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Site Servicing Report & Stormwater Management Study

The Hindu Heritage Center of Ottawa-Carleton
4835 Bank Street
Ottawa, Ontario K1X 1G6

Prepared for:

The Hindu Heritage Center of Ottawa-Carleton
c/o Lloyd Philips & Associates Ltd.
1827 Woodward Drive, Suite 109
Ottawa, Ontario K2C 0P9

Attention: Mr. Harish Gupta

LRL File No.: 170132-10

March 11, 2020
Rev. April 8, 2025

EXECUTIVE SUMMARY

LRL Associates Ltd. has been mandated by Harish Gupta, of the Hindu Heritage Centre, to prepare a Site Servicing Report and SWM Study for the new assembly hall development at the Hindu Heritage Center of Ottawa-Carleton located at 4835 Bank Street, Ottawa, Ontario.

The analysis concluded that the 1/5 and 1/100-year post-development runoff discharge can be controlled to the 1/5-year pre-development levels or less. We also demonstrated that an enhanced water quality protection level of 80% TSS removal can be achieved for the controlled runoff using a Stormwater Treatment Unit (Jellyfish Filter) prior to discharging stormwater into the existing watercourse.

Furthermore, the proposed water distribution network will be adequate to service the new assembly hall building. The maximum hourly demand is calculated at 8.18 L/s, and the corresponding minimum residual pressure is 61.14 psi. The maximum day demand including total fire flow (for both proposed and existing building) is174.18 L/s, and the resulting residual minimum pressure is 24.73 psi.

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APPENDICES

1 INTRODUCTION

LRL Associates Ltd. has been mandated by Lloyd Philips & Associates Ltd. to prepare a Site Servicing Report and Stormwater Management Study for the development of a new assembly hall at the Hindu Heritage Center of Ottawa-Carleton, located at 4835 Bank Street, Ottawa, Ontario. The property is legally described as Part of Lot 22, Concession 5 (Rideau Front), Geographic Township of Gloucester, City of Ottawa. The Key Plan for the proposed site has been included in Appendix A.

The subject property is rectangular in shape, with a frontage of 101.92 m and depth of 401.53 m. The property's total surface area is 4.06 ha. The West portion of the site is currently composed of an existing single storey temple (combined gross floor area of 1062 m^2, with basement) with landscaped area bordering it's North, West and South ends. An existing asphalt parking lot is located adjacent to the East end of the temple. An asphalt roadway (Temple Road) follows the South property line below the landscape area & existing temple, providing access to the existing parking lot. At roughly the center of the property lies an existing creek, running South to North. All property located East of the creek is wooded area.

The proposed addition, the assembly hall, will be a single-story building (with full basement). The proposed development will have a total gross main floor area of approximately 1400 m^2. The assembly hall will be located East of the existing temple and parking lot, and West of the creek.

Currently, the existing building is serviced by a 150 mmØ water service running West to East along Temple Road. In order to provide water to the proposed development, the service will need to be extended roughly 131m Easterly. The new water service will be designed in order to supply the new domestic and fire flow building demands, as well as the proposed fire hydrant.

As there are no sanitary sewer located along Bank Street, the proposed building will have to be serviced by a septic system. The proposed septic system will be located directly South of the proposed assembly hall. It will be designed to suit the new building sanitary needs as per the Ontario Building Code - Part 8. The Ottawa Septic System Office (OSSO) will be issuing the permit for the new septic system.

As per the City of Ottawa's requirements, all storm runoff will be controlled to pre-development levels for a 5-year storm event. All surplus runoff will be conveyed to, and controlled in a detention area before being treated and discharged to the existing water course. Stormwater quality control will meet the 80% minimum TSS removal requirements, as per the South Nation Conservation Authority (SNCA) requirements.

This report has been prepared in consideration of the terms and conditions noted above. Should there be any changes in the design features, which may relate to the water or sanitary considerations, LRL Associates Ltd. should be advised in order to review the report's recommendations.

2 FIELDWORK

The topographic survey of the property was conducted on April 27th, 2017 by Annis, Sullivan Vollebeckk Ltd. (Ontario Land Surveyors). A site benchmark was established during the survey for future construction use. The benchmark provided is the top of spindle (elevation 100.17 m) of the existing fire hydrant found between the existing temple and existing access roadway, at the South-West corner of the existing parking lot.

3 STORMWATER MANAGEMENT

3.1 Existing Stormwater Conditions

In pre-development conditions, all stormwater flows off-site uncontrolled.

The site follows a few overland flow patterns, which will be broken down below.

First, there is the front (West) section of the property, which encompasses the existing Hindu Temple, and surrounding North, West and South landscape. The site was graded down from the Temple building, so naturally, stormwater will flow from the temple to the nearest property line. Stormwater in the North and West landscape areas will flow North / North-West / West to the respective property lines. Stormwater south of the building will flow to the South, and captured & conveyed East by the existing ditch (running along the North end of the existing asphalt driveway)

The second section of the property, the rear (East) end, encompasses the existing parking lot, and surrounding North, East and South landscape. The existing parking lot was developed with a high point running along the center (West to East), with a slight slope towards the East. All stormwater on the North end of the parking lot is conveyed North-West to the North property line. All stormwater on the South end of the parking lot is conveyed South / South-West to the South property line. All stormwater accumulated at the rear end of the property would continue to flow East, until ultimately should reach the existing creek.

