     + 03:REX1         24.62      .857 No_date   12:10   16.75  n/a
05096>                     + 04:FRES1         .25      .005 No_date   12:15   14.05  n/a
05097>                     + 05:FRES2        1.00      .021 No_date   12:20   14.05  n/a
05098>                     + 06:EX2          9.69      .110 No_date   12:35   13.68  n/a
05099>         [DT= 5.00] SUM= 01:N2          49.40     1.256 No_date   12:10   15.23  n/a
05100> # Typical Section based on proposed channel provided by ATA
05101> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
05102> # Route SW draining at N2 to d/s node N-EX2
05103> 202:0044--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05104>       ROUTE CHANNEL   -> 03:N2         49.40     1.256 No_date   12:10   15.23  n/a
05105>         [RT= 5.00] outs= 01:RN2         49.40     1.206 No_date   12:15   15.23  n/a
05106>         [L/S/n=  874./ .500/.040]
05107>         [Vmax=  .956:Dmax=  .435]
05108> # Total flow at node N-EX2
05109> 202:0045--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05110>       ADD HYD         02:RN2          49.40     1.206 No_date   12:15   15.23  n/a
05111>                     + 03:FR10          1.84      .038 No_date   12:20   14.05  n/a
05112>         [DT= 5.00] SUM= 01:NEX2        51.24     1.237 No_date   12:15   15.19  n/a
05113> # Route Node N-EX2 to Node N1
05114> # Typical Section based on Shields MD Vee Ditch 1:1 banks
05115> # provided by Atzel
05116> # Manning's n is Channel not maintained, light brush on banks
05117> # Slope = 0.68% as per plan provided by Atzel.
05118> 202:0046--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05119>       ROUTE CHANNEL   -> 02:NEA2        51.24     1.237 No_date   12:15   15.19  n/a
05120>   *     [RDT= 5.00] outs= 01:NEX2       51.24     1.189 No_date   12:20   15.19  n/a
05121>         [L/S/n=  253./ .050/.035]
05122>         [Vmax=  .519:Dmax= 1.17]
05123> *********************************************************************************
05124> * Residential Development - Phase 1 and 2
05125> *********************************************************************************
05126> * Total flow at Node N-B3E
05127> 202:0047--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05128>       ADD HYD         02:FB3A         6.14      .131 No_date   12:05   13.89  n/a
05129>                     + 03:FB3B         6.81      .087 No_date   12:05   13.89  n/a
05130>                     = 04:EX4         12.95      .218 No_date   12:05   13.89  n/a
05131>         [R1= 5.00] SUM= 01:RB3E        6.85      .210 No_date   12:05   13.95  n/a
05132> # Route Node RB3E to Node N-PR1
05133> # Typical Section based on McEvoy Branch Vee Ditch 1:1 x open
05134> # provided by Atzel
05135> # Manning's n is Channel not maintained, light brush on banks
05136> # Slope = 0.60% approximately as per Atzel drawing (88+88.1)/31.
05137> 202:0048--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05138>       ROUTE CHANNEL   -> 02:NB3E        6.85      .210 No_date   12:05   13.95  n/a
05139>         [RDT= 5.00] outs= 01:RNB3E      6.81      .173 No_date   12:10   13.95  n/a
05140>         [L/S/n=  318./ .600/.050]
05141>         [Vmax=  .503:Dmax=  .502]
05142> # Total flow at node N-PR1
05143> 202:0049--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05144>       ADD HYD         02:PR           6.96      .147 No_date   12:05   13.93  n/a
05145>                     + 03:RB3E         6.85      .173 No_date   12:10   13.95  n/a
05146>                     + 04:FR1A          .25      .007 No_date   12:00   13.93  n/a
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05127>       (DT= 5.00)  SUM=  01:RPK1        11.35      .303 No date   12:05   13.94  n/a
05128> * Volume to ponding area in PR1
05129> * 0.755 ac/ft required as per BCS 163yr existing conditions
05130> * Culvert from inlet 1
05131> * Assuming outlet culvert is 600 mm, slope = 1.2 , HDPE smooth walls
05132> * Manning's n = 0.012, Inlet control massbrush
05133> * Hydraulic head = 0.9m, Q=0.910
05134>  202:0000----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05135>      CONFUTE DUALHYD    01:NDS1       11.35      .303 No date   12:05   13.94  n/a
05136>        Major System /   02:NDS1MT       .00      .000 No date    0:00     .00  n/a
05137>        Minor System \   03:NDS1Mn     11.35      .303 No date   12:05   13.94  n/a
05138>       (X)SysSto=-.0000E-00, Outs=Svol=.0000E-00, N-Ovf=     0, TotDurOvf=      0.hrs)
05139> * Input to Inlet 1 pipe
05140>  202:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05141>      ADD HYD            02:PR1M         .55      .8.6 No date   12:00    .7.97  n/a
05142>                       + 03:NDS1Mn     11.35      .303 No date   12:05   13.94  n/a
05143>       [DC= 5.00]  SUM=  01:IN1        11.90      .316 No date   12:05   14.13  n/a
05144> * Pipe from inlet 1 - Route to pond
05145> * HDPE smooth wall pipe Manning's n = 0.012
05146>  202:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05147>      ROUTE PIPE       => 02:IN1        11.90      .316 No date   12:05   14.13  n/a
05148>       [RDT= 5.00] outs= 01:PIN1       11.90      .317 No date   12:05   14.13  n/a
05149>       [L/S/n=   65/21.000/.012]
05150>       (Vmax= 2.703:Tmax=  .024)
05151>       [Din=  .600:Dused=  .600]
05152> * Culvert from inlet 2
05153> * HDPE smooth wall pipe Manning's n = 0.012
05154>  202:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05155>      ROUTE PIPE       => 02:PR2A        1.57      .042 No date   12:00   17.97  n/a
05156>       [RDT= 5.00] outs= 01:CIN2        1.57      .043 No date   12:00   17.97  n/a
05157>       [L/S/n=   13./ .400/.012]
05158>       (Vmax= .969:Tmax=  .137)
05159>       [Din=  .300:Dused=  .300]
05160> * Input to Inlet 2 pipe
05161>  202:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05162>      ADD HYD            02:PR2B         1.37      .032 No date   12:00   17.97  n/a
05163>                       + 03:CIN2         1.57      .043 No date   12:00   17.97  n/a
05164>       [DT= 5.00]  SUM=  01:IN2         2.74      .075 No date   12:00   17.98  n/a
05165> * Pipe from inlet 2 - Route to pond
05166> * HDPE smooth wall pipe Manning's n = 0.012
05167>  202:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05168>      ROUTE PIPE       => 02:IN2        2.74      .075 No date   12:00   17.98  n/a
05169>       [RDT= 5.00] outs= 01:PIN2        2.74      .072 No date   12:00   17.98  n/a
05170>       [L/S/n=   75./ .900/.012]
05171>       (Vmax= .836:Tmax=  .074)
05172>       [Din=  .500:Dused=  .500]
05173> * Culvert from inlet 3
05174> * HDPE smooth wall pipe Manning's n = 0.012
05175>  202:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05176>      ROUTE PIPE       => 02:PR3A         .45      .014 No date   12:00   17.91  n/a
05177>       [RDT= 5.00] outs= 01:CIN3         .45      .014 No date   12:00   17.91  n/a
05178>       [L/S/n=   13./ .400/.012]
05179>       (Vmax= .676:Tmax=  .075)
05180>       [Din=  .300:Dused=  .300]
05181> * Input to Inlet 3 pipe
05182>  202:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05183>      ADD HYD            02:PR3B          .52      .015 No date   12:00   17.97  n/a
05184>                       + 03:CIN3         .45      .014 No date   12:00   17.91  n/a
05185>       [DT= 5.00]  SUM=  01:IN3          .97      .028 No date   12:00   17.97  n/a
05186> * Pipe from inlet 3 - Route to pond
05187> * HDPE smooth wall pipe Manning's n = 0.012
05188>  202:0100----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05189>      ROUTE PIPE       => 02:IN3         .97      .028 No date   12:00   17.97  n/a
05190>       [RDT= 5.00] outs= 01:PIN3         .97      .028 No date   12:00   17.97  n/a
05191>       [L/S/n=   75./ .200/.012]
05192>       (Vmax= .673:Tmax=  .057)
05193>       [Din=  .500:Dused=  .500]
05194> * Culvert from inlet 4
05195> * HDPE smooth wall pipe Manning's n = 0.012
05196>  202:0110----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05197>      ROUTE PIPE       => 02:PR4A         .71      .020 No date   12:00   17.97  n/a
05198>       [RDT= 5.00] outs= 01:CIN4         .71      .020 No date   12:00   17.97  n/a
05199>       [L/S/n=   13./ .400/.012]
05200>       (Vmax= .708:Tmax=  .091)
05201>       [Din=  .300:Dused=  .300]
05202> * Input to Inlet 4 pipe
05203>  202:0120----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05204>      ADD HYD            02:PR4B          .65      .018 No date   12:00   17.97  n/a
05205>                       + 03:CIN4         .71      .020 No date   12:00   17.97  n/a
05206>       [DT= 5.00]  SUM=  01:IN4         1.36      .038 No date   12:00   17.97  n/a
05207> * Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
05208> * HDPE smooth wall pipe Manning's n = 0.012
05209>  202:0130----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05210>      ROUTE PIPE       => 02:IN4        1.36      .038 No date   12:00   17.97  n/a
05211>       [RDT= 5.00] outs= 01:PIN4        1.36      .038 No date   12:00   17.97  n/a
05212>       [L/S/n=   65/1.900/.012]
05213>       (Vmax= 1.618:Tmax=  .088)
05214>       [Din=  .500:Dused=  .500]
05215> * Culvert from inlet 5
05216> * HDPE smooth wall pipe Manning's n = 0.012
05217>  202:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05218>      ROUTE PIPE       => 02:PR5A         .66      .019 No date   12:00   17.97  n/a
05219>       [RDT= 5.00] outs= 01:CIN5         .66      .019 No date   12:00   17.97  n/a
05220>       [L/S/n=   13./ .400/.012]
05221>       (Vmax= .709:Tmax=  .090)
05222>       [Din=  .300:Dused=  .300]
05223> * Input to Inlet 5 pipe
05224>  202:0140----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05225>      ADD HYD            02:PR5B          .46      .013 No date   12:00   17.97  n/a
05226>                       + 03:CIN5         .66      .019 No date   12:00   17.97  n/a
05227>       [DT= 5.00]  SUM=  01:IN5         1.12      .032 No date   12:00   17.97  n/a
05228> * Pipe from inlet 5 - Route to pond
05229> * HDPE smooth wall pipe Manning's n = 0.012
05230>  202:0150----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05231>      ROUTE PIPE       => 02:IN5        1.12      .032 No date   12:00   17.97  n/a
05232>       [RDT= 5.00] outs= 01:PIN5        1.12      .032 No date   12:00   17.97  n/a
05233>       [L/S/n=   75./1.600/.012]
05234>       (Vmax= 2.168:Tmax=  .084)
05235>       [Din=  .500:Dused=  .500]
05236> * Culvert from inlet 6
05237> * HDPE smooth wall pipe Manning's n = 0.012
05238>  202:0160----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05239>      ROUTE PIPE       => 02:PR6A         1.43      .038 No date   12:00   17.97  n/a
05240>       [RDT= 5.00] outs= 01:CIN6         1.43      .038 No date   12:00   17.97  n/a
05241>       [L/S/n=   13./ .400/.012]
05242>       (Vmax= .847:Tmax=  .103)
05243>       [Din=  .500:Dused=  .500]
05244> * Input to Inlet 6 pipe
05245>  202:0066----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05246>      ADD HYD            02:PR6B          .93      .026 No date   12:00   17.97  n/a
05247>                       + 03:CIN6         1.43      .038 No date   12:00   17.97  n/a
05248>       [DT= 5.00]  SUM=  01:IN6         2.36      .065 No date   12:00   17.97  n/a
05249> * Pipe from inlet 6 - Route to pond
05250> * HDPE smooth wall pipe Manning's n = 0.012
05251>  202:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05252>      ROUTE PIPE       => 02:IN6        2.36      .063 No date   12:00   17.97  n/a
05253>       [RDT= 5.00] outs= 01:PIN6        2.36      .063 No date   12:00   17.97  n/a
05254>       [L/S/n=   75./ .300/.012]
05255>       (Vmax= .981:Tmax=  .104)
05256>       [Din=  .600:Dused=  .600]
05257> * VOLUME TO POND ULTIMATE RESIDENTIAL
05258>  202:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05259>      ADD HYD            02:PR1          11.50      .317 No date   12:05   14.13  n/a
05260>                       + 03:PR2          2.74      .071 No date   12:00   17.98  n/a
05261>                       + 04:PR3          .97      .025 No date   12:00   17.97  n/a
05262>                       + 05:PR4         1.36      .038 No date   12:00   17.97  n/a
05263>                       + 06:PR5         1.12      .032 No date   12:00   17.97  n/a
05264>                       + 07:PR6         2.36      .063 No date   12:00   17.97  n/a
05265>                       + 08:PRD         3.63      .284 No date   12:00   28.28  n/a
05266>       [DC  5.00]  SUM   01:PONDin      25.45      .817 No date   12:05   18.21  n/a
05267>  202:0095----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05268>      ROUTE RESERVOIR  => 02:PONDin     25.45      .817 No date   12:05   18.21  n/a
05269>       [RDT= 5.00] outs= 01:PDout       25.45      .056 No date   16:00   18.21  n/a
05270>             overflow <= 03:over2         .00      .000 No date    0:00     .00  n/a
05271>       (MaxStorage=.29E8E+00, Outs=Svol=.0000E-00, N-Ovf=     0, TotDurOvf=      0.hrs)
05272> * Simulating SCS 100 yr conditions with abandonment of outflow weir
05273> * updated for weir  6, .6, 3.0
05274> *ROUTE RESERVOIR     RHYDout ["PDout"] ,RHYDin ["PONDin"] ,
05275> *                    RDT-[5](min),
05276> *                          TABLE OF | OUTFLOW-STORAGE | VALUES
05277> *                                   (cms) - (ha-m)
05278> *                                 |   0.0 ,   0.0
05279> *                                   0.08031 , 1.1209
05280> *                                   0.20  , 1.8110
05281> *                                   0.33  , 2.0195
05282> *                                  [   -5 ,   -5  ]  (max twenty pts)
05283> *                          RHYDover "Rov-0" ,
05284> * Route pond output through first set of 2 pes
05285> * 2 x 600 pipe simulated with 1 pipe of equivalent capacity (=780 mm dia)
05286> * HDPE smooth wall pipe Manning's n = 0.012
05287>  202:0100----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05288>      ROUTE PIPE       => 02:PDout      25.00      .056 No date   16:00   18.21  n/a
05289>       [RDT= 5.00] outs= 01:POut1       25.00      .056 No date   16:00   18.21  n/a
05290>       [L/S/n=   75./ .200/.012]
05291>       (Vmax= .782:Tmax=  .180)
05292>       [Din=  .780:Dused=  .780]
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05311> * Flow u/s of outlet culverts
05312> 202:9G71---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05313>      ADD HYD                 02:FR7B1      .36     .008 No date   12:10   10.18  n/a
05314>                            + 03:FR7B2      .22     .006 No date   12:10   10.18  n/a
05315>                            + 04:Pond       95.48   .056 No date   16:00   18.21  n/a
05316>      [ID= 5.00]  SUM=  01:Out1       95.48   .056 No date   16:00   18.21  n/a
05317> * Route outflow through set of culverts
05318> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
05319> * MTOP smooth wall pipe Manning's n = 0.012
05320> 202:9G72---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05321>      ROUTE PIPE      -> 02:Out1      28.68   .057 No date   16:00   18.14  n/a
05322>      [RC= 5.00] out<- 01:Out1      28.68   .057 No date   16:00   18.14  n/a
05323>      [L/s/a=   18./ .400/.012]
05324>      (Vmax= .594:Emax=  .030)
05325>      (Dia=  .780:Duree=  .780)
05326> * Flow u/s of second set of cuit sw pipes
05327> 202:9G73---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05328>      ADD HYD                 01:FR7C1      .49     .010 No date   12:10   15.20  n/a
05329>                            + 02:FR7C2      .11     .004 No date   12:10   15.18  n/a
05330>                            + 04:Out1       28.68   .057 No date   16:00   18.14  n/a
05331>      [ID= 5.00]  SUM=  01:Out2       29.62   .061 No date   12:15   18.08  n/a
05332> * Route outflow through second set of pipes
05333> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
05334> * MTOP smooth wall pipe Manning's n = 0.012
05335> 202:9G74---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05336>      ROUTE PIPE      -> 02:Out2      28.62   .061 No date   12:15   18.08  n/a
05337>      [RC= 5.00] out<- 01:Out2      28.62   .060 No date   12:20   18.08  n/a
05338>      [L/s/a=   65./ .200/.012]
05339>      (Vmax= .802:Emax=  .160)
05340>      (Dia=  .780:Duree=  .780)
05341> * Total flow at node N1 (Shield MD along Sales Beam Rd)
05342> 202:9G75---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05343>      ADD HYD                 02:RNDG7     51.24    1.008 No date   17:20   15.19  n/a
05344>                            + 03:Out1E      28.62   .060 No date   12:20   18.08  n/a
05345>                            + 04:EX7        .35     .012 No date   12:30   13.86  n/a
05346>                            + 05:FR7D       .30     .008 No date   12:10   15.15  n/a
05347>                            + 06:FR11       .62     .013 No date   12:15   14.65  n/a
05348>      [ST= 5.00]  SUM=  01:N1         78.13    1.096 No date   12:20   16.17  n/a
05349> * ROUTE N1 to N3
05350> * Typical Section based on Shields MD Yee Ditch 3:1 Banks
05351> * provided by Atrel
05352> * Manning's n is Channel not maintained, light brush on banks
05353> * Slope = 0.0% as per plan provided by Atrel
05354> 202:9G76---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05355>      ROUTE CHANNEL   -> 02:N1        78.13    1.096 No date   12:20   16.17  n/a
05356>      [RC= 5.00] out<- 01:N2        78.17    .958 No date   12:30   16.17  n/a
05357>      [L/s/a=  349./ .050/.035]
05358>      (Vmax=  .391:Emax=  1.06)
05359> * VOLUME from residential area at N3 interim
05360> 202:9G77---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05361>      ADD HYD                 01:FR7A       7.15     .001 No date   12:10   10.18  n/a
05362>                            + 02:FR8        1.43     .029 No date   12:50   17.05  n/a
05363>      [ID= 5.00]  SUM=  01:N3I        2.72     .029 No date   12:10   16.61  n/a
05364> * Added VOLUME from external area contributing to N3
05365> 202:9G78---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05366>      ADD HYD                 01:N1         78.13    .958 No date   12:30   16.17  n/a
05367>                            + 02:N3I        2.72     .029 No date   12:10   16.61  n/a
05368>                            + 04:EX5        .52      .020 No date   12:30   21.39  n/a
05369>                            + 05:EX6        .51      .013 No date   12:30   16.81  n/a
05370>      [ST= 5.00]  SUM=  01:N3         82.83    .920 No date   12:30   16.17  n/a
05371> * ROUTE N3 to NCI2
05372> * Typical Section based on Shields MD Yee Ditch 3:1 Banks
05373> * provided by Atrel
05374> * Manning's n is Channel not maintained, light brush on banks
05375> * Slope = 0.0% as per plan provided by Atrel
05376> 202:9G79---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05377>      ROUTE CHANNEL   -> 02:N3        82.83    .920 No date   12:30   16.17  n/a
05378>      [RC= 5.00] out<- 01:N3        82.93    .722 No date   12:40   16.17  n/a
05379>      [L/s/a=  415./ .050/.035]
05380>      (Vmax=  .710:Emax=  .992)
05381> * Flow at Stacked node NCR130 for comparison
05382> * Route N3 plus EX3
05383> 209:NCS2---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05384>      ADD HYD                 02:N3         82.93    .722 No date   12:40   16.17  n/a
05385>                            + 03:EX3        21.30    .156 No date   12:40   13.59  n/a
05386>      [ID= 5.00]  SUM=  01:NCR130   104.23    .878 No date   12:40   15.56  n/a
05387> * AREA CHECK
05388> *
05389> 202:9G80---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05390>      ADD HYD                 01:EX1        94.63    .307 No date   17:05   16.35  n/a
05391>                            + 03:EX2        9.89     .146 No date   12:35   13.99  n/a
05392>                            + 04:EX3        21.30    .156 No date   12:40   13.59  n/a
05393>                            + 05:EX4        .51      .011 No date   12:30   17.28  n/a
05394>                            + 06:EX5        .52      .024 No date   12:00   28.79  n/a
05395>                            + 07:EX6        .51      .013 No date   12:30   16.81  n/a
05396>                            + 08:EX7        .35      .012 No date   12:30   13.86  n/a
05397>                            + 09:FR11A      .62      .006 No date   12:00   17.97  n/a
05398>                            + 10:FR11B      .00      .016 No date   12:00   17.97  n/a
05399>      [ST= 5.00]  SUM=  01:Tot1       98.52    1.172 No date   12:05   16.31  n/a
05400> 202:9G81---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05401>      ADD HYD                 01:FR7A       1.57     .042 No date   12:00   17.97  n/a
05402>                            + 04:FR8B       1.17     .032 No date   12:00   17.97  n/a
05403>                            + 05:FR6A       .45      .015 No date   12:00   17.97  n/a
05404>                            + 06:EX3B       .69      .015 No date   12:00   17.97  n/a
05405>                            + 07:FR4A       .71      .020 No date   12:00   17.97  n/a
05406>                            + 08:FR6B       .65      .018 No date   12:00   17.97  n/a
05407>                            + 09:FR5A       .68      .019 No date   12:00   17.97  n/a
05408>                            + 10:FR5B       .46      .013 No date   12:00   17.97  n/a
05409>      [ST= 5.00]  SUM=  01:Tot2       64.71    1.315 No date   12:05   15.41  n/a
05410> 202:9G82---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05411>      ADD HYD                 01:Tot2       64.71    1.315 No date   12:05   15.47  n/a
05412>                            + 04:FR8A       1.45     .039 No date   12:00   17.97  n/a
05413>                            + 05:FR8B       .93      .026 No date   12:00   17.97  n/a
05414>                            + 06:FR7A       1.35     .031 No date   12:10   15.18  n/a
05415>                            + 07:FR7B1      .36      .009 No date   12:10   15.18  n/a
05416>                            + 08:FR7B2      .22      .006 No date   12:10   15.18  n/a
05417>                            + 09:FR7C1      .49      .010 No date   12:10   15.18  n/a
05418>                            + 10:FR7C2      .11      .004 No date   12:10   15.18  n/a
05419>      [ST= 5.00]  SUM=  01:Tot3       69.86    1.427 No date   12:05   15.55  n/a
05420> 202:9G83---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05421>      ADD HYD                 02:Tot3       69.86    1.427 No date   12:05   15.55  n/a
05422>                            + 03:FR9        1.38     .029 No date   12:00   14.65  n/a
05423>                            + 04:FR9A       1.10     .023 No date   12:20   14.65  n/a
05424>                            + 05:FR9B       .25      .005 No date   12:15   14.65  n/a
05425>                            + 06:FR9B       1.09     .021 No date   12:20   14.65  n/a
05426>                            + 07:FR10       1.48     .031 No date   12:20   14.65  n/a
05427>                            + 08:FR11       .62      .013 No date   12:15   14.65  n/a
05428>                            + 09:FR1        4.28     .147 No date   12:05   17.68  n/a
05429>                            + 10:FR2        5.03     .204 No date   12:00   28.79  n/a
05430>      [ST= 5.00]  SUM=  01:Tot4       80.34    1.959 No date   12:05   16.09  n/a
05431> 202:9G84---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05432>      ADD HYD                 02:Tot4       80.34    1.959 No date   12:05   16.09  n/a
05433>                            + 03:FR3        8.41     .231 No date   12:10   13.69  n/a
05434>                            + 04:FR3A       3.13     .133 No date   12:00   13.69  n/a
05435>                            + 05:FR3B       1.16     .133 No date   12:00   13.69  n/a
05436>                            + 06:FR3C       2.21     .067 No date   12:00   13.69  n/a
05437>      [ST= 5.00]  SUM=  01:Tot5       104.33   2.686 No date   12:05   15.66  n/a
05438> *****************************************************************************
05439> * Simulations with 4 hour chicago from City of Ottawa
05440> * SCS 24 hours type 2, from City of Ottawa
05441> *  ** END OF RUN : 200
05442> *****************************************************************************
05443>
05444>
05445>
05446>
05447>
05448> $CR:\OTMHYMO$
05449> 96:0001---------------------------------------------------------------------
05450>      START
05451>       [TZERO =     .00 hrs on        0]
05452>       [METOUT=    2    (1=imperial, 2=metric output)]
05453>       [NSTORM=    1 ]
05454>       [NRUN  =  205 ]
05455> *****************************************************************************
05456> *  SWMHYMO Ver:5.02/Jan 2001 <RESIA> / .N/UI DATA FILE
05457> *****************************************************************************
05458> *  Project Name: [Greely Village Center]    Project Number: [647-07]
05459> *  Date        : 04-05-2008
05460> *  Modeller    : [JDF]
05461> *  Company     : JFSAinc.
05462> *  License #   : 2547402
05463> *****************************************************************************
05464> *
05465> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
05466> * Proposed Ultimate conditions, OPTION B
05467> * Filename stands for: GRP.u2a - Greely, Residential, Phase 2, ultimate v2 wair
05468> *
05469> *  December 15, 2008
05470> *  "a" at the end of filename- Added July 1v. 1979 Event
05471> *****************************************************************************
05472> 206:0002---------------------------------------------------------------------
05473>      READ STORM
```

```
05479>       Filename = storm.dat
05480>       Comment  = 5 years SCS Type I Storm 24 hours step .5 min, City of Ottawa
05481>       [SDT 10.00:SDTP=  10.00:STCT=  66.11]
05482> *****************************************************************************
05483> * Existing flow - Railway Branch of Shield Creek - Areas
05484> * Area C/s of proposed development (residential)
05485> * CN*=78, slope = 0.8, Ia=0.16, XIMP 0, TIMP 15, sec 2C002 as per Stantec
05486> * Area partially adjusted based on Airel drawings.
05487> *****************************************************************************
05488> * C/s of bank st.us per Airel - with modified boundaries and Tp.
05489>  205:0003---------------ID:NHYD-------AREA-----QPEAK-TpeakDate hrimy----R.V.-R.C.-
05490>       DESIGN NASHYD      01:FX1        74.67     .488 No date   12:05   26.61 .4.5
05491>         [CN= 78.0: N= 3.00]
05492>         [Ia=  .25:SD=  5.00]
05493> *****************************************************************************
05494> * Existing flow - External areas c/s of Bank St.
05495> * CN*=69, as per Stantec see SC001.
05496> * Area partially adjusted based on Airel drawings.
05497> *****************************************************************************
05498> * Areas External to development
05499>  205:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05500>       DESIGN NASHYD      01:EX2        9.89     .230 No date   12:30   22.18 .346
05501>         [CN= 69.0: N= 3.00]
05502>         [Ia=  .37:SD=  5.00]
05503>  205:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05504>       DESIGN NASHYD      01:EX3        31.10     .727 No date   12:45   25.10 .377
05505>         [CN= 69.0: N= 3.00]
05506>         [Ia=  .37:SD=  5.00]
05507> * Slope, Timp, Area from Airel Drawing
05508> * CN from Stantec (SC001)
05509> * Ximp = Timp = 10%
05510>  205:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05511>    * CALIB STANDHYD      01:EX4         .50     .024 No date   12:00   26.91 .428
05512>         [XIMP=.10:TIMP=.10]
05513>         [LOSS= 2 :CN= 69.0]
05514>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05515>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05516> * Road and road side ditch along projected residential development Parkway Rd
05517> * Timp = Ximp = 0.21 ha /0.57 ha = 0.90
05518> * CN*=69, as per Stantec see SC001.
05519> * Slope is estimated at 1%
05520> * Ximp = Timp = 10%
05521>  205:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05522>    * CALIB STANDHYD      01:EX5         .52     .013 No date   12:00   26.77 .427
05523>         [XIMP=.10:TIMP=.10]
05524>         [LOSS= 2 :CN= 69.0]
05525>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05526>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05527> * Road and road side ditch along projected residential development Parkway Rd
05528> * Timp = Ximp = 0.0 ha /0.5 ha = 0.00
05529> * CN*=69, as per Stantec see SC001.
05530> * Slope is estimated at 1%
05531> * Ximp = Timp = 10%
05532>  205:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05533>    * CALIB STANDHYD      01:EX6         .91     .024 No date   12:00   26.90 .430
05534>         [XIMP=.10:TIMP=.20]
05535>         [LOSS= 2 :CN= 69.0]
05536>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05537>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05538> * Road and road side ditch along projected residential development Parkway Rd
05539> * Timp = Ximp = 0.09 ha /0.29 ha = 0.32
05540> * CN*=69, as per Stantec see SC001.
05541> * Slope is estimated at 1%
05542> * Ximp = Timp = 10%
05543>  205:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05544>    * CALIB STANDHYD      01:EX7         .37     .026 No date   12:00   27.37 .430
05545>         [XIMP=.10:TIMP=.25]
05546>         [LOSS= 2 :CN= 69.0]
05547>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05548>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05549> * Areas to be occupied by commercial development.
05550> * CN*=69, as per Stantec see SC001.
05551>  205:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05552>       DESIGN NASHYD      01:EX1A       5.41     .379 No date   12:10   22.16 .366
05553>         [CN= 69.0: N= 3.00]
05554>         [Ia=  .31:SD=  5.00]
05555>  205:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.
05556>    * DESIGN NASHYD      01:EX2A       3.13     .218 No date   12:05   22.18 .366
05557>         [CN= 69.0: N= 3.00]
05558>         [Ia=  .13:SD=  5.00]
05559>  205:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05560>       DESIGN NASHYD      01:EX3A       4.14     .217 No date   12:05   22.18 .366
05561>         [CN= 69.0: N= 3.00]
05562>         [Ia=  .21:SD=  5.00]
05563>  205:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05564>       DESIGN NASHYD      01:EX8        2.21     .109 No date   12:05   22.18 .366
05565>         [CN= 69.0: N= 3.00]
05566>         [Ia=  .23:SD=  5.00]
05567> *****************************************************************************
05568> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
05569> *****************************************************************************
05570> * CN*=80, as per Stantec see SC001.
05571> * Ia estimated with Ja and Maihod.
05572>  205:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05573>       DESIGN NASHYD      01:PX1        4.29     .241 No date   12:05   22.18 .346
05574>         [CN= 80.0: N= 3.00]
05575>         [Ia=  .18:SD=  5.00]
05576> *****************************************************************************
05577> * AREAS GOING TO N2RA
05578> *****************************************************************************
05579>
05580>  205:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05581>    * CALIB STANDHYD      01:PR1A        .24     .014 No date   12:00   27.62 .436
05582>         [XIMP=.11:TIMP=.21]
05583>         [LOSS= 2 :CN= 71.0]
05584>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05585>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05586>  205:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05587>    * CALIB STANDHYD      01:PR1B        .55     .031 No date   12:00   27.62 .436
05588>         [XIMP=.11:TIMP=.21]
05589>         [LOSS= 2 :CN= 71.0]
05590>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05591>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05592>
05593>  205:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05594>       CALIB STANDHYD      01:PR2A        1.37     .075 No date   12:00   27.62 .436
05595>         [XIMP=.11:TIMP=.21]
05596>         [LOSS= 2 :CN= 71.0]
05597>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05598>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05599>  205:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05600>       CALIB STANDHYD      01:PR2B        1.17     .057 No date   12:00   27.62 .436
05601>         [XIMP=.11:TIMP=.21]
05602>         [LOSS= 2 :CN= 71.0]
05603>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05604>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05605>  205:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05606>    * CALIB STANDHYD      01:PR3A        .05     .003 No date   12:00   27.62 .436
05607>         [XIMP=.11:TIMP=.21]
05608>         [LOSS= 2 :CN= 71.0]
05609>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05610>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05611>  205:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05612>    * CALIB STANDHYD      01:PR3B        .52     .026 No date   12:00   27.90 .440
05613>         [XIMP=.11:TIMP=.21]
05614>         [LOSS= 2 :CN= 71.0]
05615>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05616>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05617>  205:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05618>    * CALIB STANDHYD      01:PR4A        .71     .035 No date   12:00   27.87 .439
05619>         [XIMP=.11:TIMP=.21]
05620>         [LOSS= 2 :CN= 71.0]
05621>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05622>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05623>  205:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05624>    * CALIB STANDHYD      01:PR4B        .59     .029 No date   12:00   27.87 .439
05625>         [XIMP=.11:TIMP=.21]
05626>         [LOSS= 2 :CN= 71.0]
05627>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05628>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05629>  205:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05630>    * CALIB STANDHYD      01:PR5A        .56     .043 No date   12:00   27.87 .439
05631>         [XIMP=.11:TIMP=.21]
05632>         [LOSS= 2 :CN= 71.0]
05633>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05634>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05635>  205:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05636>    * CALIB STANDHYD      01:PR6A        .66     .051 No date   12:00   27.87 .439
05637>         [XIMP=.11:TIMP=.21]
05638>         [LOSS= 2 :CN= 71.0]
05639>          Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05640>          Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05641>  205:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05642>       CALIB STANDHYD      01:PR6A        1.03     .068 No date   12:00   27.82 .436
05643>         [XIMP=.11:TIMP=.21]
05644>         [LOSS= 2 :CN= 71.0]
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```
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  90.:NNI=.045:SCI=   .0]
205:0082>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PR6A        .94     .040 No date   17:00   97.57 .616
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:NNI=.045:SCI=   .0]
¶ slope estimated at 2  based on backyard gradient.
¶ Ximp and Aimp based on total pond area
¶ Aimp   A pond/A tot
¶ Timp = weighted average of pond and backyards
205:0083>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PR5A        0.02     .427 No date   17:00   40.15 .678
       [XIMP=.44:TIMP=.47]
       [LOSS= 2 :CN= 72.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:NNI=.045:SCI=   .0]
¶*****************************************************************************
¶ EXCONTROLLED AREAS
¶*****************************************************************************
¶
205:0087>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7A        1.30     .055 No date   12:10   24.81 .384
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  90.:NNI=.045:SCI=   .0]
205:0088>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7S1       .36     .016 No date   17:00   24.61 .580
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:NNI=.045:SCI=   .0]
205:0089>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7S2       .22     .011 No_date   12:05   24.61 .384
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  90.:NNI=.045:SCI=   .0]
205:0091>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7C1       .39     .018 No_date   12:10   24.61 .384
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:NNI=.045:SCI=   .0]
205:0092>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7C2       .17     .008 No_date   12:05   24.61 .384
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:NNI=.045:SCI=   .0]
205:0093>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR7D        .58     .015 No_date   12:05   24.61 .384
       [XIMP=.02:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:NNI=.045:SCI=   .0]
205:0094>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR8         1.58     .056 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  90.:NNI=.045:SCI=   .0]
205:0095>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9A        1.10     .035 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:NNI=.045:SCI=   .0]
205:0096>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9S1       .25     .011 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:NNI=.045:SCI=   .0]
205:0097>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR9S2       1.00     .041 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:NNI=.045:SCI=   .0]
205:0098>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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  * CALIB STANDHYD     01:PR10        1.06     .074 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  111.:NNI=.045:SCI=   .0]
205:0099>----------ID:KHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR11        .60     .025 No_date   12:10   23.89 .360
       [XIMP=.01:TIMP=.07]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  64.:NNI=.045:SCI=   .0]
¶*****************************************************************************
¶ EXISTING flow - Upstream of Residential Area Phase 1 and 2
¶*****************************************************************************
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route EX1 to d/s node R3
205:0040----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:EX1        24.62    1.486 No date   12:05   26.61  n/a
       [EOT= 5.00] outs= 01:PEX1     24.62    1.387 No_date   12:10   26.03  n/a
       [S/S/n=  .313:/ .580/.030]
       [Vmax=  .999:Xmax=  .473]
¶ Total flow at N-R3A
¶ (Note that R3A will be sheet draining to proposed channel)
205:0041----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:R3A        9.41     .375 No_date   12:10   22.13  n/a
                   + 03:R2A        3.13     .218 No_date   12:30   20.18  n/a
                   + 04:FR5S       1.10     .042 No_date   12:10   24.80  n/a
       [DT= 5.00]  SUM= 01:NR3A    13.61     .277 No_date   12:05   22.25  n/a
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route SW draining at N-R3A to d/s node NB
205:0042----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NR3A       12.64     .497 No date   12:05   22.25  n/a
       [EOT= 5.00] outs= 01:NR3CA    12.64     .498 No date   12:15   22.25  n/a
       [S/S/n=  .497:/ .580/.030]
       [Vmax=  .781:Xmax=  .308]
¶ Total flow at node NC
¶ (Note that XXX will be sheet draining to proposed channel)
205:0043----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:NR3CA     12.64     .498 No_date   12:15   22.25  n/a
                   + 03:REX1      24.62    1.387 No_date   12:10   26.61  n/a
                   + 04:FR5EL      .28     .011 No_date   12:10   23.89  n/a
                   + 05:FR5E2     1.60     .064 No_date   12:10   23.89  n/a
                   + 06:EX2       9.89     .230 No_date   12:35   22.13  n/a
       [DT= 5.00]  SUM= 01:NC      49.40    2.047 No_date   12:10   24.43  n/a
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route SW draining at NC to d/s node E-EX2
205:0044----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NC        49.40    2.047 No_date   12:10   24.43  n/a
       [EOT= 5.00] outs= 01:NC       49.40    2.024 No_date   12:15   24.47  n/a
       [S/S/n=  .324:/ .580/.030]
       [Vmax= 1.096:Xmax=  .552]
¶ Total flow at node E-EX2
205:0045----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          01:NC        49.40    2.024 No_date   12:15   24.43  n/a
                   + 03:FR5B       1.84     .074 No_date   12:10   23.89  n/a
       [DT= 5.00]  SUM= 01:NEX2    51.24    2.098 No_date   12:15   24.38  n/a
¶ Route Node E-EX2 to Node R1
¶ Typical Section based on Shields RD Ver Ditch 3:1 banks
¶ provided by Atzel
¶ Manning's n is Channel not maintained, light brush on banks
¶ Slope = 0.6% as per plan provided by Atzel
205:0046----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NEX2       51.24    2.098 No_date   12:15   24.38  n/a
  *    [EOT= 5.00] outs= 01:NR1      51.24    1.980 No_date   12:20   24.38  n/a
       [S/S/n=  .253:/ .060/.035]
       [Vmax=  .381:Xmax= 1.376]
¶*****************************************************************************
¶ Residential Development - Phase 1 and 2
¶*****************************************************************************
¶ Total flow at node N-R1B
205:0047----------ID:NHYD-------AREA----OPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:R3A        4.14     .211 No_date   12:05   22.13  n/a
                   + 03:FR5        2.21     .109 No_date   12:05   22.13  n/a
                   + 04:EX4         .20     .024 No_date   12:00   26.61  n/a
       [DT= 5.00]  SUM= 01:NR1B     6.55     .347 No_date   12:05   22.52  n/a
¶ Route Node NR1B to Node R EX1
¶ Typical Section based on Norvoy Branch Ver Ditch 1.5:1 slopes
¶ provided by Atzel
¶ Manning's n is Channel not maintained, light brush on banks
¶ Slope = 0.80% approximately as per Atzel drawing (30-66.1)/110m
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05811>  205:0048----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05812>       ROUTE CHANNEL    -> 02:R48a        6.82      .347 No_date   12:05    22.52  n/a
05813>         [RTI= 5.00] out<- 01:R48B        6.82      .298 No_date   12:10    22.52  n/a
05814>         [L/S/M=   318./ .600/.050]
05815>         [Vmax=  .617:Dmax=  .497]
05816> # Total flow at node N-PK
05817>  205:0049----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05818>       ADD HYD          + 02:R51        4.26      .241 No_date   12:05    22.18  n/a
05819>                        + 03:R48B       6.82      .298 No_date   12:10    22.53  n/a
05820>                        + 04:R49A        .24      .014 No_date   12:00    27.92  n/a
05821>         [DT= 5.00]  SUM= 01:NPK1       11.32      .515 No_date   12:05    22.51  n/a
05822> # Volume in ponding area (N-PK)
05823> # Qmax=xxx m/s required as per SCS 100yr existing conditions
05824> # Culvert from inlet 1
05825> # Assuming outlet culvert is 600 mm, slope = 1.2 %, HDPE smooth wall %
05826> # Manning's n = 0.01?, in at control manning/sub
05827> # Hydraulic head = 0.9m, Q=0.816
05828>  205:0050----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05829>       COMBINE DUALHYD  -> 01:NPA1       11.32      .515 No_date   12:05    22.51  n/a
05830>         Major System /  02:NEX1M1        .00      .000 No_date    0:00     .00  n/a
05831>         Minor System \  03:NEX1Mn       11.35      .515 No_date   12:05    22.51  n/a
05832>       (MajSysStr=.00CMS;.0L; TotCtrlVol=.000CM ;0L; N-Ovf=    0, TotBarCv's=    0.hrs)
05833> # Input to inlet 1 pipe
05834>  205:0051----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05835>       ADD HYD          + 02:R51E        .00      .025 No_date   12:00    27.92  n/a
05836>                        + 03:NEX1Mn     11.35      .515 No_date   12:05    22.51  n/a
05837>         [IT= 5.00]  sUM= 01:In1        11.80      .539 No_date   12:05    22.76  n/a
05838> # Pipe from inlet 1 - Route to pond
05839> # HDPE smooth wall pipe Manning's n = 0.012
05840>  205:0052----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05841>       ROUTE PIPE       -> 02:In1        11.80      .539 No_date   12:05    22.76  n/a
05842>         [RDT= 5.00] out<- 01:Pin1       11.80      .549 No_date   12:05    22.76  n/a
05843>         [L/S/n=   62./1.600/.012]
05844>         [Vmax=  5.159:Dmax=  .549]
05845>         [Din=  .600:Dused=  .600]
05846> # Culvert from inlet 2
05847> # HDPE smooth wall  pipe Manning's n = 0.012
05848>  205:0053----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05849>       ROUTE PIPE       -> 02:R53A       1.57      .075 No_date   12:00    27.92  n/a
05850>         [RDT= 5.00] out<- 01:Cin2       1.57      .076 No_date   12:00    27.92  n/a
05851>         [L/S/n=   13./ .400/.012]
05852>         [Vmax= 1.143:Dmax=  .185]
05853>         [Din=  .200:Dused=  .200]
05854> # Input to inlet 3 pipe
05855>  205:0054----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05856>       ADD HYD          + 02:R52B        1.17      .057 No_date   12:00    27.92  n/a
05857>                        + 03:Cin2        1.57      .076 No_date   12:00    27.92  n/a
05858>         [DT= 5.00]  SUM= 01:In2         2.74      .133 No_date   12:00    27.92  n/a
05859> # Pipe from inlet 2 - Route to pond
05860> # HDPE smooth wall pipe Manning's n = 0.012
05861>  205:0055----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05862>       ROUTE PIPE       -> 02:In2        2.74      .133 No_date   12:00    27.92  n/a
05863>         [RTI= 5.00] out<- 01:Pin2       2.74      .127 No_date   12:05    22.91  n/a
05864>         [L/S/n=   75./ .200/.012]
05865>         [Vmax= 1.876:Dmax=  .376]
05866>         [Din=  .380:Dused=  .500]
05867> # Culvert from inlet 3
05868> # HDPE smooth wall pipe Manning's n = 0.012
05869>  205:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05870>       ROUTE PIPE       -> 02:P3A         .45      .022 No_date   12:00    27.92  n/a
05871>         [RDT= 5.00] out<- 01:Cin3        .45      .023 No_date   12:00    27.92  n/a
05872>         [L/S/n=   13./ .400/.012]
05873>         [Vmax=  .804:Dmax=  .100]
05874>         [Din=  .500:Dused=  .500]
05875> # Input to inlet 3 pipe
05876>  205:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05877>       ADD HYD          + 02:P3AB         .50      .026 No_date   12:00    27.92  n/a
05878>                        + 03:Cin3         .45      .023 No_date   12:00    27.92  n/a
05879>         [IT= 5.00]  SUM= 01:In3         .97      .049 No_date   12:00    27.92  n/a
05880> # Pipe from inlet 3 - Route to pond
05881> # HDPE smooth wall pipe Manning's n = 0.012
05882>  205:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05883>       ROUTE PIPE       -> 02:In3         .97      .048 No_date   12:00    27.92  n/a
05884>         [RDT= 5.00] out<- 01:Pin3        .97      .047 No_date   12:05    22.91  n/a
05885>         [L/S/n=   75./ .200/.012]
05886>         [Vmax=  .785:Dmax=  .177]
05887>         [Din=  .500:Dused=  .500]
05888> # Culvert from inlet 4
05889> # HDPE smooth wall  pipe Manning's n = 0.012
05890>  205:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05891>       ROUTE PIPE       -> 02:R59A        .71      .035 No_date   12:00    27.92  n/a
05892>         [RDT= 5.00] out<- 01:Cin4        .71      .036 No_date   12:00    27.92  n/a
05893>         [L/S/n=   13./ .400/.012]
05894>         [Vmax=  .917:Dmax=  .124]
05895>         [Din=  .300:Dused=  .300]
05896> # Input to inlet 4 pipe
05897>  205:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05898>       ADD HYD          + 02:P4B         .65      .032 No_date   12:00    27.92  n/a
05899>                        + 03:Cin4        .71      .036 No_date   12:00    27.92  n/a
05900>         [DT= 5.00]  SUM= 01:In4         1.36      .068 No_date   12:00    27.92  n/a
05901> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
05902> # HDPE smooth wall pipe Manning's n = 0.012
05903>  205:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05904>       ROUTE PIPE       -> 02:In4        1.36      .068 No_date   12:00    27.92  n/a
05905>         [RDT= 5.00] out<- 01:Pin4        1.36      .067 No_date   12:00    27.92  n/a
05906>         [L/S/n=   65./1.900/.012]
05907>         [Vmax= 1.925:Dmax=  .177]
05908>         [Din=  .500:Dused=  .500]
05909> # Culvert from inlet 5
05910> # HDPE smooth wall pipe Manning's n = 0.012
05911>  205:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05912>       ROUTE PIPE       -> 02:P5A         .66      .033 No_date   12:00    27.92  n/a
05913>         [RDT= 5.00] out<- 01:Cin5        .66      .033 No_date   12:00    27.92  n/a
05914>         [L/S/n=   75./ .800/.012]
05915>         [Vmax=  .874:Dmax=  .178]
05916>         [Din=  .500:Dused=  .500]
05917> # Input to inlet 5 pipe
05918>  205:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05919>       ADD HYD          + 02:P5B         .46      .023 No_date   12:00    27.92  n/a
05920>                        + 03:Cin5        .66      .033 No_date   12:00    27.92  n/a
05921>         [DT= 5.00]  SUM= 01:In5         1.12      .057 No_date   12:00    27.92  n/a
05922> # Pipe from inlet 5 - Route to pond
05923> # HDPE smooth wall pipe Manning's n = 0.012
05924>  205:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05925>       ROUTE PIPE       -> 02:In5        1.12      .057 No_date   12:00    27.92  n/a
05926>         [RDT= 5.00] out<- 01:Pin5        1.12      .055 No_date   12:00    27.92  n/a
05927>         [L/S/n=   75./1.600/.012]
05928>         [Vmax= 1.938:Dmax=  .111]
05929>         [Din=  .500:Dused=  .500]
05930> # Culvert from inlet 6
05931> # HDPE smooth wall pipe Manning's n = 0.012
05932>  205:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05933>       ROUTE PIPE       -> 02:P6EA       1.43      .069 No_date   12:00    27.92  n/a
05934>         [RDT= 5.00] out<- 01:Cin6        1.43      .069 No_date   12:00    27.92  n/a
05935>         [L/S/n=   13./ .400/.012]
05936>         [Vmax= 1.232 Dmax=  .178]
05937>          Din=  .500:Dused=  .500]
05938> # Input to inlet 6 pipe
05939>  205:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05940>       ADD HYD          + 02:P6EB         .93      .046 No_date   12:00    27.92  n/a
05941>                        + 03:Cin6        1.43      .069 No_date   12:00    27.92  n/a
05942>         [IT= 5.00]  SUM= 01:In6         2.36      .115 No_date   12:00    27.92  n/a
05943> # Pipe from Inlet 6 - Route to pond
05944> # HDPE smooth wall pipe Manning's n = 0.012
05945>  205:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05946>       ROUTE PIPE       -> 02:In6        2.36      .115 No_date   12:00    27.92  n/a
05947>         [RDT= 5.00] out<- 01:Pin6        2.36      .113 No_date   12:00    27.92  n/a
05948>         [L/S/n=   76./ .300/.012]
05949>         [Vmax= 1.148:Dmax=  .254]
05950>         [Din=  .530:Dused=  .500]
05951> # VOTING TO PONDS ULTIMATE RESIDENTIAL
05952>  205:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05953>       ADD HYD          + 02:Pin1        1.80      .540 No_date   12:05    22.51  n/a
05954>                        + 03:Pin2        2.74      .127 No_date   12:05    22.91  n/a
05955>                        + 04:Pin3         .97      .047 No_date   12:00    27.92  n/a
05956>                        + 05:Pin4        1.36      .067 No_date   12:00    27.92  n/a
05957>                        + 06:Pin5        1.12      .055 No_date   12:00    27.92  n/a
05958>                        + 07:Pin6        2.36      .111 No_date   12:00    27.92  n/a
05959>                        + 08:PDu         5.03      .427 No_date   12:00    46.15  n/a
05960>         [UU= 5.00]  SUM= 01:POUNDin     25.48     1.357 No_date   12:05    27.93  n/a
05961>  205:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05962>       ROUTE RESERVOIR -> 02:POUNDin     25.48     1.357 No_date   12:05    27.93  n/a
05963>         [RDT= 5.00] out<- 01:POout       25.48      101 No_date   14:20    27.93  n/a
05964>              overflow <- 03:ovrD          .00      .000 No_date    0:00     .00  n/a
05965>       (MxStrgReqd=.01;VolCD, TotOutVo.=.00;VolCD, N-Ovf=    0, TotBarCv's=    0.hrs)
05966> # Simulating SCS 100 yr conditions with submergence at outf ow weir
05967> # upweird for weir .6; .6; 3.0
05968> ROUTE RESERVOIR  NHYDout=["POout"] ,NHYDin=["POUNDin"] ,
05969>                  RDT=[5]tmin,
05970>                        TABLE of ( OUTFLOW-STORAGE ) values
05971>                                 (cms) - (ha-m)
05972>                                  0.0 ,  0.0 )
05973>                                0.0030 ,  .1185
05974>                                0.20  , 1.8110
05975>                                0.33  , 2.0195
05976>                                 -1  ,  -1   )  [max twenty pts]
```

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 65917> #                        KEYDover "Over0",
 65978> # Route none output through first set of pipes
 65979> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
 65980> # NORS smooth wall pipe Manning's n = 0.012
 65981>  205:0070----------------ID:NOVD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 65982>       ROUTE PIPE      -> 02:Pout1       26.48      .101 No date   12:20    27.93   n/a
 65983>         [RTI= 5.00] out<- 01:Pout1      26.48      .101 No date   12:25    27.93   n/a
 65984>         [2/3/n    73./ .200/.012]
 65985>         [Vmax=   .829 Dmax=   .216]
 65986>         [Dia=    .780 Used=   .780]
 65987> # Flow e/s of outlet culverts
 65988>  205:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 65989>       ADD HYD           02:FR7B1        .36      .026 No date   12:10    24.61   n/a
 65990>                       + 03:EB/EB2       .22      .011 No date   12:05    24.61   n/a
 65991>                       = 04:Pout1      26.48      .101 No date   12:25    27.93   n/a
 65992>         [02= 5.00] SUM= 01:Pout       26.06      .104 No date   14:10    27.86   n/a
 65993> # Route outflow through set of culverts
 65994> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia)
 65995> # NORS smooth wall pipe Manning's n = 0.012
 65996>  205:0072----------------ID:NOVD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 65997>       ROUTE PIPE      -> 02:Pout        26.06      .104 No date   14:10    27.86   n/a
 65998>         [RTI= 5.00] out<- 01:Pout1      26.06      .104 No date   12:30    27.86   n/a
 65999>         [2/3/n=   13./ .600/.012]
 66000>         [Vmax=  1.191 Dmax=   .183]
 66001>         [Dia=    .780 Used=   .780]
 66002> # Flow e/s of second set of outflow pipes
 66003>  205:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66004>       ADD HYD           02:FR7D1        .38      .028 No date   12:10    24.61   n/a
 66005>                       + 03:FR7D2        .27      .005 No date   12:05    24.61   n/a
 66006>                       = 04:Pout2      26.06      .106 No date   14:10    27.86   n/a
 66007>         [01= 5.00] SUM= 01:Pout2      26.06      .106 No date   14:05    27.79   n/a
 66008> # Route outflow through second set of pipes
 66009> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
 66010> # NORS smooth wall pipe Manning's n = 0.012
 66011>  205:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66012>       ROUTE PIPE      -> 02:Pout2       26.06      .106 No date   14:05    27.79   n/a
 66013>         [RTI= 5.00] out<- 01:Pout2      26.06      .106 No date   14:05    27.79   n/a
 66014>         [2/3/n=   65./ .200/.012]
 66015>         [Vmax=   .941 Dmax=   .222]
 66016>         [Dia=    .780 Used=   .780]
 66017> # Total flow at node N3 (Shield N3 along Sales Barn N3)
 66018>  205:0075----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66019>       ADD HYD           03:RNX3        51.70    1.740 No date   12:20    24.38   n/a
 66020>                       + 03:Pout2      26.06      .106 No date   14:05    27.79   n/a
 66021>                       + 04:EX7        .19      .009 No date   12:00    27.57   n/a
 66022>                       + 05:FR7E       .30      .015 No date   12:05    24.61   n/a
 66023>                       + 06:FR11       .82      .026 No date   12:10    25.09   n/a
 66024>         [03= 5.00] SUM= 01:N3         79.17    1.881 No date   12:20    25.54   n/a
 66025> # ROUTE N3 to N3
 66026> # Typical Section based on Shield N3 Vee Ditch 3:1 banks
 66027> # provided by Airel
 66028> # Manning's n is Channel not maintained, light brush or banks
 66029> # Slope = 0.05: as per plan provided by Airel.
 66030>  205:0076----------------ID:NHYD--------AREA    QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66031>       ROUTE CHANNEL   -> 02:N3          79.17    1.881 No date   12:20    25.54   n/a
 66032>   *     [02= 5.00] out<- 01:RN1         79.17    1.484 No date   12:25    25.54   n/a
 66033>         [2/3/n=  145./ .050/.035]
 66034>         [Vmax=  .437 Dmax=  1.311]
 66035> # VOLUME from residential area at N1 interim
 66036>  205:0077----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66037>       ADD HYD           02:FR1A         1.45      .069 No date   12:10    24.61   n/a
 66038>                       + 03:FR8        1.38      .068 No date   12:10    25.09   n/a
 66039>         [IT= 5.00] SUM= 01:N31        2.79      .116 No date   12:10    24.83   n/a
 66040> # Added VOLUMS from external area contributing to N3
 66041>  205:0078----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66042>       ADD HYD           03:RN3         79.17    1.484 No date   12:25    25.54   n/a
 66043>                       + 03:N31        2.79      .116 No date   12:10    24.84   n/a
 66044>                       + 04:EX5         .57      .043 No date   12:00    27.57   n/a
 66045>                       + 05:EX6         .61      .024 No date   12:00    26.30   n/a
 66046>         [IT= 5.00] SUM= 01:N3         82.53    1.597 No date   12:25    25.54   n/a
 66047> # ROUTE N3 to N3128
 66048> # Typical Section based on Shields N3 Vee Ditch 3:1 banks
 66049> # provided by Airel
 66050> # Manning's n is Channel not maintained, light brush or banks
 66051> # Slope = 0.05: as per plan provided by Airel.
 66052>  205:0079----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66053>       ROUTE CHANNEL   -> 02:N3          82.53    1.597 No date   12:25    25.54   n/a
 66054>         [RTI= 5.00] out<- 01:RN3        82.53    1.288 No date   12:45    25.54   n/a
 66055>         [2/3/n=  415./ .050/.035]
 66056>         [Vmax=  .755 Dmax= 1.275]
 66057> # Flow at Stanton node NCR 78 for comparison
 66058> # Routed N3 plus EX3
 66059>  205:0080----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66060>       ADD HYD           02:RN3         82.53    1.288 No date   12:45    25.54   n/a
 66061>                       + 03:EX3        21.30      .422 No date   12:45    22.18   n/a
 66062>         [IT= 5.00] SUM= 01:NCR128     104.23    1.671 No date   12:45    24.85   n/a
 66063> # AREA CHECK
 66064> #
 66065>  205:0081----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66066>       ADD HYD           01:EX1         24.62    1.486 No date   12:05    26.61   n/a
 66067>                       + 03:EX2         5.88      .236 No date   12:35    22.18   n/a
 66068>                       + 01:EX3        21.30      .422 No date   12:45    22.18   n/a
 66069>                       + 04:EX4         .50      .024 No date   12:00    27.91   n/a
 66070>                       + 05:EX5         .52      .042 No date   12:00    27.57   n/a
 66071>                       + 07:EX6         .51      .024 No date   12:00    26.30   n/a
 66072>                       + 08:FR1A        .39      .020 No date   12:00    27.83   n/a
 66073>                       + 09:FR12A       .24      .014 No date   12:00    27.92   n/a
 66074>                       + 10:FR1B        .03      .008 No date   12:00    27.92   n/a
 66075>         [IT= 5.00] SUM= 01:Tot1       50.52    1.913 No date   12:05    24.35   n/a
 66076>  205:0082----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66077>       ADD HYD           01:Tot1        50.52    1.913 No date   12:05    24.35   n/a
 66078>                       + 02:FR7A        1.50      .070 No date   12:00    27.92   n/a
 66079>                       + 04:FR2B        1.13      .057 No date   12:00    27.92   n/a
 66080>                       + 05:FR3A        .45      .021 No date   12:00    27.92   n/a
 66081>                       + 06:FR3B        .52      .026 No date   12:00    27.92   n/a
 66082>                       + 07:FR4A        .71      .035 No date   12:00    27.92   n/a
 66083>                       + 08:FR4B        .60      .032 No date   12:00    27.92   n/a
 66084>                       + 09:FR5A        .66      .033 No date   12:00    27.92   n/a
 66085>                       + 10:FR5B        .48      .023 No date   12:00    27.92   n/a
 66086>         [IT= 5.00] SUM= 01:Tot2       58.71    2.187 No date   12:05    24.69   n/a
 66087>  205:0083----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66088>       ADD HYD           01:Tot2        58.71    2.187 No date   12:05    24.69   n/a
 66089>                       + 03:FR6A        1.40      .069 No date   12:00    27.92   n/a
 66090>                       + 04:FR6B        .93      .044 No date   12:00    27.92   n/a
 66091>                       + 05:FR7A        1.30      .059 No date   12:00    26.61   n/a
 66092>                       + 06:FR7B1       .35      .016 No date   12:00    26.61   n/a
 66093>                       + 01:FR7B2       .22      .011 No date   12:05    24.61   n/a
 66094>                       + 08:FR7C1       .35      .018 No date   12:00    24.61   n/a
 66095>                       + 10:FR7D        .50      .035 No date   12:05    24.61   n/a
 66096>         [IT= 5.00] SUM= 01:Tot3       63.86    2.438 No date   12:05    24.75   n/a
 66097>  205:0084----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66098>       ADD HYD           01:Tot3        63.86    2.410 No date   12:05    24.75   n/a
 66099>                       + 03:FR8         1.38      .056 No date   12:10    25.09   n/a
 66100>                       + 04:FR9A        1.10      .045 No date   12:10    25.09   n/a
 66101>                       - 02:FR9B1       .95      .037 No date   12:10    25.09   n/a
 66102>                       - 06:FR9B2       1.00      .041 No date   12:10    25.09   n/a
 66103>                       - 07:FR10        1.84      .074 No date   12:10    25.09   n/a
 66104>                         08:FR11         .62      .026 No date   12:10    25.09   n/a
 66105>                         09:FR1          .26      .241 No date   12:05    99.18   n/a
 66106>                         10:FR3a        5.39      .427 No date   12:00    40.15   n/a
 66107>         [DT= 5.00] SUM= 01:Tot4       65.54    1.765 No date   12:00    25.45   n/a
 66108>  205:0085----------------ID:NHYD--------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 66109>       ADD HYD           02:Tot4        65.54    1.765 No date   12:05    25.45   n/a
 66110>                       - 03:R2A         9.41      .379 No date   12:10    25.18   n/a
 66111>                       - 04:R2A         5.13      .218 No date   12:00    25.18   n/a
 66112>                         05:R3A         4.14      .217 No date   12:05    25.18   n/a
 66113>                         06:R3B         2.21      .109 No date   12:05    25.18   n/a
 66114>         [DT= 5.00] SUM= 01:Tot5       104.23    4.156 No date   12:05    24.85   n/a
 66115> r**********************************************************************
 66116> r Simulations with 6 hour Chenage from City of Ottawa
 66117> r SCS 24 hours type 2, from City of Ottawa
 66118>   ** END OF RUN : 205
 66119>
 66120> r**********************************************************************
 66121>
 66122>
 66123>
 66124>
 66125>
 66126>
 66127>  RUN:COMMAND#
 66128>  210:0091----------------------------------------------------------------------
 66129>       START                 [ZERO =     .00 hrs on        0]
 66130>       [METOUT=   2    (1 Imperial, 2-Metric output)]
 66131>       [NSTORM=   1 ]
 66132>       [NRUN  = 210 ]
 66133> r**********************************************************************
 66134> r  SMDKEYSD Ver:5.02/Jan 2001 <ENTER> / INPUT DATA FILE
 66135> r**********************************************************************
 66136> r  Project Name: [Greely Village Center]    Project Number: [0476-01]
 66137> r  Date        : 04-08-2008
 66138> r  Modelled    : [JHP]
 66139> r  Company     : JFSA-inc.
 66140> r  Filename 4  : 2547402
 66141> r**********************************************************************
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06144> *
06144> * SWMM/HYMO model of the Greely Village Center - Residential Area - Phase 2
06145> * Proposed Ultimate conditions. OPTION B
06146> * Filename stands for: GRP2u2a - Greely, Residential, Phase 2, Ultimate v2 Weir
06147> *
06148> *  December 15, 2008
06149> *  "a" at the end of filename= Added July 1st 1979 Event
06150> *--------------------------------------------------------------------------
06151> 210:0002 ---------------------------------------------------------------------
06152>       REAL STORM
06153>        Filename = STORM.601
06154>        Comment  = 10 years SCS Type I Storm 24 Hours step 10 min, City of Ottawa
06155>       [SLI=10.00.STOR   24.00:PTOT   70.55]
06156> *--------------------------------------------------------------------------
06157> * Existing flow - McKinny Branch of Shield Creek - Areas
06158> * Area c/s of proposed development (residential)
06159> * CN*=?, xlope = 0.8, Yu=0.16, XIMP=5, YIMP=10, Sec 3C002 as per Stantec
06160> * Area partially adjusted based on Airel drawings.
06161> *--------------------------------------------------------------------------
06162> * C/s of Bank St as per Airel - with modified boundaries and Tp.
06163>  210:0003---------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06164>      DESIGN NASHYD      01:EX1       24.62     1.884 No_date   12:00   33.69 .453
06165>        [CN= 65.0: N= 3.00]
06166>        [Tp=  .21:DT= 5.00]
06167> *--------------------------------------------------------------------------
06168> * Existing flow - External areas c/s of Bank St.
06169> * CN*=68, as per Stantec see SC001.
06170> * Area partially adjusted based on Airel drawings.
06171> *--------------------------------------------------------------------------
06172> * Areas External to development
06173>  210:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06174>      DESIGN NASHYD      01:EX2        5.09      .258 No_date   12:15   28.39 .387
06175>        [CN= 69.0: N= 3.00]
06176>        [Tp=  .67:DT= 5.00]
06177>  210:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
06178>      DESIGN NASHYD      01:EX3       71.30     .544 No_date   12:45   28.36 .382
06179>        [CN= 65.0: N= 3.00]
06180>        [Tp=  .89:DT= 5.00]
06181> * Slope, Timp, Area from Airel Drawing
06182> * CN from Stantec (2C003)
06183> * Ximp = Timp = 10%
06184>  210:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06185>   * CALIB STANDHYD      01:EX4        .50      .015 No_date   12:00   35.80 .455
06186>        [XIMP  .1:TIMP= .2]
06187>        [LOSS= 2 :CN= 69.0]
06188>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06189>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
06190> * Road and rear yard side ditch along projected residential development Parkway Ro
06191> * Timp = Ximp = 0.21 ha /0.57 ha =  0.40
06192> * CN*=65, as per Stantec see SC001.
06193> * Slope is estimated at 1%
06194> * Ximp = Timp = 40%
06195>  210:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06196>   * CALIB STANDHYD      01:EX5        .52      .056 No_date   12:00   31.40 .501
06197>        [XIMP=.33:TIMP=.40]
06198>        [Loss= 2 :CN= 69.0]
06199>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06200>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
06201> * Road and road side ditch along projected residential development SalesBarn Rd
06202> * Timp = Ximp = 0.61 ha /0.81 ha = 0.20
06203> * CN*=68, as per Stantec see SC001.
06204> * Slope is estimated at 1%
06205> * Ximp = Timp = 10%
06206>  210:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06207>   * CALIB STANDHYD      01:EX6        .52      .035 No_date   12:00   31.12 .475
06208>        [XIMP=.10:TIMP=.20]
06209>        [Loss= 2 :CN= 68.0]
06210>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06211>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
06212> * Road and road side ditch along projected residential development SalesBarn Rd
06213> * Timp = Ximp = 0.08 ha /0.29 ha =  0.27
06214> * CN*=68, as per Stantec see SC001.
06215> * Slope is estimated at 1%
06216> * Ximp = Timp = 10%
06217>  210:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06218>   * CALIB STANDHYD      01:EX7        .29      .029 No_date   12:00   34.52 .461
06219>        [XIMP  .1:TIMP=.20]
06220>        [Loss= 2 :CN= 68.0]
06221>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06222>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
06223> * Areas to be occupied by commercial development
06224> * CN*=69, as per Stantec see SC001.
06225>  210:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06226>      DESIGN NASHYD      01:RIA        9.41      .469 No_date   12:10   28.29 .382
06227>        [CN= 69.0: N= 3.00]
06228>        [Tp=  .41:DT= 5.00]
06229> *10:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06230>   * DESIGN NASHYD      01:RPA        3.13      .268 No_date   12:00   28.39 .382
06231>        [CN= 69.0: N= 3.00]
06232>        [Tp=  .27:DT= 5.00]
06233> *10:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06234>      DESIGN NASHYD      01:RSA        4.14      .370 No_date   12:05   28.39 .382
06235>        [CN= 69.0: N= 3.00]
06236>        [Tp=  .21:DT= 5.00]
06237>  210:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06238>      DESIGN NASHYD      01:RSB        2.21      .142 No_date   12:05   28.39 .382
06239>        [CN= 65.0: N= 3.00]
06240>        [Tp=  .23:DT= 5.00]
06241> ********************************************************************************
06242> *--------------------------------------------------------------------------
06243> * PROPOSED RESIDENTIAL SUBWATERSHEDS   Residential Area Phase 1 and 2
06244> *--------------------------------------------------------------------------
06245> * CN*=69, as per Stantec See SC001.
06246> * Tp calculated with Upland Method.
06247>  210:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06248>      DESIGN NASHYD      01:PH1        1.26      .069 No_date   12:05   28.39 .382
06249>        [CN= 69.0: N= 3.00]
06250>        [Tp=  .18:DT= 5.00]
06251> *--------------------------------------------------------------------------
06252> * AREAS GOING TO POND
06253> *--------------------------------------------------------------------------
06254> *
06255>  210:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06256>   * CALIB STANDHYD      01:PR1A       1.04      .074 No_date   12:00   35.04 .471
06257>        [XIMP=.11:TIMP=.21]
06258>        [LOSS= 2 :CN= 71.0]
06259>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06260>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06261>  210:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06262>   * CALIB STANDHYD      01:PR1B        .55      .040 No_date   12:00   35.04 .471
06263>        [XIMP=.11:TIMP=.21]
06264>        [LOSS= 2 :CN= 71.0]
06265>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06266>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06267> *10:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06268>      CALIB STANDHYD      01:PR2A       1.62      .092 No_date   12:00   35.04 .471
06269>        [XIMP=.11:TIMP=.21]
06270>        [LOSS= 2 :CN= 71.0]
06271>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06272>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06273> *10:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06274>      CALIB STANDHYD      01:PR2B       1.17      .073 No_date   12:00   35.04 .471
06275>        [XIMP=.11:TIMP=.21]
06276>        [LOSS= 2 :CN= 71.0]
06277>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06278>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06279> 210:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06280>   * CALIB STANDHYD      01:PR3A        .45      .033 No_date   12:00   35.04 .471
06281>        [XIMP=.11:TIMP=.21]
06282>        [Loss= 2 :CN= 71.0]
06283>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06284>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06285> 210:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06286>   * CALIB STANDHYD      01:PR3B        .69      .050 No_date   12:00   35.04 .471
06287>        [XIMP=.11:TIMP=.21]
06288>        [LOSS= 2 :CN= 71.0]
06289>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06290>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06291> 210:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06292>   * CALIB STANDHYD      01:PR4A        .71      .052 No_date   12:00   35.04 .471
06293>        [XIMP  .1:TIMP=.21]
06294>        [LOSS= 2 :CN= 71.0]
06295>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06296>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06297>  210:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06298>   * CALIB STANDHYD      01:PR4B        .65      .047 No_date   12:00   35.04 .471
06299>        [XIMP  .1:TIMP=.21]
06300>        [LOSS= 2 :CN= 71.0]
06301>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06302>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
06303>  210:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06304>   * CALIB STANDHYD      01:PR5A        .66      .048 No_date   12:00   35.04 .471
06305>        [XIMP  .1:TIMP=.21]
06306>        [LOSS= 2 :CN= 71.0]
06307>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06308>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
```

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Z10:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR5B         .48      .034 No data   12:00   30.01 .471
    [XIMP=.11:TIMP=.21]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
Z10:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR6A         1.67      .088 No data   12:00   30.04 .671
    [XIMP=.11:TIMP=.21]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
Z10:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR6B         .80      .067 No data   12:00   30.01 .671
    [XIMP=.11:TIMP=.21]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:MNI=.045:SCI=   .0]
# Slope estimates at .% based on backyard swales.
# Timp and Ximp based on total pond area
# ximp = A pond/A tot
# Timp = weighted average of pond and backyards
Z10:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR5A         5.03      .938 No data   12:00   30.52 .650
    [XIMP=.44:TIMP=.47]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
*****************************************************************************
* UNCONTROLLED AREAS
*****************************************************************************
*
Z10:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7A         1.35      .107 No data   12:10   31.44 .423
    [XIMP=.02:TIMP=.16]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
Z10:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7B1        .88      .069 No data   12:05   31.46 .423
    [XIMP=.02:TIMP=.16]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  46.:MNI=.045:SCI=   .0]
Z10:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7B2         .22      .015 No data   12:05   31.46 .423
    [XIMP=.02:TIMP=.14]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
Z10:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C1        .39      .026 No data   12:05   31.44 .423
    [XIMP=.02:TIMP=.14]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
Z10:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C2         .17      .011 No data   12:05   31.44 .423
    [XIMP=.02:TIMP=.14]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0]
Z10:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7D          .20      .013 No data   12:05   31.44 .423
    [XIMP=.02:TIMP=.14]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
Z10:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8          1.08      .076 No data   12:10   29.87 .299
    [XIMP=.01:TIMP=.07]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
Z10:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR9A          .30      .021 No data   12:10   29.87 .299
    [XIMP=.01:TIMP=.07]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
Z10:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR9B          .25      .018 No data   12:00   29.87 .299
    [XIMP=.01:TIMP=.07]
```

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    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0]
Z10:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR10         1.60      .056 No data   12:10   29.67 .299
    [XIMP=.01:TIMP=.07]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
Z10:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR11         .63      .037 No data   12:05   29.67 .299
    [XIMP=.01:TIMP=.07]
    [LOSS= 2 :CN= 71.0]
    [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
    [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:MNI=.045:SCI=   .0]
*****************************************************************************
* EXISTING flow - Upstream or Residential Area Phase 1 and 2
*****************************************************************************
* 4: bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route EX1 to d/s node NC
Z10:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL     -> 00:EX1        24.62     1.824 No date   12:05   33.69  n/a
    [PDT  5.00] outc= 01:NCX           35.62     1.788 No date   12:10   33.68  n/a
    [L/s/n=  312./ .050/.030]
    [Vmax= 1.867 Dmax=  .526]
* Total flow at N-R1A
* (Note that R.A at 1 ha short draining to proposed channel)
Z10:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:R1A           9.11      .089 No data   12:10   33.39  n/a
                    + 03:N2A           3.73      .280 No data   12:00   34.10  n/a
                    + 04:FR8A          1.10      .067 No data   12:10   29.67  n/a
    [CN= 5.00]  STN=  01:NR2A         13.94      .146 No data   12:00   28.49  n/a
* Typical Section based on proposed channel provided by ATC
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route 2A draining at N-R1A to d/s node N0
Z10:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL     -> 02:NR1A       13.64      .746 No data   12:05   28.48  n/a
    [RDT= 5.00] outc= 01:RNR1A         13.64      .851 No data   12:15   28.48  n/a
    [L/s/n=  167./ .100/.030]
    [Vmax=  .894 Dmax=  .348]
* Total flow at node N0
* (Note that XX' will be short draining to proposed channel)
Z10:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           03:RNR2A         13.64      .851 No data   12:15   28.48  n/a
                    + 01:EX1           24.62     1.788 No data   12:10   33.69  n/a
                    + 04:FR6BY          .80      .016 No data   12:05   29.67  n/a
                    + 05:FR6B2         1.00      .056 No data   12:10   29.67  n/a
                    + 06:EX2           9.89      .296 No data   12:35   30.58  n/a
    [CN= 5.00]  SUM=  01:N0           49.40     2.709 No data   12:10   31.09  n/a
*****************************************************************************
* Typical Section based on proposed channel provided by ATC
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route 2N draining at N0 to d/s node N-EX2
Z10:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL     -> 02:N0         49.40     2.709 No data   12:10   31.09  n/a
    [PDT= 5.00  outc= 01:RN0           49.40     2.603 No data   12:15   31.09  n/a
    [L/s/n=  324./ .100/.030]
    [Vmax=  1.164 Dmax=  .615]
* Total flow at node N-EX2
Z10:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:EX0           49.40     2.603 No data   12:15   31.09  n/a
                    + 01:FR10          1.84      .108 No data   12:10   29.67  n/a
    [01= 5.00]  SUM=  01:NEX2          51.24     2.721 No data   12:15   31.04  n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Deleuw MC Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Atrel.
Z10:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL     -> 00:NEX2       51.24     2.721 No date   12:15   31.04  n/a
  *  [RDT= 5.00] outc= 01:RNEX2        51.24     2.301 No date   12:20   31.04  n/a
    [L/s/n=  253./ .050/.045]
    [Vmax=  .582 Dmax= 1.558]
*****************************************************************************
* Residential  Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-N1E
```

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 210:6047----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:R14        6.14     .270 No date   12:05   28.38  n/a
                       + 03:R1B        2.21     .141 No date   12:05   28.38  n/a
                       = 04:PX4        8.50     .335 No date   12:00   33.81  n/a
     [JX= 5.00]  STM=  01:KR1R        6.85     .452 No date   12:05   28.78  n/a
# Route Node KR3B to Node N-PK
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Arrel
# Manning's n is Channel not maintained, light brush on Banks
# Slope = 0.60' approximately as per Arrel Drawing (85-86.1)/310ft
 210:6048----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:BR3B        6.85     .457 No date   12:05   28.18  n/a
       [RDT= 5.00] out<= 01:BR3R        6.85     .394 No date   12:10   28.18  n/a
       [L/S/n=  310./ .030/.050]
       [Vmax=  .65:Tmax=  .826]
# Total flow at node N-PK1
 210:6049----------ID:NB1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PK1        7.26     .509 No date   12:05   28.59  n/a
                       + 03:BNR3B      6.85     .394 No date   12:10   28.18  n/a
                       = 04:PR1A      14.11     .903 No date   12:05   28.39  n/a
     [IT= 5.00]  SUM=  01:NPK1        14.11     .677 No date   12:05   28.77  n/a
# Volume to ponding area in PK1
# Q 0.550 m3/s required as per SCS 100yr Existing conditions
# Culvert from inlet 1
# Assuming outlet culvert 1x 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n = 0.012, Inlet control nomograph
# Hydraulic Head = 0.0m, Q=0.610
 210:6050----------ID:NR1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      COMPUTE LOADING  01:NPK1        11.35     .677 No date   12:05   28.77  n/a
        Major System   02:KPR1Mj       .00     .000 No date    0:00    .00  n/a
        Minor System   03:KPR1Mn     11.35     .438 No date   12:05   28.89  n/a
      [MSysSto= 3560$:02, TotOutVo =.0600X100, % Cv/=    0, TotDelOvF=    0.0m3]
# Input to Inlet 1 pipe
 210:6051----------ID:NR1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR1B        .00     .000 No date   12:00   35.04  n/a
                       + 03:KPR1Mn     11.35     .438 No date   12:05   28.89  n/a
     [JX= 5.00]  SUM=  01:In1         11.35     .647 No date   12:05   28.17  n/a
# Pipe from inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6052----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In1        11.80     .647 No date   12:05   28.17  n/a
       [RDT= 5.00] out<= 01:Pin1        11.80     .654 No date   12:05   28.17  n/a
       [L/S/n=  65./1.400/.012]
       [Vmax= 1.781:Tmax=  .194]
       [Dim=  .600:Dused=  .600]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 210:6053----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR2B        .51     .047 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:CT-2        .51     .047 No date   12:00   35.04  n/a
       [L/S/n=  13./ .100/.012]
       [Vmax= 1.720:Tmax=  .021]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 2 pipe
 210:6054----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR2E       1.17     .075 No date   12:00   35.04  n/a
                       + 03:CIn2       1.57     .097 No date   12:00   35.04  n/a
     [JX= 5.00]  SUM=  01:In2         2.74     .170 No date   12:00   35.04  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6055----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2        2.74     .170 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:Pin2        2.74     .166 No date   12:05   35.04  n/a
       [L/S/n=  75./ .200/.012]
       [Vmax= 1.058:Tmax=  .092]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 210:6056----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR3A        .45     .033 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:CIn3        .45     .034 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax=  .899:Tmax=  .120]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 3 pipe
 210:6057----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR3E        .52     .036 No date   12:00   35.04  n/a
                       + 03:CIn3        .45     .031 No date   12:00   35.04  n/a
     [JX= 5.00]  SUM=  01:In3          .97     .072 No date   12:00   35.04  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6058----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In3         .97     .072 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:Pin3         .97     .069 No date   12:05   35.04  n/a
       [L/S/n=  75./ .100/.012]
       [Vmax=  .674:Tmax=  .031]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 210:6059----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR4A        .71     .052 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:CIn4        .71     .052 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.024:Tmax=  .151]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 4 pipe
 210:6060----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR4E        .65     .047 No date   12:00   35.04  n/a
                       + 03:CIn4        .71     .052 No date   12:00   35.04  n/a
     [IT= 5.00]  SUM=  01:In4          1.36     .099 No date   12:00   35.04  n/a
# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6061----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In4        1.36     .099 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:Pin4        1.36     .099 No date   12:05   35.04  n/a
       [L/S/n=  65./1.900/.012]
       [Vmax= 2.152:Tmax=  .142]
       [Dim=  .600:Dused=  .590]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 210:6062----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR5A        .66     .048 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:CIn5        .66     .048 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.087:Tmax=  .145]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 5 pipe
 210:6063----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR5E        .46     .034 No date   12:00   35.04  n/a
                       + 03:CIn5        .66     .049 No date   12:00   35.04  n/a
     [IT= 5.00]  SUM=  01:In5          1.12     .083 No date   12:00   35.04  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6064----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5        1.12     .083 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:Pin5        1.12     .081 No date   12:05   35.04  n/a
       [L/S/n=  75./1.600/.013]
       [Vmax= 1.925:Tmax=  .135]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 210:6065----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR6A        1.63     .080 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:CIn6        1.63     .089 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.731:Tmax=  .201]
       [Dim=  .600:Dused=  .590]
# Input to Inlet 6 pipe
 210:6066----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR6E        .91     .067 No date   12:00   35.04  n/a
                       + 03:CIn6        1.63     .089 No date   12:00   35.04  n/a
     [IT= 5.00]  SUM=  01:In6          2.54     .156 No date   12:00   35.04  n/a
# Pipe from Inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6067----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In6        2.54     .156 No date   12:00   35.04  n/a
       [RDT= 5.00] out<= 01:Pin6        2.54     .151 No date   12:05   35.04  n/a
       [L/S/n=  70./ .100/.017]
       [Vmax= 1.733:Tmax=  .168]
       [Dim=  .600:Dused=  .580]
# VOLUME TO POND ULTIMATE RESIDENTIAL
 210:6068----------ID:NR1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:Pin1       11.80     .654 No date   12:05   28.17  n/a
                       + 03:Pin2        2.74     .166 No date   12:05   35.04  n/a
                       + 04:Pin3         .97     .069 No date   12:05   35.04  n/a
                       + 05:Pin4        1.36     .099 No date   12:00   35.04  n/a
                       + 06:Pin5        1.12     .081 No date   12:00   35.04  n/a
                       + 07:Pin6        2.54     .151 No date   12:00   35.04  n/a
                       = 08:POut        5.00     .576 No date   13:00   31.37  n/a
     [PI= 2.00]  SUM=  01:PONDic       25.08    1.211 No date   12:05   34.92  n/a
 210:6069----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:PONDic      25.08    1.737 No date   12:05   34.92  n/a
       [RDT= 5.00] out<= 01:POut        25.08    1.140 No data   14:10   34.92  n/a
            overflow <= 03:over          .00     .000 No data    0:00     .00  n/a
      [MaxToDisc=.5408E+00, TotOvfVol .0000E+00, %-Ov=    0, TotTerOvF=    0.0m3]
# Simulating 24H 100 yr conditions with summerwood 01 outflow max
```
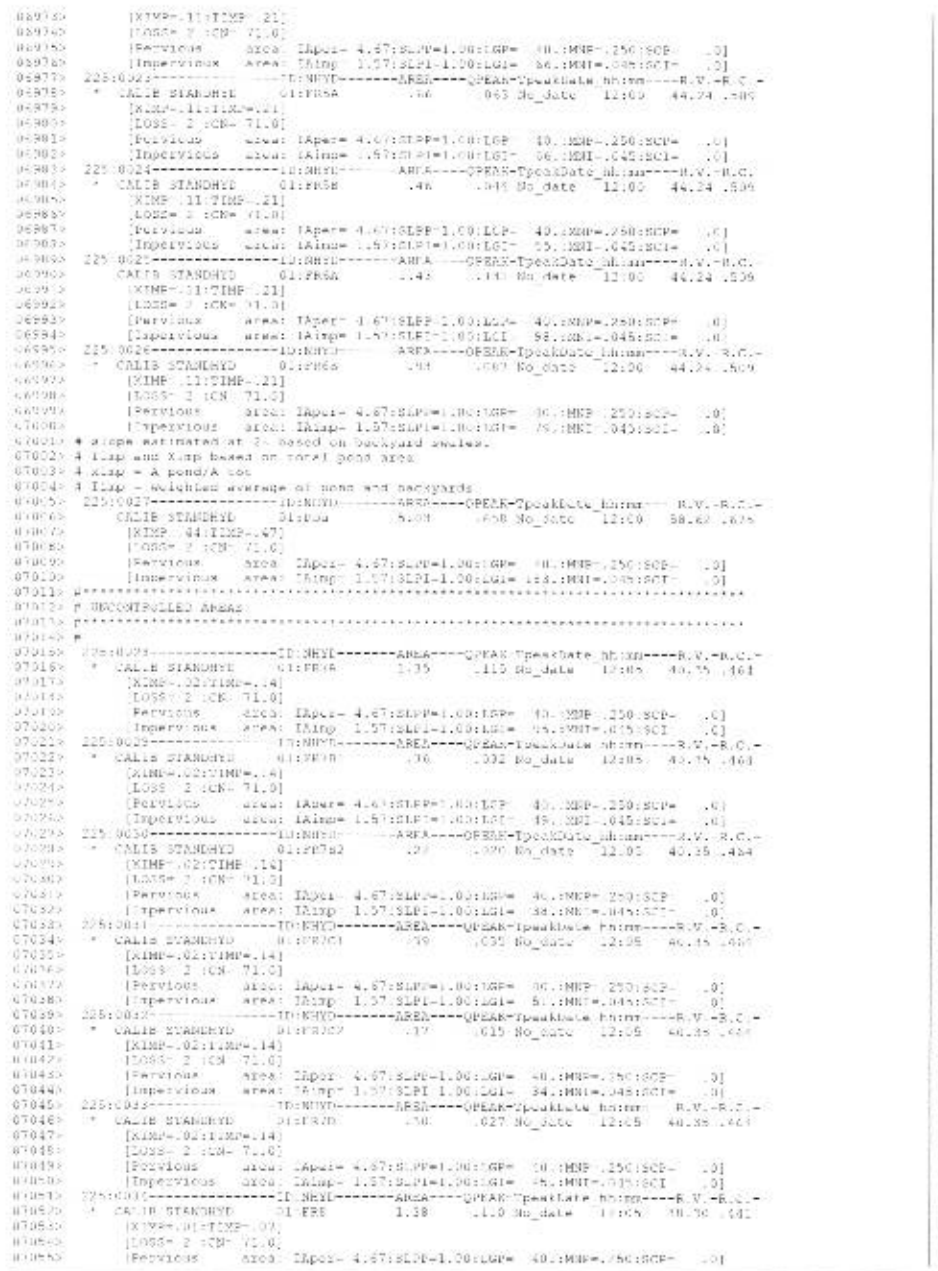
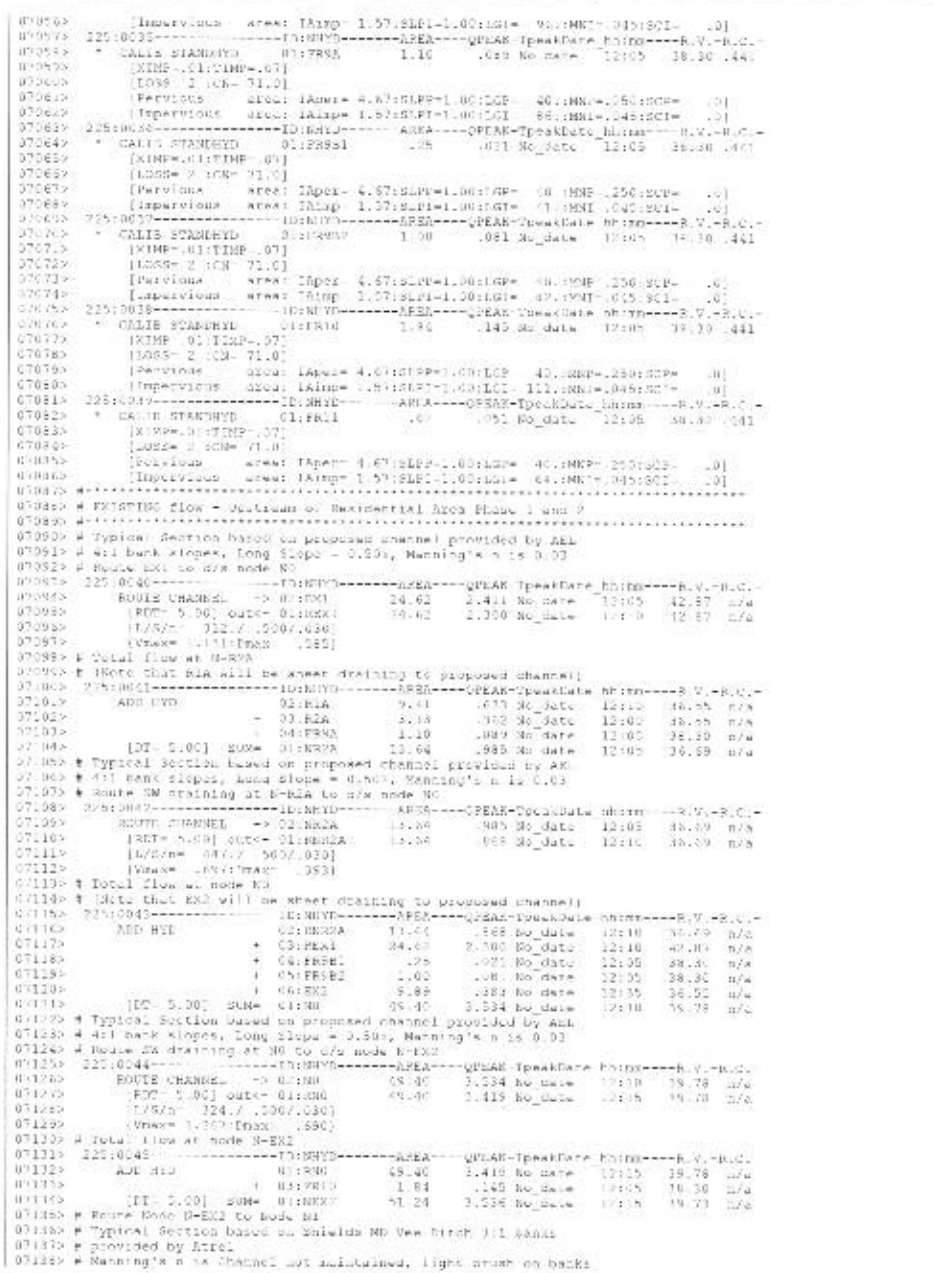