The final section of the property is the driveway running along the South property line. All stormwater from this asphalt surface will be conveyed North / North-east to the ditch running along the driveways North end.

Please refer to civil plan C701 – Pre-Development Watershed Plan for greater detail.

3.2 Proposed Post-development Watersheds

For stormwater management design purposes, the site was divided into four watershed areas;

WS-01 – Existing building, grass area, ditch & driveway South of the existing building, South existing parking lot & proposed ditch, proposed building and grass area & detention area South of the proposed building

WS-02 – North section of the existing parking lot, including North grass area

WS-03 – Grass area North and South of the existing Temple

WS-04 – Grass area at the South-East corner of the property

The watershed delineations can be seen in Civil Plan C702 – Post-development Watershed Plan.

As per the EIS (Environmental Impact Statement) developed for this site, we could not perform any works, or include any stormwater management structures, within a 20m setback from the existing creek. This 20m setback was delineated as the East boundary of our scope of work.

Watershed 01 is proposed as a control area, where stormwater will be controlled and treated prior to being released at the 20m setback line (and ultimately flowing overland to the existing creek).

Watershed 02 is proposed as an uncontrolled area, where stormwater will flow off the site uncontrolled, as it did in previous conditions. Though no means of flow control will be implemented here, the stormwater in this area will be collected and treated prior to being released.

Watersheds 03 and 04 are proposed as uncontrolled areas. No flow control or treatment are proposed for these areas, stormwater will flow off the site uncontrolled, as it did in previous conditions. As large majority of these watersheds are landscaped/grassed areas, additional treatment isn't an absolute necessity.

3.3 Design Criteria

The stormwater management criteria for this development are based on pre-consultation with City of Ottawa officials (which occurred on June 5th, 2019), the City of Ottawa Sewer Design Guidelines including City of Ottawa Stormwater Management Design Guidelines, 2012 (City standards), as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003 (SWMPD Manual).

As discussed during the pre-consultation meeting, all storm events up to and including the 100-year event would are to be controlled to the 5-year pre-development level, using a smaller of a runoff coefficient (C) of 0.5 or the actual site C, and time of concentration of 10 minutes. The runoff generated from the existing site was calculated using the Rational Method, as follows:

$$Q = 2.78 \times C \times I \times A$$

Where,

C = the runoff coefficient (C = 0.47)

I = the rainfall intensity (mm/hr) (I_5 = 104.2 mm/hr at a Tc = 10 min)

A = Area (2.117 ha)

$$Q_{\text{allowable 1/5yr (pre-dev)}} = 2.78 \times 0.47 \times 104.2 \text{ mm/hr} \times 2.117 \text{ ha} = 288.68 \text{ L/s}$$

As per the watershed delineation provided in section 3.2, in the 100-year storm event, the maximum uncontrolled runoff was calculated to be 249.13 L/s. With an allowable release rate of 288.68 L/s, this would leave us to have to control the balance of the site to a controlled release rate of 39.55 L/s.

4 QUANTITY CONTROL

The area at the South of proposed building is large enough to accommodate a substantial detention area. This proposed detention area, equipped with an inlet control device (ICD) at the outlet, would serve as a primary means of flow control for all controlled stormwater on-site.

To achieve the aforementioned, it was determined that the release rate would have to be controlled to approximately 39.50 L/s for the 100yr storm event, and 28.00 L/s for the 5yr storm

event. The release rate will be controlled by installing an ICD in the outlet maintenance hole (MH01) whereas the excess runoff will be conveyed to and stored in the proposed detention area, upstream of MH01. Please refer to Appendix C for greater details regarding the proposed ICD.

The maximum storage volumes required to contain the 5- and 100-year post-development storm events were calculated to be **177.42 m³** and **424.74 m³**, respectively. For storage volume calculations, the controlled release rate was taken as half of the discharge rate.

The detailed storage calculations can be found in Appendix N.

All controlled overland flow will be conveyed to the proposed detention area, located near the South-East corner of the proposed assembly hall, by means of the existing grading, as well as the extension of the existing ditch (running West to East along the South property line). The excess runoff will ultimately be stored above ground in the proposed detention area. No ponding will occur on the existing landscaped area, parking lot or pathways during high-level storm events. However, during the 5- and 100-year storm events, some ponding will occur in ditch South-West of the detention area, due to the proposed grading of these elements. The Stormwater Management plan (Civil Plan C601), provided in Appendix F, demonstrates the extent of storage and high-water levels for both the 100- and 5-year storm events.

AutoCAD Civil 3D was used to determine the maximum storage volume and high-water level of the proposed detention area. A Cut/Fill table was generated by the program, which can be seen in Appendix D of the report. The maximum storage volume generated by Civil 3D (428.14 m^3) was found to be greater than the required storage previously calculated (424.72 m^3). Therefore, the detention area & ditch will be enough to retain the excess runoff generated by a 100-year major storm event.