```
06641> # updated for wall .6; .6; 3.0
06642> #ROUTE RESERVOIR     NHYDout ["POut"] ,NHYDin ["POND1a"] ,
06643> #                   RDI [5](min),
06644> #                         TABLE of ( OUTFLOW-STORAGE ) values
06645> #                                  (cms) - (ha-m)
06646> #                                  (   0.0 ,   0.0 )
06647> #                                  0.0008] , 1.1295
06648> #                                  0.28   , 3.8810
06649> #                                  0.53   , 7.8194
06650> #                                  (    -1 ,    -1 )  [max twenty pts]
06651> #                         NHYDsave "confQ" ,
06652> # Route pond output through first set of pipes
06653> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
06654> # HDPE smooth wall pipe Manning's n   0.012
06655> 210:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06656>     ROUTE PIPE      -> 02:POut1      25.08      .100 No date   12:10   34.52  n/a
06657>      [RDT= 5.00] ours= 01:Pout1      25.08      .100 No date   12:10   34.52  n/a
06658>       [L/s/m=  75./ .200/.012]
06659>       [Vmax= 1.020:Imax=  .256]
06660>       [Dia=  .780:Dused=  .780]
06661> # Flow o/s of outlet culverts
06662> 210:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06663>     ADD HYD           02:FR2Ot1       .36      .024 No date   12:05   33.46  n/a
06664>                     - 03:EX762        .22      .015 No date   12:05   33.44  n/a
06665>                     = 04:Pout1      25.48      .140 No date   14:10   34.52  n/a
06666>      [DT= 5.00]  SUM=  01:Pout      26.06      .143 No date   14:05   34.85  n/a
06667> # Route outflow through set of culverts
06668> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
06669> # HDPE smooth wall pipe Manning's n = 0.012
06670> 210:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06671>     ROUTE PIPE      -> 02:Pout2      26.06      .143 No date   14:05   34.85  n/a
06672>      [RDT= 5.00] ours= 01:Pout2      26.06      .143 No date   14:05   34.85  n/a
06673>       [L/s/m=  73./ .400/.012]
06674>       [Vmax= 1.314:Imax=  .216]
06675>       [Dia=  .780:Dused=  .780]
06676> # Flow o/s of second set of outflow pipes
06677> 210:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06678>     ADD HYD           01:FR7Ot1       .58      .026 No date   12:05   31.46  n/a
06679>                     + 03:FR7Ot2       .37      .011 No date   12:05   31.44  n/a
06680>                     = 04:Pout        26.80      .143 No date   14:05   34.85  n/a
06681>      [DT= 5.00]  SUM=  01:Pout2      26.67      .143 No date   14:05   34.77  n/a
06682> # Route outflow through second set of pipes
06683> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
06684> # HDPE smooth wall pipe Manning's n = 0.012
06685> 210:0074---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06686>     ROUTE PIPE      -> 02:Pout2      26.62      .107 No date   13:55   34.77  n/a
06687>      [RDT= 5.00] ours= 01:PoutF      26.62      .107 No date   13:55   34.77  n/a
06688>       [L/s/m=  55./ .200/.012]
06689>       [Vmax= 1.082:Imax=  .262]
06690>       [Dia=  .780:Dused=  .780]
06691> # Total flow at node; N1 (shield MF along sales Barn Rd)
06692> 210:0075---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06693>     ADD HYD           02:RNDO2       51.94     3.340 No date   12:30   31.64  n/a
06694>                     + 03:Out1F      26.62      .147 No date   13:55   34.77  n/a
06695>                     + 04:EX7        1.38      .029 No date   12:00   34.52  n/a
06696>                     + 05:FR7D       1.30      .020 No date   12:05   31.46  n/a
06697>                     + 06:FR11        .62      .007 No date   12:05   29.67  n/a
06698>      [DT= 5.00]  SUM=  01:N1        78.17     3.501 No date   12:20   32.31  n/a
06699> # ROUTE N3 to N1
06700> # Typical Section based on Shields MD Yee Ditch 1: banks
06701> # provided by Aire
06702> # Manning's n is Channel not maintained, light brush on banks
06703> # Slope = 0.8% as per plan provided by Airel.
06704> 210:0076---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06705>     ROUTE CHANNEL   -> 02:N1         79.17     1.980 No date   12:25   32.31  n/a
06706>   * [RDT= 5.00] ours= 01:SN1         79.17     1.970 No date   12:25   32.31  n/a
06707>       [L/s/m=  349./ .050/.030]
06708>       (Vmax=  .394:Imax=  1.17)
06709> # VOLUME from residential area at N3 interim
06710> 210:0077---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06711>     ADD HYD           01:YOA          .35      .079 No date   12:10   31.46  n/a
06712>                     + 03:FR8        1.38      .078 No date   12:10   29.67  n/a
06713>      [DT= 5.00]  SUM=  01:EX1        1.73      .155 No date   12:10   30.59  n/a
06714> # Added VOLUME from external area contributing to N3
06715> 210:0078---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06716>     ADD HYD           03:RN1         70.13     1.970 No date   12:25   32.31  n/a
06717>                     + 05:EX3        1.38      .155 No date   12:10   30.59  n/a
06718>                     + 04:EX5         .62      .068 No date   12:00   42.44  n/a
06719>                     + 05:EX6         .01      .005 No date   12:00   35.12  n/a
06720>      [DT= 5.00]  SUM=  01:N3        82.53     2.111 No date   12:25   32.32  n/a
06721> # ROUTE N3 to NC12B
06722> # Typical Section based on Shields MD Yee Ditch 3:1 banks
06723> # provided by Airel
06724> # Manning's n is Channel not maintained, light brush on banks
06725> # Slope = 0.8% as per plan provided by Airel.
06726> 210:0079---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06727>     ROUTE CHANNEL   -> 02:N3         82.53     2.111 No date   12:25   32.32  n/a
06728>       [RDT= 5.00] ours= 01:SN3       82.53     2.102 No date   12:25   32.32  n/a
06729>       [L/s/m=  415./ .050/.035]
06730>       [Vmax=  .38:Imax= 1.17]
06731> # Flow at Studco node N:NC12B for comparison
06732> # Routed N3 plus EX3
06733> 210:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06734>     ADD HYD           02:SN3         82.53     2.102 No date   12:25   32.32  n/a
06735>                     + 03:EX3        21.30      .544 No date   12:15   28.39  n/a
06736>      [DT= 5.00]  SUM=  01:NC812a    104.23     2.280 No date   12:20   31.51  n/a
06737> # AKKA CHECK
06738> #
06739> 210:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06740>     ADD HYD           02:EX2         74.62     1.981 No date   12:05   33.69  n/a
06741>                     + 03:EX2         9.89      .296 No date   12:05   28.39  n/a
06742>                     + 04:EX3        21.30      .544 No date   12:15   28.39  n/a
06743>                     + 05:EX1         .50      .035 No date   12:00   34.8   n/a
06744>                     + 06:EX5         .62      .056 No date   12:00   42.44  n/a
06745>                     + 07:EX8         .51      .035 No date   12:00   33.12  n/a
06746>                     + 08:EX7         .49      .029 No date   12:00   34.52  n/a
06747>                     + 09:FR1A        .24      .014 No date   12:00   35.81  n/a
06748>                     + 10:FR2E        .22      .040 No date   12:00   35.04  n/a
06749>      [DT= 5.00]  SUM=  01:Out1      58.52     2.468 No date   12:05   30.95  n/a
06750> 210:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06751>     ADD HYD           03:Mer1        58.52     2.468 No date   12:05   30.98  n/a
06752>                     + 03:FR3A        1.57      .087 No date   12:00   35.04  n/a
06753>                     + 04:FR2E        1.17      .073 No date   12:00   35.81  n/a
06754>                     + 05:FR3A        .45       .031 No date   12:00   35.81  n/a
06755>                     + 06:FR7E        .52       .038 No date   12:00   35.04  n/a
06756>                     + 07:FR4A        .71       .052 No date   12:00   35.04  n/a
06757>                     + 08:FR4E        .65       .047 No date   12:00   35.81  n/a
06758>                     + 09:FR2A        .68       .046 No date   12:00   35.81  n/a
06759>                     + 10:FR2E        .48       .034 No date   12:00   35.04  n/a
06760>      [DT= 5.00]  SUM=  01:Out2      64.71     2.858 No date   12:05   31.35  n/a
06761> 210:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06762>     ADD HYD           03:Mer2        64.71     2.858 No date   12:00   31.35  n/a
06763>                     + 03:FR8A        1.45      .083 No date   12:00   35.04  n/a
06764>                     + 04:FR8E        .95       .060 No date   12:00   35.04  n/a
06765>                     + 05:FR7A        1.35      .079 No date   12:10   31.41  n/a
06766>                     + 06:FR7E1       .35       .024 No date   12:05   31.41  n/a
06767>                     + 07:FR7E2       .22       .015 No date   12:05   31.45  n/a
06768>                     + 08:FR7C1       .39       .026 No date   12:05   31.44  n/a
06769>                     + 09:FR7C2       .17       .011 No date   12:05   31.44  n/a
06770>                     + 10:FR7D        .30       .020 No date   12:05   31.44  n/a
06771>      [DT= 5.00]  SUM=  01:Out3      69.86     3.170 No date   12:05   31.48  n/a
06772> 210:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06773>     ADD HYD           02:Out3        69.86     3.170 No date   12:05   31.48  n/a
06774>                     + 03:FR5         1.38      .079 No date   12:10   29.67  n/a
06775>                     + 04:FR9A        1.10      .061 No date   12:10   29.67  n/a
06776>                     + 05:FR9E1       .69       .038 No date   12:05   29.67  n/a
06777>                     + 06:FR9E2       1.09      .059 No date   12:10   29.67  n/a
06778>                     + 07:FR10        1.86      .100 No date   12:10   29.67  n/a
06779>                     + 08:FR11        .62       .007 No date   12:05   29.67  n/a
06780>                     + 09:FR3         4.26      .369 No date   12:05   28.39  n/a
06781>                     + 10:FR4         8.65      .516 No date   12:00   48.32  n/a
06782>      [DT= 5.00]  SUM=  01:Out4      88.34     4.320 No date   12:05   31.19  n/a
06783> 210:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06784>     ADD HYD           02:Out4        88.34     4.320 No date   12:05   31.19  n/a
06785>                     - 03:R1A         5.41      .489 No date   12:10   28.39  n/a
06786>                     - 04:R2A         3.13      .280 No date   12:05   28.39  n/a
06787>                     - 05:R3A         3.18      .278 No date   12:05   28.39  n/a
06788>                     - 06:R1B         2.21      .141 No date   12:05   28.39  n/a
06789>      [DT= 5.00]  SUM=  01:Out5      104.28    5.032 No date   12:05   31.19  n/a
06790> *------------------------------------------------------------------------------
06791> * Simulations with 4 hour Chicago from City of Ottawa
06792> * 90% 24 hours type 2, from City of Ottawa
06793>   ** END OF RUN : 224
06794>
06795> '-------------------------------------------------------------------------------
06796>
06797>
06798>
06799>
06800>
06801> RUN:COMMAND#
06802> 210:0001---------------------------------------------------------------------
06803>     START                                                    [TZERO=   .00 hrs on      0]
06804>      [NRTOUT=  2    (=imperial, 2=metric output)]
06805>      [NSTORM=  1 ]
```

```
[NMUN  = 225 ]
*******************************************************************************
*  SWMHYMO Ver:5.02/Jan 2001 <dBIA> / INPUT DATA FILE
*******************************************************************************
*  Project Name: [Greely Village Center]     Project Number: [647-07]
*  Date        : 04-09-2008
*  Modeller    : [JDE]
*  Company     : JFSAinc.
*  License #   : 2547402
*******************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stands for: GRP2u2a - Greely, Residential, Phase 2, ultimate w2 weir
*
*  December 05, 2008
*  "a" at the end of filename added only for 999 runs.
*******************************************************************************
225:0002-------------------------------------------------------------------------
     REAL STORM
      Filename = storm.001
      Comment    25 years SCS Type 2 storm 24 hours step 10 min, City of Ottawa
      [SDI=10.00:SCS=   24.00:PTOT=  86.65]
*******************************************************************************
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development [residential]
* CN*=75, alpha = 0.8, Ia=0.1e, XIA=5, TIME=15, see SC002 as per Stantec
* Area partially adjusted based on Atrel drawings.
*******************************************************************************
* c/a of Bank St.as per Area  = with modified boundaries and Tp.
225:0003-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX1        24.62     2.411 No_date   12:05   67.80 .763
      [CN= 72.0: N= 3.00]
      [Ia=   .21:MT= 5.00]
*******************************************************************************
* Existing flow - External areas d/s of Bank St.
* CN*=67, as per Stantec Dwg SC001.
* Area partially adjusted based on Atrel drawings.
*******************************************************************************
* Areas External to development
225:0004-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX2         9.68      .383 No_date   12:35   36.52 .421
      [CN= 69.0: N= 3.00]
      [Ia=   .21:MT= 5.00]
225:0005-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX3        21.58      .795 No_date   12:45   36.52 .421
      [CN= 69.0: N= 3.00]
      [Ia=   .21:MT= 5.00]
* Slope, Tlsp, Area from Atrel Drawing
* CN from Stantec (SC001)
* Xlsp = Tlsp = 10)
225:0006-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:EX3         1.50      .046 No_data    12:00   42.79 .492
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* T:sp = Xlsp = 0.21 ha /0.57 ha = 0.10
* CN*=67, as per Stantec see SC001.
* Slope is estimated at 1%
* Xlsp = Tlsp = 10)
225:0007-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:EX5         1.52      .070 No_data    12:00   52.21 .601
      [XIMP=.10:TIMP=.30]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Aalexfarm Rd
* Tlsp = Xlsp = 0.01 ha /0.51 ha = 0.20
* CN*=69, as per Stantec Dwg SC001.
* Slope is estimated at 1%
* Xlsp = Tlsp = 10)
225:0008-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:EX6         1.52      .047 No_data    12:00   41.98 .493
      [XIMP=.10:TIMP=.20]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Aalexfarm Rd
* Tlsp  Xlsp  0.09 ha /0.79 ha = 0.27
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Xlsp  Tlsp = 10)
225:0009-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:EX7         .39      .028 No_data    12:00   31.53 .501
      [XIMP=.13:TIMP=.25]
      [LOSS= 2 :CN= 69.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= .13:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN* 69, as per Stantec Dwg SC001.
225:0010-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX8A        4.15      .162 No_data    12:00   36.52 .421
      [CN= 69.0: N= 3.00]
      [Ia=   .21:MT= 5.00]
225:0011-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX8B        4.14      .167 No_data    12:05   36.52 .421
      [CN= 69.0: N= 3.00]
      [Ia=   .21:MT= 5.00]
225:0012-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:EX8C        2.21      .089 No_data    12:05   36.52 .421
      [CN= 69.0: N= 3.00]
      [Ia=   .23:MT= 5.00]
*******************************************************************************
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase   and 2
*******************************************************************************
* CN*=80, as per Stantec see SC001
* Tp estimated with Up and Method.
225:0014-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN HASHYD      01:PR1         4.26      .400 No_data    12:05   36.52 .421
      [CN= 85.0: N= 3.00]
      [Ia=   .18:MT= 5.00]
*******************************************************************************
* Areas OUTSIDE TO POND
*******************************************************************************
*
225:0015-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR1A         .24      .028 No_data    12:00   58.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
225:0016-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR1B         .55      .062 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=   6.:MNI=.045:SCI=   .0]
225:0017-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR2A         1.57      .143 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
225:0018-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR2B         .17      .038 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
225:0019-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR3A         .97      .093 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
225:0020-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR3B         .52      .050 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
225:0021-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR4A         .71      .067 No_data    12:00   44.24 .509
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
225:0022-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR4B         .60      .062 No_data    12:00   44.24 .509
```





```
07139> # Slope = 0.6% As per plan provided by Atkel.
07140> 225:0.04|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07141>       ROUTE CHANNEL    -> 02:N3N2       51.24     1.516 No_date   12:15    38.73  n/a
07142>   +   [RoUt= 5.00] out<- 01:RNEX2       51.24     2.945 No_date   12:15    38.73  n/a
07143>       [L/S/n= 251:/ .050/.045]
07144>       [Vmax= .354:Dmax= 1.753]
07145> #*******************************************************************************
07146> # Residential Development - Phase 1 and 2
07147> #*******************************************************************************
07148> # Total flow at node N-R1B
07149> 225:0.04|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07150>       ADD HYD          02:N3A         4.16      .387 No_date   12:05    36.55  n/a
07151>                    +  03:R3A         2.71      .182 No_date   12:05    36.55  n/a
07152>                    +  04:R3C         .58       .046 No_date   12:00    42.06  n/a
07153>       [IT= 5.00]  SUM=  01:N3B       6.85      .596 No_date   12:05    37.30  n/a
07154> # Route Name N3B to Node N-R1C
07155> # Typical Section based on McKinny Branch Vee Ditch 1.5:1 slopes
07156> # provided by Atkel
07157> # Manning's n is Channel not maintained, light brush or barks
07158> # Slope = 0.6% approximately as per Atkel drawing (c8-b6.1)/10m
07159> 225:0048|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07160>       ROUTE CHANNEL    -> 02:N3B         6.85      .586 No_date   12:05    37.30  n/a
07161>         [RT= 5.00] out<- 01:RN3B          6.85      .518 No_date   12:10    37.30  n/a
07162>         [L/S/n= 310:/ .080/.050]
07163>         [Vmax= .580:Dmax= .742]
07164> # Total flow at node N-FX1
07165> 225:0049|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07166>       ADD HYD          02:FX1         4.26      .340 No_date   12:05    36.55  n/a
07167>                    +  03:RN3B        6.85      .518 No_date   12:10    37.30  n/a
07168>                    +  04:FR1A        .26       .023 No_date   12:00    46.24  n/a
07169>       [IT= 5.00]  SUM=  01:NFX1       11.35     .880 No_date   12:05    37.51  n/a
07170> # Volume to ponding area in FX1
07171> # Q=0.060 m3/s required as per SCS 100yr Existing conditions
07172> # Culvert from Inlet 1
07173> # Assuming Outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
07174> # Manning's n = 0.012, Inlet control nomograph
07175> # Hydraulic head = 0.9m, Q=0.616
07176> 225:0.5c|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07177>       COMPLEX (HALIYD    01:NFX1        11.35     .880 No_date   12:05    37.51  n/a
07178>          Major System /  02:NFX1M       .00       .000 No_date    0:00     .00   n/a
07179>          Minor System \  03:NFX1Mn      11.35     .610 No_date   12:00    37.19  n/a
07180>       (R)Hydro-.247E+03, VolDiVol=.0000E+00, % Dif=    0, TorTorCvr=    C.hrs)
07181> # Input to Inlet 1 pipe
07182> 225:0051|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07183>       ADD HYD          02:FR1E        .05       .002 No_date   12:00    46.24  n/a
07184>                    +  03:NFX1Mn      11.35     .610 No_date   12:00    37.19  n/a
07185>       [IT= 5.00]  SUM=  01:In1        11.40     .662 No_date   12:00    37.51  n/a
07186> # Pipe from inlet 1 - Route to pond
07187> # HDPE smooth wall pipe Manning's n = 0.012
07188> 225:0052|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07189>       ROUTE PIPE       -> 02:In1         11.40     .662 No_date   12:00    37.51  n/a
07190>         [RT= 5.00] out<- 01:Pin1          11.40     .665 No_date   12:00    46.24  n/a
07191>         [L/S/n=  67:/1.000/.012]
07192>         [Vmax= 1.790:Dmax= .681]
07193>         [Dim=  .600:Dused= .600]
07194> # Culvert from Inlet 2
07195> # HDPE smooth wall pipe Manning's n = 0.012
07196> 225:0053|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07197>       ROUTE PIPE       -> 02:FR2A        1.57      .143 No_date   12:00    46.24  n/a
07198>         [RT= 5.00] out<- 01:Cin2          1.57      .111 No_date   12:00    46.24  n/a
07199>         [L/S/n=  14:/ .400/.013]
07200>         [Vmax= 1.351:Dmax= .268]
07201>         [Dim=  .500:Dused= .500]
07202> # Input to Inlet 2 pipe
07203> 225:0054|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07204>       ADD HYD          02:FR2B        1.17      .108 No_date   12:00    46.24  n/a
07205>                    +  03:Cin2        1.57      .144 No_date   12:00    46.24  n/a
07206>       [IT= 5.00]  SUM=  01:In2        2.74      .252 No_date   12:00    46.24  n/a
07207> # Pipe from inlet 2 - Route to pond
07208> # HDPE smooth wall pipe Manning's n = 0.012
07209> 225:0055|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07210>       ROUTE PIPE       -> 02:In2         2.74      .252 No_date   12:00    46.24  n/a
07211>         [RT= 5.00] out<- 01:Pin2          2.74      .254 No_date   12:00    46.24  n/a
07212>         [L/S/n=  75:/ .1000/.012]
07213>         [Vmax= 1.500:Dmax= .462]
07214>         [Dim=  .500:Dused= .500]
07215> # Culvert from Inlet 3
07216> # HDPE smooth wall pipe Manning's n = 0.012
07217> 225:0056|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07218>       ROUTE PIPE       -> 02:FR3A        .45       .041 No_date   12:00    46.24  n/a
07219>         [RT= 5.00] out<- 01:CIn3          .45       .041 No_date   12:00    46.24  n/a
07220>         [L/S/n=  14:/ .400/.013]
07221>         [Vmax= .673:Dmax= .238]
07222>         [Dim=  .500:Dused= .500]
07223> # Input to Inlet 3 pipe
07224> 225:0057|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07225>       ADD HYD          02:FR3B        .52       .050 No_date   12:00    46.24  n/a
07226>                    +  03:CIn3        .45       .044 No_date   12:00    46.24  n/a
07227>       [IT= 5.00]  SUM=  01:In3        .97       .092 No_date   12:00    46.24  n/a
07228> # Pipe from inlet 3 - Route to pond
07229> # HDPE smooth wall pipe Manning's n = 0.012
07230> 225:0058|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07231>       ROUTE PIPE       -> 02:In3         .97       .092 No_date   12:00    46.24  n/a
07232>         [RT= 5.00] out<- 01:Pin3          .97       .090 No_date   12:05    46.24  n/a
07233>         [L/S/n=  75:/ .1000/.012]
07234>         [Vmax= .536:Dmax= .253]
07235>         [Dim=  .500:Dused= .500]
07236> # Culvert from Inlet 4
07237> # HDPE smooth wall pipe Manning's n = 0.012
07238> 225:0059|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07239>       ROUTE PIPE       -> 02:FR4A        .71       .067 No_date   12:00    46.24  n/a
07240>         [RT= 5.00] out<- 01:CIn4          .71       .068 No_date   12:00    46.24  n/a
07241>         [L/S/n=  18:/ .400/.013]
07242>         [Vmax= .613:Dmax= .273]
07243>         [Dim=  .500:Dused= .500]
07244> # Input to Inlet 4 pipe
07245> 225:0060|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07246>       ADD HYD          02:FR4B        .85       .082 No_date   12:00    46.24  n/a
07247>                    +  03:CIn4        .71       .068 No_date   12:00    46.24  n/a
07248>       [IT= 5.00]  SUM=  01:In4        1.56      .128 No_date   12:00    46.24  n/a
07249> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
07250> # HDPE smooth wall pipe Manning's n = 0.012
07251> 225:0061|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07252>       ROUTE PIPE       -> 02:In4         1.56      .129 No_date   12:00    46.24  n/a
07253>         [RT= 5.00] out<- 01:Pin4          1.56      .129 No_date   12:00    46.24  n/a
07254>         [L/S/n=  36:/1.900/.012]
07255>         [Vmax= 2.825:Dmax= .567]
07256>         [Dim=  .500:Dused= .500]
07257> # Culvert from Inlet 5
07258> # HDPE smooth wall pipe Manning's n = 0.012
07259> 225:0062|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07260>       ROUTE PIPE       -> 02:FR5A        .56       .053 No_date   12:00    46.24  n/a
07261>         [RT= 5.00] out<- 01:CIn5          .56       .053 No_date   12:00    46.24  n/a
07262>         [L/S/n=   5:/ .400/.012]
07263>         [Vmax= 1.081:Dmax= .167]
07264>         [Dim=  .500:Dused= .500]
07265> # Input to Inlet 5 pipe
07266> 225:0063|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07267>       ADD HYD          02:FR5B        .16       .013 No_date   12:00    46.24  n/a
07268>                    +  03:CIn5        .56       .045 No_date   12:00    46.24  n/a
07269>       [IT= 5.00]  SUM=  01:In5        1.12      .107 No_date   12:00    46.24  n/a
07270> # Pipe from Inlet 5 - Route to pond
07271> # HDPE smooth wall pipe Manning's n = 0.012
07272> 225:0064|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07273>       ROUTE PIPE       -> 02:In5         1.12      .107 No_date   12:00    46.24  n/a
07274>         [RT= 5.00] out<- 01:Pin5          1.12      .106 No_date   12:00    46.24  n/a
07275>         [L/S/n=  75:/1.900/.012]
07276>         [Vmax= 2.803:Dmax= .504]
07277>         [Dim=  .500:Dused= .500]
07278> # Culvert from Inlet 6
07279> # HDPE smooth wall pipe Manning's n = 0.012
07280> 225:0065|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07281>       ROUTE PIPE       -> 02:FR6A        1.43      .131 No_date   12:00    46.24  n/a
07282>         [RT= 5.00] out<- 01:CIn6          1.43      .132 No_date   12:00    46.24  n/a
07283>         [L/S/n=   5:/ .400/.013]
07284>         [Vmax= 1.389:Dmax= .352]
07285>         [Dim=  .500:Dused= .500]
07286> # Input to Inlet 6 pipe
07287> 225:0066|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07288>       ADD HYD          02:FR6B        .93       .087 No_date   12:00    46.24  n/a
07289>                    +  03:CIn6        1.43      .132 No_date   12:00    46.24  n/a
07290>       [IT= 5.00]  SUM=  01:In6        2.36      .219 No_date   12:00    46.24  n/a
07291> # Pipe from Inlet 6 - Route to pond
07292> # HDPE smooth wall pipe Manning's n = 0.012
07293> 225:0067|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07294>       ROUTE PIPE       -> 02:In6         2.36      .219 No_date   12:00    46.24  n/a
07295>         [RT= 5.00] out<- 01:Pin6          2.36      .218 No_date   12:00    46.24  n/a
07296>         [L/S/n=  75:/ .900/.012]
07297>         [Vmax= 1.901:Dmax= .594]
07298>         [Dim=  .500:Dused= .500]
07299> # VOLUMES TO POND ULTIMATE RESIDENTIAL
07300> 225:0068|----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07301>       ADD HYD          02:Pin1        11.90     .995 No_date   12:00    46.24  n/a
07302>                    +  03:Pin2        2.74      .246 No_date   12:00    46.24  n/a
07303>                    +  04:Pin3        .97       .090 No_date   12:00    46.24  n/a
07304>                    +  05:Pin4        1.56      .129 No_date   12:00    46.24  n/a
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                    +  06:Pic5        1.12      .106 No_date   12:00   44.24  n/a
                    |  07:Pic6        2.16      .714 No_date   12:05   41.24  n/a
                    |  08:Pic        8.83      .658 No_date   12:00   38.62  n/a
      [1h= 5.00]  SUM=  01:PCmDia     25.48     2.104 No_date   12:00   43.95  n/a
 225.0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR => 02:POutDia     25.48     2.104 No_date   12:00   43.95  n/a
       [RDT= 5.00] out<- 01:POut       25.48     .197 No_date   13:55   43.95  n/a
                 overflow <- 01:over0      .00      .000 No_date   00:00    .00  n/a
      [MxStrCmed=.072-E+00, TotOvrVol=.000E-00, M-Ovf    0, TotDurOvf=    0.hrs]
# Simulating SCS 100 yr conditions with submergence of outflow weir
# updated for weir .6; .4; 2.6
ROUTE RESERVOIR     NHYDout="Dout" ,RSVRid="POND1" ,
                    RDT=[5](min),
                          TABLE of | OUTFLOW-STORAGE | values
                                   (cms) - (ha-m)
                                  |   0.0 ,   0.0 |
                                   0.00001 , 1.1209
                                   0.20  , 1.6110
                                   0.35  , 2.0195
                                  |   -1  ,   -1  |    (max twenty pts)
                          NHYDout="over0" ,
# Route pond outlet through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=780 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 225:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:POut        25.48      .197 No_date   13:55   43.95  n/a
       [RDT= 5.00] out<- 01:Pout       25.48      .197 No_date   13:55   43.95  n/a
       [1/S/n=   76./ .012/.012]
       (Vmax= 1.120:Dmax=  .240)
       [Dia=  .780:Dused=  .780)
# Flow u/s of outlet culverts
 225:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PFUS        .36      .032 No_date   12:05   40.35  n/a
                    |  03:PFUS        .72      .020 No_date   12:05   43.35  n/a
                    |  04:Pout       25.48      .197 No_date   13:55   43.95  n/a
      [1T= 5.00]  SUM=  01:Pout       25.84      .201 No_date   13:40   43.87  n/a
# Route outflow through set of culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 225:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:Pout        25.84      .201 No_date   13:40   43.87  n/a
       [RDT= 5.00] out<- 01:Pout       25.84      .201 No_date   13:55   43.87  n/a
       [L/s/n=   13./ .012/.012]
       (Vmax= 1.498:Dmax=  .258)
       [Dia=  .780:Dused=  .780)
# Flow u/s of second set of outflow pipes
 225:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:PFUS        .39      .033 No_date   12:05   40.35  n/a
                    |  04:PFUS        .77      .019 No_date   12:05   43.35  n/a
                    |  05:Pout       25.84      .201 No_date   13:55   43.87  n/a
      [1T= 5.00]  SUM=  01:Pout2      26.99      .206 No_date   13:40   43.79  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=780 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 225:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:Pout2       26.62      .206 No_date   13:40   43.79  n/a
       [RDT= 5.00] out<- 01:PoutF      26.62      .206 No_date   13:40   43.79  n/a
       [1/S/n=   65./ .012/.012]
       (Vmax= 1.341:Dmax=  .315)
       [Dia=  .780:Dused=  .780)
# Total flow at node N1 [Shield Mdw along Sutaa Barn Rd]
 225:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RESA2       51.20     2.995 No_date   12:25   39.73  n/a
                    |  03:PoutF      26.62      .206 No_date   13:40   43.79  n/a
                    |  04:EX6        1.54      .081 No_date   12:00   43.51  n/a
                    +  05:PB7L        .39      .027 No_date   12:05   40.35  n/a
                    +  06:PB11        .82      .051 No_date   12:05   38.38  n/a
      [1T= 5.00]  SUM=  01:N1        79.57     3.217 No_date   12:25   41.11  n/a
# ROUTE N1 to N2
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Arrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Arrel.
 225:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   => 02:N1          79.57     3.217 No_date   12:25   41.11  n/a
   -   [RDT= 5.00] out<- 01:RN1       79.57     2.722 No_date   12:30   41.11  n/a
       [L/S/n=  349./ .050/.035]
       (Vmax=  .756:Dmax= 1.095)
# VOLUME from residential area at N1 interim
 225:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PRUA        1.35      .110 No_date   12:05   40.35  n/a
                    +  03:PB9         1.38      .110 No_date   12:00   38.38  n/a
      [1T= 5.00]  SUM=  01:N2I        2.73      .220 No_date   12:05   39.31  n/a
# Added VOLUME from external area contributing to N3
 225:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:N3I         79.57     2.722 No_date   12:30   41.11  n/a
                    -  03:EX1         24.62     2.411 No_date   12:05   42.47  n/a
                    -  04:EX2         9.89      .383 No_date   12:45   36.55  n/a
                    -  05:EX3        21.30      .705 No_date   12:45   36.55  n/a
                    -  06:EX4         .58      .016 No_date   12:00   42.76  n/a
                    -  07:EX5         .52      .010 No_date   12:00   52.21  n/a
                    -  08:EX6         .54      .045 No_date   12:00   43.96  n/a
                    -  09:EX7         .19      .005 No_date   12:00   43.51  n/a
                    -  10:EX8A        .24      .023 No_date   12:00   44.26  n/a
                    -  11:EX8B        .55      .022 No_date   12:00   44.26  n/a
      [2T= 5.00]  SUM=  01:Tot1      58.52     3.177 No_date   12:05   39.80  n/a
 225:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Tot1        58.52     3.177 No_date   12:05   39.80  n/a
                    +  03:FR2A        1.07      .143 No_date   12:00   44.26  n/a
                    -  04:FR2B         .97      .108 No_date   12:00   44.26  n/a
                    -  05:FR3A         .65      .043 No_date   12:00   44.26  n/a
                    -  06:FR3B         .92      .059 No_date   12:00   44.26  n/a
                    -  07:FR4A         .71      .067 No_date   12:00   44.26  n/a
                    -  08:FR4B         .65      .062 No_date   12:00   44.26  n/a
                    -  09:FR5A         .86      .065 No_date   12:00   44.26  n/a
                    -  10:FR5B         .46      .044 No_date   12:00   44.26  n/a
      [3T= 5.00]  SUM=  01:Tot2      64.71     3.726 No_date   12:05   40.04  n/a
 225:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Tot2        64.71     3.726 No_date   12:05   40.04  n/a
                    -  03:FR6A        1.03      .131 No_date   12:00   44.26  n/a
                    -  04:FR6B         .93      .087 No_date   12:00   44.26  n/a
                    -  05:FR7A        1.35      .175 No_date   12:00   40.35  n/a
                    -  06:FR7B1        .16      .012 No_date   12:00   40.35  n/a
                    -  07:FR7B2        .22      .009 No_date   12:00   40.35  n/a
                    -  08:FR7C1        .29      .035 No_date   12:00   40.35  n/a
                    -  09:FR7C2        .27      .015 No_date   12:00   40.35  n/a
                    -  10:FR7D         .39      .027 No_date   12:00   40.35  n/a
      [3T= 5.00]  SUM=  01:Tot3      69.36     4.175 No_date   12:00   40.20  n/a
 225:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Tot3        69.36     4.175 No_date   12:00   40.20  n/a
                    -  03:PB8         1.38      .119 No_date   12:05   38.38  n/a
                    -  04:PB9A        1.10      .089 No_date   12:05   38.38  n/a
                    -  05:PB9B1        .25      .021 No_date   12:05   38.38  n/a
                    -  06:PB9B2       1.08      .087 No_date   12:05   38.38  n/a
                    -  07:PB10        1.64      .145 No_date   12:05   38.38  n/a
                    -  08:PB11         .82      .051 No_date   12:05   38.38  n/a
                    -  09:PB1         4.26      .409 No_date   12:05   38.55  n/a
                    -  10:PB4         5.03      .458 No_date   12:00   38.87  n/a
      [4T= 5.00]  SUM=  01:Tot4      85.34     5.718 No_date   12:05   40.06  n/a
 225:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Tot4        85.34     5.718 No_date   12:05   40.06  n/a
                    -  03:RA          9.41      .633 No_date   17:10   36.55  n/a
                    -  04:RB          8.13      .552 No_date   12:00   36.55  n/a
                    -  05:RA          4.14      .282 No_date   17:05   36.55  n/a
                    -  06:RB          2.21      .152 No_date   12:05   36.55  n/a
      [5T= 5.00]  SUM=  01:Tot5      109.23    7.338 No_date   12:05   40.16  n/a
# Simulation with 4 hour Chicago from City of Ottawa
# SCS 24 hours type I, from City of Ottawa
** END OF RUN : 249
```

```
 RUN:COMMAND#
 250:0001----------------------------------------------------------------------
      START
       [TZERO =    .00 hrs on        0]
       [METOUT=   2    (1=Imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN  = 250 ]
*-----------------------------------------------------------------------------
*  SWMHYMO Ver:5.02/Jan 2001 <SEIA> / IDBOT DATA FILE
*-----------------------------------------------------------------------------
*  Project Name: [Greely Village Center     Project Number: [647-07]
*  Date        : 04-09-2008
*  Modeller    : [JDT]
*  Company     : JFSAinc.
*  License #   :  2547402
*-----------------------------------------------------------------------------
*
* SWMHYMO model of the Greely Village Center   Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stanza ext: GRP2u2a   Greely, Residential, Phase 2, Ultimate v2 Opti
*
*  December 16, 2008
*  "A" at the end of filename= Added July 1st 1979 Event
*-----------------------------------------------------------------------------
 250:0002----------------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 50 years SCS Type 2 Start 24 Hours even 10 min, City of Ottawa
       [SDT 10.00:SDUR=  24.00:SPCP=  0.58]
*-----------------------------------------------------------------------------
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development (residential)
* CN*=73, slope = 0.6, Tp = 0.16, XIMP=0, TIMP=1%, see SC001 as per Stantec
* Area partially adjusted based on Arcel drawings.
*-----------------------------------------------------------------------------
* c/s of Bank St.as per Arce  - with modified boundaries and Tp.
 250:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1       24.82     2.833 No_date   12:05   50.20 .521
       [CN= 76.0: N= 3.00]
       [Tp=  .21:MT= 5.00]
*-----------------------------------------------------------------------------
* Existing flow - External areas c/s of Bank St.
* CN*=69, as per Stantec see SC001.
* Area partially adjusted based on Arcel drawings.
*-----------------------------------------------------------------------------
* Areas External to development
 250:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2        9.89     .454 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .57:MT= 5.00]
 250:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3       21.30     .836 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .83:MT= 5.00]
* slope, Ylmp, Area from Arcel Drawing
* CN from Stantec (SC001)
* Xlmp = Timp - 10
 250:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:EX4        1.50     .025 No_date   12:00   48.96 .719
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.51 ha = 0.40
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp - 10
 250:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:EX5        1.57     .031 No_date   12:00   50.97 .721
       [XIMP=.33:TIMP=.43]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Timp = Ximp = 0.01 ha /0.51 ha =  0.02
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp - 10
 250:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:EX6        1.51     .054 No_date   12:00   48.12 .509
       [XIMP=.10:TIMP=.20]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Timp = Ximp = 0.05 ha /0.51 ha = 0.09
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp - 10
 250:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:EX7        1.19     .043 No_date   12:00   50.35 .574
       [XIMP=.13:TIMP=.23]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN*=69, as per Stantec see SC001.
 250:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RLA        8.41     .721 No_date   12:10   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .31:MT= 5.00]
 250:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * DESIGN NASHYD        01:RLA        3.13     .409 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .13:MT= 5.00]
 250:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RLA        4.14     .409 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .21:MT= 5.00]
 250:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RSE        2.21     .216 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .17:MT= 5.00]
*****************************************************************************
*-----------------------------------------------------------------------------
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*-----------------------------------------------------------------------------
* CN* 69, as per Stantec see SC001
* Tp estimated with Bgland Method.
 250:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:PR         4.75     .421 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .18:MT= 5.00]
*-----------------------------------------------------------------------------
* AREAS GOING TO POND
*-----------------------------------------------------------------------------
*
 250:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:ER1A       1.26     .029 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 250:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:ER1B       1.30     .052 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 250:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:P2A        1.57     .170 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 250:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:FR/S       1.13     .079 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 250:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:FR/A       1.45     .081 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 250:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD      01:FR3B       1.52     .089 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
```

```
[Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX1
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1       51.24    4.191 No_date   12:15   46.75  n/a
                     + 03:EX2        1.84     .177 No_date   12:05   46.28  n/a
      [JH= 5.00]  SUM=  01:EX2       53.24    4.191 No_date   12:15   46.75  n/a
* Route Node N-EX2 to Node B1
* Typical Section based on Suicide ND Veo Ditch 3:1 banks
* provided by Ardi
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Ardi.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2       51.24    4.191 No_date   12:15   46.75  n/a
   * [RET= 5.00] out<- 01:EX2A      51.24    3.446 No_date   12:20   46.79  n/a
      [L/S/n=  253./ .050/.035]
      [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14     .129 No_data    12:05   43.18  n/a
                     + 03:B3B        5.27     .714 No_data    12:05   43.18  n/a
                     + 04:EX4         .56     .055 No_data    12:00   40.56  n/a
      [JH= 5.00]  SUM=  01:B3EA       6.85     .895 No_data    12:05   43.17  n/a
* Route Node B3Ea to Node N-PK1
* Typical section based on McEvoy Branch Veo Ditch 3.5:1 slopes
* provided by Ardi
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Ardi drawing (68-06.1)/710m
 250:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:B3Ea       6.85     .895 No_data    12:05   43.17  n/a
      [RET= 5.00] out<- 01:B3EB       6.80     .820 No_data    12:10   42.67  n/a
      [L/S/n=  710./ .050/.035]
      [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK  TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26     .473 No_data    12:05   43.17  n/a
                     + 03:B3EB       6.80     .820 No_data    12:10   42.67  n/a
                     + 04:PR1A        .24     .028 No_data    12:00   51.82  n/a
      [JH= 5.00]  SUM=  01:EPK1      11.30    1.063 No_data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head = 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
     CHBUTE FORLHYD    01:EPE1      11.30    1.063 No_data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00     .000 No_data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30     .610 No_data    12:00   44.14  n/a
      (MjTyaTime=0.000hrs, TotOutVol=.000ha-m, M-Peak=    0, TotDirOVF=     0.hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK  TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .82     .082 No_data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30     .610 No_data    12:00   44.14  n/a
      [JH  5.00]  SUM=  01:In1       11.90     .672 No_data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK  TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1       11.90     .672 No_data    12:00   44.48  n/a
      [RET= 5.00] out<- 01:In1       11.90     .588 No_data    12:20   44.48  n/a
      [L/S/n=  85./1.600/.012]
      [Vmax= 3.306:Dmax= .436]
      [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR2A       1.57     .170 No_data    12:00   51.82  n/a
      [RET= 5.00] out<- 01:CIn2       1.57     .171 No_data    12:00   51.82  n/a
      [L/S/n=  13./ .600/.012]
      [Vmax= 1.401:Dmax= .396]
      [Din=  .500:Dused=  .500]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13     .139 No_data    12:00   51.82  n/a
                     + 03:CIn2       1.61     .17  No_data    12:00   51.69  n/a
      [JH= 5.00]  SUM=  01:In2       2.74     .308 No_data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2       2.74     .308 No_data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2       2.74     .293 No_data    12:05   51.82  n/a
      [L/S/n=  75./ .300/.013]
      [Vmax= 1.202:Dmax= .454]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 3
* HDPE smooth wall pipe Manning's n = 0.012
 250:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR3A        .45     .051 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:CIn3        .45     .052 No_data    12:00   51.62  n/a
      [L/S/n=  11./ .300/.012]
      [Vmax= 1.092:Dmax= .151]
      [Din=  .500:Dused=  .500]
* Input to Inlet 3 pipe
 250:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR3B        .52     .059 No_data    12:00   51.62  n/a
                     + 03:CIn3        .45     .052 No_data    12:00   51.62  n/a
      [JH= 5.00]  SUM=  01:In3        .97     .111 No_data    12:00   51.62  n/a
* Pipe from Inlet 3 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In3        .97     .111 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:Pin3        .97     .107 No_data    12:05   51.62  n/a
      [L/S/n=  25./ .300/.013]
      [Vmax= .978:Dmax= .381]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 4
* HDPE smooth wall pipe Manning's n = 0.012
 250:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR4A        .71     .080 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:CIn4        .71     .080 No_data    12:00   51.62  n/a
      [L/S/n=  15./ .400/.013]
      [Vmax= 1.159:Dmax= .193]
      [Din=  .500:Dused=  .500]
* Input to Inlet 4 pipe
 250:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR4B        .65     .073 No_data    12:00   51.62  n/a
                     + 03:CIn4        .71     .080 No_data    12:00   51.62  n/a
      [JH= 5.00]  SUM=  01:In4        1.36     .154 No_data    12:00   51.62  n/a
* Pipe from Inlet 4 (ELEVATED CONDUIT)   Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In4        1.36     .154 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:Pin4        1.36     .153 No_data    12:00   51.62  n/a
      [L/S/n=  65./1.900/.013]
      [Vmax= 2.439:Dmax= .175]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 5
* HDPE smooth wall pipe Manning's n = 0.012
 250:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR5A        .66     .074 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:CIn5        .66     .075 No_data    12:00   51.62  n/a
      [L/S/n=  11./ .400/.013]
      [Vmax= 1.134:Dmax= .183]
      [Din=  .500:Dused=  .500]
* Input to Inlet 5 pipe
 250:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR5B        .46     .052 No_data    12:00   51.62  n/a
                     + 03:CIn5        .66     .075 No_data    12:00   51.62  n/a
      [JH= 5.00]  SUM=  01:In5        1.12     .127 No_data    12:00   51.62  n/a
* Pipe from Inlet 5 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In5        1.12     .127 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:Pin5        1.12     .126 No_data    12:00   51.62  n/a
      [L/S/n=  75./1.800/.013]
      [Vmax= 2.174:Dmax= .163]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 6
* HDPE smooth wall pipe Manning's n = 0.012
 250:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR6A        .43     .156 No_data    12:00   51.62  n/a
      [RET= 5.00] out<- 01:CIn6        .43     .157 No_data    12:00   51.62  n/a
      [L/S/n=  13./ .400/.013]
      [Vmax= 1.378:Dmax= .289]
      [Din=  .300:Dused=  .300]
* Input to Inlet 6 pipe
 250:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR6B        .93     .103 No_data    12:00   51.62  n/a
                     + 03:CIn6        1.13     .157 No_data    12:00   51.62  n/a
      [JH= 5.00]  SUM=  01:In6        2.06     .260 No_data    12:00   51.62  n/a
* Pipe from Inlet 6 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In6        2.06     .260 No_data    12:00   51.62  n/a
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*    [Q<r- 5.00] out<- 01:Pin6        7.16     .284 No date   12:05   51.62  n/a
      [L/S/m-   70./ .300/.012]
      (Vmax= 1.350:Dmax=  .634)
      [Din=  .500:Dused=  .529]
* VOLUME TO POND CLIMATE RESIDENTIAL
 250:0068--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:Pin1        11.00     .484 No date   12:05   46.49  n/a
                   + 03:Pin2         2.54     .269 No date   12:05   51.62  n/a
                   + 04:Pin3          .67     .107 No date   12:05   51.62  n/a
                   + 05:Pin4         1.36     .153 No date   12:00   51.62  n/a
                   + 06:Pin5         1.12     .126 No date   12:00   51.62  n/a
                   + 07:Pin6         2.36     .255 No date   12:05   51.62  n/a
                   + 08:POu          5.03     .808 No date   12:00   46.25  n/a
     [Q7- 5.00]  SUM=  01:POND1in    25.08    2.427 No date   12:00   51.27  n/a
 250:0069--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR => 01:POND1in    25.48    2.427 No date   12:00   51.27  n/a
     [RDT= 5.00] out<- 02:POND1       25.48     .266 No date   12:40   51.27  n/a
           overflow <- 03:Ovr2        0.00     .000 No date    0:00    .00  n/a
     [MaxStorage=  .7751E+00, IntOutVol=  .800E+00, H-Out=    0, TotOutVol=    0.hrs]
* Simulating SCS 100 yr conditions with submergence at outflow weir
* Updated for weir (4) .6; 3.6
$ROUTE RESERVOIR     NHYDout=["POND1"] ,NHYDin=["POND1in"] ,
                     RDT= 5[min],
                          TABLE OF | OUTFLOW-STORAGE | values
                                   |COL1 = (hr-m)
                                   |    0.0 ,  0.0 |
                                   |0.8080 ,  1.269
                                   |0.20   ,  1.21 |
                                   |0.35   ,  2.0195
                                   |    -1 ,   -1 |   (max twenty pts)
                          NHYDout=["Ovr2"] ,
* Route pond output through first set of pipes
* 2 x 600 pipes simulated with 3 pipe of equivalent capacity (=780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 250:0070--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:Pout1      25.48     .266 No date   13:40   51.27  n/a
     [RDT= 5.00] out<- 01:Pout1       25.48     .266 No date   13:35   51.27  n/a
      [L/S/m-   70./ .300/.012]
      (Vmax= 1.216:Dmax=  .593)
      [Din=  .750:Dused=  .730]
* Flow c/s at outlet culverts
 250:0071--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:rd7b1          .36     .039 No date   12:05   47.53  n/a
                   - 03:rd7b2          .22     .024 No date   12:05   47.53  n/a
                   = 04:Pout1        25.08     .206 No date   13:35   51.27  n/a
     [Q2- 5.00]  SUM=  01:Pout        26.00     .272 No date   13:35   51.19  n/a
* Route outflow through set of culverts
* 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
* HDPE smooth wall pipe Manning's n = 0.012
 250:0072--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:Pout       26.00     .272 No date   13:35   51.19  n/a
     [RDT= 5.00] out<- 01:Pout        26.00     .272 No date   13:35   51.19  n/a
      [L/S/m-   13./ .060/.012]
      (Vmax= 1.576:Dmax=  .384)
      [Din=  .780:Dused=  .780]
* Flow c/s of second set of outflow pipes
 250:0073--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:rd7c1          .39     .042 No date   12:05   47.53  n/a
                   + 03:rd7c2          .17     .018 No date   12:05   47.53  n/a
                   = 04:Pout2        26.00     .272 No date   13:35   51.11  n/a
     [Q4- 5.00]  SUM=  01:Pout2       26.39     .272 No date   13:35   51.11  n/a
* Route outflow through second set of pipes
* 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 250:0074--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:Pout2      26.62     .278 No date   13:35   51.11  n/a
     [RDT= 5.00] out<- 01:PoutF       26.62     .278 No date   13:35   51.11  n/a
      [L/S/m-   62./ .260/.012]
      (Vmax= 1.230:Dmax=  .570)
      [Din=  .780:Dused=  .780]
* Total flow at node N1 (Behind MD along Soles Barn Rd)
 250:0075--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:RdEx2         51.24    1.376 No date   12:20   46.75  n/a
                   + 03:PoutF         26.62     .278 No date   13:35   51.11  n/a
                   = 04:EX7           77.87     .648 No date   12:00   50.73  n/a
                   + 05:rd7D          .30       .033 No date   12:05   47.53  n/a
                   + 06:rd7E1         .62       .062 No date   12:05   47.53  n/a
     [Q7- 5.00]  SUM=  01:N1          78.17    3.693 No date   12:20   48.73  n/a
* ROUTE N1 to N2
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atzel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.02: as per plan provided by Atzel.

 250:0076--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    => 02:N1         78.17    3.693 No date   12:20   48.73  n/a
     [RDT= 5.00] out<- 01:N1          78.17    3.693 No date   12:20   48.73  n/a
      [L/S/m-  435./1.800/.035]
      (Vmax=  .909:Dmax= 1.767)
* VOLUME from residential area at N1 (Phase
 250:0077--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          03:rd7A          1.95     .198 No date   12:05   47.53  n/a
                   + 01:rd7B          1.38     .134 No date   12:05   47.53  n/a
     [RDT= 5.00]  SUM=  02:Nd1        3.33     .274 No date   12:05   47.53  n/a
* Added VOLUME from extreme area contributing to N2
 250:0078--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:rd1           78.17    3.693 No date   12:40   48.25  n/a
                   + 03:Nd1           3.33     .274 No date   12:05   47.53  n/a
                   + 04:EX5           .53      .054 No date   12:00   49.13  n/a
     [Q7- 5.00]  SUM=  01:N2          82.03    3.742 No date   12:40   48.25  n/a
* ROUTE N2 to RC128
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atzel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.02: as per plan provided by Atzel.
 250:0079--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    => 02:N2         82.03    3.189 No date   12:40   48.25  n/a
     [RDT= 5.00] out<- 01:RN3         82.03    3.742 No date   12:50   48.25  n/a
      [L/S/m-  415./1.650/.035]
      (Vmax=  .909:Dmax= 1.687)
* Flow at station node RC128 for comparison
* Routed N3 plus EX3
 250:0080--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:RN3           82.03    3.742 No date   12:50   48.25  n/a
                   + 03:EX3           21.36     .836 No date   12:45   45.38  n/a
     [DT= 5.00]  SUM=  01:RC8128      103.23   3.516 No date   13:50   47.71  n/a
* AREA CHECK
*
 250:0081--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:EX1           24.62    2.833 No date   12:05   50.25  n/a
                   + 03:EX2           9.89      .454 No date   12:35   43.18  n/a
                   + 04:EX3           21.36     .836 No date   12:45   43.18  n/a
                   + 05:EX4            .50      .055 No date   12:00   49.96  n/a
                   + 06:EX5            .53      .061 No date   12:00   49.13  n/a
                   + 07:EX6            .5       .054 No date   12:00   49.13  n/a
                   + 08:EX7            .30      .045 No date   12:00   50.75  n/a
                   + 09:FR1A           .24      .028 No date   12:00   51.62  n/a
                   + 10:FR1B           .55      .062 No date   12:00   51.62  n/a
     [Q9- 5.00]  SUM=  01:Out1        58.52    3.749 No date   12:05   46.58  n/a
 250:0082--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:Out1          58.52    3.749 No date   12:05   46.58  n/a
                   + 03:FR1A           .24      .028 No date   12:00   51.62  n/a
                   + 04:FR2B          1.17      .129 No date   12:00   51.62  n/a
                   + 05:FR3A           .45      .051 No date   12:00   51.62  n/a
                   + 06:FR3B           .52      .059 No date   12:00   51.62  n/a
                   + 07:FR4A           .31      .035 No date   12:00   51.62  n/a
                   + 08:FR4B           .66      .075 No date   12:00   51.62  n/a
                   + 09:FR5A           .56      .064 No date   12:00   51.62  n/a
                   + 10:FR5B           .46      .052 No date   12:00   51.62  n/a
     [Q7- 5.00]  SUM=  01:Out2        64.71    4.404 No date   12:05   47.06  n/a
 250:0083--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:Out2          64.71    4.404 No date   12:05   47.06  n/a
                   - 03:FR6A           1.03     .156 No date   12:00   51.62  n/a
                   - 04:FR6B           .93      .104 No date   12:00   51.62  n/a
                   + 05:FR7A           1.55     .148 No date   12:05   47.53  n/a
                   + 06:FR7B1          .36      .039 No date   12:05   47.53  n/a
                   + 07:FR7B2          .22      .024 No date   12:05   47.53  n/a
                   + 08:FR7C1          .39      .042 No date   12:05   47.53  n/a
                   + 09:FR7C2          .17      .018 No date   12:05   47.53  n/a
                   + 10:FR7D           .30      .033 No date   12:05   47.53  n/a
     [DT= 5.00]  SUM=  01:Out3        63.84    4.549 No date   12:05   47.23  n/a
 250:0084--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:Out3          63.84    4.549 No date   12:05   47.23  n/a
                   + 03:FR8           1.38      .134 No date   12:05   45.28  n/a
                   + 04:FR8A          1.10      .108 No date   12:05   45.28  n/a
                   + 05:FR8B1          .25      .026 No date   12:05   45.28  n/a
                   + 06:FR8B2          .60      .059 No date   12:05   45.28  n/a
                   + 07:FR7E          1.84      .177 No date   12:05   45.28  n/a
                   + 08:FR11          .62       .062 No date   12:05   47.24  n/a
                   + 09:FR2           4.26      .473 No date   12:05   43.18  n/a
                   + 10:RDa           5.05      .687 No date   12:00   64.74  n/a
     [Q7- 5.00]  SUM=  01:Out4        85.10    6.804 No date   12:05   48.04  n/a
 250:0085--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD          02:Out4          85.10    6.804 No date   12:05   48.04  n/a
                   + 03:R.A           9.41      .751 No date   12:10   43.18  n/a
                   = 04:N2A           3.13      .429 No date   12:00   43.18  n/a
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                        +  CA:R3A        4.14     .629 Bo_date   12:05   45.18  n/a
                        +  CA:R3A        2.21     .216 Bo_date   12:05   45.18  n/a
      [IT= 5.00]  SUM=  CA:Tot5     104.23    8.012 Bo_date   12:05   47.16  n/a
*****************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours Type I, from City of Ottawa
   ** END OF RUN : 288
*
*****************************************************************************
*
*
*
*
*
*
*
 RUN:COMMAND*
 288:0001-------------------------------------------------------------------
      START
       [YEARS =     .00 hrs on        0]
       [METOUT=    2    [1=Imperial, 2=Metric output]]
       [NSTORM=    1 ]
       [NRUN    288 ]
*****************************************************************************
*  SWMHYMO Ver:4.02/Jan 2001 <BETA> / INPUT DATA FILE
*****************************************************************************
*  Project Name: [Greely Village Center]    Project Number: [647-07]
*  Date        : 06-05-2008
*  Modeller    : [MF]
*  Company     : [JFSAinc.
*  License #   : 2547602
*****************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stands for: GRP2u2a = Greely, Residential , Phase 2, ultimate v2 walk
*
*  December 15, 2008
*  "a" at the end of filename  Added July 1st 1999 Kyani
*****************************************************************************
 299:0002-------------------------------------------------------------------
      READ STORM
       Filename =  storm.001
       Comment  =  100 years SCS Type I Storm 24 hours Stop 10 min. City of Ott
       [SDT 10.00:SDUR=  24.00:PTOT= 106.7]
*****************************************************************************
* Existing flow - Midway branch of Shirley Brook - Areas
* Area a/s of proposed development (residential)
* CN*=85, alpha = 3.6, Ip=0.16, XIMP=5, TIMP=5, see SC001 as per Stantec
* Area partially adjusted based on Arcel drawings.
*****************************************************************************
* a/s of Bank St.es per Arcel - with modified boundaries and Cp.
 299:0003-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:EX1       24.62    3.398 No_date   12:05   50.48 .545
       [CN= 85.0: N= 3.00]
       [Ia=  .23:SC=  5.00]
*****************************************************************************
* Existing flow - External areas d/s of Bank St.
* CN* 69, as per Stantec see SC001.
* Area partially adjusted based on Arcel drawings.
*****************************************************************************
* Areas External to Development
 299:0004-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:EX2        9.89     .534 No_date   12:05   50.48 .475
       [CN= 69.0: N= 3.00]
       [Ia=  .67:SC=  5.00]
 299:0005-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
      DESIGN HASHYD     01:EX3       21.30     .982 No_date   12:05   50.48 .474
       [CN= 69.0: N= 3.00]
       [Ia=  .53:SC=  5.00]
* Slope, Tlag, Area from Arcel Drawing
* CN from Stantec (SC001)
* Ximp = Timp = 10%
 299:0006-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:EX4        .58     .055 No_date   12:00   57.83 .549
       [XIMP= 11:TIMP=.27]
       [Ia=  2 :CN= 69.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along progressed residential development Parkway Rd
* Timp = Ximp - 0.21 Ha /0.57 Ha = 0.40
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp - 10%
 299:0007-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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   * CALIB STANDHYD     01:EX5        .52     .064 No_date   12:00   58.96 .541
       [XIMP=.10:TIMP=.20]
       [Ia=  2 :CN= 69.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Timp = Ximp - 0.09 Ha /0.39 Ha = 0.23
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp - 10%
 299:0008-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:EX7        .39     .058 No_date   12:00   58.65 .550
       [XIMP=.23:TIMP=.22]
       [Ia=  2 :CN= 69.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN* 69, as per Stantec see SC001.
 299:0010-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA1        5.41     .982 No_date   12:10   50.00 .473
       [CN= 69.0: N=  3.00]
       [Ia=  .11:SC=  5.00]
 299:0011-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * DESIGN HASHYD     01:SA2        3.13     .303 No_date   12:30   50.49 .473
       [CN= 61.0: N= 3.00]
       [Ia=  .13:SC= 5.00]
 299:0012-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA3        4.14     .503 No_date   12:05   50.48 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .23:SC= 5.00]
 299:0013-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA4        2.21     .367 No_date   12:05   50.48 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .23:SC= 5.00]
*****************************************************************************
*
* PROPOSED RESIDENTIAL SUBWATERSHEDs - Residential Area Phase 1 and 2
*
*****************************************************************************
* CN*=69, as per Stantec see SC001.
* Tp estimated with Upland Method.
 299:0014-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:PR1        4.26     .655 No_date   12:05   50.48 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .18:SC= 5.00]
*****************************************************************************
* AREAS GOING TO POND
*****************************************************************************
*
 299:0015-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR1A       1.26     .249 No_date   12:00   50.00 .589
       [XIMP= 11:TIMP= 21]
       [IAIA=  2 :CN=  71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0016-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR1B       1.58     .273 No_date   12:00   59.68 .559
       [XIMP=.11:TIMP=.21]
       [IAIA=  2 :CN=  71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0017-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR2A       1.57     .291 No_date   12:00   59.68 .559
       [XIMP=.11:TIMP=.21]
       [IAIA=  2 :CN=  71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0018-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR2B       1.13     .192 No_date   12:00   59.68 .559
       [XIMP=.11:TIMP=.21]
       [IAIA=  2 :CN=  71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
```

```
08361> 299:00.9----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08362>   * CALIB STANDHYD     01:FR3A         .45      .661 No_Date   12:00   58.68 .519
08363>       [XIMP=.11:TIMP=.21]
08364>       [LOSS= 2 :CN= 71.0]
08365>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08366>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08367> 299:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08368>   * CALIB STANDHYD     01:FR1S         .57      .826 No_date   12:00   58.68 .559
08369>       [XIMP=.11:TIMP=.21]
08370>       [LOSS= 2 :CN= 71.0]
08371>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08372>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08373> 299:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08374>   * CALIB STANDHYD     01:FR4A         .71      .994 No_date   12:00   59.36 .559
08375>       [XIMP=.11:TIMP=.21]
08376>       [LOSS= 2 :CN= 71.0]
08377>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08378>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
08379> 299:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08380>   * CALIB STANDHYD     01:FR1B         .65      .886 No_date   12:00   59.68 .558
08381>       [XIMP=.11:TIMP=.21]
08382>       [LOSS= 2 :CN= 71.0]
08383>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08384>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
08385> 299:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08386>   * CALIB STANDHYD     01:FR5B         .16      .662 No_date   12:00   58.68 .558
08387>       [XIMP=.11:TIMP=.21]
08388>       [LOSS= 2 :CN= 71.0]
08389>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08390>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
08391> 299:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08392>   * CALIB STANDHYD     01:FR6A         1.47     1.941 No_date   12:00   58.68 .558
08393>       [XIMP=.11:TIMP=.21]
08394>       [LOSS= 2 :CN= 71.0]
08395>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08396>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08397> 299:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08398>   * CALIB STANDHYD     01:FR6B         .09      .117 No_date   12:00   58.68 .558
08399>       [XIMP=.11:TIMP=.21]
08400>       [LOSS= 2 :CN= 71.0]
08401>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08402>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0]
08403> # slope estimated at 2' based on backyard swales.
08404> # Ximp and Timp based on total pond area
08405> # Ximp = A pond/A tot
08406> # Timp = weighted average of pond and backyards
08407>  299:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08408>     CALIB STANDHYD     01:FR7a         5.04     6.966 No_date   12:00   75.51 .760
08409>       [XIMP=.41:TIMP=.47]
08410>       [LOSS= 2 :CN= 71.0]
08411>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08412>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
08413> #*********************************************************************
08414> # UNCONTROLLED AREAS
08415> #*********************************************************************
08416> #
08417>  299:00.8----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08418>   * CALIB STANDHYD     01:FR7A         1.35      .867 No_date   12:05   58.40 .519
08419>       [XIMP=.62:TIMP=.14]
08420>       [LOSS= 2 :CN= 71.0]
08421>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08422>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08423> 299:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08424>   * CALIB STANDHYD     01:FR7B1        .36      .051 No_date   12:00   58.40 .519
08425>       [XIMP=.62:TIMP=.14]
08426>       [LOSS= 2 :CN= 71.0]
08427>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08428>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  89.:MNI=.045:SCI=   .0]
08429> 299:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08430>   * CALIB STANDHYD     01:FR7B2        .22      .031 No_date   12:00   58.40 .519
08431>       [XIMP=.62:TIMP=.14]
08432>       [LOSS= 2 :CN= 71.0]
08433>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08434>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  89.:MNI=.045:SCI=   .0]
08435> 299:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08436>   * CALIB STANDHYD     01:FR7C1        .19      .029 No_date   12:00   58.40 .519
08437>       [XIMP=.62:TIMP=.14]
08438>       [LOSS= 2 :CN= 71.0]
08439>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08440>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08441> 299:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08442>   * CALIB STANDHYD     01:FR7D         .10      .043 No_date   12:00   58.40 .519
08443>       [XIMP=.62:TIMP=.14]
08444>       [LOSS= 2 :CN= 71.0]
08445>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08446>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08447> 299:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08448>   * CALIB STANDHYD     01:FR8          1.18      .162 No_date   12:05   52.95 .496
08449>       [XIMP=.01:TIMP=.07]
08450>       [LOSS= 2 :CN= 71.0]
08451>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08452>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
08453> 299:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08454>   * CALIB STANDHYD     01:FR8A         1.10      .139 No_date   12:05   52.95 .496
08455>       [XIMP=.01:TIMP=.07]
08456>       [LOSS= 2 :CN= 71.0]
08457>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08458>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
08459> 299:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08460>   * CALIB STANDHYD     01:FR8A1        .05      .001 No_date   12:05   52.95 .496
08461>       [XIMP=.01:TIMP=.07]
08462>       [LOSS= 2 :CN= 71.0]
08463>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08464>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
08465> 299:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08466>   * CALIB STANDHYD     01:FR8A2        1.00      .139 No_date   12:05   52.95 .496
08467>       [XIMP=.01:TIMP=.07]
08468>       [LOSS= 2 :CN= 71.0]
08469>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08470>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
08471> 299:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08472>   * CALIB STANDHYD     01:FR8B         1.84      .914 No_date   12:05   52.95 .496
08473>       [XIMP=.01:TIMP=.07]
08474>       [LOSS= 2 :CN= 71.0]
08475>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08476>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
08477> 299:0039----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08478>   * CALIB STANDHYD     01:FR11         .62      .078 No_date   12:05   52.95 .496
08479>       [XIMP=.01:TIMP=.07]
08480>       [LOSS= 2 :CN= 71.0]
08481>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08482>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
08483> #*********************************************************************
08484> # EXISTING flow - Upstream of Residential Area Phase 1 and 2
08485> #*********************************************************************
08486> # Typical Section based on proposed channel provided by ASL
08487> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
08488> # Route EX1 to D/S node B3
08489>  299:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08490>      ROUTE CHANNEL   -> 02:EX1        24.62     3.288 No_date   12:05   58.31  n/a
08491>        [RDT= 5.00] conc= 01:FEX1       24.62     3.159 No_date   12:30   58.31  n/a
08492>        [L/S/n=  312./ .500/.030]
08493>        [Vmax= 1.224:Lmax=  .670]
08494> # Total flow at B-R2A
08495> # (Note that R1A will be sheet draining to proposed channel)
08496>  299:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08497>      ADD HYD         03:R1A          6.41      .867 No_date   12:10   56.43  n/a
08498>                    + 05:R2A          4.15      .583 No_date   12:00   50.43  n/a
08499>                    + 04:R3A          ..10      .130 No_date   12:05   50.95  n/a
08500>      [V= 5.00]  SUM= 01:NR2A        13.64     1.579 No_date   12:05   50.88  n/a
08501> # Typical section based on proposed channel provided by ASL
08502> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
08503> # Route SW draining at B-R2A to S/S node B6
08504>  299:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08505>      ROUTE CHANNEL   -> 02:NR2A        13.64     1.579 No_date   12:05   50.88  n/a
08506>        [RDT= 5.00] conc= 01:RNR2A      13.64     1.247 No_date   12:10   50.88  n/a
08507>        [L/S/n=  447./ .500/.030]
08508>        [Vmax= .999:Lmax=  .458]
08509> # Total flow at node B6
08510> # (Note that EX2 will be sheet draining to proposed channel)
08511>  299:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08512>      ADD HYD         03:RNR2A        13.64     1.247 No_date   12:10   50.88  n/a
08513>                    + 04:rx6s1        24.62     3.159 No_date   12:10   58.31  n/a
08514>                    + 04:rx6s1        .25       .031 No_date   12:00   52.95  n/a
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                    +  05:EX02        1.00     .119 No data   12:05   52.95  n/a
                    +  06:EX2         0.69     .534 No data    7:35   56.49  n/a
       [JI= 5.00]  SUM=  01:EX3        49.40    4.015 No data   7:10   54.50  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW draining at EX to N-EX2
 259:0044----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2         51.24    4.916 No data   12:10   54.45  n/a
       [RT= 5.00] out<- 01:EX3         49.40    4.752 No data   12:15   54.50  n/a
       [L/S/n=  324./ .500/.030]
       [Vmax= 1.355]Dmax=  .79]
# Total flow at node N-EX2
 259:0045----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX3         49.40    4.752 No data   12:15   54.50  n/a
                    +  03:PM10        1.84     .214 No data   12:05   52.95  n/a
       [SI= 5.00]  SUM=  01:EX2        51.24    4.916 No data   12:15   54.45  n/a
# Route Node N-EX2 to Node N1
# Typical Section based on Shields MD Voc Ditch 3:1 banks
# provided by Airel
# Manning's n is Channel not maintained, light grass on banks
# Slope = 0.05  as per plan provided by Airel.
 259:0046----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2         51.24    4.916 No data   12:10   54.45  n/a
   +   [RT= 5.00] out<- 01:ENEX2       51.24    5.023 No data   12:20   54.45  n/a
       [L/S/n=  753./ .050/.035]
       [Vmax=  .349]Dmax=  .925]
#*****************************************************************************
# Meadowland Development - Phase 1 and 2
#*****************************************************************************
# Total flow at node N-PK
 259:0047----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX3         51.24    4.916 No data   12:05   54.45  n/a
                    +  03:EX3E        2.21     .254 No data   12:05   56.45  n/a
                    +  04:EX4         .56      .065 No data   12:30   57.83  n/a
       [SI= 5.00]  SUM=  01:EX1S       6.85     .817 No data   12:05   51.02  n/a
# Route Node NX3 to Node N-PK
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Airel
# Manning's n is Channel not maintained, light grass on banks
# Slope = 0.80% approximately as per Airel drawing (85-86.1)/4 Rm
 259:0048----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX3S        6.85     .817 No data   12:05   51.02  n/a
       [RT= 5.00] out<- 01:EXEGE       6.85     .734 No data   12:10   51.03  n/a
       [L/S/n=  710./ .030/.050]
       [Vmax=  .76]Dmax=  .867]
# Total flow at node N-PK
 259:0049----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX1         4.26     .595 No data   12:05   56.45  n/a
                    +  03:EXE3E       6.85     .734 No data   12:10   51.03  n/a
                    +  04:PP1A        .24      .035 No data   12:00   59.66  n/a
       [SI= 5.00]  SUM=  01:PPE1       11.35    1.364 No data   12:05   51.01  n/a
# Volume in pond.ng area in PK1
# Q=0.035 m3/s required as per SCS 100yr Existing conditions
# Culvert from Inlet 1
# Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n  0.012, inlet control nomograph
# Pyraulic head = 0.9m, Q=0.610
 259:0050----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      COMPUTE DIAGRAPH    01:PPE1       11.35    1.760 No data   12:05   51.01  n/a
        Water System /  02:PPE1R1       .00      .000 No data   0:00    .00    n/a
        Minor System \  03:PPE1Rn       11.35    .810 No data   11:55   51.31  n/a
      (N)SvsSto=-.7708E+03, ToUsVfol=.0000E+00, M-Def=    0, ToDurOvf=    0.hrs)
# Input to Inlet 1 pipe
 259:0051----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR1B        .52      .077 No data   12:00   58.66  n/a
                    +  04:EPR1Rn      11.35    .610 No data   11:55   51.31  n/a
       [SI= 5.00]  SUM=  01:In1        11.90    .683 No data   12:00   51.69  n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0052----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In1         11.90    .683 No data   12:00   51.69  n/a
       [RT= 5.00] out<- 01:Pin1        11.90    .681 No data   12:00   51.70  n/a
       [L/S/n=  65./1.600/.012]
       [Vmax= 5.01]*Dmax=  .41]
       [Din=  .600]Dused=  .500]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n  0.012
 259:0053----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:EX2A        .57      .108 No data   12:00   59.58  n/a
       [RT= 5.00] out<- 01:Cin2        1.67     .102 No data   12:00   59.58  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.456]Dmax=  .331]
       [Din=  .500]Dused=  .500]
# Input to Inlet 2 pipe
 259:0054----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR2B        .74      .152 No data   12:00   58.66  n/a
                    +  03:Cin2        .93      .382 No data   12:00   58.66  n/a
       [SI= 5.00]  SUM=  01:In2        2.74     .534 No data   12:00   58.66  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0055----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In2         2.74     .534 No data   12:00   58.66  n/a
   +   [RT= 5.00] out<- 01:Pin2        2.74     .347 No data   12:05   50.38  n/a
       [L/S/n=  75./ .200/.012]
       [Vmax= 1.953]Dmax=  .526]
       [Din=  .600]Dused=  .600]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 259:0056----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR3B        .52      .070 No data   12:00   58.66  n/a
                    +  03:CT-3        .45      .061 No data   12:00   58.66  n/a
       [SI= 5.00]  SUM=  01:In3        .97      .131 No data   12:00   58.66  n/a
# Input to Inlet 3 pipe
 259:0057----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR3B        .52      .070 No data   12:00   58.66  n/a
                    +  03:CT-3        .45      .061 No data   12:00   58.66  n/a
       [SI= 5.00]  SUM=  01:In3        .97      .131 No data   12:00   58.66  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0058----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In3         .97      .131 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:Pin3        .97      .129 No data   12:05   58.66  n/a
       [L/S/n=  75./ .200/.012]
       [Vmax= 1.013]Dmax=  .312]
       [Din=  .500]Dused=  .500]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 259:0059----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR4A        .71      .091 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:CT-4        .71      .080 No data   12:00   58.66  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.213]Dmax=  .286]
       [Din=  .500]Dused=  .500]
# Input to Inlet 4 pipe
 259:0060----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR4B        .65      .086 No data   12:00   58.66  n/a
                    +  03:Cin4        .71      .095 No data   12:00   58.66  n/a
       [SI= 5.00]  SUM=  01:In4        1.36     .181 No data   12:00   58.66  n/a
# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0061----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In4         1.36     .181 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:Pin4        1.36     .180 No data   12:00   58.66  n/a
       [L/S/n=  65./1.900/.012]
       [Vmax= 2.552]Dmax=  .195]
       [Din=  .500]Dused=  .500]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 259:0062----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR5A        .66      .083 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:Cin5        .66      .083 No data   12:00   58.66  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.108]Dmax=  .260]
       [Din=  .500]Dused=  .500]
# Input to Inlet 5 pipe
 259:0063----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:FR5B        .46      .062 No data   12:00   58.66  n/a
                    +  03:Cin5        .66      .085 No data   12:00   58.66  n/a
       [SI= 5.00]  SUM=  01:In5        1.12     .150 No data   12:00   51.69  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0064----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In5         1.12     .150 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:Pin5        1.12     .149 No data   12:00   58.66  n/a
       [L/S/n=  75./1.600/.012]
       [Vmax= 2.20]*Dmax=  .184]
       [Din=  .600]Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 259:0065----------------ID:EXYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:FR6A        1.43     .184 No data   12:00   58.66  n/a
       [RT= 5.00] out<- 01:Cin6        1.43     .185 No data   12:00   58.66  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.439]Dmax=  .311]
```