5 STORM RUNOFF QUALITY REQUIREMENTS

As previously mentioned, the site will be developed so that the post-development controlled runoff will ultimately be discharged at the 20m setback line. As discussed in the pre-consultation meeting with the City of Ottawa, in order to meet the water quality objective, it is required to achieve an enhanced level of protection of 80% total suspended solid (TSS) removal. This can be achieved using a water quality treatment unit.

Considering the post-development watershed area that requires water quality treatment (1.316 ha), (as seen in Appendix B – Post-Development Watershed Plan), it is proposed to install an Jellyfish JF6-4-1 stormwater treatment unit (or approved equivalent). The Jellyfish JF6-4-1 will serve to remove a minimum 80% of the TSS while treating 90% off the annual runoff. Please refer to Appendix E for the selection, type and additional information on the treatment unit.

Stormwater treatment has also been proposed in Watershed WS-02 (consisting of the North half of the existing parking lot). Stormwater in this area will be conveyed to a catchbasin proposed at the North-East corner of the parking lot. The catchbasin will be equipped with a FlexStorm Pure inlet filer. The inlet filter will not provide the full 80% TSS removal, however, it will provide substantial treatment of runoff from the North parking lot. The treated flow from the catchbasin and inlet filter will then be conveyed to a proposed infiltration gallery.

Greater details for the inlet filter can be found in Appendix E and infiltration gallery can be found on Civil Plan C902.

6 LOW IMPACT DEVELOPMENT

As per the EIS performed for this site, the proposed development should occur with large focus towards Low Impact Development (LID).

At the rear of the property is located an existing creek. A 20m setback was proposed from the creek as a means of protecting the sensitive resource. This setback was respected in the stormwater management design for the site.

The initial design focused on maintaining as much of the existing grass area and landscape elements (trees) as possible. Any addition to the parking lot was offset by incorporating landscape within the parking lot. The roof drains will also lead flows to either the ditch or detention area, in order to maximize the potential for captured water infiltration.

All controlled runoff is ultimately being treated by the Jellyfish stormwater treatment unit (or approved equivalent). Prior to this, the stormwater will succumb to other means of stormwater treatment. The ditches are low-sloping, and equipped with a subdrain & clear stone, to promote filtration and infiltration. Ditch culvert inverts have been slightly raised at the inlets in order to promote additional ponding and infiltration. The proposed detention area spans a large area; this works increases ground infiltration and treatment of the detained stormwater. The detention area is low sloping, encouraging additional infiltration and decreasing sediment conveyance.

The uncontrolled runoff, specifically the runoff from the North half of the parking lot, will progress through two forms of treatment prior to being released. The stormwater will be captured by a catchbasin installed at the North-East end of the parking lot. The captured runoff will first be treated with a Flexstorm Pure inlet filter. This inlet filter will not provide the full 80% TSS removal, however, it will provide substantial treatment of runoff from the North parking lot, targeting contaminates such as trash, litter, leaves, smaller particles, oil and grease. This treated stormwater will then be conveyed to a proposed infiltration gallery. The infiltration gallery, equipped with a perforated subdrain and clear stone trench, will provide further treatment, and greatly encourage infiltration. The infiltration gallery was designed to retain a volume of stormwater from the first 5mm rainfall over the watershed WS-02. This translates to a storage volume of 20.55 m^3.

In addition, additional landscaping elements will be incorporated to the site to improve site aesthetic. The detention area will serve to improve the open land use and site development aesthetic.

7 WATER SERVICE

7.1 Domestic Water Demand

The average domestic water demand, the maximum daily domestic water demand and the maximum hourly domestic water demand were calculated using the number of equivalent plumbing fixtures (as per the OBC) for the proposed new assembly hall building. The plumbing fixtures were determined based on the Architectural Drawings, as seen in Appendix G.

Table 1 included below demonstrates the type, quantity and equivalent number of fixtures units proposed in the new development.

Table 1 - Number of Equivalent Plumbing Fixtures for Proposed Building

Fixture Description	Quantity	Hydraulic Load (Public Use)	Fixture Units
Toilet	23	2.2	50.6
Sink	23	1.5	34.5
Shower	2	3	6
Mop service sink	2	2.25	4.5
Urinal	8	3	24
Total			**120**

The domestic water demand was determined based on the calculated total fixture units for the proposed building. To summarize, a total equivalent fixture unit count of 120 resulted an average daily water demand of 3.03 L/s (261,648 L/day), a maximum daily demand of 4.54 L/s (392,471 L/day), and a maximum hourly demand of 8.18 L/s (706,448 L/day).

With reference to OBC Table 7.6.3.2.A, calculated total fixture unit for the existing building was calculated to be 55, resulting in an average daily water demand of 1.96 L/s (168,980 L/day), a maximum daily demand of 2.93 L/s (253,471 L/day), and a maximum hourly demand of 5.28 L/s (456,248 L/day).

Detailed calculations can be found in Appendix J.

A new watermain, with dual connection, was proposed on site to service both the existing building, new building, and fire hydrants. The water service connection to the new building was designed and sized to obtain a desired residual pressure range as per Section 4.2.2 of City of Ottawa Design Guidelines – Water Distribution. The new water service layout can be found in the Servicing Plan, included in Appendix H.