```
08633>        Din= .500:Dmax= .500:
08634> * input to in.wal 6 pipe
08635> 299:0065---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08636>      ADD HYD            02:FP6P       .55      .127 No date   12:00   59.68  n/a
08637>                       + 03:CTn6       1.43     .335 No date   12:00   59.68  n/a
08638>      [CC= 5.00]  SUM=  01:tc6        2.36     .507 No date   12:00   59.68  n/a
08639> # Pipe from inlet 6 - Route to pond
08640> # HDPE smooth wall pipe Manning's n = 0.012
08641> 299:0067---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08642>      ROUTE PIPE      -> 02:tc6        2.36     .507 No date   12:00   59.68  n/a
08643>  *   [RT= 5.00] out<- 01:Pin6        2.36     .502 No date   12:05   59.68  n/a
08644>      [L/S/n=  70./ .500/.012]
08645>      [Vmax= 1.401:Tmax=  .482]
08646>      [Din=  .500:Dused=  .500]
08647> # VOLUME TO POND ULTIMATE RESIDENTIAL
08648> 299:0068---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08649>      ADD HYD            02:Pin1       11.90     .691 No_data   12:00   51.70  n/a
08650>                       + 03:Pin2        9.04     .367 No data   12:05   59.68  n/a
08651>                       + 04:Pin3         .97     .127 No data   12:05   59.68  n/a
08652>                       + 05:Pin4        1.36     .178 No data   12:00   59.68  n/a
08653>                       + 06:Pin5        1.12     .149 No_data   12:00   59.68  n/a
08654>                       + 07:Pin6        2.36     .302 No_data   12:05   59.68  n/a
08655>                       + 08:P2a         5.02     .596 No_data   12:00   72.51  n/a
08656>      [CC= 5.00]  SUM=  01:POND1a     25.48    2.757 No_data   12:00   59.08  n/a
08657> 299:0069---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08658>      ROUTE RESERVOIR -> 02:POND1c     25.48    2.757 No data   12:00   59.08  n/a
08659>      [RT= 5.00] out<- 01:POND1       25.48     .367 No data   12:15   59.08  n/a
08660>                 ov<- 01:Pond1        .00       .000 No data   0:00    .00    n/a
08661>      [MaxStwage=.864E+00, ID.OvlVol=.000E+00, M-Dvl=    0, IctDiplOvf=    0.hrs]
08662> # Simulating 2CY 100 yr conditions with submergence of outflow weir
08663> # Updated for Weir .6: .6: 3.0
08664> $ROUTE RESERVOIR     NHYDout=["POND1c" ],NHYDin=["P2NDin"] ,
08665> $                    RET=[5](min),
08666> $                          TABLE of ( OUTFLOW-STORAGE ) values
08667> $                                    [CMS] = (FA-M)
08668> $                                    [  0.0 ,  0.0 ]
08669> $                                   [0.0001] , [.0209
08670> $                                   0.20   , 1.811.0
08671> $                                   0.33   , 2.6195
08672> $                                   [      1 ,   1 ]   [max twenty pts]
08673> $                          NStrmovd=["over"] ,
08674> # Route pond output through first set of pipes
08675> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
08676> # HDPE smooth wall pipe Manning's n   0.012
08677> 299:0070---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08678>      ROUTE PIPE      -> 02:POut       25.48     .581 No date   12:15   59.08  n/a
08679>      [RT= 5.00] out<- 01:Pout1       25.48     .581 No date   12:20   59.08  n/a
08680>      [L/S/n=  75./ .780/.012]
08681>      (Vmax= 1.83:Tmax=  .454]
08682>       Din=  .780:Dused=  .780]
08683> # Flow s/s of outlet culverts
08684> 299:0071---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08685>      ADD HYD            02:FBTB1      .36       .051 No_date   12:00   55.10  n/a
08686>                       + 03:FBTB2      .22       .032 No date   12:00   55.08  n/a
08687>                       + 00:Pout1     25.48     .581 No date   12:20   59.08  n/a
08688>      [CC= 5.00]  SUM=  01:Pout       26.06     .595 No_date   12:20   59.06  n/a
08689> # Route outflow through set of Culverts
08690> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia)
08691> # HDPE smooth wall pipe Manning's n   0.012
08692> 299:0072---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08693>      ROUTE PIPE      -> 02:Pout       26.06     .595 No date   12:20   59.06  n/a
08694>      [RT= 5.00] out<- 01:Cout        26.06     .595 No date   12:20   59.06  n/a
08695>      [L/S/n=  15./ .780/.012]
08696>      (Vmax= 1.74:Tmax=  .374]
08697>      [Din=  .780:Dused=  .780]
08698> # Flow s/s of second set of outflow pipes
08699> 299:0073---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08700>      ADD HYD            02:FB7C1      .36       .048 No date   12:05   55.40  n/a
08701>                       + 03:FB7C2      .22       .035 No date   12:00   55.40  n/a
08702>                       + 04:Cout       26.06     .595 No date   12:20   59.06  n/a
08703>      [CC= 5.00]  SUM=  01:Pout2      26.62     .630 No_date   12:20   58.92  n/a
08704> # Route outflow through second set of pipes
08705> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
08706> # HDPE smooth wall pipe Manning's n   0.012
08707> 299:0074---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08708>      ROUTE PIPE      -> 02:Pout2      26.62     .102 No_date   12:20   58.92  n/a
08709>      [RT= 5.00] out<- 01:Pout2       26.62     .103 No_date   12:20   51.99  n/a
08710>      [L/S/n=  65./ .250/.012]
08711>      (Vmax= 1.949:Tmax=  .168]
08712>      [Din=  .780:Dused=  .780]
08713> # Total flow at node N1 (Shield MH along Sales Barn Rd)
08714> 299:0075---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08715>      ADD HYD            03:RNFN2      51.24     3.925 No date   12:20   54.45  n/a
08716>                       + 03:PoutE      26.62     .403 No_date   12:20   58.92  n/a
08717>                       + 04:EX7        .38       .053 No date   12:00   55.65  n/a
08718>                       + 05:FR1A       .38       .044 No_date   12:00   55.08  n/a
08719>                       + 06:FR1B       .62       .075 No_date   12:05   52.95  n/a
08720>      [1= 5.00]  SUM=  01:N1          79.17     4.254 No_date   12:20   56.96  n/a
08721> # Route N1 to N3
08722> # Typical Section based on Shields MH Vee Ditch 3:1 Banks
08723> # provided by Ariel
08724> # Manning's n is Channel not maintained, light brush on banks
08725> # Slope = 0.05% as per plan provided by Ariel.
08726> 299:0076---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08727>      ROUTE CHANNEL   -> 02:N1         79.17     4.254 No_date   12:20   56.96  n/a
08728>  *   [RT= 5.00] out<- 01:N2           79.17     3.440 No_date   12:35   56.96  n/a
08729>      [C/S/n=  305./ .060/.035]
08730>      (Vmax=  .356:Tmax= 1.851]
08731> # VOLUME from residential area at N3 interim
08732> 299:0077---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08733>      ADD HYD            01:FB7A       1.45      .183 No_date   12:05   55.40  n/a
08734>                       + 03:FB8        1.48      .192 No_date   12:05   52.95  n/a
08735>      [CC= 5.00]  SUM=  01:N3i         2.93      .375 No_date   12:05   54.13  n/a
08736> # Added VOLUME from external area contributing to N3
08737> 299:0078---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08738>      ADD HYD            02:FN1          79.17     3.440 No_data   12:35   56.96  n/a
08739>                       + 03:N3i        2.93      .329 No_data   12:05   54.16  n/a
08740>                       + 00:EX5        .52       .083 No_data   12:00   68.38  n/a
08741>                       + 04:EX8        .51       .064 No_data   12:00   56.54  n/a
08742>      [CC= 5.00]  SUM=  01:N3         87.03     3.593 No_data   12:35   56.49  n/a
08743> # ROUTE N3 to BC12B
08744> # Typical Section based on Shields MH Vee Ditch 3:1 Banks
08745> # provided by Ariel
08746> # Manning's n is Channel not maintained, light brush on banks
08747> # Slope = 0.05% as per plan provided by Ariel.
08748> 299:0079---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08749>      ROUTE CHANNEL   -> 02:N3         87.03     3.593 No_data   12:35   56.49  n/a
08750>  *   [RT= 5.00] out<- 01:BC1          87.03     3.020 No_data   12:40   52.99  n/a
08751>      [L/S/n=  415./ .060/.035]
08752>      [Vmax=  .356:Tmax= 1.761]
08753> # Flow at Station Node BCM.2B for comparison
08754> # Routed N3 plus EX3
08755> 299:0080---------------ID:NHYD       AREA     QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08756>      ADD HYD            02:NN3        87.03     3.020 No_data   12:40   55.59  n/a
08757>                       + 03:EX3        21.20     .982 No_data   12:45   50.45  n/a
08758>      [CC= 5.00]  SUM=  01:BC8128     108.23     3.995 No_data   12:40   54.84  n/a
08759> # AREA CHECK
08760> #
08761> 299:0081---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08762>      ADD HYD            02:EX1          84.52     3.006 No_data   12:05   51.01  n/a
08763>                       + 03:EX2        9.69      .514 No_data   12:30   50.10  n/a
08764>                       + 04:EX3        21.20     .982 No_data   12:45   50.45  n/a
08765>                       + 05:EX6        .50       .055 No_data   12:00   51.65  n/a
08766>                       + 06:EX5        .52       .083 No_data   12:00   68.38  n/a
08767>                       + 07:EX8        .51       .064 No_data   12:00   56.54  n/a
08768>                       + 00:EX7        .38       .053 No_data   12:00   55.65  n/a
08769>                       + 08:FR1A       .38       .039 No_data   12:00   59.68  n/a
08770>                       + 10:FR1B       .55       .053 No_data   12:00   59.68  n/a
08771>      [1= 5.00]  SUM=  01:BC8128      96.52     4.364 No_data   12:05   54.24  n/a
08772> 299:0082---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08773>      ADD HYD            03:Tot1         98.52     4.343 No_data   12:05   54.21  n/a
08774>                       + 01:FR2A       1.52      .201 No_data   12:00   59.68  n/a
08775>                       + 04:FR2B       1.17      .152 No_data   12:00   59.68  n/a
08776>                       + 05:FR3A       .45       .061 No_data   12:00   59.68  n/a
08777>                       + 06:FR3B       .52       .070 No_data   12:00   59.68  n/a
08778>                       + 07:FR4A       .71       .094 No_data   12:00   59.68  n/a
08779>                       + 08:FR4B       .60       .080 No_data   12:00   59.68  n/a
08780>                       + 09:FR5A       .66       .088 No_data   12:00   59.68  n/a
08781>                       + 10:FR5B       .46       .062 No_data   12:00   59.68  n/a
08782>      ET= 5.00]  SUM=  01:Tot2         84.7      5.161 No_data   12:05   54.75  n/a
08783> 299:0083---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08784>      ADD HYD            02:Tot2         84.7      5.161 No_data   12:05   54.75  n/a
08785>                       + 03:FR5A       1.43      .184 No_data   12:00   59.68  n/a
08786>                       + 04:FR5B       .93       .122 No_data   12:00   59.68  n/a
08787>                       + 05:FR7A       1.30      .167 No_data   12:05   55.40  n/a
08788>                       + 06:FR7B1      .30       .051 No_data   12:00   55.40  n/a
08789>                       + 07:FR7B2      .23       .037 No_data   12:00   55.40  n/a
08790>                       + 08:FR7C       .39       .056 No_data   12:05   55.40  n/a
08791>                       + 09:FR7C2      .17       .025 No_data   12:00   55.40  n/a
08792>                       + 10:FR7D       .49       .041 No_data   12:00   53.40  n/a
08793>      [2= 5.00]  SUM=  01:Tot3         89.86     5.822 No_data   12:05   54.95  n/a
08794> 299:0084---------------ID:NHYD-------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08795>      ADD HYD            02:Tot3         89.86     5.822 No_data   12:05   54.95  n/a
08796>                       + 03:FR8        1.38      .182 No_data   12:05   55.05  n/a
08797>                       + 04:ES8A       1.10      .130 No_data   12:00   52.95  n/a
08798>                       + 05:FR9B1      .35       .011 No_data   12:05   57.95  n/a
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                    +  06:PPSB2      1.00      .219 No_date   12:05   52.95  n/a
                    +  07:PPL3       1.00      .217 No_date   12:05   52.95  n/a
                    +  08:PPL4        .63      .075 No_date   12:05   52.95  n/a
                    +  09:PPL       4.28      .955 No_date   12:05   52.48  n/a
                    +  10:PPL       5.02     1.968 No_date   12:00   78.31  n/a
       [T= 5.00]  SUM=  01:Tot4     85.34     7.810 No_date   12:00   52.79  n/a
#99:0.85----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:Tot4     85.34     7.810 No_date   12:00   52.79  n/a
                    +  03:xIA        5.41      .882 No_date   12:10   50.48  n/a
                    +  04:R2A        3.15      .503 No_date   12:00   50.48  n/a
                    +  05:R2A        4.11      .567 No_date   12:05   50.10  n/a
                    +  06:R3S        7.21     1.754 No_date   12:05   50.48  n/a
       [T= 5.00]  SUM=  01:Tot5    104.23     9.816 No_date   12:05   50.53  n/a
#*------------------------------------------------------------------------
# Simulations with 4 hour Chicago from City of Ottawa
# also 24 hours type 2, from City of Ottawa
# simulations with July 1, 1979 Historical Event, City of Ottawa
** END OF RUN : 300


*------------------------------------------------------------------------
RUN:COMMAND4
 300:0001*------------------------------------------------------------------------
     START
       [TSER=      .08 hrs or        0]
       [METOUT=    2     (1=imperial, 2=metric output)]
       [NSTORM=    1 ]
       [NRUN  = 301 ]
#*------------------------------------------------------------------------
#  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#*------------------------------------------------------------------------
#  Project Name: (Greely Village Center)    Project Number: (647 07)
#  Date        : (4-02-2008
#  Modeller    : (JSB)
#  Company     : JFSAinc.
#  License #   : 2547402
#*------------------------------------------------------------------------
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate conditions, DPI:2M 2
# Filename stands for: GR2u2a = Greely, Residential, Phase 2, ultimate V2 with
#
#  December 15, 2008
#  "a" at the end of filename added July 1st 2009 Ryan
#*------------------------------------------------------------------------
 301:0002*------------------------------------------------------------------------
     READ STORM
       Filename = storm.00.
       Comment  = July 1st, 1979 Storm (SB) - Ottawa International Airport Sta
       [SDT= 5.00:SDUR=   1.00:PIOI=  83.98]
#*------------------------------------------------------------------------
# Existing flow - McEnoy Branch of Shirley Creek - Areas
# Area s/s of proposed development (residential)
# CN*=75, slope = 0.5, Tp=0.1h, XIMP=5, TIMP=5, see SC001 as per Stantec
# Area partially adjusted based on Atrel drawings.
#*------------------------------------------------------------------------
# s/s of Bank St.as per Atrel - with modified boundaries and to.
 10:0100*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    [MS:SM HASHYD      01:ex1       24.62     3.079 No_date    1:40   40.71 .465
     [CN= 75.0: N= 3.00]
     [Ia=  .29:ST= 5.00]
#*------------------------------------------------------------------------
# Existing flow - External areas s/s of Bank St.
# CN*=80, as per Stantec see SC001.
# Area partially adjusted based on Atrel drawings.
#*------------------------------------------------------------------------
# Areas External to development
 301:0007*----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:EX7        9.69     .606 No_date    2:10   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .3:SD= 5.00]
 301:0005*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:EX5       21.30     1.216 No_date    2:10   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .3:SD= 5.00]
# slope, Tlag, Area from Atrel Drawing
# CN from Stantec (SC001)
# Xlag = Tlag = 10
 301:0008*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX8        1.51     .059 No_date    1:40   39.89 .478
     [XIMP=.10:TIMP=.20]
     [ILOSS= 2 :CN= 69.0]
     [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
# Road and road side ditch along projected residential development Sales Barn Rd
# Tlag = Xlag = 0.09 ha /0.39 ha = 0.23
# CN*=89, as per Stantec see SC001.
# Slope is estimated at 1%
# Xlag = Tlag = 10
 301:0009*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX9         .39     .047 No_date    1:40   41.36 .492
     [XIMP=.10:TIMP=.25]
     [ILOSS= 2 :CN= 89.0]
     [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
# Areas to be occupied by commercial development.
# CN*=69, as per Stantec see SC001
 301:0010*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:R1A        0.41     .048 No_date    1:50   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .35:SD= 5.00]
 301:0011*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:R2A        3.17     .384 No_date    1:35   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .35:SD= 5.00]
 301:00__*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:R3A        4.14     .500 No_date    1:40   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .21:SD= 5.00]
 301:0013*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:R3B        2.21     .235 No_date    1:40   34.61 .412
     [CN= 69.0: N= 3.00]
     [Ia=  .35:SD= 5.00]
#*------------------------------------------------------------------------
#*------------------------------------------------------------------------
# PROPOSED RESIDENTIAL SUBWATERSHED - Residential Area Phase 1 and 2
#*------------------------------------------------------------------------
# CN*=89, as per Stantec see SC001.
# Tp estimated with Uplnd Method
 301:0014*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD      01:PR1        4.08     .500 No_date    1:40   34.61 .412
     [CN= 89.0: N= 3.00]
     [Ia=  .08:SD= 5.00]
#*------------------------------------------------------------------------
# AREAS GOING TO POND
#*------------------------------------------------------------------------
#
 301:0015*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PR1A        .24     .036 No_date    1:40   42.97 .501
     [XIMP=.21:TIMP=.21]
     [ILOSS= 2 :CN= 91.0]
     [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
 301:0016*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PR1B        .69     .088 No_date    1:40   42.97 .501
     [XIMP=.21:TIMP=.21]
     [ILOSS= 2 :CN= 91.0]
     [Pervious     area: IAper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
 301:00__*----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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 08965>      CALIB STANDHYD     01:FR2A        1.57      .189 Ds_date    1.40   42.07 .501
 08966>        [XIMP=.1:TIMP=.1]
 08967>        [LOSS= 2 :CN= 71.0]
 08968>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08969>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 08970> 301:0018--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 08971>  *  CALIB STANDHYD     01:FR2B        1.17      .112 Ds_date    1.40   42.07 .501
 08972>        [XIMP=.11:TIMP=.21]
 08973>        [LOSS= 2 :CN= 71.0]
 08974>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08975>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 08976> 301:0019--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 08977>  *  CALIB STANDHYD     01:FR3A         .45      .054 No_date    1:40   42.07 .501
 08978>        [XIMP=.11:TIMP=.21]
 08979>        [LOSS= 2 :CN= 71.0]
 08980>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08981>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 08982> 301:0020--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 08983>  *  CALIB STANDHYD     01:FR3B         .52      .064 No_date    1:40   42.07 .501
 08984>        [XIMP=.11:TIMP=.21]
 08985>        [LOSS= 2 :CN= 71.0]
 08986>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08987>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 08988> 301:0021--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 08989>  *  CALIB STANDHYD     01:FR4A         .71      .087 No_date    1:40   42.07 .501
 08990>        [XIMP=.11:TIMP=.21]
 08991>        [LOSS= 2 :CN= 71.0]
 08992>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08993>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 08994> 301:0022--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 08995>  *  CALIB STANDHYD     01:FR4B         .65      .080 Ds_date    1:40   42.07 .501
 08996>        [XIMP=.11:TIMP=.21]
 08997>        [LOSS= 2 :CN= 71.0]
 08998>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 08999>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09000> 301:0023--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09001>  *  CALIB STANDHYD     01:FR5A         .56      .081 Ds_date    1:40   42.07 .501
 09002>        [XIMP=.11:TIMP=.21]
 09003>        [LOSS= 2 :CN= 71.0]
 09004>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09005>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09006> 301:0024--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09007>  *  CALIB STANDHYD     01:FR5B         .46      .067 Ds_date    1:40   42.07 .501
 09008>        [XIMP=.11:TIMP=.21]
 09009>        [LOSS= 2 :CN= 71.0]
 09010>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09011>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09012> 301:0025--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09013>      CALIB STANDHYD     01:FR6A         .43      .059 No_date    1:40   42.07 .501
 09014>        [XIMP=.11:TIMP=.21]
 09015>        [LOSS= 2 :CN= 71.0]
 09016>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09017>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09018> 301:0026--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09019>  *  CALIB STANDHYD     01:FR6B         .91      .113 No_date    1:40   42.07 .501
 09020>        [XIMP=.11:TIMP=.21]
 09021>        [LOSS= 2 :CN= 71.0]
 09022>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09023>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09024> # slope estimator at 2% based on backyard swales.
 09025> # Ximp and Timp based on total pond area
 09026> # ximp = % pond/A for
 09027> # Timp = weighted average of pond and backyards
 09028> 301:0027--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09029>      CALIB STANDHYD     01:FR7A         5.08      .728 No_date    1:15   36.97 .503
 09030>        [XIMP=.44:TIMP=.47]
 09031>        [LOSS= 2 :CN= 71.0]
 09032>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09033>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09034> #*************************************************************************
 09035> # UNCONTROLLED AREAS
 09036> #*************************************************************************
 09037> #
 09038> 301:0028--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09039>  *  CALIB STANDHYD     01:FR7A         1.30      .152 No_date    1:40   38.24 .455
 09040>        [XIMP=.02:TIMP=.14]
 09041>        [LOSS= 2 :CN= 71.0]
 09042>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09043>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09044> 301:0029--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09045>  *  CALIB STANDHYD     01:FR7B1        .36      .042 No_date    1:40   38.21 .455
 09046>        [XIMP=.03:TIMP=.14]
 09047>        [LOSS= 2 :CN= 71.0]
 09048>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09049>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09050> 301:0030--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09051>  *  CALIB STANDHYD     01:FR7A2        .09      .014 No_date    1:40   38.24 .455
 09052>        [XIMP=.02:TIMP=.14]
 09053>        [LOSS= 2 :CN= 71.0]
 09054>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09055>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09056> 301:0031--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09057>  *  CALIB STANDHYD     01:FR7C1        .39      .046 No_date    1:40   38.24 .455
 09058>        [XIMP=.02:TIMP=.14]
 09059>        [LOSS= 2 :CN= 71.0]
 09060>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09061>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09062> 301:0032--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09063>  *  CALIB STANDHYD     01:FR7C2        .17      .020 No_date    1:40   38.24 .455
 09064>        [XIMP=.02:TIMP=.14]
 09065>        [LOSS= 2 :CN= 71.0]
 09066>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09067>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09068> 301:0033--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09069>  *  CALIB STANDHYD     01:FR7D         .58      .075 No_date    1:40   38.24 .455
 09070>        [XIMP=.02:TIMP=.14]
 09071>        [LOSS= 2 :CN= 71.0]
 09072>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09073>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09074> 301:0034--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09075>  *  CALIB STANDHYD     01:FR8          1.58      .146 No_date    1:40   38.26 .462
 09076>        [XIMP=.01:TIMP=.07]
 09077>        [LOSS= 2 :CN= 71.0]
 09078>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09079>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09080> 301:0035--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09081>  *  CALIB STANDHYD     01:FR9A         1.10      .117 No_date    1:40   38.25 .462
 09082>        [XIMP=.01:TIMP=.07]
 09083>        [LOSS= 2 :CN= 71.0]
 09084>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09085>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09086> 301:0036--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09087>  *  CALIB STANDHYD     01:FR9B1        .75      .079 No_date    1:40   38.25 .462
 09088>        [XIMP=.01:TIMP=.07]
 09089>        [LOSS= 2 :CN= 71.0]
 09090>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09091>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09092> 301:0037--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09093>  *  CALIB STANDHYD     01:FR9B2        1.00      .107 No_date    1:40   38.26 .462
 09094>        [XIMP=.01:TIMP=.07]
 09095>        [LOSS= 2 :CN= 71.0]
 09096>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09097>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09098> 301:0038--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09099>  *  CALIB STANDHYD     01:FR10         1.84      .193 No_date    1:40   38.25 .462
 09100>        [XIMP=.01:TIMP=.07]
 09101>        [LOSS= 2 :CN= 71.0]
 09102>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09103>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09104> 301:0039--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09105>  *  CALIB STANDHYD     01:FR11         .62      .067 No_date    1:40   36.25 .432
 09106>        [XIMP=.01:TIMP=.07]
 09107>        [LOSS= 2 :CN= 71.0]
 09108>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
 09109>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 09110> #*************************************************************************
 09111> # EXISTING flow - Upstream of Residential Area Phase 1 and 2
 09112> #*************************************************************************
 09113> # Typical Section based on proposed channel provided by AEL
 09114> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
 09115> # Route 2A2 to d/s node N2
 09116> 301:0040--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09117>      ROUTE CHANNEL   -> 02:RX1       24.62     3.079 No_date    1:40   40.7   n/a
 09118>        [EQC  5.00] outs= 01:PEX1      24.62     3.037 No_date    1:45   40.7   n/a
 09119>        [Sfact= 112.2 ,50%/,03%]
 09120>        [Vmax= 1.70:Tmax= .050]
 09121> # Total Flow at N-N2A
 09122> # (Note that N1A will be sheet draining to proposed channel)
 09123> 301:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
 09124>      ADD HYD           02:N1A         9.41      .881 No_date    1:50   34.61  n/a
 09125>                      + 03:R2A         1.15      .091 No_date    1:35   34.61  n/a
 09126>                      = 04:FR2A        1.19      .117 No_date    1:40   38.25  n/a
 09127>        [DT= 5.00]  SUM= 01:N2A       11.84     1.025 No_date    1:40   34.77  n/a
 09128> # Typical Section based on proposed channel provided by AEL
 09129> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
 09130> # Route SW draining at N-N2A to d/s node N2
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09131> 001:0012----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09132>      ROUTE CHANNEL    -> 02:KR2A       13.64     1.320 No_date     1:40    54.74  n/a
09133>        [RDT= 5.00] out<- 01:KNR2A      13.64     1.251 No_date     1:50    54.74  n/a
09134>        [L/S/n=  441./ .500/.030]
09135>        [Vmax=  .988:Dmax=  .449]
09136> # Total flow at node 2R
09137> #  Note that KR2 will be short drubing to proposed channel
09138> 001:0043----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09139>      ADD HYD            02:KNR2A      13.64     1.251 No_date     1:50    54.74  n/a
09140>                       + 03:KEX1       26.62     3.037 No_date     1:45    46.71  n/a
09141>                       + 04:EP3B1       .20      .028 No_date     1:40    36.26  n/a
09142>                       + 05:EP3B2      1.90      .107 No_date     1:40    36.35  n/a
09143>                       + 06:EX2        9.89      .636 No_date     1:10    34.61  n/a
09144>        [DT= 5.00]  SUM=  01:KO        49.40     4.817 No_date     1:45    37.73  n/a
09145> # Typical Section based on proposed channel provided by AEL
09146> # 4:1 bank slopes, long slope = 0.50%, Manning's n = 0.03
09147> # Route SW draining at KO to d/s node N-EX2
09148> 001:0044----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09149>      ROUTE CHANNEL    -> 02:KO         49.40     4.812 No_date     1:45    37.73  n/a
09150>        [RDT= 5.00] out<- 01:KNO        49.40     4.776 No_date     1:50    37.73  n/a
09151>        [L/S/n=  326./ .500/.030]
09152>        [Vmax= 1.340:Dmax=  .736]
09153> # Total flow at node N-EX2
09154> 001:0045----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09155>      ADD HYD            02:KO          49.40     4.776 No_date     1:50    37.73  n/a
09156>                       + 03:EP1C         1.84      .193 No_date     1:40    36.75  n/a
09157>        [DT= 5.00]  SUM=  01:KEX2       51.24     4.957 No_date     1:50    37.67  n/a
09158> # Route Node N-EX2 to Node P1
09159> # Typical Section based on Stirling MD Vee Ditch 3:1 sides
09160> # provided by Atrel
09161> # Manning's n is Channel not maintained, light brush on banks
09162> # Slope   0.35% as per plan provided by Atrel.
09163> 001:0046----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09164>      ROUTE CHANNEL    -> 02:KEX2       51.24     4.957 No_date     1:50    37.67  n/a
09165>  *     [RDT= 5.00] out<- 01:KNEX2      51.24     4.111 No_date     1:55    37.67  n/a
09166>        [L/S/n=  251./ .060/.035]
09167>        [Vmax=  .349:Dmax= 1.929]
09168> $*************************************************************************
09169> # Residential Development - Phase 1 and 2
09170> $*************************************************************************
09171> # Total flow at node N-P3B
09172> 001:0047----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09173>      ADD HYD            02:P3B           4.14      .460 No_date     1:40    34.61  n/a
09174>                       + 03:P1B           2.21      .235 No_date     1:40    34.61  n/a
09175>                       + 04:EX4            .50      .059 No_date     1:40    40.64  n/a
09176>        [DT= 5.00]  SUM=  01:N3B         6.85      .754 No_date     1:40    35.85  n/a
09177> # Route Node N3B to Node N-PK1
09178> # Typical Section based on McKay Branch Vee Ditch 1.5:1 slopes
09179> # provided by Atrel
09180> # Manning's n is Channel not maintained, light brush on banks
09181> # Slope = 0.60% approximately as per Atrel drawing 188-86.1/31a
09182> 001:0048----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09183>      ROUTE CHANNEL    -> 02:N3B        6.85      .754 No_date     1:40    35.85  n/a
09184>        [RDT= 5.00] out<- 01:KNN3B       6.85      .706 No_date     1:45    35.85  n/a
09185>        [L/S/n=  318./ .060/.050]
09186>        [Vmax=  .751:Dmax=  .814]
09187> # Total flow at node N-PK1
09188> 001:0049----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09189>      ADD HYD            03:PX1           4.04      .500 No_date     1:40    34.61  n/a
09190>                       + 03:NNEX3B        6.85      .706 No_date     1:45    35.86  n/a
09191>                       + 04:EU1A           .24      .020 No_date     1:40    42.07  n/a
09192>        [DT= 5.00]  SUM=  01:KPK1       11.13     1.196 No_date     1:45    36.84  n/a
09193> # Volume to ponding area in PK1
09194> # 0.0 535 m3/s required as per SCS 100yr Existing conditions
09195> # Culvert from inlet 1
09196> # Assuming out at culvert is 600 mm, slope = 1.2%, HDPE smooth walls
09197> # Manning's n = 0.012, inlet control nomograph
09198> # Dynamic head = 0.37, Q=0.6 0
09199> 001:0050----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09200>      COMPUTE DUALHYD    01:KPK1         11.13     1.196 No_date     1:45    36.84  n/a
09201>         Major System /  02:KPK1R         .00      .000 No_date     0:00     .00  n/a
09202>         Minor System \  03:KPK1R         11.13     .510 No_date     1:50    35.19  n/a
09203>        [MinSvol=.9425E+03, InitSvol=.0000E+00, MinDvF=     0, InitDvF=     0.0:0]
09204> # Input to Inlet 1 pipe
09205> 001:0051----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09206>      ADD HYD            01:FP1C          .55      .060 No_date     1:50    42.07  n/a
09207>                       + 01:EPEXP       11.13      .510 No_date     1:50    35.19  n/a
09208>        [DT= 5.00]  SUM=  01:In1        11.68      .570 No_date     1:40    35.46  n/a
09209> # Pipe from Inlet 1 - Route to pond
09210> # HDPE smooth wall pipe Manning's n   0.012
09211> 001:0052----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09212>      ROUTE PIPE       -> 02:In1        11.68      .570 No_date     1:40    35.46  n/a
09213>        [RDT= 5.00] out<- 01:Pin1       11.68      .564 No_date     1:40    35.47  n/a
09214>        [L/S/n=  65./1.000/.012]
09215>        [Vmax= 5.51:Dmax=  .083]
09216>        [D:n=  .600:Dused=  .600]
09217> # Culvert from Inlet 2
09218> # HDPE smooth wall pipe Manning's n = 0.012
09219> 001:0053----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09220>      ROUTE PIPE       -> 02:FP2A        1.57      .189 No_date     1:40    42.07  n/a
09221>        [RDT= 5.00] out<- 01:CIn2       1.57      .184 No_date     1:40    42.07  n/a
09222>        [L/S/n=  13./ .100/.012]
09223>        [Vmax= 1.498:Dmax=  .317]
09224>        [D:n=  .500:Dused=  .500]
09225> # Input to Inlet 2 pipe
09226> 001:0054----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09227>      ADD HYD            03:FP2B          .17      .042 No_date     1:40    42.07  n/a
09228>                       + 03:CIn2         1.57      .184 No_date     1:40    42.07  n/a
09229>        [DT= 5.00]  SUM=  01:In2         1.74      .330 No_date     1:40    42.07  n/a
09230> # Pipe from Inlet 2 - Route to pond
09231> # HDPE smooth wall pipe Manning's n = 0.012
09232> 001:0055----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09233>      ROUTE PIPE       -> 02:In2         1.74      .330 No_date     1:40    42.07  n/a
09234>  *     [RDT= 5.00] out<- 01:PIn2       1.74      .325 No_date     1:40    42.07  n/a
09235>        [L/S/n=  75./ .200/.012]
09236>        [Vmax= 1.036:Dmax=  .511]
09237>        [D:n=  .500:Dused=  .524]
09238> # Culvert from Inlet 3
09239> # HDPE smooth wall pipe Manning's n = 0.012
09240> 001:0056----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09241>      ROUTE PIPE       -> 02:FP3A         .45      .055 No_date     1:40    42.07  n/a
09242>        [RDT= 5.00] out<- 01:CIn3        .45      .055 No_date     1:40    42.07  n/a
09243>        [L/S/n=  13./ .100/.012]
09244>        [Vmax= 1.056:Dmax=  .153]
09245>        [D:n=  .200:Dused=  .500]
09246> # Input to Inlet 3 pipe
09247> 001:0057----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09248>      ADD HYD            02:FP3B          .52      .064 No_date     1:40    42.07  n/a
09249>                       + 03:CIn3         .45      .055 No_date     1:40    42.07  n/a
09250>        [DT= 5.00]  SUM=  01:In3         .97      .119 No_date     1:40    42.07  n/a
09251> # Pipe from Inlet 3 - Route to pond
09252> # HDPE smooth wall pipe Manning's n = 0.012
09253> 001:0058----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09254>      ROUTE PIPE       -> 02:In3         .97      .119 No_date     1:40    42.07  n/a
09255>        [RDT= 5.00] out<- 01:PIn3        .97      .114 No_date     1:40    42.07  n/a
09256>        [L/S/n=  75./ .200/.012]
09257>        [Vmax=  .993:Dmax=  .284]
09258>        [D:n=  .500:Dused=  .500]
09259> # Culvert from Inlet 4
09260> # HDPE smooth wall pipe Manning's n = 0.012
09261> 001:0059----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09262>      ROUTE PIPE       -> 02:FP4A         .27      .033 No_date     1:40    42.07  n/a
09263>        [RDT= 5.00] out<- 01:CIn4        .27      .033 No_date     1:40    42.07  n/a
09264>        [L/S/n=  13./ .100/.012]
09265>        [Vmax= 1.063:Dmax=  .159]
09266>        [D:n=  .500:Dused=  .500]
09267> # Input to Inlet 4 pipe
09268> 001:0060----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09269>      ADD HYD            02:FP4B          .65      .080 No_date     1:40    42.07  n/a
09270>                       + 03:CIn4         .72      .087 No_date     1:40    42.07  n/a
09271>        [DT= 5.00]  SUM=  01:In4         1.36      .166 No_date     1:40    42.07  n/a
09272> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
09273> # HDPE smooth wall pipe Manning's n = 0.012
09274> 001:0061----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09275>      ROUTE PIPE       -> 02:In4         1.36      .166 No_date     1:40    42.07  n/a
09276>        [RDT= 5.00] out<- 01:PIn4        1.36      .165 No_date     1:40    42.07  n/a
09277>        [L/S/n=  65./1.000/.012]
09278>        [Vmax= 1.491:Dmax=  .386]
09279>        [D:n=  .500:Dused=  .500]
09280> # Culvert from Inlet 5
09281> # HDPE smooth wall pipe Manning's n = 0.012
09282> 001:0062----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09283>      ROUTE PIPE       -> 02:FP5A         .68      .083 No_date     1:40    42.07  n/a
09284>        [RDT= 5.00] out<- 01:CIn5        .68      .083 No_date     1:40    42.07  n/a
09285>        [L/S/n=  13./ .100/.012]
09286>        [Vmax= 1.161:Dmax=  .192]
09287>        [D:n=  .500:Dused=  .500]
09288> # Input to Inlet 5 pipe
09289> 001:0063----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09290>      ADD HYD            02:FP5B          .44      .054 No_date     1:40    42.07  n/a
09291>                       + 03:CIn5         .68      .083 No_date     1:40    42.07  n/a
09292>        [DT= 5.00]  SUM=  01:In5         1.12      .137 No_date     1:40    42.07  n/a
09293> # Pipe from Inlet 5 - Route to pond
09294> # HDPE smooth wall pipe Manning's n = 0.012
09295> 001:0064----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09296>      ROUTE PIPE       -> 02:In5         1.12      .137 No_date     1:40    42.07  n/a
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       [ROC  5.00] out<- 01:Pin5        1.12     .136 No_data    1:40   42.07  n/a
       [L/S/n   75./ .200/.012]
       (Vmax= 2.222:Dmax=  .176)
       (Tim=  .500:Dmax=  .500)
* Culvert from Inlet 6
* HDPE smooth wall pipe Manning's n = 0.012
 SD:0c65----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:PR5A         1.48     .172 No_date    1:40   42.07  n/a
       [ROC= 5.00] out<- 01:Cin6         1.48     .172 No_date    1:40   42.07  n/a
       [L/S/n    13./ .200/.012]
       (Vmax= 1.410:Dmax=  .298)
       (Tim=  .500:Dmax=  .500)
* Input to Inlet 6 pipe
 SD:0c6b----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:PR6B          .93     .111 No_date    1:40   42.07  n/a
                      + 03:Cin6         1.83     .171 No_date    1:40   42.07  n/a
       [I= 5.00]  SUM=  01:In6          2.76     .282 No_date    1:40   42.07  n/a
* Pipe from Inlet 6 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 SD:0c67----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:In6          2.76     .282 No_date    1:40   42.07  n/a
*      [ROC= 5.00] out<- 01:rin6         2.76     .282 No_date    1:40   42.07  n/a
       [L/S/n    70./ .200/.012]
       (Vmax= 1.381:Dmax=  .446)
       (Tim=  .500:Dmax=  .547)
* VOLUME TO POND CLIMATE RESIDENTIAL
 SD:0c68----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:Pin1         11.80     .684 No_date    1:40   38.47  n/a
                      + 03:Pin2          2.74     .322 No_date    1:40   42.07  n/a
                      + 04:Pin3           .51     .118 No_date    1:40   42.07  n/a
                      + 05:Pin5          1.36     .265 No_date    1:40   42.07  n/a
                      + 06:Pin4          1.13     .176 No_date    1:40   42.07  n/a
                      + 07:Pin6          2.36     .238 No_date    1:40   42.07  n/a
                      + 08:PLL           5.03     .760 No_date    1:35   34.71  n/a
       [I= 5.00]  SUM=  01:POND1a       26.48    2.657 No_date    1:40   40.26  n/a
 SD:0c69----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:POND1a       26.48    2.657 No_date    1:40   40.26  n/a
       [ROC= 5.00] out<- 01:POout        26.48     .420 No_date    3:00   42.25  n/a
                 overflow <- 02:ovrQ       .00     .000 No_date    0:00     .00  n/a
      (MaxStorage=0.96E+00, InitVolVol=.00E+00, % Vol=    0, TotTarVol=     6.hrs)
* Simulating 2Yr 100 yr conditions with submergence of outflow weir
* Updated for weir .6; .6; 3.0
$ROUTE RESERVOIR     NHYDout ["POout"] ,NHYDin ["POND1a"] ;
*                    ROC=-5.0(min),
*                          TABLE or [ OUTFLOW-STORAGE ] values
*                                        (cms)    (ha-m)
*                                      [   0.0 ,   0.0 ]
*                                       0.03001 , 1.1209
*                                       0.20    , 1.5110
*                                       0.33    , 2.0195
*                                      [   -1  ,   -1  ]   (max twenty pts)
*                          NHYDout ["ovrQ"] ,
* Route pond output through first set of pipes
* 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 SD:0c72----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:POout       26.48     .420 No_date    3:00   42.25  n/a
       [ROC= 5.00] out<- 01:Pout1       26.48     .420 No_date    3:00   42.25  n/a
       [L/S/n    75./ .200/.012]
       (Vmax= 1.354:Dmax=  .481)
       (Tim=  .750:Dmax=  .780)
* Flow s/s of outlet culverts
 SD:0c73----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:PR7B1          .36     .042 No_date    1:40   38.24  n/a
                      + 03:PR7B2          .22     .026 No_date    1:40   38.24  n/a
                      + 04:Pout1        25.48     .420 No_date    3:00   42.25  n/a
       [I= 5.00]  SUM=  01:Pout         26.06     .425 No_date    3:00   42.16  n/a
* Route outflow through set of culverts
* 2 x 300 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
* HDPE smooth wall pipe Manning's n = 0.012
 SD:0c77----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout        26.06     .425 No_date    3:00   42.16  n/a
       [ROC= 5.00] out<- 01:Cout        26.06     .425 No_date    3:00   42.16  n/a
       [L/S/n    10./ .200/.012]
       (Vmax= 1.771:Dmax=  .591)
       (Tim=  .750:Dmax=  .780)
* Flow s/s of second set of outflow pipes
 SD:0c7a----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           03:PR7C1          .39     .046 No_date    1:40   38.24  n/a
                      + 03:PR7C2          .17     .020 No_date    1:40   38.24  n/a
                      + 04:Cout         26.06     .425 No_date    3:00   42.16  n/a
       [I= 5.00]  SUM=  01:Pout1        26.62     .430 No_date    3:00   42.07  n/a
* Route outflow through second set of pipes
* 2 x 450 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 SD:0c7b----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE PIPE      -> 02:Pout1       26.62     .430 No_date    3:00   42.07  n/a
       [ROC= 5.00] out<- 01:PoutF       26.62     .430 No_date    3:00   42.07  n/a
       [L/S/n    55./ .200/.012]
       (Vmax= 1.384:Dmax=  .489)
       (Tim=  .750:Dmax=  .750)
* Total flow at node N1 (Shield Rd along Kalex Farm Rd)
 SD:0d75----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:EXEX2         21.24    4.111 No_date    1:55   39.16  n/a
                      + 03:PoutF         26.62     .430 No_date    3:00   42.07  n/a
                      + 04:FX7           1.38     .047 No_date    1:40   41.49  n/a
                      + 05:rx7D           .38     .015 No_date    1:40   38.24  n/a
                      + 06:rx11           .82     .027 No_date    1:40   38.25  n/a
       [7F= 5.00]  SUM=  01:N1          79.17    4.469 No_date    1:55   39.16  n/a
* ROUTE N1 to N3
* Typical Section based on Shields MS Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* slope = 0.05% as per plan provided by Atrel
 SD:0d76----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1          79.17    4.469 No_date    1:55   39.16  n/a
*      [PEI= 5.00] out<- 01:PE1         79.17    4.785 No_date    2:10   39.16  n/a
       [L/S/n   349./ .050/.025]
       (Vmax=  .549:Dmax= 1.881)
* VOLUME from residential area at N3 Interim
 SD:0d77----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:EX7A           1.35     .122 No_date    1:40   38.24  n/a
                      + 03:FX7           1.38     .146 No_date    1:40   38.25  n/a
       [7= 5.00]  SUM=  01:N3            2.73     .298 No_date    1:40   37.94  n/a
* Added VOLUME from external area contributing to N3
 SD:0d78----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:PE1           79.17    4.785 No_date    2:10   39.16  n/a
                      + 03:N3            2.73     .298 No_date    1:40   37.94  n/a
                      + 04:EX5            .32     .073 No_date    1:40   40.01  n/a
                      + 05:EX6            .21     .059 No_date    1:40   40.89  n/a
       [3I= 5.00]  SUM=  01:N3          82.97    5.563 No_date    2:10   39.17  n/a
* ROUTE N3 to N2.2B
* Typical Section based on Shields MS Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 SD:0d79----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V. R.C.-
      ROUTE CHANNEL   -> 02:N3          82.97    5.563 No_date    2:10   39.17  n/a
*      [PEI= 5.00] out<- 01:PE3         82.98    5.929 No_date    2:20   39.17  n/a
       [L/S/n   415./ .050/.035]
       (Vmax=  .551:Dmax= 1.823)
* Flow at Station node NOR125 for comparison
* Routed N3 pipe EX5
 SD:0d7b----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:EN3           82.93    5.920 No_date    2:20   39.17  n/a
                        03:FX3           23.30    1.116 No_date    2:20   34.51  n/a
       [3I= 5.00]  SUM=  01:NCH.2B      106.23    6.917 No_date    2:20   38.24  n/a
* AREA CHECK
*
 SD:0d81----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           07:FX1           20.62    3.079 No_date    1:40   42.71  n/a
                      + 08:FX2            9.39     .606 No_date    2:10   34.81  n/a
                      + 04:EX4           31.10    1.116 No_date    2:20   34.51  n/a
                      + 05:EX6            .30     .059 No_date    1:40   40.00  n/a
                      + 06:EX5            .32     .073 No_date    1:40   40.01  n/a
                      + 07:EX6            .21     .059 No_date    1:40   40.89  n/a
                      + 08:FX7            .39     .047 No_date    1:40   41.39  n/a
                      + 09:rx1A           .08     .010 No_date    1:40   42.07  n/a
                      + 10:rx1B           .55     .006 No_date    1:40   42.07  n/a
       [3I= 5.00]  SUM=  01:Tot1        82.82    4.896 No_date    1:45   41.55  n/a
 SD:0d82----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:Tot1          82.82    4.896 No_date    1:45   41.55  n/a
                      + 03:FX7A           1.57     .189 No_date    1:40   42.07  n/a
                      + 04:FX7B           1.17     .142 No_date    1:40   42.07  n/a
                      + 05:rx3A           .45     .056 No_date    1:40   42.07  n/a
                      + 06:rx3B           .52     .064 No_date    1:40   42.07  n/a
                      + 07:FR4A           .71     .087 No_date    1:40   42.07  n/a
                      + 08:FR4B           .65     .080 No_date    1:40   42.07  n/a
                      + 09:FR5A           .66     .081 No_date    1:40   42.07  n/a
                      + 10:FR5B           .56     .057 No_date    1:40   42.07  n/a
       [3I= 5.00]  SUM=  01:Tot2        88.71    5.035 No_date    1:45   37.98  n/a
 SD:0d83----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      ADD HYD           02:Tot2          88.71    5.035 No_date    1:45   37.98  n/a
                      + 03:rx6A           1.44     .172 No_date    1:40   42.07  n/a
                      + 04:FR6A           .93     .113 No_date    1:40   42.07  n/a
                      + 05:FR7A          1.35     .152 No_date    1:40   38.24  n/a
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                    +  66:FR7B1        .36      .092 No data    1:40    18.29  n/a
                    +  67:FR7B2        .29      .076 No data    1:40    18.29  n/a
                    +  68:FR7C1        .19      .046 No data    1:40    18.29  n/a
                    +  69:FR7C2        .17      .039 No data    1:40    18.29  n/a
                    +  70:FR7D         .10      .015 No data    1:40    18.29  n/a
      [DT= 5.00   SUM=  01:7bl3      69.86    5.659 No data    1:45    38.13  n/a
201:0001----------------70:NDYD-------AREA----QPEAK-Tpeakmin hr:mn----R.V.-R.C.-
   ADD HYD            02:7bl3      69.86    5.659 No data    1:45    38.13  n/a
                    +  03:FR8        1.38      .146 No data    1:40    36.25  n/a
                    +  04:1R9A       1.10      .117 No data    1:40    36.25  n/a
                    +  05:1R9B1       .25      .028 No data    1:40    36.25  n/a
                    +  06:1R9B2      1.00      .107 No data    1:40    36.25  n/a
                    -  07:1R10       1.84      .193 No data    1:40    36.25  n/a
                    -  08:EP11        .62      .067 No data    1:40    36.25  n/a
                    -  09:EX1        4.26      .500 No data    1:10    34.61  n/a
                    -  10:EX2        5.01      .588 No data    1:5     58.71  n/a
      [DT= 5.00]  SUM=  01:Tot1     85.34    7.556 No data    1:40    38.89  n/a
201:0005----------------70:NDYD-------AREA----QPEAK-Tpeakmin hr:mn----R.V.-R.C.-
   ADD HYD            02:Tot4      85.34    7.556 No data    1:40    38.89  n/a
                    -  03:R1A        8.41      .881 No data    1:20    34.61  n/a
                    -  04:R2A        9.13      .994 No data    1:35    34.61  n/a
                    -  05:EX3        3.14      .460 No data    1:10    34.63  n/a
                    -  06:EX4        2.27      .335 No data    1:10    34.61  n/a
      [DT= 5.00]  SUM=  01:Tot5    104.23    9.434 No data    1:40    38.11  n/a
*-------------------------------------------------------------------------------
* Simulations with 6 hour Chicago from City of Ottawa
* and 24 hours type 2, from City of Ottawa
* Similarities with July 1, 1979 Historical Event, City of Ottawa
 201:0002
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
001:0036 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0037 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0038 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0039 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0040 DESIGN NASHYD
     *** WARNING: Time step is too large for value of TP.
                  R.V. may be ok.  Peak flow could be off.
001:0041 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0042 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0043 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0044 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0045 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0046 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0047 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0048 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0049 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0050 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0051 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0052 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0053 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0054 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0055 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0056 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0057 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0058 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0059 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0060 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0061 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0062 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
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09629>  002:0032 CALIB STANDHYD
09630>       *** WARNING: Storage Coefficient is smaller than DT!
09631>                    Use a smaller DT or a larger area.
09632>       *** WARNING: For areas with Impervious ratios below
09633>                    20%, this routine may not be applicable.
09634>  002:0033 CALIB STANDHYD
09635>       *** WARNING: Storage Coefficient is smaller than DT!
09636>                    Use a smaller DT or a larger area.
09637>       *** WARNING: For areas with Impervious ratios below
09638>                    20%, this routine may not be applicable.
09639>  002:0034 CALIB STANDHYD
09640>       *** WARNING: For areas with Impervious ratios below
09641>                    20%, this routine may not be applicable.
09642>  002:0035 CALIB STANDHYD
09643>       *** WARNING: For areas with Impervious ratios below
09644>                    20%, this routine may not be applicable.
09645>  002:0036 CALIB STANDHYD
09646>       *** WARNING: Storage Coefficient is smaller than DT!
09647>                    Use a smaller DT or a larger area.
09648>       *** WARNING: For areas with Impervious ratios below
09649>                    20%, this routine may not be applicable.
09650>  002:0037 CALIB STANDHYD
09651>       *** WARNING: For areas with Impervious ratios below
09652>                    20%, this routine may not be applicable.
09653>  002:0038 CALIB STANDHYD
09654>       *** WARNING: For areas with Impervious ratios below
09655>                    20%, this routine may not be applicable.
09656>  001:0039 CALIB STANDHYD
09657>       *** WARNING: Storage Coefficient is smaller than DT!
09658>                    Use a smaller DT or a larger area.
09659>       *** WARNING: For areas with Impervious ratios below
09660>                    20%, this routine may not be applicable.
09661>  005:0040 CALIB STANDHYD
09662>       *** WARNING: Storage Coefficient is smaller than DT!
09663>                    Use a smaller DT or a larger area.
09664>  005:0007 CALIB STANDHYD
09665>       *** WARNING: Storage Coefficient is smaller than DT!
09666>                    Use a smaller DT or a larger area.
09667>  005:0008 CALIB STANDHYD
09668>       *** WARNING: Storage Coefficient is smaller than DT!
09669>                    Use a smaller DT or a larger area.
09670>  005:0009 CALIB STANDHYD
09671>       *** WARNING: Storage Coefficient is smaller than DT!
09672>                    Use a smaller DT or a larger area.
09673>  005 0011 DESIGN HAGHYD
09674>       *** WARNING: Time step is too large for value of TP.
09675>                    R.V. may be ok.  Peak flow could be off.
09676>  005:0012 CALIB STANDHYD
09677>       *** WARNING: Storage Coefficient is smaller than DT!
09678>                    Use a smaller DT or a larger area.
09679>  005:0013 CALIB STANDHYD
09680>       *** WARNING: Storage Coefficient is smaller than DT!
09681>                    Use a smaller DT or a larger area.
09682>  005:0014 CALIB STANDHYD
09683>       *** WARNING: Storage Coefficient is smaller than DT!
09684>                    Use a smaller DT or a larger area.
09685>  005:0015 CALIB STANDHYD
09686>       *** WARNING: Storage Coefficient is smaller than DT!
09687>                    Use a smaller DT or a larger area.
09688>  005:0016 CALIB STANDHYD
09689>       *** WARNING: Storage Coefficient is smaller than DT!
09690>                    Use a smaller DT or a larger area.
09691>  005:0021 CALIB STANDHYD
09692>       *** WARNING: Storage Coefficient is smaller than DT!
09693>                    Use a smaller DT or a larger area.
09694>  005:0022 CALIB STANDHYD
09695>       *** WARNING: Storage Coefficient is smaller than DT!
09696>                    Use a smaller DT or a larger area.
09697>  005:0023 CALIB STANDHYD
09698>       *** WARNING: Storage Coefficient is smaller than DT!
09699>                    Use a smaller DT or a larger area.
09700>  005:0024 CALIB STANDHYD
09701>       *** WARNING: Storage Coefficient is smaller than DT!
09702>                    Use a smaller DT or a larger area.
09703>  005:0026 CALIB STANDHYD
09704>       *** WARNING: Storage Coefficient is smaller than DT!
09705>                    Use a smaller DT or a larger area.
09706>  005 0028 CALIB STANDHYD
09707>       *** WARNING: For areas with Impervious ratios below
09708>                    20%, this routine may not be applicable.
09709>  005:0029 CALIB STANDHYD
09710>       *** WARNING: Storage Coefficient is smaller than DT!
09711>                    Use a smaller DT or a larger area.
09712>       *** WARNING: For areas with Impervious ratios below
09713>                    20%, this routine may not be applicable.
09714>  005:0030 CALIB STANDHYD
09715>       *** WARNING: Storage Coefficient is smaller than DT!
09716>                    Use a smaller DT or a larger area.
09717>       *** WARNING: For areas with Impervious ratios below
09718>                    20%, this routine may not be applicable.
09719>  005:0031 CALIB STANDHYD
09720>       *** WARNING: Storage Coefficient is smaller than DT!
09721>                    Use a smaller DT or a larger area.
09722>       *** WARNING: For areas with Impervious ratios below
09723>                    20%, this routine may not be applicable.
09724>  005:0032 CALIB STANDHYD
09725>       *** WARNING: Storage Coefficient is smaller than DT!
09726>                    Use a smaller DT or a larger area.
09727>       *** WARNING: For areas with Impervious ratios below
09728>                    20%, this routine may not be applicable.
09729>  005:0033 CALIB STANDHYD
09730>       *** WARNING: Storage Coefficient is smaller than DT!
09731>                    Use a smaller DT or a larger area.
09732>       *** WARNING: For areas with Impervious ratios below
09733>                    20%, this routine may not be applicable.
09734>  005:0034 CALIB STANDHYD
09735>       *** WARNING: For areas with Impervious ratios below
09736>                    20%, this routine may not be applicable.
09737>  005:0035 CALIB STANDHYD
09738>       *** WARNING: Storage Coefficient is smaller than DT!
09739>                    Use a smaller DT or a larger area.
09740>       *** WARNING: For areas with Impervious ratios below
09741>                    20%, this routine may not be applicable.
09742>  005:0036 CALIB STANDHYD
09743>       *** WARNING: Storage Coefficient is smaller than DT!
09744>                    Use a smaller DT or a larger area.
09745>       *** WARNING: For areas with Impervious ratios below
09746>                    20%, this routine may not be applicable.
09747>  005:0037 CALIB STANDHYD
09748>       *** WARNING: Storage Coefficient is smaller than DT!
09749>                    Use a smaller DT or a larger area.
09750>       *** WARNING: For areas with Impervious ratios below
09751>                    20%, this routine may not be applicable.
09752>  005:0038 CALIB STANDHYD
09753>       *** WARNING: For areas with Impervious ratios below
09754>                    20%, this routine may not be applicable.
09755>  005:0039 CALIB STANDHYD
09756>       *** WARNING: Storage Coefficient is smaller than DT!
09757>                    Use a smaller DT or a larger area.
09758>       *** WARNING: For areas with Impervious ratios below
09759>                    20%, this routine may not be applicable.
09760>  010:0026 CALIB STANDHYD
09761>       *** WARNING: Storage Coefficient is smaller than DT!
09762>                    Use a smaller DT or a larger area.
09763>  010:0027 CALIB STANDHYD
09764>       *** WARNING: Storage Coefficient is smaller than DT!
09765>                    Use a smaller DT or a larger area.
09766>  010:0028 CALIB STANDHYD
09767>       *** WARNING: Storage Coefficient is smaller than DT!
09768>                    Use a smaller DT or a larger area.
09769>  010:0029 CALIB STANDHYD
09770>       *** WARNING: Storage Coefficient is smaller than DT!
09771>                    Use a smaller DT or a larger area.
09772>  010:0031 DESIGN HAGHYD
09773>       *** WARNING: Time step is too large for value of TP.
09774>                    R.V. may be ok.  Peak flow could be off.
09775>  010:0015 CALIB STANDHYD
09776>       *** WARNING: Storage Coefficient is smaller than DT!
09777>                    Use a smaller DT or a larger area.
09778>  010:0016 CALIB STANDHYD
09779>       *** WARNING: Storage Coefficient is smaller than DT!
09780>                    Use a smaller DT or a larger area.
09781>  010:0018 CALIB STANDHYD
09782>       *** WARNING: Storage Coefficient is smaller than DT!
09783>                    Use a smaller DT or a larger area.
09784>  010:0019 CALIB STANDHYD
09785>       *** WARNING: Storage Coefficient is smaller than DT!
09786>                    Use a smaller DT or a larger area.
09787>  010:0020 CALIB STANDHYD
09788>       *** WARNING: Storage Coefficient is smaller than DT!
09789>                    Use a smaller DT or a larger area.
09790>  010:0021 CALIB STANDHYD
09791>       *** WARNING: Storage Coefficient is smaller than DT!
09792>                    Use a smaller DT or a larger area.
09793>  010:0022 CALIB STANDHYD
09794>       *** WARNING: Storage Coefficient is smaller than DT!
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                    Use a smaller DT or a larger area.
  010:0028 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  010:0024 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  010:0025 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  010:0026 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  010:0027 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  010:0029 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0030 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0031 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0032 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0033 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0034 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0035 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0036 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  010:0037 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0008 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0009 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0010 DESIGN WARNING
       *** WARNING: Time step is too large for value of TP.
                    S.V. may be ok.  Peak flow could be off.
  025:0015 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0016 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0017 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0018 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0019 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0020 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0021 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0022 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0023 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0024 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0025 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0026 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  025:0028 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0029 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0030 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0031 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0032 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0033 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0034 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0035 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  025:0036 CALIB STANDHYD
       *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
       *** WARNING: For areas with impervious ratios below
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                    20%, this routine may not be applicable.
025:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0055 ROUTE PIPE     ->
     *** WARNING: New pipe size used for routing.
050:0006 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0007 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0008 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0011 DESIGN BASNYD
     *** WARNING: Time step is too large for value of TP.
                  R.V. may be ok.  Peak flow could be off.
050:0015 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0016 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0017 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0018 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0019 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0020 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0021 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0022 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0025 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0026 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0028 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0029 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0030 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0031 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0032 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0033 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0034 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0035 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0036 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0055 ROUTE PIPE     ->
     *** WARNING: New pipe size used for routing.
100:0006 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0007 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0008 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0009 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0011 DESIGN BASNYD
     *** WARNING: Time step is too large for value of TP.
                  R.V. may be ok.  Peak flow could be off.
100:0015 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0016 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0017 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0018 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0019 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0020 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0021 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
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                    Use a smaller DT or a larger area.
100:0022 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0023 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0024 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0025 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0026 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0027 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0028 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0029 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0030 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0031 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0032 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0033 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0034 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0035 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0036 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
100:0055 ROUTE PIPE     ->
     *** WARNING: New pipe size used for routing.
100:0057 ROUTE PIPE     ->
     *** WARNING: New pipe size used for routing.
202:0030 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0031 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0032 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0033 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0034 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0035 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0036 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0040 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0041 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0042 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0043 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0044 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0045 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0046 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0047 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0048 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0049 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0050 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0051 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0052 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0053 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0054 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0055 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0056 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0057 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0058 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0059 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0060 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0061 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0062 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0063 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0064 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0065 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0066 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0067 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0068 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0069 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0070 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0071 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0072 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0073 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0074 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0075 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0076 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0077 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0078 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0079 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0080 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0081 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0082 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0083 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0084 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0085 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0086 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0087 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0088 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
202:0089 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
205:0006 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
205:0007 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
205:0008 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
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                    Use a smaller DT or a larger area.
  205.0035 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0037 DWSTOR HASHYD
         *** WARNING: Time step is too large for value of TP.
                    R.V. may be ok.  Peak flow could be off.
  205:0040 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0018 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0019 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0020 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0021 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0027 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0023 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0024 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  205:0028 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0029 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0030 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0031 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0032 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0033 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0034 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0035 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0036 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0041 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0036 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  205:0039 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210.0006 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0007 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0038 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0005 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0011 DWSTOR HASHYD
         *** WARNING: Time step is too large for value of TP.
                    R.V. may be ok.  Peak flow could be off.
  210:0012 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0010 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0019 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0020 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0021 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0022 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0026 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
  210:0028 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0029 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0030 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0031 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0032 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0033 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0034 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0035 CALIB STANDHYD
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0036 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
  210:0037 CALIB STANDHYD
         *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
         *** WARNING: For areas with impervious ratios below
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10455>                    20%, this routine may not be applicable.
10456> 210:0038 CALIB STANDHYD
10457>       *** WARNING: For areas with impervious ratios below
10458>                    20%, this routine may not be applicable.
10459> 210:0039 CALIB STANDHYD
10460>       *** WARNING: Storage Coefficient is smaller than DT!
10461>                    Use a smaller DT or a larger area.
10462>       *** WARNING: For areas with impervious ratios below
10463>                    20%, this routine may not be applicable.
10464> 225:0006 CALIB STANDHYD
10465>       *** WARNING: Storage Coefficient is smaller than DT!
10466>                    Use a smaller DT or a larger area.
10467> 225:0007 CALIB STANDHYD
10468>       *** WARNING: Storage Coefficient is smaller than DT!
10469>                    Use a smaller DT or a larger area.
10470> 225:0008 CALIB STANDHYD
10471>       *** WARNING: Storage Coefficient is smaller than DT!
10472>                    Use a smaller DT or a larger area.
10473> 225:0009 CALIB STANDHYD
10474>       *** WARNING: Storage Coefficient is smaller than DT!
10475>                    Use a smaller DT or a larger area.
10476> 225:0011 DESIGN MANHYD
10477>       *** WARNING: Time step is too large for value of TP.
10478>                    R.V. may be ok.  Peak flow could be off.
10479> 225:0015 CALIB STANDHYD
10480>       *** WARNING: Storage Coefficient is smaller than DT!
10481>                    Use a smaller DT or a larger area.
10482> 225:0016 CALIB STANDHYD
10483>       *** WARNING: Storage Coefficient is smaller than DT!
10484>                    Use a smaller DT or a larger area.
10485> 225:0018 CALIB STANDHYD
10486>       *** WARNING: Storage Coefficient is smaller than DT!
10487>                    Use a smaller DT or a larger area.
10488> 225:0019 CALIB STANDHYD
10489>       *** WARNING: Storage Coefficient is smaller than DT!
10490>                    Use a smaller DT or a larger area.
10491> 225:0020 CALIB STANDHYD
10492>       *** WARNING: Storage Coefficient is smaller than DT!
10493>                    Use a smaller DT or a larger area.
10494> 225:0021 CALIB STANDHYD
10495>       *** WARNING: Storage Coefficient is smaller than DT!
10496>                    Use a smaller DT or a larger area.
10497> 225:0022 CALIB STANDHYD
10498>       *** WARNING: Storage Coefficient is smaller than DT!
10499>                    Use a smaller DT or a larger area.
10500> 225:0023 CALIB STANDHYD
10501>       *** WARNING: Storage Coefficient is smaller than DT!
10502>                    Use a smaller DT or a larger area.
10503> 225:0024 CALIB STANDHYD
10504>       *** WARNING: Storage Coefficient is smaller than DT!
10505>                    Use a smaller DT or a larger area.
10506> 225:0026 CALIB STANDHYD
10507>       *** WARNING: Storage Coefficient is smaller than DT!
10508>                    Use a smaller DT or a larger area.
10509> 225:0028 CALIB STANDHYD
10510>       *** WARNING: For areas with impervious ratios below
10511>                    20%, this routine may not be applicable.
10512> 225:0029 CALIB STANDHYD
10513>       *** WARNING: Storage Coefficient is smaller than DT!
10514>                    Use a smaller DT or a larger area.
10515>       *** WARNING: For areas with impervious ratios below
10516>                    20%, this routine may not be applicable.
10517> 225:0030 CALIB STANDHYD
10518>       *** WARNING: Storage Coefficient is smaller than DT!
10519>                    Use a smaller DT or a larger area.
10520>       *** WARNING: For areas with impervious ratios below
10521>                    20%, this routine may not be applicable.
10522> 225:0031 CALIB STANDHYD
10523>       *** WARNING: Storage Coefficient is smaller than DT!
10524>                    Use a smaller DT or a larger area.
10525>       *** WARNING: For areas with impervious ratios below
10526>                    20%, this routine may not be applicable.
10527> 225:0032 CALIB STANDHYD
10528>       *** WARNING: Storage Coefficient is smaller than DT!
10529>                    Use a smaller DT or a larger area.
10530>       *** WARNING: For areas with impervious ratios below
10531>                    20%, this routine may not be applicable.
10532> 225:0033 CALIB STANDHYD
10533>       *** WARNING: Storage Coefficient is smaller than DT!
10534>                    Use a smaller DT or a larger area.
10535>       *** WARNING: For areas with impervious ratios below
10536>                    20%, this routine may not be applicable.
10537> 225:0034 CALIB STANDHYD
10538>       *** WARNING: Storage Coefficient is smaller than DT!
10539>                    Use a smaller DT or a larger area.
10540>       *** WARNING: For areas with impervious ratios below
10541>                    20%, this routine may not be applicable.
10542> 225:0035 CALIB STANDHYD
10543>       *** WARNING: Storage Coefficient is smaller than DT!
10544>                    Use a smaller DT or a larger area.
10545>       *** WARNING: For areas with impervious ratios below
10546>                    20%, this routine may not be applicable.
10547> 225:0036 CALIB STANDHYD
10548>       *** WARNING: Storage Coefficient is smaller than DT!
10549>                    Use a smaller DT or a larger area.
10550>       *** WARNING: For areas with impervious ratios below
10551>                    20%, this routine may not be applicable.
10552> 225:0037 CALIB STANDHYD
10553>       *** WARNING: Storage Coefficient is smaller than DT!
10554>                    Use a smaller DT or a larger area.
10555>       *** WARNING: For areas with impervious ratios below
10556>                    20%, this routine may not be applicable.
10557> 225:0038 CALIB STANDHYD
10558>       *** WARNING: For areas with impervious ratios below
10559>                    20%, this routine may not be applicable.
10560> 225:0039 CALIB STANDHYD
10561>       *** WARNING: Storage Coefficient is smaller than DT!
10562>                    Use a smaller DT or a larger area.
10563>       *** WARNING: For areas with impervious ratios below
10564>                    20%, this routine may not be applicable.
10565> 225:0055 ROUTE PIPE    ->
10566>       *** WARNING: Pipe size used for routing.
10567> 250:0006 CALIB STANDHYD
10568>       *** WARNING: Storage Coefficient is smaller than DT!
10569>                    Use a smaller DT or a larger area.
10570> 250:0007 CALIB STANDHYD
10571>       *** WARNING: Storage Coefficient is smaller than DT!
10572>                    Use a smaller DT or a larger area.
10573> 250:0008 CALIB STANDHYD
10574>       *** WARNING: Storage Coefficient is smaller than DT!
10575>                    Use a smaller DT or a larger area.
10576> 250:0009 CALIB STANDHYD
10577>       *** WARNING: Storage Coefficient is smaller than DT!
10578>                    Use a smaller DT or a larger area.
10579> 250:0011 DESIGN MANHYD
10580>       *** WARNING: Time step is too large for value of TP.
10581>                    R.V. may be ok.  Peak flow could be off.
10582> 250:0015 CALIB STANDHYD
10583>       *** WARNING: Storage Coefficient is smaller than DT!
10584>                    Use a smaller DT or a larger area.
10585> 250:0016 CALIB STANDHYD
10586>       *** WARNING: Storage Coefficient is smaller than DT!
10587>                    Use a smaller DT or a larger area.
10588> 250:0018 CALIB STANDHYD
10589>       *** WARNING: Storage Coefficient is smaller than DT!
10590>                    Use a smaller DT or a larger area.
10591> 250:0019 CALIB STANDHYD
10592>       *** WARNING: Storage Coefficient is smaller than DT!
10593>                    Use a smaller DT or a larger area.
10594> 250:0020 CALIB STANDHYD
10595>       *** WARNING: Storage Coefficient is smaller than DT!
10596>                    Use a smaller DT or a larger area.
10597> 250:0021 CALIB STANDHYD
10598>       *** WARNING: Storage Coefficient is smaller than DT!
10599>                    Use a smaller DT or a larger area.
10600> 250:0022 CALIB STANDHYD
10601>       *** WARNING: Storage Coefficient is smaller than DT!
10602>                    Use a smaller DT or a larger area.
10603> 250:0023 CALIB STANDHYD
10604>       *** WARNING: Storage Coefficient is smaller than DT!
10605>                    Use a smaller DT or a larger area.
10606> 250:0024 CALIB STANDHYD
10607>       *** WARNING: Storage Coefficient is smaller than DT!
10608>                    Use a smaller DT or a larger area.
10609> 250:0025 CALIB STANDHYD
10610>       *** WARNING: Storage Coefficient is smaller than DT!
10611>                    Use a smaller DT or a larger area.
10612> 250:0026 CALIB STANDHYD
10613>       *** WARNING: Storage Coefficient is smaller than DT!
10614>                    Use a smaller DT or a larger area.
10615> 250:0028 CALIB STANDHYD
10616>       *** WARNING: Storage Coefficient is smaller than DT!
10617>                    Use a smaller DT or a larger area.
10618> 250:0029 CALIB STANDHYD
10619>       *** WARNING: For areas with impervious ratios below
10620>                    20%, this routine may not be applicable.
10621> 250:0030 CALIB STANDHYD
10622>       *** WARNING: Storage Coefficient is smaller than DT!
10623>                    Use a smaller DT or a larger area.
10624>
```

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10625>       *** WARNING: For areas with impervious ratios below
10626>                    20%, this routine may not be applicable.
10627> 250:0028 CALIB STANDHYD
10628>       *** WARNING: Storage Coefficient is smaller than DT!
10629>                    Use a smaller DT or a larger area.
10630>       *** WARNING: For areas with impervious ratios below
10631>                    20%, this routine may not be applicable.
10632> 250:0031 CALIB STANDHYD
10633>       *** WARNING: Storage Coefficient is smaller than DT!
10634>                    Use a smaller DT or a larger area.
10635>       *** WARNING: For areas with impervious ratios below
10636>                    20%, this routine may not be applicable.
10637> 250:0032 CALIB STANDHYD
10638>       *** WARNING: Storage Coefficient is smaller than DT!
10639>                    Use a smaller DT or a larger area.
10640>       *** WARNING: For areas with impervious ratios below
10641>                    20%, this routine may not be applicable.
10642> 250:0033 CALIB STANDHYD
10643>       *** WARNING: Storage Coefficient is smaller than DT!
10644>                    Use a smaller DT or a larger area.
10645>       *** WARNING: For areas with impervious ratios below
10646>                    20%, this routine may not be applicable.
10647> 250:0034 CALIB STANDHYD
10648>       *** WARNING: Storage Coefficient is smaller than DT!
10649>                    Use a smaller DT or a larger area.
10650>       *** WARNING: For areas with impervious ratios below
10651>                    20%, this routine may not be applicable.
10652> 250:0035 CALIB STANDHYD
10653>       *** WARNING: Storage Coefficient is smaller than DT!
10654>                    Use a smaller DT or a larger area.
10655>       *** WARNING: For areas with impervious ratios below
10656>                    20%, this routine may not be applicable.
10657> 250:0036 CALIB STANDHYD
10658>       *** WARNING: Storage Coefficient is smaller than DT!
10659>                    Use a smaller DT or a larger area.
10660>       *** WARNING: For areas with impervious ratios below
10661>                    20%, this routine may not be applicable.
10662> 250:0037 CALIB STANDHYD
10663>       *** WARNING: Storage Coefficient is smaller than DT!
10664>                    Use a smaller DT or a larger area.
10665>       *** WARNING: For areas with impervious ratios below
10666>                    20%, this routine may not be applicable.
10667> 250:0038 CALIB STANDHYD
10668>       *** WARNING: For areas with impervious ratios below
10669>                    20%, this routine may not be applicable.
10670> 250:0039 CALIB STANDHYD
10671>       *** WARNING: Storage Coefficient is smaller than DT!
10672>                    Use a smaller DT or a larger area.
10673>       *** WARNING: For areas with impervious ratios below
10674>                    20%, this routine may not be applicable.
10675> 250:0040 ROUTE PIPE      =>
10676>       *** WARNING: New pipe size used for routing.
10677> 250:0067 ROUTE PIPE      =>
10678>       *** WARNING: New pipe size used for routing.
10679> 299:0000 CALIB STANDHYD
10680>       *** WARNING: Storage Coefficient is smaller than DT!
10681>                    Use a smaller DT or a larger area.
10682> 299:0007 CALIB STANDHYD
10683>       *** WARNING: Storage Coefficient is smaller than DT!
10684>                    Use a smaller DT or a larger area.
10685> 299:0008 CALIB STANDHYD
10686>       *** WARNING: Storage Coefficient is smaller than DT!
10687>                    Use a smaller DT or a larger area.
10688> 299:0009 CALIB STANDHYD
10689>       *** WARNING: Storage Coefficient is smaller than DT!
10690>                    Use a smaller DT or a larger area.
10691> 299:0011 DESIGN NASHYD
10692>       *** WARNING: Time step is too large for value of TP.
10693>                    R.V. may be in.  Peak flow could be off.
10694> 299:0015 CALIB STANDHYD
10695>       *** WARNING: Storage Coefficient is smaller than DT!
10696>                    Use a smaller DT or a larger area.
10697> 299:0016 CALIB STANDHYD
10698>       *** WARNING: Storage Coefficient is smaller than DT!
10699>                    Use a smaller DT or a larger area.
10700> 299:0017 CALIB STANDHYD
10701>       *** WARNING: Storage Coefficient is smaller than DT!
10702>                    Use a smaller DT or a larger area.
10703> 299:0018 CALIB STANDHYD
10704>       *** WARNING: Storage Coefficient is smaller than DT!
10705>                    Use a smaller DT or a larger area.
10706> 299:0019 CALIB STANDHYD
10707>       *** WARNING: Storage Coefficient is smaller than DT!
10708>                    Use a smaller DT or a larger area.
10709> 299:0020 CALIB STANDHYD
10710>       *** WARNING: Storage Coefficient is smaller than DT!
10711>                    Use a smaller DT or a larger area.
10712> 299:0021 CALIB STANDHYD
10713>       *** WARNING: Storage Coefficient is smaller than DT!
10714>                    Use a smaller DT or a larger area.
10715> 299:0022 CALIB STANDHYD
10716>       *** WARNING: Storage Coefficient is smaller than DT!
10717>                    Use a smaller DT or a larger area.
10718> 299:0023 CALIB STANDHYD
10719>       *** WARNING: Storage Coefficient is smaller than DT!
10720>                    Use a smaller DT or a larger area.
10721> 299:0024 CALIB STANDHYD
10722>       *** WARNING: Storage Coefficient is smaller than DT!
10723>                    Use a smaller DT or a larger area.
10724> 299:0025 CALIB STANDHYD
10725>       *** WARNING: Storage Coefficient is smaller than DT!
10726>                    Use a smaller DT or a larger area.
10727> 299:0026 CALIB STANDHYD
10728>       *** WARNING: Storage Coefficient is smaller than DT!
10729>                    Use a smaller DT or a larger area.
10730> 299:0027 CALIB STANDHYD
10731>       *** WARNING: Storage Coefficient is smaller than DT!
10732>                    Use a smaller DT or a larger area.
10733>       *** WARNING: For areas with impervious ratios below
10734>                    20%, this routine may not be applicable.
10735> 299:0029 CALIB STANDHYD
10736>       *** WARNING: Storage Coefficient is smaller than DT!
10737>                    Use a smaller DT or a larger area.
10738>       *** WARNING: For areas with impervious ratios below
10739>                    20%, this routine may not be applicable.
10740> 299:0030 CALIB STANDHYD
10741>       *** WARNING: Storage Coefficient is smaller than DT!
10742>                    Use a smaller DT or a larger area.
10743>       *** WARNING: For areas with impervious ratios below
10744>                    20%, this routine may not be applicable.
10745> 299:0031 CALIB STANDHYD
10746>       *** WARNING: Storage Coefficient is smaller than DT!
10747>                    Use a smaller DT or a larger area.
10748>       *** WARNING: For areas with impervious ratios below
10749>                    20%, this routine may not be applicable.
10750> 299:0032 CALIB STANDHYD
10751>       *** WARNING: Storage Coefficient is smaller than DT!
10752>                    Use a smaller DT or a larger area.
10753>       *** WARNING: For areas with impervious ratios below
10754>                    20%, this routine may not be applicable.
10755> 299:0033 CALIB STANDHYD
10756>       *** WARNING: Storage Coefficient is smaller than DT!
10757>                    Use a smaller DT or a larger area.
10758>       *** WARNING: For areas with impervious ratios below
10759>                    20%, this routine may not be applicable.
10760> 299:0034 CALIB STANDHYD
10761>       *** WARNING: Storage Coefficient is smaller than DT!
10762>                    Use a smaller DT or a larger area.
10763>       *** WARNING: For areas with impervious ratios below
10764>                    20%, this routine may not be applicable.
10765> 299:0035 CALIB STANDHYD
10766>       *** WARNING: Storage Coefficient is smaller than DT!
10767>                    Use a smaller DT or a larger area.
10768>       *** WARNING: For areas with impervious ratios below
10769>                    20%, this routine may not be applicable.
10770> 299:0036 CALIB STANDHYD
10771>       *** WARNING: Storage Coefficient is smaller than DT!
10772>                    Use a smaller DT or a larger area.
10773>       *** WARNING: For areas with impervious ratios below
10774>                    20%, this routine may not be applicable.
10775> 299:0037 CALIB STANDHYD
10776>       *** WARNING: Storage Coefficient is smaller than DT!
10777>                    Use a smaller DT or a larger area.
10778>       *** WARNING: For areas with impervious ratios below
10779>                    20%, this routine may not be applicable.
10780> 299:0038 CALIB STANDHYD
10781>       *** WARNING: For areas with impervious ratios below
10782>                    20%, this routine may not be applicable.
10783> 299:0039 CALIB STANDHYD
10784>       *** WARNING: Storage Coefficient is smaller than DT!
10785>                    Use a smaller DT or a larger area.
10786>       *** WARNING: For areas with impervious ratios below
10787>                    20%, this routine may not be applicable.
10788> 299:0055 ROUTE PIPE      =>
10789>       *** WARNING: New pipe size used for routing.
10790> 299:0067 ROUTE PIPE      =>
```

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*** WARNING: New pipe size used for routing.
301:0008 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0007 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0008 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0009 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0011 DESIGN NASHYD
*** WARNING: Time steps is too large for value of IA.
R.V. may be ok.  Peak flow could be off.
301:0015 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0016 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0018 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0019 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0020 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0021 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0022 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0023 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0024 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0025 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
301:0024 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0025 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0026 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0027 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0028 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0029 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0030 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0031 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0032 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0033 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0034 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0035 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0036 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0037 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0038 CALIB STANDHYD
*** WARNING: Storage Coefficient is smaller than DT!
Use a smaller DT or a larger area.
*** WARNING: For areas with impervious ratios below
20%, this routine may not be applicable.
301:0039 ROUTE PIPE     ->
*** WARNING: New pipe size used for routing.
301:0040 ROUTE PIPE     ->
*** WARNING: New pipe size used for routing.
  Simulation ended on 2008-12-17     at 09:50:06
```