7.2 Fire Flow Requirements

The minimum fire flow rate required has been calculated using the Fire Underwriters Survey (FUS) method. The fire flow is derived from the proposed building surface area, the type of construction, the combustibility and the separation distances to other adjacent buildings.

Fire flow for both the existing and proposed buildings have been considered for the extent of this report.

The effective building area of the proposed assembly hall building is 1560 square meters, it is to be of non-combustible construction and sprinklered. The required fire flow rate was determined to be 4,000 L/min (66.7 L/s). The effective building area of the existing building on-site assembly hall building is 1062 square meters, of non-combustible construction, and non-sprinklered. The required fire flow rate was determined to be 6,000 L/min (100.0 L/s).

Detailed calculations can be found in Appendix L.

To ensure that the proposed watermain can supply the required fire flow via the proposed new fire hydrant on-site, additional hydraulic analysis have been performed using EPANET (Version 2.2). The modeling results show that the proposed water distribution network is able to meet the required fire flow while the residual pressure, at any point in the distribution network, is greater than 20 psi.

7.3 Boundary Conditions

The boundary conditions for this development were obtained from the City of Ottawa on June 16thth, 2022, based on the calculated water demands and fire flow. Two sets of boundary conditions were provided for the development: the first for the existing water distribution system and the second for the future SUC zone reconfiguration. Both have been considered for the purposes of this report.

The maximum and minimum water pressure provided for Bank Street for the existing water distribution system are 79.3 psi and 62.7 psi, respectively, and the pressure corresponding to the Max. Day + Fire is 37.4 psi.

The maximum and minimum water pressure provided for Bank Street for the SUC zone reconfiguration water distribution system are 71.2 psi and 65.0 psi, respectively, and the pressure corresponding to the Max. Day + Fire Flow is 59.0 psi.

Refer to Appendix M (City of Ottawa Boundary Conditions) and Appendix K (EPANET Modelling) for additional information.

7.4 Water Distribution Network Hydraulic Modeling

To decrease vulnerability of the water distribution system, the subject site is proposed to have two (2) service connections which will be looped inside the property line, refer to Site Servicing Plan C401 for a proposed layout. To study the behavior of the network and obtain operating pressure under different flow scenarios, the proposed network was modeled and analyzed using EPANET software (Version 2.2). The hydraulic model uses two supply reservoirs with HGL provided by City Boundary Conditions at different flow scenarios. The first connection is represented by Reservoir R1 and the second connection is represented by Reservoir R2 at Bank St. Six (6) different flow scenarios were analyzed. The summary of modeling results is summarized in Table 2 below and greater details can be found in Appendix K.

7.5 Expected Water Service Pressure

For Scenario 1, the anticipated average day demands are applied to node J14 for the proposed new building and node J16 for the existing building. The residual pressures calculated using EPANET hydraulic analysis are summarized in Table 2. The procedure is repeated for Scenario 2 (Peak Hour). For scenario 3, the calculated fire flow demands are applied to the fire hydrant connection nodes with maximum day domestic demand simultaneously applied to building service entry nodes. For modeling results including pipe pressure, refer to Appendix K.

According to City Guidelines-Water Distribution, the maximum pressure at any point in the distribution system shall not exceed 80 psi. However, for Scenario 1, the calculated pressures of 80.94 and 82.65 psi are greater than 80 psi, therefore a pressure reducing valve is required for both existing building and the proposed new building. Scenario 2 (Peak Hour) and Scenario 3 (Max Day+ Fire Flow) residual pressure exceeds required minimum of 40 and 20 psi respectively, thus appears acceptable.

Table 2 - Summary of Residual Pressures (psi)

Scenario	Existing Building		Proposed New Building	
	Existing Conditions	SUC Zone Reconfiguration	Existing Conditions	SUC Zone Reconfiguration
Scenario 1: Avg Day	80.94	72.83	82..65	74.55
Scenario 2: Peak Hour	61.14	63.41	65.81	68.08
Scenario 3: Max Day + Fire Flow	24.73	31.23	27.31	33.81

Note: The residual pressures correspond to service entry nodes J14 (proposed new building) & J16 (existing building).

8 SANITARY SERVICE

Based on the existing plans and City of Ottawa resources (geoOttawa), it was apparent that there was no existing municipal sanitary sewer located along Bank Street. Therefore, the development of the new assembly hall will necessitate the design & installation of a new septic system.

The existing building, the Hindu Heritage Center Place of Worship, is currently serviced by two independent sewage systems (septic treatment system and leaching bed), hereby referred to as the north septic and south septic, each having been designed for a capacity of 3750 L/day, or 7500 L/day total. With the current site plan control application, sewage demand was reassessed at 3650 L/day, based on a max occupancy of 250 individuals. Due to the lowered required capacity of the existing building, it is proposed that the north septic be decommissioned, and the south septic system upgraded to become the consolidated septic for the entire Place of Worship. The upgraded septic is proposed to consist of an advanced sewage treatment system (pre-treatment tank, treatment unit, filter vault and shallow bury trench bed).