```
;;   Metric units / SI numbers OFF
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  SWMHYMO Ver:5.02/Jun 2001 <BETA> / INPUT DATA FILE
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  Project Name: [Greely Village Center]     Project Number: [647-07]
*  Date        : 01-09-2008
*  Modeller    : [CHF]
*  Company     : JFSAinc.
*  License #   :  2547402
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*
*  SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
*  Proposed Ultimate conditions. OPTION B
*  Filename stands for: Greely, Commercial, Proposed
*    x based on GRP%s = Greely, Residential, Phase 1, Ultimate v2 weir )
*
*                    THE COMMERCIAL POND WEIR IS: 0.45; 1.5; 3.0
*
*                              THIS MODEL USES CALIB STANDHYD
*            THE RESIDENTIAL POND IS CALIBRATED FOR ULTIMATE CONDITIONS
*                         THE RESIDENTIAL WEIR IS .6; .6; 3.0
*                          RUN TECHNOSS JULY 1, 1979 STORM.
*
*  EXISTING CONDITIONS ASSUMPTIONS:
*    CN*, R.XP, YINC,
*    as per Stantec Report: Oct. 2002: Greely Shield Creek, Stormwater
*    and drainage study.
*    and as per Area  drawing: Greely Village Area.dwg
*    as specified per subwatershed
*    Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
*      Imp calculated as per weighted average of Add.'s 8 coefficient on max otherwise noted
*    Developped Areas: CN* 71, as per soil type C and Open Spaces
*    with Fair grass cover (CN=79).
*    Predominant slope within area as per Arcel drawing.
*    Ximp = Timp = 0% to account for backyards unless otherwise noted.
*    Initial Abstraction (Ia) set to 4.0 mm for pervious surfaces, as per City standards
*    Initial Abstraction (Ia) set to 1.5) mm for impervious surfaces, as per City standards
*    Average lot lengths (LPI) from typical lot based on average lot size (10 m)
*    Average impervious lengths (LGI in STANDHYD based on A=1.5 LGI^2).
*    Average pervious slope (SLOP = 1 as default)
*    Average impervious slope (SLPI: 1 as default)
*    Average pervious roughness (RMP= 0.25 as default).
*    Average impervious roughness (RMI= 0.015 = weighted average of 0.013 for
*      roads x-length of 5.5m and 0.050 for pitch length over average lot width
*      of 35 m.)
*
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
START              TZERO=[0.0],   NRTOUT=[5],   NSTORM=[1],   IRAD=[1]
*                   ["%H2SMRA.STM"] <-storm filename, one per line for ESTORM size
*-------------------------------------------------------------------------------
READ STORM         STORM_FILE(MM) ["storm.001"]
*-------------------------------------------------------------------------------
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  Existing flow - Mahoney branch of Shield Creek - Areas
*  Area 2/3 of proposed development (residential)
*  CN*=75, slope = 0.8, Tp 0.16, XIMP 5, TIMP 10, see s1002 as per Stantec
*  Area partially adjusted based on Arcel drawings. Tp adjusted accordingly.
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  2/3 of Bank St.as per Arcel - with modified boundaries and Tp.
DESIGN BASEHYD     NHYD=["EX1"], DT=[1]min, AREA=[24.82]ha,
                   LNP=[0]mm, CN/C=[75], Tp=[0.23]hrs,
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------------------------------------------------------------------
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  Existing flow - External areas 2/3 of Bank St.
*  CN*=69, as per Stantec see s1001.
*  Area partially adjusted based on Arcel drawings.
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*  Areas External to development
*  Part of EX3 is to be developped in Phase 2 as area is smaller
DESIGN BASEHYD     NHYD=["EX3"], DT=[1]min, AREA=[21.36]ha,
                   LNP=[0]mm, CN/C=[69], Tp=[0.67]hrs,
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------------------------------------------------------------------
DESIGN BASEHYD     NHYD ["EX3"], DT [1]min, AREA [21.36]ha,
                   LNP=[0]mm, CN/C=[69], Tp=[0.67]hrs,
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END =1
*-------------------------------------------------------------------------------
*# Slope, Timp, Area from Arcel Drawing
*# CN from Stantec (SC001)
*# Ximp = Timp = 10
CALIB STANDHYD     NHYD=["EX3"], DT=[1]min, AREA=[0.5]ha,
                   XIMP=[0.11], TIMP=[0.20], DWF=[]cms, LOSS= 2,
                   SCS curve number CN [69],
                   Pervious   surfaces: [Aper-[1.67]ha, SLPP-[1]%,
                                        LNP=[40]mm, RMP=[0.25], SCP=[0]min],
                   Impervious surfaces: [Aimp=[1.5]ha, SLPI=[1]%,
                                        LGI=[57.7]m, RMI=[0.045], SCI=[0]min],
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Parkway Rd
*# Timp = Ximp = 0.21 ha /0.52 ha = 0.40
*# CN*=69, as per Stantec see s1001.
*# Slope is estimated at 1%
*# LGI based on centroid of area due to elongated shape = 800m/2 = 190
CALIB STANDHYD     NHYD ["EX3"], DT=[1]min, AREA=[0.52]ha,
                   XIMP=[0.40], TIMP=[0.40], DWF=[0]cms, LOSS=[2],
                   SCS curve number CN [69],
                   Pervious   surfaces: [Aper-[1.67]ha, SLPP-[1]%,
                                        LNP=[40]mm, RMP=[0.25], SCP=[0]min],
                   Impervious surfaces: [Aimp=[1.5]ha, SLPI=[1]%,
                                        LGI=[80]m, RMI=[0.045], SCI=[0]min],
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Salesharn Rd
*# Timp = Ximp = 0.1 ha /0.51 ha = 0.20
*# CN*=69, as per Stantec see s1001.
*# Slope is estimated at 1%
*# LGI based on centroid of area due to elongated shape = 350m/2 = 175
CALIB STANDHYD     NHYD ["EX5"], DT=[1]min, AREA=[0.51]ha,
                   XIMP=[0.20], TIMP=[0.20], DWF=[0]cms, LOSS=[2],
                   SCS curve number CN [69],
                   Pervious   surfaces: [Aper-[1.67]ha, SLPP-[1]%,
                                        LNP=[40]mm, RMP=[0.25], SCP=[0]min],
                   Impervious surfaces: [Aimp=[1.5]ha, SLPI=[1]%,
                                        LGI=[175]m, RMI=[0.045], SCI=[0]min],
                   RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Road and road side ditch along projected residential development Salesharn Rd
*# Timp = Ximp = 0.00 ha /0.38 ha = 0.00
*# CN*=69, as per Stantec see s1001.
*# Slope is estimated at 1%
*# LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
CALIB STANDHYD     NHYD=["EX5"], DT=[1]min, AREA=[0.38]ha,
                   XIMP=[0.00], TIMP=[0.00], DWF=[0]cms, LOSS=[2],
                   SCS curve number CN=[69],
                   Pervious   surfaces: [Aper-[4.67]ha, SLPP=[1]%,
                                        LNP=[40]mm, RMP=[0.25], SCP= 0 min],
                   Impervious surfaces: [Simp [1.5]ha, SLPI=[1]%,
                                        LGI [137]m, RMI=[0.045], SCI=[0]min],
                   RAINFALL=[ ,  ,  ,  ,  ]mm/hr,  END =-1
*-------------------|-----------------------------------------------------------
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*# PROPOSED COMMERCIAL DEVELOPMENT
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*# CN = 79 as per fair grass cover with C soil type for top soil: CN*=71
*# XIMP = 1.8% to be conservative
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
DESIGN STANDHYD    NHYD ["C1"], DT=[1]min, AREA=[8.30]ha,
                   XIMP=[0.63], TIMP [0.63], DWF=[0]cms, LOSS=2, CN=[71],
                   SLOPE=[1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
DESIGN STANDHYD    NHYD=["C2"], DT=[1]min, AREA=[6.34]ha,
                   XIMP [0.79], TIMP=[0.79], DWF=[0]cms, LOSS= 2, CN=[71],
                   SLOPE=[1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Proposed channel, uncontrolled area
DESIGN STANDHYD    NHYD= "C3", DT [1]min, AREA [0.24]ha,
                   XIMP= 0.90, TIMP=[0.65], DWF [0]cms, LOSS=[2], CN=[74],
                   SLOPE=[1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Imp = Imp ha/total area = 0.58/1.10 ha = .57
DESIGN STANDHYD    NHYD=["EXC1"], DT=[1]min, AREA=[1.10]ha,
                   XIMP=[.27], TIMP=[.27], DWF=[0]cms, LOSS=[0], CN=[71],
                   SLOPE [1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
*# Imp = Imp ha/total area = 0.35/1.07 ha =  35
DESIGN STANDHYD    NHYD=["EXC2"], DT [1]min, AREA [1.07]ha,
                   XIMP=[.35], TIMP=[.35 , DWF= 0 cms, LOSS [2], CN [71],
                   SLOPE=[1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END =-1
*-------------------|-----------------------------------------------------------
*#  Imp =  Imp ha/total area = 0.11/0.22ha = .50
DESIGN STANDHYD    NHYD=["EXC3"], DT [1]min, AREA=[0.22]ha,
                   XIMP=[.50], TIMP=[.50 , DWF=[0]cms, LOSS=[2], CN=[71],
                   SLOPE=[1]%, RAINFALL=[ ,  ,  ,  ,  ]mm/hr, END=-1
*-------------------|-----------------------------------------------------------
```