The proposed building, the Hindu Heritage Center Assembly Hall, due to the lack of municipal sanitary sewer and capacity with the Place of Worship septic system, will require its own independent septic system. The proposed septic system will be constructed on the South side of the proposed building, North of the proposed ditch. Based on the assumption that a maximum 500 individuals will occupy the building, the proposed building is expected to have a daily demand of 4000 L/day. Due to area constraints for the leaching bed, a tertiary septic treatment has been proposed for the Assembly Hall (consisting of a balancing tank, treatment unit and shallow bury trench bed).

The new septic systems have been designed under Part 8 (Sewage System) of the OBC.

Refer to the Site Servicing Plan in Appendix H for the proposed location of the new septic systems. Refer to Appendix P for the septic designs and OSSO approvals.

Greater detail can be found in with reference to the LRL Terrain Analysis and Private Sewage Disposal System Impact Assessment.

9 MAINTENANCE

Monitoring and maintenance are an important component for all types of stormwater management practices. It ensures performance efficiency of the facilities and prevents undesirable consequences such as flooding or contamination to the neighboring properties.

The maintenance of the proposed stormwater treatment unit (Jellyfish Filter) would consist of inspecting the structure (inlet, outlet, cover etc.) on a periodic basis and cleaning them as deemed necessary. The structure should be cleaned (pumped) of its sediments and hydrocarbons content at least once a year, as per the manufacturer recommendations. It is the responsibility of the owner to maintain and clean the treatment unit and keep a log of all the maintenance activities.

10 SEDIMENT AND EROSION CONTROL

Sediment and erosion control measures will be implemented before and during the construction of this project. Typical control measures such as silt fences and sediment straw bail fences are mandatory. For this project, a silt fence will be erected along the perimeter of the development area. A sediment straw bail fence will be constructed downstream of the proposed new ditch, upstream of the proposed detention area. In addition, a mud mat will be installed at the entrance of the proposed development unit. Refer to drawing C101 – Erosion and Sediment Control Plan (Appendix I) for additional details.

11 CONCLUSIONS

The analysis concluded that the 5- and 100-year post-development runoff discharge can be controlled to the 5-year pre-development level. We also demonstrated that an enhanced water quality protection level (80% TSS removal) can be achieved with a stormwater treatment unit prior to discharging controlled treated stormwater into the existing watercourse.

Furthermore, the proposed water distribution network will be adequate to service the new assembly hall building, as well as existing building and fire hydrants.

The sanitary servicing will consist of the construction of a new septic system.

12 REPORT CONDITIONS AND LIMITATIONS

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure the compatibility with the recommendations contained in this document.

If you have any questions or comments, please contact the undersigned.

Yours truly,
LRL Associates Ltd.

Prepared by:

Kyle Herold

Approved by:

M. Basnet, P. Eng.

APPENDIX A

Key Plan

LRJ
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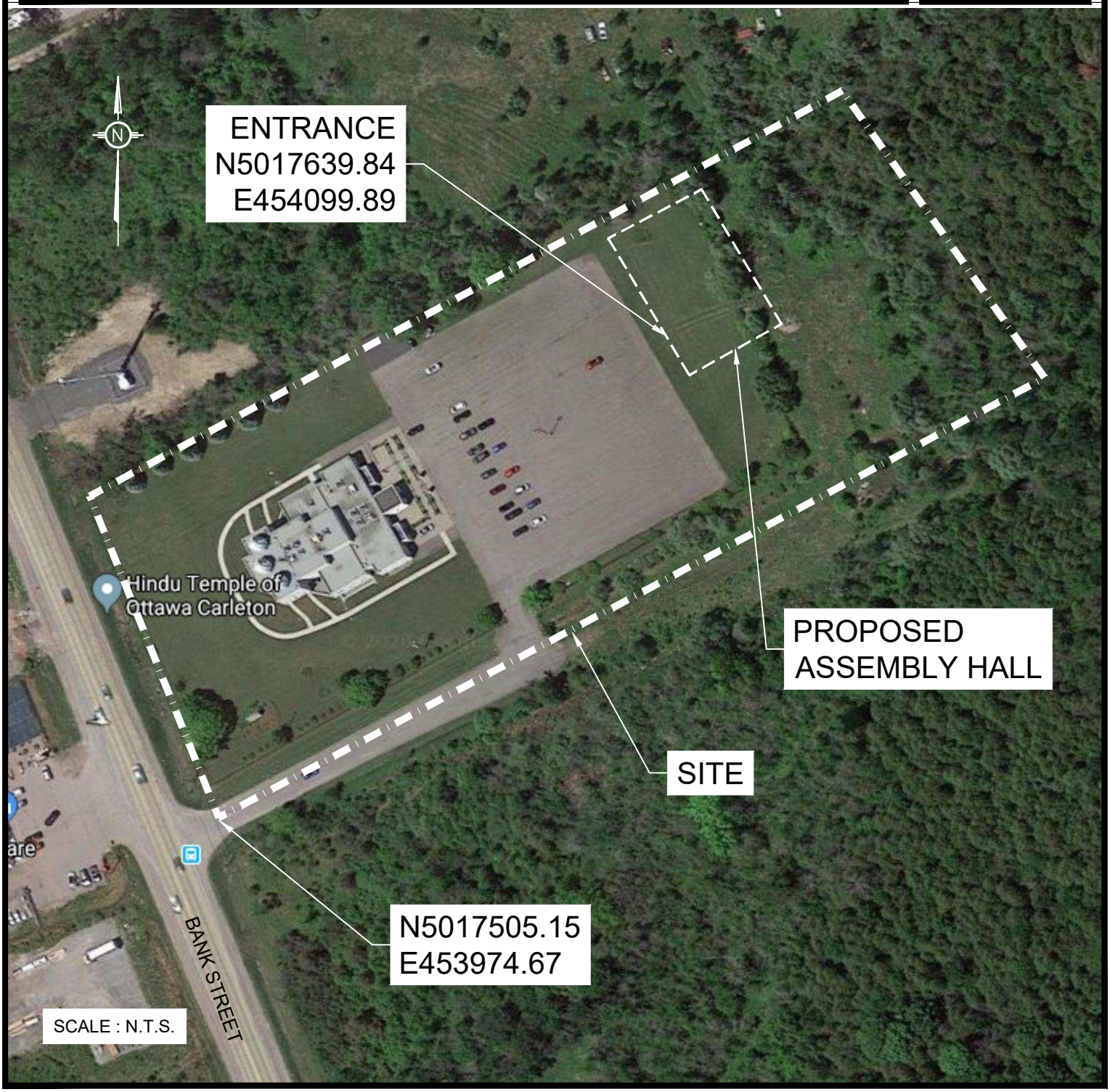
PROJECT

PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE

KEY PLAN

CLIENT	DATE	PROJECT	
THE HINDU HERITAGE CENTRE OF OTTAWA-CARLETON	20FEB2020	170132	KP



APPENDIX B

Pre & Post Watershed Plans

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 019119680388 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparsions, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB (DC)
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA / RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

EWS-01 UNCONTROLLED: 2.117 | 0.47

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER — M. BASNET 100501996 — 2025/04/8 — PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
PRE-DEVELOPMENT WATERSHED PLAN

PROJECT NO.
170132

DATE
JAN2020

C701

D017-12-20-0059 PLAN # 18407

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 01911968038 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

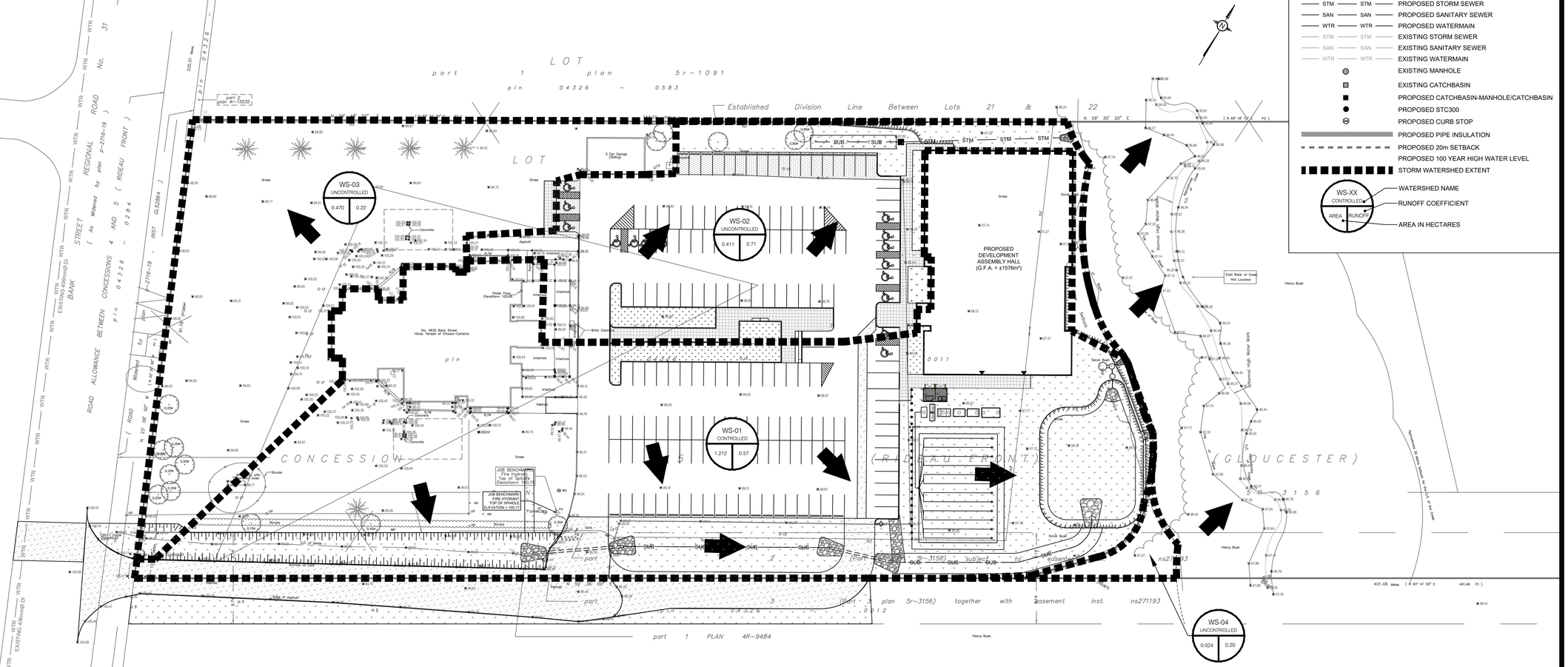
Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparsions, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED / AREA / RUNOFF — WATERSHED NAME; RUNOFF COEFFICIENT; AREA IN HECTARES