```
00167> *#-------------------------------------------------------------------------
00168> *# Commercial pond (CP8)
00169> *# slope estimated at 1 : based on elevations around pond.
00170> *# Timp and Ximp based on total pond area
00171> *# ximp = A pond/A tot [1.04/1.57]
00172> DESIGN STANDARD1     hydg-["CP8"], DT=[1](min), AREA=[1.57](ha),
00173>                      XIMP=[0.67], TIMP=[0.67], DWF=[0](cms), LOSS=[2], CN=(71 ,
00174>                      SLOPE-[1](%), RAINFALL-[ , , , , ](mm/hr), END=-1
00175> *------------------|-------------------------------------------------------|
00176> *************************************************************************
00177> *#-------------------------------------------------------------------------
00178> *# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
00179> *#-------------------------------------------------------------------------
00180> *# CN=69, as per Stantec see SCC01.
00181> *# Tp calculated with Up and Method.
00182> DESIGN HASHYD       hdyg-["P_R1"], DT=[1](min), AREA=[6.26](ha),
00183>                      DWF=[0](cms), LOSS=[69], Tp=[0.18 hrs,
00184>                      RAINFALL=[ , , , , ](mm/hr), END=-1
00185> *------------------|-------------------------------------------------------|
00186> *#-------------------------------------------------------------------------
00187> *# AREAS GOING TO RESIDENTIAL POND (P3A)
00188> *#-------------------------------------------------------------------------
00189> *#
00190> CALIB STANDHYD      NHYD=["P_R1A"], DT=[1](min), AREA=[0.24](ha),
00191>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00192>                      SCS curve number CN=[71],
00193>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00194>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00195>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00196>                                           LGI=[40.0](m), MNI=[0.045], SCI=[0](min),
00197>                      RAINFALL-[ , , , , ](mm/hr) , END=-1
00198> *------------------|-------------------------------------------------------|
00199> CALIB STANDHYD      NHYD=["P_R1B"], DT=[1](min), AREA=[0.55](Ha),
00200>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00201>                      SCS curve number CN=[71],
00202>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00203>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00204>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00205>                                           LGI=[60.6](m), MNI=[0.045], SCI=[0](min),
00206>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00207> *------------------|-------------------------------------------------------|
00208> CALIB STANDHYD      NHYD=["P_R2A"], DT=[1](min), AREA=[1.57](Ha),
00209>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00210>                      SCS curve number CN=[71],
00211>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00212>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00213>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00214>                                           LGI=[102.9](m), MNI=[0.045], SCI=[0](min),
00215>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00216> *------------------|-------------------------------------------------------|
00217> CALIB STANDHYD      NHYD=["P_R2B"], DT=[1](min), AREA=[1.17](Ha),
00218>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00219>                      SCS curve number CN=[71],
00220>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00221>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00222>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00223>                                           LGI=[85.5](m), MNI=[0.045], SCI=[0](min),
00224>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00225> *------------------|-------------------------------------------------------|
00226> CALIB STANDHYD      NHYD=["P_R3A"], DT=[1](min), AREA=[0.45](Ha),
00227>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00228>                      SCS curve number CN [71],
00229>                      Pervious   surfaces: IAper [4.67](mm), SLPP=[1](%),
00230>                                           LGP=[40](m), MNP=[0.25], SCP [0](min),
00231>                      Impervious surfaces: IAimp=[1.57] (mm), SLPI=[1](%),
00232>                                           LGI=[54.8](m), MNI=[0.045], SCI=[0 (min),
00233>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00234> *------------------|-------------------------------------------------------|
00235> CALIB STANDHYD      NHYD=["P_R3B"], DT=[1](min), AREA=[0.52](Ha),
00236>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS [2],
00237>                      SCS curve number CN=[71],
00238>                      Pervious   surfaces: IAper=[4.67 (mm), SLPP=[1](%),
00239>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00240>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00241>                                           LGI=[54.2](m), MNI=[0.045], SCI=[0 (min),
00242>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00243> *------------------|-------------------------------------------------------|
00244> CALIB STANDHYD      NHYD=["P_R4A"], DT=[1](min), AREA=[0.71](Ha),
00245>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00246>                      SCS curve number CN=[71],
00247>                      Pervious   surfaces: IAper [4.67](mm), SLPP=[1](%),
00248>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00249>                      Impervious surfaces: IAimp=[1.57 (mm), SLPI=[1](%),
00250>                                           LGI=[68.8](m), MNI=[0.045], SCI=[0](min),
00251>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00252> *------------------|-------------------------------------------------------|
00253> CALIB STANDHYD      NHYD=["P_R4B"], DT=[1](min), AREA=[0.65](Ha),
00254>                      XIMP=[0.11], TIMP=[0.21], DWF [0](cms), LOSS=[2],
00255>                      SCS curve number CN=[7 ],
00256>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00257>                                           LGP=[40](m), MNP=[0.25], SCP [0](min),
00258>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00259>                                           LGI=[68.8](m), MNI=[0.045], SCI [0](min),
00260>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00261> *------------------|-------------------------------------------------------|
00262> CALIB STANDHYD      NHYD=["P_R5A"], DT=[1](min), AREA=[0.66](Ha),
00263>                      XIMP=[0.11], TIMP=[0.2 ], DWF=[0 (cms), LOSS=[2],
00264>                      SCS curve number CN=[7 ],
00265>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00266>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00267>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00268>                                           LGI=[68.8](m), MNI=[0.045], SCI=[0](min),
00269>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00270> *------------------|-------------------------------------------------------|
00271> CALIB STANDHYD      NHYD=["P_R5B"], DT=[1](min), AREA=[0.48](Ha),
00272>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00273>                      SCS curve number CN=[7 ],
00274>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00275>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00276>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00277>                                           LGI=[55.4](m), MNI=[0.045], SCI=[0](min),
00278>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00279> *------------------|-------------------------------------------------------|
00280> CALIB STANDHYD      NHYD=["P_R6A"], DT=[1](min), AREA=[1.42](Ha),
00281>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00282>                      SCS curve number CN=[7 ],
00283>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00284>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00285>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00286>                                           LGI=[88.0](m), MNI=[0.045], SCI=[0](min),
00287>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00288> *------------------|-------------------------------------------------------|
00289> CALIB STANDHYD      NHYD=["P_R6B"], DT=[1](min), AREA=[0.97](Ha),
00290>                      XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
00291>                      SCS curve number CN=[71],
00292>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00293>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00294>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00295>                                           LGI=[68.8](m), MNI=[0.045], SCI=[0](min),
00296>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00297> *------------------|-------------------------------------------------------|
00298> *# slope estimated at 2% based on backyard swm ex.
00299> *# Timp and Ximp based on total pond area
00300> *# ximp = A pond/A tot
00301> *# timp = weighted average of pond and backyards
00302> CALIB STANDHYD      NHYD=["P_R7"], DT=[1](min), AREA=[3.63](Ha),
00303>                      XIMP=[0.44], TIMP=[0.47], DWF=[0](cms), LOSS=[2],
00304>                      SCS curve number CN=[71],
00305>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00306>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00307>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00308>                                           LGI=[83.1](m), MNI=[0.045], SCI=[0](min),
00309>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00310> *------------------|-------------------------------------------------------|
00311> *#-------------------------------------------------------------------------
00312> *# UNCONTROLLED AREAS
00313> *#-------------------------------------------------------------------------
00314> *#
00315> CALIB STANDHYD      NHYD=["P_R1A"], DT=[1](min), AREA [1.35](Ha),
00316>                      XIMP=[0.02], TIMP=[0.16], DWF=[0](cms), LOSS [2],
00317>                      SCS curve number CN=[71],
00318>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00319>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00320>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00321>                                           LGI [61.9](m), MNI [0.045], SCI=[0](min),
00322>                      RAINFALL=[ , , , , ](mm/hr) , END -1
00323> *------------------|-------------------------------------------------------|
00324> CALIB STANDHYD      NHYD=["P_R2A"], DT=[1](min), AREA=[0.35](Ha),
00325>                      XIMP=[0.02], TIMP=[0.16], DWF=[0](cms), LOSS=[2],
00326>                      SCS curve number CN=[71],
00327>                      Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00328>                                           LGP=[40](m), MNP=[0.25], SCP=[0](min),
00329>                      Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00330>                                           LGI [49.0](m), MNI=[0.045], SCI=[0](min),
00331>                      RAINFALL=[ , , , , ](mm/hr) , END=-1
00332> *------------------|-------------------------------------------------------|
```

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00332> CALIB STANDHYD     RHYD ["FR7B2"], DT=[1](min), AREA=[0.22](ha),
00333>                    XIMP=[0.02], TIMP=[0.02], DWF=[0](cms), LOSS=[2],
00334>                    SCS curve number CN=[71],
00335>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00336>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00337>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00338>                                         LGI=[38.3](m), MNI=[0.045], SCI=[0](min),
00339>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END= .
00340> *|-----------------|-------------------------------------------------------|
00341> CALIB STANDHYD     RHYD=["FR7SC"], DT=[1](min), AREA=[0.39](ha),
00342>                    XIMP=[0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00343>                    SCS curve number CN=[71],
00344>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00345>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00346>                    Impervious surfaces: IAimp [1.57](mm), SLPI=[1](%),
00347>                                         LGI=[51.6](m), MNI=[0.045], SCI=[0 (min],
00348>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00349> *|-----------------|-------------------------------------------------------|
00350> CALIB STANDHYD     RHYD=["FR7SW"], DT=[1](min), AREA=[0.47](ha),
00351>                    XIMP=[0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00352>                    SCS curve number CN=[71],
00353>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00354>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00355>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00356>                                         LGI=[32.7](m), MNI=[0.045], SCI=[0](min),
00357>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00358> *|-----------------|-------------------------------------------------------|
00359> CALIB STANDHYD     RHYD=["FR7E"], DT=[1](min), AREA=[0.30](ha),
00360>                    XIMP=[0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00361>                    SCS curve number CN=[71],
00362>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00363>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00364>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00365>                                         LGI=[44.7](m), MNI=[0.045], SCI=[0](min),
00366>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00367> *|-----------------|-------------------------------------------------------|
00368> CALIB STANDHYD     RHYD=["FR8"], DT=[1](min), AREA=[1.38](ha),
00369>                    XIMP=[0.02], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00370>                    SCS curve number CN=[71],
00371>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00372>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00373>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00374>                                         LGI=[89.9](m), MNI=[0.045], SCI=[0](min),
00375>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00376> *|-----------------|-------------------------------------------------------|
00377> CALIB STANDHYD     RHYD=["FR9A"], DT=[1](min), AREA=[1.16](ha),
00378>                    XIMP=[0.02], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00379>                    SCS curve number CN=[71],
00380>                    Pervious   surfaces: IAper=[4.67](mm), SLPP [1](%),
00381>                                         LGP [40](m), MNP [0.25], SCP [0](min),
00382>                    Impervious surfaces: IAimp [1.57](mm), SLPI [1](%),
00383>                                         LGI=[85.6](m), MNI=[0.045], SCI=[0](min),
00384>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00385> *|-----------------|-------------------------------------------------------|
00386> CALIB STANDHYD     RHYD= ["FR9B"], DT=[1](min), AREA=[2.25](ha),
00387>                    XIMP=[0.02], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00388>                    SCS curve number CN=[71],
00389>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00390>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00391>                    Impervious surfaces: IAimp [1.57](mm), SLPI [1](%),
00392>                                         LCI [80.8](m), MNI [0.045], SCI=[0](min),
00393>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00394> *|-----------------|-------------------------------------------------------|
00395> CALIB STANDHYD     RHYD= ["FR9B2"], DT=[1](min), AREA=[1.36](ha),
00396>                    XIMP [0.02], TIMP [0.07], DWF=[0](cms), LOSS=[2],
00397>                    SCS curve number CN=[71],
00398>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00399>                                         LGP=[40](m), MNP=[0.25], SCP [0](min),
00400>                    Impervious surfaces: IAimp=[1.57](mm), SLPI [1](%),
00401>                                         LCI [80.8](m), MNI [0.045], SCI=[0 (min],
00402>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00403> *|-----------------|-------------------------------------------------------|
00404> *| Area modified as per boundary on ALL CAD dwg for proposed commercial Devel.
00405> *| [was 1.54 ha]
00406> CALIB STANDHYD     RHYD ["FR10"], DT=[1](min), AREA=[1.17](ha),
00407>                    XIMP=[0.02], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00408>                    SCS curve number CN=[71],
00409>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00410>                                         LGP=[40](m), MNP [0.25], SCP [0](min),
00411>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00412>                                         LGI=[ 38.8 (m), MNI=[0.045], SCI=[0](min),
00413>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00414> *|-----------------|-------------------------------------------------------|
00415> CALIB STANDHYD     NHYD=["FR11"], DT=[1](min), AREA=[0.62](ha),
00416>                    XIMP=[0.02], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00417>                    SCS curve number CN=[71],
00418>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00419>                                         LGP= 40](m), MNP=[0.25], SCP=[0](min),
00420>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00421>                                         LGI=[64.3](m), MNI=[0.045], SCI=[0](min),
00422>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00423> *|-----------------|-------------------------------------------------------|
00424> *|*****************************************************************************
00425> *| EXISTING Flow - Upstream of Proposed Development
00426> *|*****************************************************************************
00427> *| Total flow at node N-EX1
00428> ADD HYD             HYDname="NEX1", NHYDs to add=["EX1"+"EXC1"+"EXC2"]
00429> *|-----------------|-------------------------------------------------------|
00430> *| Typical  Section based on proposed channel provided by AEL
00431> *| 4:1 bank slopes, Long Slope = 0.05%, Manning's n is 0.07
00432> *| Route Node N-EX1 to D/S node N0
00433> ROUTE CHANNEL       RHYDout=["RHEX1"] ,RHYDin=["NEX1"] ,
00434>                    RDT [1](min),
00435>                    CHLNTH=[ 317](m),  CRSTOPS=[0.05](-),
00436>                                       FPSLOPE=[0.05](-),
00437>                    SECNUM=[1],       NSEG=[1]
00438>                    | SECNUMBER, SECDIST (m)-[0.03,10.0] NSEG times
00439>                    | DISTANCE (m), ELEVATION (m)-[0,     101.13]
00440>                                                 [ 4.5,  100.63]
00441>                                                 [ 5.5,  100.63]
00442>                                                 [ 10.0, 101.13]
00443> *|-----------------|-------------------------------------------------------|
00444> *|*****************************************************************************
00445> *| TOTAL INFLOW TO COMMERCIAL POND FR6
00446> *|*****************************************************************************
00447> ADD HYD             NHYDsum=["FR6A"], NHYDs to add=["EX4"+"C11"+"C8"+"FR6"]
00448> *|-----------------|-------------------------------------------------------|
00449> ROUTE RESERVOIR     RHYDout ["RPOut"] ,RHYDin=["FR6A"] ,
00450>                    RDT [1](min),
00451>                         TABLE of ( OUTFLOW-STORAGE ) values
00452>                                  (cms) - (ha-m)
00453>                                  (   0.0 ,  0.0 )
00454>  0.0084   0.0651
00455>  0.0121   0.0658
00456>  0.0233   0.1046
00457>  0.0541   0.1575
00458>  0.1056   0.2178
00459>  0.1812   0.2668
00460>  0.2648   0.3165
00461>  0.3257   0.3729
00462>  0.4392   0.4278
00463>  0.5810   0.4930
00464>  0.7574   0.5356
00465>  0.9438   0.5905
00466>  1.1556   0.6509
00467>  1.3830   0.6822
00468>  1.2946   0.7076
00469>  1.0118   0.7847
00470>  2.5411   0.9382
00471>
00472>                                 |   -1  ,  -1  |  max twenty pts)
00473>                              RHYDout ["OUT0"] ,
00474> *|-----------------|-------------------------------------------------------|
00475> *| Total flow at outlet of commercial pond
00476> ADD HYD             HYDname "RPOut" , NHYDs to add=["RPOut"+"FR9A"]
00477> *|-----------------|-------------------------------------------------------|
00478> *| Route pond outflow at pipe u/s of node N0
00479> *| Typical  Section based on proposed channel provided by AEL
00480> *| 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
00481> ROUTE CHANNEL       RHYDout ["RPPOut"] ,RHYDin ["RPOut"] ,
00482>                    RDT [1](min),
00483>                    CHLNTH=[ 59](m),  CRSTOPS=[0.05 (-),
00484>                                       FPSLOPE=[0.25](-),
00485>                     SECNUM=[01],      NSEG=[1]
00486>                    | SECNUMBER, SECDIST (m)-[0.03,10.0] NSEG times
00487>                    | DISTANCE (m), ELEVATION (m)-[0,     101.13]
00488>                                                 [ 4.5,  100.63]
00489>                                                 [ 5.5,  100.63]
00490>                                                 [ 10.0, 101.13]
00491> *|-----------------|-------------------------------------------------------|
00492> *| Total channel flow at pipe u/s of node N0
00493> ADD HYD             NHYDsum=["mN0"], NHYDs to add=["RPPOut"+"FR9B"+"FR9B2"]
00494> *|-----------------|-------------------------------------------------------|
00495> *|  ------------
00496> *| Total flow at node N0
00497> *| (Note that EX2 will be sheet draining to proposed channel)
00498> ADD HYD             NHYDsum=["N0"], NHYDs to add=["mN0"+"RPPOut"+"FR9A"+"C6"]
```

```
*------------------ ------------------------------------------------------------
*# Typical Section based on proposed channel provided by AEL
*# 4:1 bank slopes, long R ope = 0.08, Manning's n is 0.03
*# Route SW drawings at 30 Lo c/x mode N=EX2
ROUTE CHANNEL       NHYDout="EX30"| ,NHYDin="EX2" ,
                    RUT=[1](min),
                    CHLGTH=[224](m),  CHSLOPE=[0.48](%),
                                      FPSLOPE=[0.40](%),
                     SECNUM [01],       NSEC [1]
                    ( SECBOTTOM, SECDIST (m)) [0.63,10.0] NSEC times
                    ( DISTANCE (m), ELEVATION (m)) [0,     101.13]
                                                  [ 9.5,   100.00]
                                                  [ 5.5,   100.00]
                                                  [ 10.0,  101.13]
*------------------ ------------------------------------------------------------
*# Catal flow at node N=EX2
ADD HYD             NHYDsum="NEX2", NHYDs to add="EX30"+"ER10"
*------------------ ------------------------------------------------------------
*# Route node N=EX2 to node N1
*# Typical Section based on Shields MD Vee Ditch 3:1 banks
*# provided by Atre
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05  as per plan provided by Atrel
ROUTE CHANNEL       NHYDout="NNEX2"| ,NHYDin="NEX2" ,
                    RUT=[1](min),
                   CHLGTH=[233](m),  CHSLOPE=[0.05](%),
                                     FPSLOPE=[0.05](%),
                     SECNUM [01],       NSEC=[3]
                    ( SECBOTTOM, SECDIST (m))=[0.05,8.0 =0.05,8.0 0.05,81.60] NSEC times
                    ( DISTANCE (m), ELEVATION (m)) [0,     85.53]
                                                   [ 8.0,  83.53]
                                                   [ 8.30, 83.43]
                                                   [ 8.80, 83.53]
                                                   [10.50, 84.93]
                                                   [12.40, 85.80]
                                                   [ 51.80, 85.80]
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*# Residential Development - Phase 1 and 2
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*------------------ ------------------------------------------------------------
*# Total flow at node N=PK1
ADD HYD             NHYDsum ("PPK1"), NHYDs to add ["PX1"+"PK1A"]
*------------------ ------------------------------------------------------------

*# Volume to ponding area in PK1
*# Q=0.555 m3/s required as per SCS 100yr Existing conditions
*# Culvert from Inlet 1
*# Assuming outlet culvert is 600 mm, slope = 1.0 , HDPE smooth walls
*# Manning's n = 0.012, inlet control nomograph
*# Hydraulic head   0.8m, Q 0.610
COMPUTE INLETVD     NHYDnm=["NPK1"], CIRLET=[0.610](cms), DIRLET [1],
                    MajHYD=["NPRING"]
                    MinHYD=["NPKINe"]
                    CMLHYD=[99999.](cms)
*------------------ ------------------------------------------------------------
*# Input to Inlet 1 pipe
ADD HYD             NHYDsum=["In1"], NHYDs to add=["PR1B"+"NPK1Mn"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 1 - Route to pond
*# HDPE Smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE [1]circ, NHYDout=["Pin1"] ,RNUMBER=[1],
                    PDIAM [600](mm), PLNGTH [65](m),
                    PROUGH=[0.012], PSLOPE=[0.016](m/m), NHYDin ["In1"] ,
                    RUT=.1(min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 2
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE= 1(circ, NHYDsum=["Cin2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH=[12.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR2A"] ,
                    RUT=.1(min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 2 pipe
ADD HYD             NHYDsum ("In2"), NHYDs to add-["PR2B"+"CIn2"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 2 - Route to pond
*# HDPE smooth wa l pipe Manning's n = 0.012
ROUTE PIPE          PTYPE= 1(circ, NHYDsum=["Pin2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), .LNGTH=[75](m),
                    PROUGH [0.012], PSLOPE [0.002](m/m), NHYDin-["In2"] ,
                    RUT=.1 (min]
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 3
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout-["C.n3"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [12.5](m),
                    PROUGH= 0.012], PSLOPE=[0.004](m/m), NHYDin-["PR3A"] ,
                    RUT=[1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 3 pipe
ADD HYD             NHYDsum-["In3"], NHYDs to add=["PR3B"+"CIn3"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 3 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE-[1]circ, NHYDout=["Pin3"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH-[75](m),
                    PROUGH [0.012], PSLOPE-[0.002](m/m), NHYDin-["In3"] ,
                    RUT=[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 4
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout=["C.n4"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH=[12.5](m),
                    PROUGH [0.012], PSLOPE=[0.004](m/m), NHYDin-["PR4A"] ,
                    RUT [1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 4 pipe
ADD HYD             NHYDsum=["In4"], NHYDs to add ["PR4B"+"C.n4"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE [1]circ, NHYDout-["C.n4"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH-[65](m),
                    PROUGH= 0.012], PSLOPE=[0.015](m/m), NHYDin-["In4"] ,
                    RUT=[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 5
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout-["C.n5"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [12.5](m),
                    PROUGH= 0.012], PSLOPE= 0.004](m/m), NHYDin-["PR5A"] ,
                    RUT=[1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 5 pipe
ADD HYD             NHYDsum-["In5"], NHYDs to add=["PR5B"+"CIn5"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 5 - Route to pond
*# HDPE smooth wal  pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["Pin5"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH= 75](m),
                    PROUGH=[0.012], PSLOPE=[0.016](m/m), NHYDin ["In5"] ,
                    RUT-[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 6
*# HDPE smooth wal  pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["C.n6"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH= 12.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin ["PR6A"] ,
                    RUT [1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 6 pipe
ADD HYD             NHYDsum=["In6"], NHYDs to add=["PR6B"+"CIn6"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 6 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["Pin6"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [70](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin-["In6"] ,
                    RUT=[1](min)
*------------------ ------------------------------------------------------------
*# VOLUME TO POND ULTIMATE CONDITIONS
ADD HYD             NHYDsum=["POND1n"], NHYDs to add-["P-n1"+"P-n2"+"Pin3"
                                -"Pin4"-"Pin5"-"Pin6"-"Pin7"]
*------------------ ------------------------------------------------------------
*#  Pond outflow for ultimate conditions using weir .5; .6; 3.0
*#  Not modified from ultimate conditions' model
ROUTE RESERVOIR     NHYDout ["POout"] ,NHYDin-["POND1n"] ,
                    RUT=[1](min),
                         TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [   0.0 , 0.0
                                  0.0114 0.0790
                                  0.0165 0.1019
                                  0.0315 0.1592
                                  0.0433 0.2496
```

```
                                        0.0839 0.3232
                                        0.0902 0.4069
                                        0.1208 0.4915
                                        0.1551 0.5781
                                        0.1925 0.6655
                                        0.2643 0.7541
                                        0.3389 0.8410
                                        0.4180 0.9351
                                        0.5088 1.1210
                                        1.1699 1.3116
                                        1.5734 1.5971
                                        2.0021 1.7085
                                        2.8489 2.0195
                                        |    -|  ,  -|  |   (max twenty pts)
                                MAYAxis=["Over"] ,
*\-----------------|-------------------------------------------------------------------------|
*# Simulating 2C8 100 yr conditions with submergence of outflow pt
*# updated for weir .6, .6, 3.0
*  and elevations  2C8100 YR in channel - 85.35
*                                  POND WL - 85.70
*                                  TOP of POND WL - 85.80
*#ROUTE RESERVOIR      RMYDnum=["POout"] ,RMYDin="POWIn" ,
*#                     RET=[1](min),
*#                          TABLE of ( OUTFLOW-STORAGE ) values
*#                                    (cms)  - (ha-m)
*#                                  [   0.0 ,   0.0 ]
*#                                   0.08000 , 1.1209
*#                                   0.20  , 1.8.10
*#                                   0.33  , 2.0.95
*#                                   |   -|  ,  -|  |  (max twenty pts)
*#                               RMYDover= "OverO" ,
*\-----------------|-------------------------------------------------------------------------|
*# Route pond output through first set of pipes
*# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
*  Does not take into account hydraulic head caused by Shield Mb backwater
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE-[1]circ, RMYDout-["Pout1"] ,RRUNMESH=[1],
                      PDIAM=[780](mm), PLNGTH-[75](m),
                      PROUGH=[0.012], PSLOPE=[0.002](m/m), RMYDin ["POout"] ,
                      RET=[1](min)
*\-----------------|-------------------------------------------------------------------------|
*# Flow c/s of outlet culverts
ADD RYD               RMYDsum-["Pout"], RMYDs to add-["PRTE1"-"PRT02"+"Pout1"]
*\-----------------|-------------------------------------------------------------------------|
*# Route outflow through set of culverts
*# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia)
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE-[1]circ, RMYDout-["Cout" ,RRUNMESH=[1],
                      PDIAM-[780](mm), PLNGTH-[12.5](m),
                      PROUGH-[0.012], PSLOPE-[0.004](m/m), RMYDin "Pout" ,
                      RET-[2](min)
*\-----------------|-------------------------------------------------------------------------|
*# Flow c/s of second set of outflow pipes
ADD RYD               RMYDsum-["Pout2"], RMYDs to add-["PRTC1"+"PRTC2"+"Cout"]
*\-----------------|-------------------------------------------------------------------------|
*# Route outflow through second set of pipes
*# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE-[1]circ, RMYDout-["Pout2"] ,RRUNMESH=[1],
                      PDIAM-[780](mm), PLNGTH-[65](m),
                      PROUGH-[0.012], PSLOPE-[0.002](m/m), RMYDin="Pout2"] ,
                      RET [2](min)
*\-----------------|-------------------------------------------------------------------------|
*# Total flow at node N1 (Stein VY along Bales Farm Rd)
ADD RYD               RMYDsum-["N1"], RMYDs to add-["RREX1" "Pout2"+"EX7"
                                                    +"PR7D"+"PR61."]
*\-----------------|-------------------------------------------------------------------------|
*# ROUTE N1 to N3
*# Typical Section based on Sheets MB Vee Ditch 1:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope   0.05% as per plan provided by Atrel.
ROUTE CHANNEL         RMYDout-["RE1"] ,RMYDin ["N1"] ,
                      RET=[1](min),
                     CHLNTH-[105](m),  CHSLOPE=[0.05](%),
                                          FRSLOPE=[0.05](%),
                       SECNUM-[1],        NSEG-[3]
                     | SEGROUGH, SEGDIST (m)|-[0.05,6.0 -0.035,6.6 0.05,51.8] NSEG times
                     | DISTANCE (m), ELEVATION (m)|-[0,    85.53]
                                                   [6.0, 83.53]
                                                   [6.30, 83.43]
                                                   [6.60, 83.53]
                                                   [10.50, 84.93]
                                                   [12.90, 85.06]
                                                   [51.80, 85.90]
*\-----------------|-------------------------------------------------------------------------|
*# Flow at Starter node N7R18 for comparison
*# Routed N3 p ux EX1
ADD RYD               RMYDsum-["EXE1"0"], RMYDs to add-["RE3"-"EX2"]
*\-----------------|-------------------------------------------------------------------------|
*# AREA CHECK
*#
ADD RYD               RMYDsum-["To1"], RMYDs to add=["EX1"+"EX2"+"EX3"+"EX4"
                                                    +"EX5"+"EX6" "OX7"+"ER1A"+"ER1B"]
ADD RYD               RMYDsum-["To2"], RMYDs to add-["To1."+"ER2A"+"ER3B"+"ER3A"
                                                    -"PR3B"-"PR4A"-"PR4B"-"PR5A"-"PR5B"]
ADD RYD               RMYDsum-"To3"], RMYDs to add ["To2"+"ER6A"+"ER6B"+"ER7A"
                                                    "PR8A"+"ER8B"+"PR7C1"+"PR7C2"+"ER7D"]
ADD RYD               RMYDsum-["To.4"], RMYDs to add=["To3"+"PR8"-"PR9A"-"PP9B1"
                                                    -"PR9B2"+"PR10"+"PR11"+"PR1" "PR8"]
ADD RYD               RMYDsum ["To5"], RMYDs to add-["To4"+"PC1"+"PC2"+"PC3"
                                                    +"EXC1"+"EXC2"+"EXC3"+"PLx"]
*\-----------------|-------------------------------------------------------------------------|
*|*****************|*************************************************************************
*\-----------------|-------------------------------------------------------------------------|
*# simulations with 4 hour Chicago from City of Ottawa
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN-[1]
*\                    |"C4HR02A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT-[2], NSTORM-[1],  NRUN=[5]
*\                    |"C4HR05A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN [10]
*\                    |"C4HR0.0A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT-[2], NSTORM-[1],  NRUN-[25]
*\                    |"C4HR025A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN-[50]
*\                    |"C4HR050A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT-[2], NSTORM-[1],  NRUN-[100]
*\                    |"C4HR100A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
*# 2C2 24 hours (ver 2, from City of Ottawa
START                 TZERO-[0.0], NRCOUT-[2], NSTORM=[1],  NRUN=[10]
*\                    |"2C240C2A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN [20]
*\                    |"2C240C5A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN=[100
*\                    |"2C240.0A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN=[250]
*\                    |"2C24025A.stm"| <--storm filename, one per line for NSTORM line
*\-------------------|-------------------------------------------------------------------|
START                 TZERO-[0.0], NRCOUT=[2], NSTORM=[1],  NRUN=[500]
*\                    |"2C24050A.stm"| <--storm filename, one per line for NSTORM line
```

```
*-----------------|-------------------------------------------------------|
START             TZERO [0.0],  METOUT [2],  NSTORM [1],  NMON-[266]
*                  ["9CI6130x.stm"] <--storm filename, one per line for METCOM line
*-----------------|-------------------------------------------------------|
"5 Simulations with July 1, 1979 Historical Event, City of Ottawa
START             TZERO [0.0],  METOUT [2],  NSTORM [1],  NMO       M-[301]
*                  ["19790701.STM"] <--storm filename, one per line for METCOM line
*-----------------|-------------------------------------------------------|
FINISH
```

```
00001>
00002>
00003>  SSSSS  A   M  M  H   H  Y   Y  M  M   OOO        999    999  =========
00004>  S     A A  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
00005>  SSSSS  AAA  M MM  HHHHH    Y    M MM  O   O  ##  9   9  9   9  Ver5 Beta
00006>      S  A A  M  M  H   H    Y    M  M  O   O      9999   9999  Sept 2000
00007>  SSSSS  A A  M  M  H   H    Y    M  M   OOO           9      9  ---------
00008>                                                     9   9  9   9
00009>       StormWater Management Hydrologic Model        999    999  =========
00010>
00011>  ********************************************************************
00012>  ************************** SWMHYMO Ver/5 Beta ************************
00013>  *******  A Single event and continuous hydrologic simulation model  ********
00014>  *******     based on the principles of HYMO and its successors      ********
00015>  *******               OTTHYMO-83 and OTTHYMO-89.                    ********
00016>  ********************************************************************
00017>  ******* Distributed by:  J.F. Sabourin and Associates Inc.          ********
00018>  *******                 Ottawa, Ontario: (613) 727-5189            ********
00019>  *******                 Pakenham, Quebec: (613) 256-6456           ********
00020>  *******                 E-Mail: sabourin@jfsa.com                  ********
00021>  ********************************************************************
00022>
00023>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  +++++++ Licensed user: JFSAinc.                                    -++++++
00025>  +++++++                  at Any City          SERIAL#:Z5G7402     -++++++
00026>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ********************************************************************
00029>  *******            ***** PROGRAM ARRAY DIMENSIONS *****           ********
00030>  *******            Maximum value for ID numbers :    10           ********
00031>  *******            Max. number of rainfall points:  52560         ********
00032>  *******            Max. number of flow points    :  52560         ********
00033>  ********************************************************************
00034>
00035>  *** DESCRIPTION SUMMARY TABLE HEADERS (units dependent on METOUT (= SYAHI) ***
00036>  ***----------------------------------------------------------------------***
00037>  ***    ID:  Hydrograph IDentification numbers, (1-10).                   ***
00038>  ***  (NHYD: Hydrograph reference numbers, (6 digits or characters).      ***
00039>  ***  AREA:  Drainage area associated with hydrograph, (ac.) or (ha.).    ***
00040>  *** QPEAK:  Peak flow of simulated hydrograph, (cfs)/(s) or (m^3/s).     ***
00041>  *** TpeakDate hr:mn is the date and time of the peak flow.               ***
00042>  ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).        ***
00043>  ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).        ***
00044>  ***     *:  see WARNING or NOTE message printed at end of run.          ***
00045>  ***    **:  see ERROR message printed at end of run.                    ***
00046>  ***----------------------------------------------------------------------***
00047>  ********************************************************************
00048>
00049>
00050>
00051>  ********************************************************************
00052>
00053>  ********************  S U M M A R Y  O U T P U T  *********************
00054>  ********************************************************************
00055>  *       DATE: 2008-12-19     TIME: 08:54:07     RUN COUNTER: 001408    *
00056>  ********************************************************************
00057>  * Input  filename: Z:\FSC\1647-07\Design\SWMHYMO\CONMERC-1\GCP.dat    *
00058>  * Output filename: Z:\FSC\1647-07\Design\SWMHYMO\CONMERC-1\GCP.out    *
00059>  * Summary filename: Z:\FSC\1647-07\Design\SWMHYMO\CONMERC-1\GCP.sum   *
00060>  * User comment:                                                      *
00061>  * 1:                                                                *
00062>  * 2:                                                                *
00063>  * 3:                                                                *
00064>  ********************************************************************
00065>
00066>
00067> p*********************************************************************
00068> p  SWMHYMO Ver:5.02(Dec 2001) <PROTA> / INPUT DATA FILE
00069> p*********************************************************************
00070> p  Project Name: (Greely Village Center)    Project Number: (1647-07)
00071> p  Date       : 04-09-2008
00072> p  Modeller   : (JEF)
00073> p  Company    : (JFSAinc.
00074> p  License #  : 2547402
00075> p*********************************************************************
00076> p
00077> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
00078> # Proposed Ultimate conditions. OPTION B
00079> # filename stands for: Greely, Commercial, Proposed
00080> #*********************************************************************
00081>  RUN:COMMAND#
00082>  JD:1.001  ------------------------------------------------------------
00083>      SYAHI
00084>      [IAEXP =    .00 Exp on        0]
00085>      [METOUT    2   (1-Imperial, 2-Metric output)]
00086>      [NSTORM=   1 ]
00087>      [NRUN  =   1 ]
00088>  JD:1.002  ------------------------------------------------------------
00089>      READ STORM
00090>       Filename = Storm.001
00091>       Comment  = 25 mm 4 Hours step 10 min, City of Ottawa
00092>       [SDT 10.00:SCR    4.00:PTOT=  25.00]
00093> #*********************************************************************
00094> # Existing flow - McEvoy Branch of Shirley Creek - Areas
00095> # Area n/s of proposed development (residential)
00096> # CN(=?), Slope = 0.8, Tp 0.16, XIMP-5, TIMP-15, use 0.002 as per Stantec
00097> # Area partially adjusted based on Attrel drawings. Tp adjusted accordingly.
00098> #*********************************************************************
00099> # c/s of Bank St.as per Area= with modified boundaries and Tp.
00100>  RUN:0003  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00101>      DESIGN HYDRO            01:EX1        76.00      .549 MO_Date    1:00    5.11 .204
00102>       [CN= 79.0: A= 3.90]
00103>       [Tp=  .23:DC= 1.90]
00104> #*********************************************************************
00105> # Existing flow - External areas c/s of Bank St.
00106> # CN(=69), as per Stantec see SC001.
00107> # Area partially adjusted based on Attrel drawings.
00108> #*********************************************************************
00109> # Areas External to development.
00110>  RUN:0004  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00111>      DESIGN HYDRO            01:EX2         5.89      .055 MO_Date    7:10    1.01 .181
00112>       [CN= 69.0: A=  3.90]
00113>       [Tp=  .23:DC= 1.90]
00114>  RUN:0005  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00115>      DESIGN HYDRO            01:EX3        21.30      .163 MO_Date    7:25    3.01 .181
00116>       [CN= 69.0: A= 3.90]
00117>       [Tp=  .83:DC= 1.90]
00118> # Slope, Tlag, Area from Attrel Drawing
00119> # CN from Stantec (SC001)
00120> # Ximp = Timp = 70
00121>  RUN:0006  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00122>      CALIB STANDHYD          01:EX9         .58       .006 MO_Date    1:21    0.10 .202
00123>       [AIMP=.11:TIMP=.22]
00124>       [Lose= 2 :CN= 69.0]
00125>       [Pervious     area: 1Aper= 4.57:SLPP=1.00:IGF=  30.:MNP=.250:SCP=   .0]
00126>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  30.:MNI=.035:SCI=   .0]
00127> # Road and road side ditch along projected residential development Parkway Rd
00128> # Timp = Ximp = 0.21 ha /0.51 ha = 0.40
00129> # CN(=69), as per Stantec see SC001.
00130> # Slope is estimated at 1%
00131> # LGI based on centroid of area due to a angated shape = 600m/2 = 300
00132>  RUN:0007  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00133>      CALIB STANDHYD          01:EX5         .52       .007 MO_Date    1:10    1.17 .469
00134>       [XIMP=.40:TIMP= 40]
00135>       [Lose= 2 :CN= 69.0]
00136>       [Pervious     area: 1Aper= 1.07:SLPP=1.00:IGP=  30.:MNP=.250:SCP=   .0]
00137>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  30.:MNI=.035:SCI=   .0]
00138> # Road and road side ditch along projected residential development Parkway Rd
00139> # Timp = Ximp = 0.1 ha /0.51 ha = 0.20
00140> # CN(=69, as per Stantec see SC001.
00141> # Slope is estimated at 1%
00142> # LGI based on centroid of area due to a angated shape = 354m/2 = 177
00143>  RUN:0008  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00144>      CALIB STANDHYD          01:EX6         .51       .010 MO_Date    1:05    1.15 .316
00145>       [XIMP=.20:TIMP= 20]
00146>       [Lose= 2 :CN= 69.0]
00147>       [Pervious     area: 1Aper= 1.07:SLPP=1.00:IGP=  30.:MNP=.250:SCP=   .0]
00148>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  30.:MNI=.035:SCI=   .0]
00149> # Road and road side ditch along projected residential development Gatewater Rd
00150> # Timp = Ximp = 0.09 ha /0.39 ha = 0.23
00151> # CN= 69, as per Stantec see SC001.
00152> # Slope is estimated at 1%
00153> # LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
00154>  RUN:0009  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00155>      CALIB STANDHYD          01:EX7         .39       .010 MO_Date    1:25    7.76 .310
00156>       [XIMP=.23:TIMP=.23]
00157>       [Lose= 2 :CN= 69.0]
00158>       [Pervious     area: 1Aper= 0.87:SLPP=1.00:IGP=  30.:MNP=.250:SCP=   .0]
00159>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  30.:MNI=.035:SCI=   .0]
00160> p*********************************************************************
00161> # PROPOSED COMMERCIAL DEVELOPMENT
00162> p*********************************************************************
00163> # CN  = 75 as per fair grass cover with C soil type for top soil; CN*=71
00164> # XIMP = TIMP to be conservative
00165> p*********************************************************************
00166>  CO1:0010  ------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
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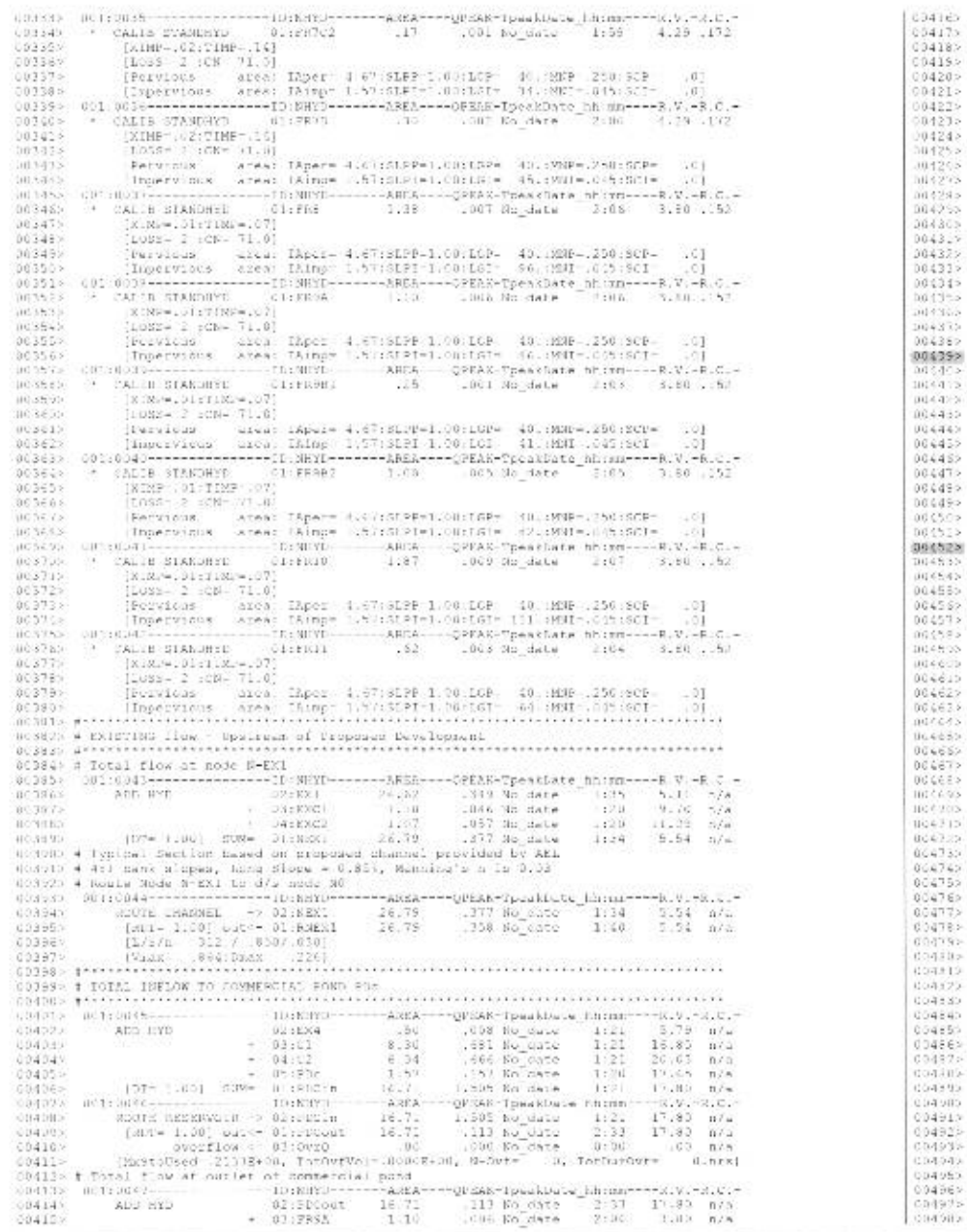
00166>       DESIGN STANDHYD     01:C1          8.30     .68  No data    1:7    16.35  .670
00167>        [XIMP=.83:TIMP=.83]
00168>        [SLP=2.00:DI=  1.00]
00169>        [Loss= 2 :CN= 71.0]
00170> 001.0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00171>       DESIGN STANDHYD     01:C2          6.34     .666 No data    1:21   20.05  .801
00172>        [XIMP=.79:TIMP=.79]
00173>        [SLP=1.00:DI=  1.00]
00174>        [Loss= 2 :CN= 71.0]
00175> 001.0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00176>       DESIGN STANDHYD     01:C3          .24      .083 No data    1:20    2.50  .552
00177>        [XIMP=.98:TIMP=.98]
00178>        [SLP=1.00:DI=  1.00]
00179>        [Loss= 2 :CN= 71.0]
00180> * Imp = Imp ha/Tota..area = 0.79/1.10 ha = .27
00181> 001.0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00182>       DESIGN STANDHYD     01:EXC1        1.10     .346 No data    1:20    9.10  .358
00183>        [XIMP=.27:TIMP=.27]
00184>        [SLP=1.00:DI=  1.00]
00185>        [Loss= 2 :CN= 71.0]
00186> * Imp   Imp ha/total area   0.35/1.07 ha  = .35
00187> 001.0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00188>       DESIGN STANDHYD     01:EXC2        1.07     .357 No data    1:20   11.29  .452
00189>        [XIMP=.35:TIMP=.35]
00190>        [SLP=1.00:DI=  1.00]
00191>        [Loss= 2 :CN= 71.0]
00192> * Imp = Imp ha/total area = 0.37/0.37ha = .50
00193> 001.0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00194>       DESIGN STANDHYD     01:EXC3        .93      .311 No data    1:20   10.27  .571
00195>        [XIMP=.50:TIMP=.50]
00196>        [SLP=1.00:DI=  1.00]
00197>        [Loss= 2 :CN= 71.0]
00198> *********************************************************************
00199> * Commercial pond (Pc1)
00200> * Slope estimated at 1% based on elevations around pond.
00201> * Timp and Ximp based on total pond area.
00202> * Ximp   A pond/A tot  1.04/1.57)
00203> 001.0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00204>       DESIGN STANDHYD     01:Pc1         1.57     .157 No data    1:20   17.65  .726
00205>        [XIMP=.67:TIMP=.67]
00206>        [SLP=1.00:DI=  1.00]
00207>        [Loss= 2 :CN= 71.0]
00208> ###################################################################
00209> *********************************************************************
00210> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
00211> *********************************************************************
00212> *
00213> * CN=80, as per Greeley (see SCS01).
00214> * Tp estimated with Upland Method.
00215> 001.0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00216>       DESIGN NASHYD       01:PR1         4.26     .057 No data    1:31    1.01  .161
00217>        CN= 80.0: N= 3.00
00218>        Tp=  .10:DT=  .08
00219> *********************************************************************
00220> * AREAS GOING TO RESIDENTIAL POND (Pc2)
00221> *********************************************************************
00222> *
00223> 001.0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00224>       CALIB STANDHYD      01:PR1A         .21      .081 No data    1:20    6.09  .240
00225>        [XIMP=.11:TIMP=.21]
00226>        [Loss= 2 :CN= 71.0]
00227>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00228>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:XMI=.045:SCI=   .0]
00229> 001.0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00230>       CALIB STANDHYD      01:PR1B         .53      .080 No data    1:21    6.09  .240
00231>        [XIMP=.  1:TIMP=.21]
00232>        [Loss= 2 :CN= 71.0]
00233>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00234>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:XMI=.045:SCI=   .0]
00235> 001.0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00236>       CALIB STANDHYD      01:PR1B         1.57     .021 No data    1:23    6.09  .240
00237>        [XIMP=.11:TIMP=.21]
00238>        [Loss= 2 :CN= 71.0]
00239>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00240>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  102.:XMI=.045:SCI=   .0]
00241> 001.0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00242>       CALIB STANDHYD      01:PR2B         1.17     .310 No data    1:22    6.09  .240
00243>        [XIMP=.11:TIMP=.21]
00244>        [Loss= 2 :CN= 71.0]
00245>        [Pervious     area: IAper= 4.67:SLPP 1.00:LGP=  40. XMP .250 SCP    .0]
00246>        [Impervious   area: IAimp= 1.57:SLPI 1.00:LGI=  88. XMI .045 SCI    .0]
00247> 001.0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00248>       CALIB STANDHYD      01:PR3A         .45      .087 No data    1:21    6.09  .240
00249>        [XIMP=.11:TIMP=.21]
00250>        [Loss= 2 :CN= 71.0]
00251>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00252>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:XMI=.045:SCI=   .0]
00253> 001.0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00254>       CALIB STANDHYD      01:PR3B         .52      .080 No data    1:21    6.09  .240
00255>        [XIMP=.11:TIMP=.21]
00256>        [Loss= 2 :CN= 71.0]
00257>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00258>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:XMI=.045:SCI=   .0]
00259> 001.0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00260>       CALIB STANDHYD      01:PR4A         .71      .010 No data    1:21    6.09  .240
00261>        [XIMP=.11:TIMP=.7.]
00262>        [Loss= 2 :CN= 71.0]
00263>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00264>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:XMI=.045:SCI=   .0]
00265> 001.0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00266>       CALIB STANDHYD      01:PR5B         .65      .010 No data    1:21    6.09  .240
00267>        [XIMP=.11:TIMP=.21]
00268>        [Loss= 2 :CN= 71.0]
00269>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00270>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:XMI=.045:SCI=   .0]
00271> 001.0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00272>       CALIB STANDHYD      01:PR5A         .56      .010 No data    1:21    6.09  .240
00273>        [XIMP=.11:TIMP=.21]
00274>        [Loss= 2 :CN= 71.0]
00275>        [Pervious     area: IAper= 4.67:SLPP 1.00:LGP=  40. XMP .250 SCP    .0]
00276>        [Impervious   area: IAimp= 1.57:SLPI 1.00:LGI=  88. XMI .045 SCI    .0]
00277> 001.0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00278>       CALIB STANDHYD      01:PR6A         .46      .007 No data    1:21    6.09  .240
00279>        [XIMP=.11:TIMP=.21]
00280>        [Loss= 2 :CN= 71.0]
00281>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00282>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:XMI=.045:SCI=   .0]
00283> 001.0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00284>       CALIB STANDHYD      01:PR6A         1.43     .019 No data    1:23    6.09  .240
00285>        [XIMP=.11:TIMP=.21]
00286>        [Loss= 2 :CN= 71.0]
00287>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00288>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:XMI=.045:SCI=   .0]
00289> 001.0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00290>       CALIB STANDHYD      01:PR6B         .93      .013 No data    1:22    6.09  .240
00291>        [XIMP=.11:TIMP=.21]
00292>        [Loss= 2 :CN= 71.0]
00293>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00294>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:XMI=.045:SCI=   .0]
00295> * Ximp estimates at 2% based on backyard swales.
00296> * Timp and Ximp based on total pond area
00297> * Ximp = A pond/A tot
00298> * Timp = weighted average of pond and backyards
00299> 001.0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00300>       CALIB STANDHYD      01:Pc2         5.03     .219 No data    1:20   12.31  .482
00301>        [XIMP=.44:TIMP=.47]
00302>        [Loss= 2 :CN= 71.0]
00303>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00304>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:XMI=.045:SCI=   .0]
00305> *********************************************************************
00306> * UNCONTROLLED AREAS
00307> *********************************************************************
00308> *
00309> 001.0031---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00310>  *  CALIB STANDHYD      01:PR7A         1.35     .005 No data    2:01    4.29  .172
00311>        [XIMP=.01:TIMP=.14]
00312>        [Loss= 2 :CN= 71.0]
00313>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00314>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:XMI=.045:SCI=   .0]
00315> 001.0032---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00316>  *  CALIB STANDHYD      01:PR7B1        .36      .002 No data    2:00    4.29  .172
00317>        [XIMP=.01:TIMP=.14]
00318>        [Loss= 2 :CN= 71.0]
00319>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00320>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:XMI=.045:SCI=   .0]
00321> 001.0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00322>  *  CALIB STANDHYD      01:PR7B2        .22      .001 No data    1:59    4.29  .172
00323>        [XIMP=.01:TIMP=.14]
00324>        [Loss= 2 :CN= 71.0]
00325>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00326>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  10.:XMI=.045:SCI=   .0]
00327> 001.0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00328>  *  CALIB STANDHYD      01:PR7C1        .29      .002 No data    2:00    4.29  .172
00329>        [XIMP=.02:TIMP=.14]
00330>        [Loss= 2 :CN= 71.0]
00331>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:XMP=.250:SCP=   .0]
00332>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:XMI=.045:SCI=   .0]
```



```
      [RJI= 1.00] out<- 01:Cin2       1.57     .021 No_date    1:23    6.00  n/a
      [I/S/n=  13./ .400/.012]
      [Vmax=  .080:Dmax=  .055]
      [Din=  .450:Dused=  .450]
# Input to inlet 2 pipe
 001:C059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR2B       1.17     .016 No_date    1:22    6.00  n/a
                     + 03:Cin2       1.57     .025 No_date   10:25    6.10  n/a
     [DT= 1.00]  SUM=  01:In2        2.74     .037 No_date    1:23    6.08  n/a
# Pipe from inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 001:C058----------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:In2        2.74     .037 No_date    1:23    6.08  n/a
      [RDT 1.00] out<- 01:Pin2        2.74     .036 No_date    1:24    6.08  n/a
      [I/S/n=  70./ .2000/.012]
      [Vmax=  .729:Dmax=  .152]
      [Din=  .500:Dused=  .500]
# Culvert from in er 3
# HDPE smooth wall pipe Manning's n = 0.012
 001:C061----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:FR3A        .45     .007 No_date    1:21    6.00  n/a
      [RDT= 1.00] out<- 01:Cin3        .45     .007 No_date    1:21    6.00  n/a
      [I/S/n=  13./ .400/.0.2]
      [Vmax=  .559:Dmax=  .095]
      [Din=  .300:Dused=  .300]
# Input to inlet 3 pipe
 001:C062----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR3B        .52     .008 No_date    1:21    6.00  n/a
                     + 03:Cin3        .45     .007 No_date    1:21    6.00  n/a
     [DT= 1.00]  SUM=  01:In3         .97     .015 No_date    1:21    6.00  n/a
# Pipe from inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 001:C063----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:In3        .97     .015 No_date    1:21    6.00  n/a
      [RDT= 1.00] out<- 01:Pin3        .97     .014 No_date    1:23    6.00  n/a
      [I/S/n=  75./ .2000/.0.2]
      [Vmax=  .000:Dmax=  .095]
      [Din=  .300:Dused=  .300]
# Culvert from inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 001:C064----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:FR4A        .01     .000 No_date    1:21    6.00  n/a
      [RDT= 1.00] out<- 01:Cin4        .01     .000 No_date    1:22    6.00  n/a
      [I/S/n=  13./ .400/.0.2]
      [Vmax=  .000:Dmax=  .063]
      [Din=  .300:Dused=  .300]
# Input to inlet 4 pipe
 001:C065----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR4B        .65     .010 No_date    1:21    6.00  n/a
                     + 03:Cin4        .71     .010 No_date    1:22    6.00  n/a
     [DT= 1.00]  SUM=  01:In4         1.36     .020 No_date    1:21    6.00  n/a
# Pipe from inlet 4 [ULTIMATE CONDITIONS] - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 001:C066----------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:In4        1.36     .020 No_date    1:21    6.00  n/a
      [RDT= 1.00] out<- 01:Pin4        1.36     .020 No_date    1:22    6.00  n/a
      [I/S/n=  65./1.900/.0.2]
      [Vmax= 1.265:Dmax=  .063]
      [Din=  .300:Dused=  .300]
# Culvert from inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 001:C067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:FR5A        .06     .000 No_date    1:21    6.00  n/a
      [RDT=  .00] out<- 01:Cin5        .86     .010 No_date    1:22    6.00  n/a
      [I/S/n=  13./ .400/.0.2]
      [Vmax=  .810:Dmax=  .095]
      [Din=  .300:Dused=  .300]
# Input to inlet 5 pipe
 001:C068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR5B        .46     .007 No_date    1:21    6.00  n/a
                     + 03:Cin5        .66     .010 No_date    1:22    6.00  n/a
     [DT= 1.00]  SUM=  01:In5         1.12     .017 No_date    1:21    6.00  n/a
# Pipe from inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 001:C069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:In5        1.12     .017 No_date    1:21    6.00  n/a
      [RDT= 1.00] out<- 01:Pin5        1.12     .017 No_date    1:22    6.00  n/a
      [I/S/n=  75./1.600/.012]
      [Vmax= 1.159:Dmax=  .080]
      [Din=  .300:Dused=  .300]
# Culvert from inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 001:C070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:FR6A        1.43     .019 No_date    1:23    6.00  n/a
      [RVT= 1.00] out<- 01:Cin6        1.43     .019 No_date    1:23    6.00  n/a
      [I/S/n=  13./ .400/.012]
      [Vmax=  .780:Dmax=  .091]
      [Din=  .500:Dused=  .500]
# Input to inlet 6 pipe
 001:C071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR6B        .93     .013 No_date    1:22    6.00  n/a
                     + 03:Cin6        1.43     .019 No_date    1:23    6.00  n/a
     [DT= 1.00]  SUM=  01:In6         2.36     .032 No_date    1:23    6.00  n/a
# Pipe from inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 001:C072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:In6        2.36     .032 No_date    1:23    6.00  n/a
      [RVT= 1.00] out<- 01:Pin6        2.36     .032 No_date    1:24    6.00  n/a
      [I/S/n=  70./ .1900/.012]
      [Vmax=  .000:Dmax=  .228]
      [Din=  .500:Dused=  .500]
# VOLUME TO POND ULTIMATE CONDITIONS
 001:C073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Pin1        5.05     .066 No_date    1:31    4.36  n/a
                     + 03:Pin2        2.74     .036 No_date    1:23    6.11  n/a
                     + 04:Pin3         .97     .014 No_date    1:23    6.00  n/a
                     + 05:Pin4        1.36     .020 No_date    1:22    7.28  n/a
                     + 06:Pin5        1.12     .017 No_date    1:22    6.00  n/a
                     + 07:Pin6        2.36     .032 No_date    1:24    6.00  n/a
                     + 08:Pin         5.03     .219 No_date    1:26   12.51  n/a
     [It= 1.00]  SUM=  01:POND1n      18.63     .355 No_date    1:25    7.28  n/a
#  Pond outflow for ultimate conditions using weir .6, .6, 3.0
 001:C074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR -> 02:Outlet     18.63     .355 No_date    1:25    7.28  n/a
      [RVT= 1.00] out<- 01:Pout        18.63     .020 No_date    4:22    7.28  n/a
            Overflow <- 01:Over0          0     .000 No_date    0:00    .00  n/a
      [MaxStorage=.1148E+08, TotalVol=.8008E+08, E-Out=    0, TotErrOvf=    0.1ac]
# Simulating 2x2 100 yr conditions with maintenance of outflow weir
# updated for weir .6, .6, 3.0
*ROUTE RESERVOIR     =NHYDout-["POut"] ,NHYD:n=["POND1n"] ,
#                     ROT-,1(min),
#                          TABLE of [ OUTFLOW-STORAGE ] values
#                                    [OUT] - (ha-m)
#                                    [   0.0 ,   0.0 ]
#                                    [0.08360 , 0.1200
#                                    [0.20  , 1.8110
#                                    [0.33  , 3.6150
#                                    [   -1 ,   -1  ]  (max twenty pts)
#                          =NHYDovf=["Over0"] ,
# Route pond output through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n   0.012
 001:C075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:Pout       18.63     .020 No_date    4:22    7.28  n/a
      [RVT= 1.00] out<- 01:Out1        18.63     .020 No_date    4:22    7.28  n/a
      [I/S/n=  75./ .1200/.012]
      [Vmax=  .060:Dmax=  .092]
      [Din=  .780:Dused=  .780]
# Flow u/s of outlet culverts
 001:C076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:SU7a1         .56     .007 No_date    1:00    4.25  n/a
                     + 03:SU7a2         .22     .001 No_date    1:00    4.00  n/a
                     + 04:Pout1       18.63     .020 No_date    4:24    7.28  n/a
     [It= 1.00]  SUM=  01:Pout        19.21     .021 No_date    4:24    7.19  n/a
# Route outflow through set of culverts
# 2 x 900 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 001:C077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:Pout       19.21     .021 No_date    4:14    7.19  n/a
      [RVT= 1.00] out<- 01:Out         19.21     .021 No_date    4:14    7.19  n/a
      [I/S/n=  13./ .400/.012]
      [Vmax=  .067:Dmax=  .084]
      [Din=  .780:Dused=  .780]
# Flow u/s of second set of outflow pipes
 001:C078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:SU7c1         .49     .007 No_date    2:00    4.29  n/a
                     + 03:SU7c2         .17     .001 No_date    1:55    4.00  n/a
                     + 04:Out1        19.21     .021 No_date    4:14    7.19  n/a
     [DT= 1.00]  SUM=  01:Out2        19.77     .022 No_date    4:03    7.10  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simultaneously with 1 pipe of equivalent capacity (=780 mm dia)
# HDPE smooth wall pipe Manning's n = 0.012
 001:C079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE        -> 02:Out2       19.77     .022 No_date    4:03    7.10  n/a
      [RVT= 1.00] out<- 01:PoutF       19.77     .022 No_date    4:07    7.10  n/a
      [I/S/n=  65./ .1900/.012]
```

```
00664>       [Vmax= .57][Tmax= .090]
00665>       [D/n= .750][Qmax= .780]
00666> # Total flow at node N1 (Shield MD along Salex Dark Rd)
00667>  001:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00668>      ADD HYD             02:HMEX2     57.05     .361 No data    2:00    N.A.  n/a
00669>                        + 03:route     19.77     .022 No date    4:07    7.10  n/a
00670>                        + 04:EX7         .39     .010 No date    1:24    7.76  n/a
00671>                        + 05:ex7D        .36     .002 No_date    2:08    4.29  n/a
00672>                        + 06:EX11        .62     .003 No_date    2:04    3.80  n/a
00673>       [DT= 1.00]  SUM=  01:N1        78.93     .385 No_date    2:00    8.29  n/a
00674> # ROUTE N1 to N3
00675> # Typical Section based on Shields MD Vee Ditch 3:1 banks
00676> # provided by Arte1
00677> # Manning's n is Channel not maintained, light brush on banks
00678> # Slope = 0.05% as per plan provided by Artel.
00679>  001:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00680>      ROUTE CHANNEL   -> 02:N2          78.93     .385 No_date    2:00    8.29  n/a
00681>       [RLT= 1.00] surc- 01:RN4         78.93     .020 No date    2:07    8.29  n/a
00682>       [L/S/n= 549./ .050/.035]
00683>       [Vmax= .256:Dmax= .730]
00684> # VOLUME from residential area at N3 intersx
00685>  001:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00686>      ADD HYD             02:EX7A          1.55     .008 No_date    2:03    4.29  n/a
00687>                        + 03:FR8           1.58     .007 No_date    2:06    3.80  n/a
00688>       [DT= 1.00]  SUM=  01:N31           3.73     .015 No_date    2:04    4.04  n/a
00689> # Added VOLUME from external area contributing to N3
00690>  001:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00691>      ADD HYD             02:RN4           78.93     .020 No date    2:07    8.29  n/a
00692>                        + 03:N31           3.73      .015 No date    2:04    4.04  n/a
00693>                        + 04:EX5           .52       .017 No_date    1:58    7.16  n/a
00694>                        + 05:EX6           .51       .010 No_date    1:26    7.16  n/a
00695>                        + 06:EXC3          .22       .017 No_date    1:20   14.27  n/a
00696>       [DT= 1.00]  SUM=  01:N3          82.91       .341 No_date    2:25    8.18  n/a
00697> # ROUTE N3 to N128
00698> # Typical Section based on Shields MD Vee Ditch 3:1 banks
00699> # provided by Artel
00700> # Manning's n is Channel not maintained, light brush on banks
00701> # Slope = 0.05% as per plan provided by Artel.
00702>  001:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00703>      ROUTE CHANNEL   -> 02:N7          82.91       .341 No_date    2:25    8.18  n/a
00704>       [RLT= 1.00] surc- 01:RN3         82.91       .295 No_date    2:08    8.18  n/a
00705>       [L/S/n= 615./ .050/.035]
00706>       [Vmax= .260:Dmax= .666]
00707> # Flow at Stanley Road NCR125 for comparison
00708> # Routed N3 plus EX3
00709>  001:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00710>      ADD HYD             02:RN3           82.91       .295 No_date    2:08    8.18  n/a
00711>                        + 03:EX3           21.30       .106 No_date    2:24    7.26  n/a
00712>       [DT= 1.00]  SUM=  01:NCR125        104.21      .387 No_date    2:06    7.91  n/a
00713> # AREA CHECK
00714> *
00715>  001:0086---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00716>      ADD HYD             02:EX1           24.62       .169 No_date    1:45    5.11  n/a
00717>                        + 03:EX2           9.89        .055 No_date    2:12    4.81  n/a
00718>                        + 04:EX3           21.30       .106 No_date    2:05    4.81  n/a
00719>                        + 05:EX4           .50         .008 No_date    1:21    3.79  n/a
00720>                        + 06:EX5           .52         .017 No_date    1:58   11.22  n/a
00721>                        + 07:EX6           .51         .010 No_date    1:26    7.15  n/a
00722>                        + 08:EX7           .39         .010 No_date    1:24    7.76  n/a
00723>                        + 09:FR1A          .24         .004 No_date    1:20    6.00  n/a
00724>                        + 10:FR1B          .55         .008 No_date    1:21    6.00  n/a
00725>       [DT= 1.00]  SUM=  01:Total         58.52       .448 No_date    1:57    4.83  n/a
00726>  001:0087---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00727>      ADD HYD             02:FR2A          58.52       .448 No_date    1:57    4.83  n/a
00728>                        + 03:FR2A          1.57        .021 No_date    1:23    6.00  n/a
00729>                        + 04:FR3A          1.10        .014 No_date    1:23    6.00  n/a
00730>                        + 05:FR4A          .45         .007 No_date    1:21    6.00  n/a
00731>                        + 06:FR5A          .52         .008 No_date    1:21    6.00  n/a
00732>                        + 07:FR4A          .72         .010 No_date    1:21    6.00  n/a
00733>                        + 08:FR4B          .60         .010 No_date    1:21    6.00  n/a
00734>                        + 09:FR6A          .60         .010 No_date    1:21    6.00  n/a
00735>                        + 10:FR5B          .48         .007 No_date    1:21    6.00  n/a
00736>       [DT= 1.00]  SUM=  01:Total         64.71       .493 No_date    1:55    4.76  n/a
00737>  001:0088---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00738>      ADD HYD             02:FR2A          64.71       .493 No_date    1:55    4.76  n/a
00739>                        + 03:FR5A          1.47        .019 No_date    1:23    6.00  n/a
00740>                        + 04:FR5B          .91         .013 No_date    1:22    6.00  n/a
00741>                        + 05:FR7A          1.55        .008 No_date    2:01    4.29  n/a
00742>                        + 06:FR7B1         .38         .002 No_date    2:00    4.29  n/a
00743>                        + 07:FR7B2         .22         .001 No_date    1:58    4.29  n/a
00744>                        + 08:FR7C1         .39         .002 No_date    2:00    4.29  n/a
00745>                        + 09:FR7C2         .17         .001 No_date    1:50    4.29  n/a
00746>                        + 10:FR7D          .40         .002 No_date    2:00    4.29  n/a
00747>       [DT= 1.00]  SUM=  01:Total         69.85       .521 No_date    1:55    4.75  n/a
00748>  001:0089---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00749>      ADD HYD             02:Out3          69.85       .521 No_date    1:55    4.75  n/a
00750>                        + 03:FR3           1.38        .007 No_date    2:06    3.80  n/a
00751>                        + 04:FR5A          1.10        .006 No_date    2:06    3.80  n/a
00752>                        + 05:FR5B1         .20         .001 No_date    2:03    3.80  n/a
00753>                        + 06:FR5B2         1.00        .005 No_date    2:05    3.80  n/a
00754>                        + 07:FR10          1.87        .009 No_date    2:07    3.80  n/a
00755>                        + 08:FR11          .62         .003 No_date    2:04    3.80  n/a
00756>                        + 09:FR7           3.56        .053 No_date    1:32    4.01  n/a
00757>                        + 10:FR8           5.03        .218 No_date    1:26   12.31  n/a
00758>       [DT= 1.00]  SUM=  01:Out4          86.37       .760 No_date    1:51    5.12  n/a
00759>  001:0090---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00760>      ADD HYD             02:Out4          86.37       .760 No_date    1:51    5.12  n/a
00761>                        + 03:C1            8.30        .088 No_date    1:21   10.85  n/a
00762>                        + 04:C2            6.71        .066 No_date    1:21   20.02  n/a
00763>                        + 05:C3            .24         .007 No_date    1:20   23.86  n/a
00764>                        + 06:EXC1          1.10        .040 No_date    1:20    9.70  n/a
00765>                        + 07:EXC2          1.03        .051 No_date    1:20   17.29  n/a
00766>                        + 08:EXC3          .22         .017 No_date    1:20   14.27  n/a
00767>                        + 09:EXC           1.07        .157 No_date    1:20   17.65  n/a
00768>       [DT= 1.00]  SUM=  01:Out5          104.21      2.208 No_date    1:21    7.47  n/a
00769> #*********************************************************************
00770> # Simulations with 4 hour Chicago from City of Ottawa
00771>   ** END OF RUN :  1
00772>
00773> *********************************************************************
00774>
00775>
00776>
00777>
00778>
00779>
00780>  RUN:COMMAND*
00781>  001:0001---------------------------------------------------------------
00782>       START
00783>         [TAREA =    .01 Hra or          0]
00784>         [METOUT=    2    [1=Imperial, 2=metric output]
00785>         [NSTORM=    1 ]
00786>         [NRUN  =    1 ]
00787> #*********************************************************************
00788> #  SWMHYMO Ver:5.02/Jan 2001 <BUILD> / INPUT DATA FILE
00789> #*********************************************************************
00790> #  Project Name  :Greely Village Center     Project Number: 647-07
00791> #  Date          : 08-JA-2008
00792> #  Modeller      : MPE
00793> #  Company       : JFSAinc.
00794> #  License #     : 2547402
00795> #*********************************************************************
00796> #
00797> # SWMHYMO model of the Greely Village Center   Residential Area - Phase 1
00798> # Proposed Ultimate conditions. JuVIUM 8
00799> # Filename stands for: Greely, Commercial, Proposed
00800> #*********************************************************************
00801>  002:0002---------------------------------------------------------------
00802>       READ STORM
00803>         Filename = storm.dat
00804>         Comment  = 2 years Chicago Storm 4 Hours step 10 min, City of Ottawa
00805>         [ptsf IO:03:SECN=    4.00:PTSI=   35.89]
00806> #*********************************************************************
00807> # Existing flow - McEvoy Branch of Shields Creek - Areas
00808> # Area c/s of proposed development (residential)
00809> # CN*=85, slope = 0.5, Tp=0.6h, XTIME=h, TIMP=% see SC302 as per Stantec
00810> # Area partially adjusted based on Artel drawings. Tp adjusted accordingly.
00811> #*********************************************************************
00812> # c/s of Bank St.as per Artel - with modified boundaries and Tp.
00813>  002:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00814>       DESIGN HASHYD      01:EX1         24.62       .627 No_date    1:35    8.98 .254
00815>         [CN= 74.0: N= 3.0]
00816>         [Tp=  .21:DT= 1.00]
00817> #*********************************************************************
00818> # Existing flow - External areas c/s of Bank St.
00819> # CN* 69, as per Stantec sce SC002.
00820> # Area partially adjusted based on Artel drawings.
00821> #*********************************************************************
00822> # Areas External to development
00823>  002:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00824>       DESIGN HASHYD      01:EX2          9.89       .100 No date    1:31    4.16 .211
00825>         [CN= 69.0: N= 3.0]
00826>         [Tp=  .67:DT= 1.00]
00827>  002:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00828>       DESIGN HASHYD      01:EX3         21.30       .186 No_date    1:24    7.26 .211
00829>         [CN= 69.0: N= 3.0]
00830>         [Tp=  .81:DT= 1.00]
```

```
# Slope, Timp, Area from Atrel Drawing
# CN from Stantec (SC003)
# Ximp = Timp = 100
 002:C00C----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX3          .58     .611 No_date    1:21    9.64 .280
       [XIMP=.10:TIMP=.22]
       [CN%= 2 :CN= 69.0]
       |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  20.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.67:SLPI=1.00:LGI=  50.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development Parkway Rd
# Timp = Ximp = 0.21 ha /0.52 ha = 0.40
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape   600m/2 =  300
 002:C007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX5          .52     .625 No_date    1:18   16.50 .487
       [XIMP=.40:TIMP=.60]
       [CN%= 2 :CN= 69.0]
       |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  20.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.67:SLPI=1.00:LGI=  100.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development SalesBarn Rd
# Timp = Ximp = 0.1 ha /0.51 ha = 0.20
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape = 354m/2 = 177
 002:C00E----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX6          .51     .615 No_date    1:24   11.23 .331
       [XIMP=.20:TIMP=.20]
       [CN%= 2 :CN= 69.0]
       |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  20.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.67:SLPI=1.00:LGI=  177.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development SalesBarn Rd
# Timp = Ximp = 0.07 ha /0.35 ha = 0.20
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape = 205m/2 = 102.5
 002:C009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX7          .39     .614 No_date    1:23   12.02 .365
       [XIMP=.20:TIMP=.20]
       [CN%= 2 :CN= 69.0]
       |Pervious     area: IAper= 1.67:SLPP=1.00:LGP=  20.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.67:SLPI=1.00:LGI=  157.:MNI=.045:SCI=    .0|
#*******************************************************************************
# PROPOSED COMMERCIAL DEVELOPMENT
#*******************************************************************************
# CN = 79 as per full grass cover with C soil type for lom soil; CN*=71
# XIMP   TIMP to be conservative
#*******************************************************************************
 002:C010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EC1          8.38     .989 No_date    1:21   59.76 .669
       [XIMP=.62:TIMP=.62]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
 002:C011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EC2          6.34     .983 No_date    1:20   27.75 .518
       [XIMP=.75:TIMP=.75]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
 002:C012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EC3          .24     .690 No_date    1:20   32.58 .981
       [XIMP= .98:TIMP= .98]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
# Imp ha/total area = 0.30/1.10 ha = .27
 002:C013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EXC1         1.16     .864 No_date    1:20   34.58 .649
       [XIMP=.25:TIMP=.25]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
# Imp = Imp ha/total area   0.30/1.07 ha   .30
 002:C014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EXC2         1.00     .838 No_date    1:20   34.59 .650
       [XIMP=.45:TIMP=.45]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
# Imp = Imp ha/total area = 0.11/0.32ha = .30
 002:C015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EXC3          .23     .624 No_date    1:20   20.49 .602
       [XIMP=.50:TIMP=.50]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
#*******************************************************************************
# Commercial pond (POn)
# Slope estimated at 1% based on elevations around pond.
# Timp and Ximp based on total pond area
# Ximp = A pond/A tot (1.04/1.57)
 002:C016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:POn          1.57     .219 No_date    1:20   24.71 .720
       [X.XX=.67:TIMP=.67]
       [SLP=1.00:DC= 1.00]
       [CN%= 2 :CN= 71.0]
#*******************************************************************************
# PROPOSED RESIDENTIAL MULTIFAMILY - Residential Area Phase 1 and 2
#*******************************************************************************
# CN* 69, as per Stantec doc SC001.
# Tp estimated with Up and Method.
 002:C017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD     01:PR1          4.26     .087 No_date    1:31    7.15 .171
       [CN= 69.0: N= 3.00]
       [Tp= .18:DT= 1.00]
#*******************************************************************************
# AREAS GOING TO RESIDENTIAL POND (POn)
#*******************************************************************************
 002:C018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR1A          .24     .095 No_date    1:20   10.07 .196
       [XIMP=.11:TIMP=.37]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=    .0|
 002:C019----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR1B          .50     .012 No_date    1:21   10.03 .196
       [XIMP=.11:TIMP=.37]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=    .0|
 002:C020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR2A          1.57     .037 No_date    1:27   10.02 .196
       [XIMP=.11:TIMP=.21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  100.:MNI=.045:SCI=    .0|
 002:C021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR2B          1.57     .024 No_date    1:22   10.02 .196
       [XIMP=.11:TIMP=.21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=    .0|
 002:C022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR3A          .47     .010 No_date    1:21   10.02 .196
       [XIMP=.11:TIMP=.21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  52.:MNI=.045:SCI=    .0|
 002:C023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR3B          .47     .010 No_date    1:21   10.02 .196
       [XIMP=.11:TIMP=.21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=    .0|
 002:C024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR4A          .71     .015 No_date    1:22   10.03 .196
       [XIMP=.11:TIMP=.21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  67.:MNI=.045:SCI=    .0|
 002:C025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR4B          .67     .014 No_date    1:22   10.03 .196
       [XIMP= .11:TIMP= .21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=    .0|
 002:C026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR5A          .68     .014 No_date    1:20   10.03 .196
       [XIMP= .11:TIMP= .21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=    .0|
 002:C027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:PR5B          .48     .010 No_date    1:21   10.03 .196
       [XIMP= .11:TIMP= .21]
       [CN%= 2 :CN= 71.0]
       |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=    .0|
 002:C028----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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