WS-03
UNCONTROLLED
0.470
0.22
WS-02
UNCONTROLLED
0.411
0.71
WS-01
CONTROLLED
1.212
0.57
WS-04
UNCONTROLLED
0.024
0.20
PROPOSED DEVELOPMENT ASSEMBLY HALL (G.F.A. = ±1576m²)
No. 4835 Bank Street
Hindu Temple of Ottawa-Carleton
JOB BENCHMARK
FIRE HYDRANT
TOP OF SPINDLE
ELEVATION = 100.17
Established Division Line Between Lots 21 & 22
CONCESSION
(RIDEAU FRONT)
(GLOUCESTER)
BANK STREET
ROAD ALLOWANCE BETWEEN CONCESSIONS
REGIONAL ROAD No. 31
Existing 335.01 Wide
Widened by plan 4r-15535
Widened by plan 5r-2716-19
EXISTING 406mmØ DI WTR
Part 1 plan 4r-15535
Part 1 plan 5r-1091
plan 04326 - 0583
plan 04326 - 0284
plan 5r-2716-19
Part 1 plan 5r-3156
Part 2 plan 5r-3156
Part 3 plan 5r-3156
Part 1 PLAN 4R-9484
subject to easement inst. ns271193
together with easement inst. ns271193
Part 1 plan 4r-15535
Part 2 plan 4r-15535
Part 3 plan 4r-15535
Part 4 plan 4r-15535
Part 5 plan 4r-15535
Part 6 plan 4r-15535
Part 7 plan 4r-15535
Part 8 plan 4r-15535
Part 9 plan 4r-15535
Part 10 plan 4r-15535
Part

APPENDIX C

Flow Restrictor Information

LRL File No. 170132-10
Project: Hindu Heritage Center
Location: 4835 Bank Street, Ottawa
Date: 08-Apr-25
Designed: K. Herold
Checked: M. Basnet
Drawing Ref.: C.401

Stormwater Management Design Sheet

Orifice Equation

Q = 0.61 * A * sqrt (2 * g * H)

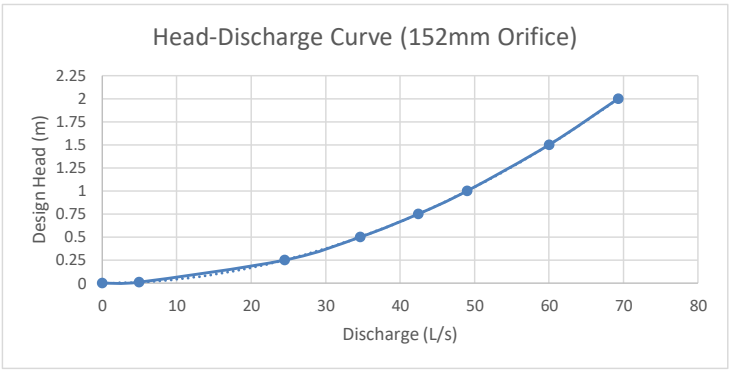
Where;
- Q = release rate (in m3/s)
- 0.61 = coefficient
- A = area of the orifice (m2)
- g = gravitational constant (9.81 m/s2)
- H = head (above CL of orifice (m))

ICD Diameter (based on 100yr design reqt's)

Q (m3/s) =	0.0395
g (9.81m/s2) =	9.81
H (m) =	0.65

A (m2) =	0.01813
D (m) =	0.152

Orifice Diameter Required = 152 mm



Storm - 100 year

Allowable Release Rate = 316.44L/s
Controlled Release Rate = 39.50L/s

Q (m3/s) =	0.0395
g (9.81m/s2) =	9.81
A (m2) =	0.01813

H (m) =	0.65

100yr STM Design Head = 0.65 m

Storm - 5 year

Allowable Release Rate = 316.44L/s
Controlled Release Rate = 28.00L/s

Q (m3/s) =	0.028
g (9.81m/s2) =	9.81
A (m2) =	0.01813

H (m) =	0.33

5yr STM Design Head = 0.33 m

Inlet Control Device Parameters

ICD at MH01

Product Orifice Plate

Design Head =	0.65m
Max. Pond Depth =	0.82m (100y)
100y High Water Level =	98.47
5y High Water Level =	98.15
Outlet Pipe & ICD Inv =	97.72
ICD Dia =	152mm
ICD Head above CL Orifice Inv =	97.80

APPENDIX D

Volume Table Generated by AutoCAD Civil 3D

Cut/Fill Report

Generated: 2022-10-31 09:11:55

By user: KHerold

Drawing: W:\FILES 2017\170132\06 CivilDesign\02 Drawings\07 FinalProductionDrawings\W:\FILES 2017\170132\06 CivilDesign\02 Drawings\07 FinalProductionDrawings\170132-05.dwg

Volume Summary 5yr

Name	Type	Cut Factor	Fill Factor	2d Area (hectares)	Cut (Cu. M.)	Fill (Cu. M.)	Net (Cu. M.)
VOL DITCH WEST	full	0.00	1.00	0.05	0.00*	0.00	0.00*
VOL DET AREA	full	0.00	1.00	0.06	0.00*	210.79	210.79*
VOL DITCH EAST	full	0.00	1.00	0.02	0.00*	0.13	0.13*

Totals

	2d Area (hectares)	Cut (Cu. M.)	Fill (Cu. M.)	Net (Cu. M.)
Total	0.14	0.00*	210.92	210.92*

* Value adjusted by cut or fill factor other than 1.0

Cut/Fill Report

Generated: 2022-10-31 09:15:12

By user: KHerold

Drawing: W:\FILES 2017\170132\06 CivilDesign\02 Drawings\07 FinalProductionDrawings\W:\FILES 2017\170132\06 CivilDesign\02 Drawings\07 FinalProductionDrawings\170132-05.dwg

Volume Summary 100yr

Name	Type	Cut Factor	Fill Factor	2d Area (hectares)	Cut (Cu. M.)	Fill (Cu. M.)	Net (Cu. M.)
VOL DITCH WEST	full	0.00	1.00	0.05	0.00*	7.85	7.85*
VOL DET AREA	full	0.00	1.00	0.06	0.00*	396.35	396.35*
VOL DITCH EAST	full	0.00	1.00	0.02	0.00*	23.94	23.94*

Totals

	2d Area (hectares)	Cut (Cu. M.)	Fill (Cu. M.)	Net (Cu. M.)
Total	0.14	0.00*	428.14	428.14*

* Value adjusted by cut or fill factor other than 1.0

APPENDIX E

Stormwater Treatment Devices

DRAWING NOT TO BE USED FOR CONSTRUCTION

GENERAL NOTES:

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. JELLYFISH STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE JELLYFISH SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECTS BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

JELLYFISH STRUCTURE & DESIGN NOTES:

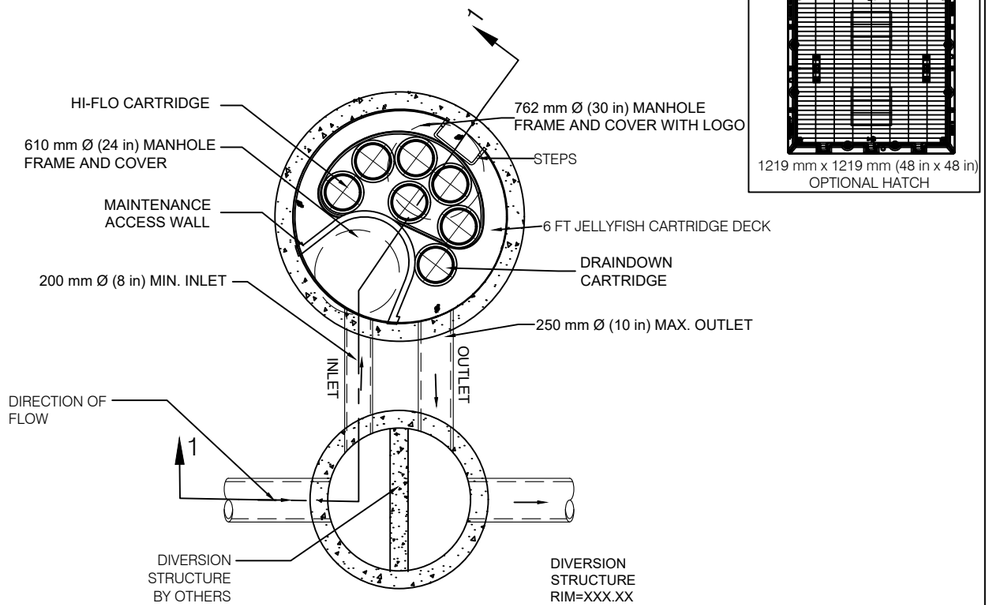
1. 762 MM Ø (30") MAINTENANCE ACCESS WALL TO BE USED FOR CLEANOUT AND ACCESS BELOW CARTRIDGE DECK.
2. CASTINGS OR DOORS OF THE JELLYFISH MANHOLE STRUCTURE TO EXTEND TO DESIGN FINISH GRADE. DEPTHS IN EXCESS OF 3.65 M (12') MAY REQUIRE THE DESIGN AND INSTALLATION OF INTERMEDIATE SAFETY GRATES OR OTHER STRUCTURAL ELEMENTS.
3. CASTINGS AND GRADE RINGS, OR DOORS AND DOOR RISERS, OR BOTH, SHALL BE GROUTED FOR WATERTIGHTNESS.
   STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE IMBRIUM LOGO.
4. ALL STRUCTURAL SECTIONS AND PARTS TO MEET OR EXCEED ASTM C-478, ASTM C-443, AND ASTM D-4097 CORRESPONDING TO AASHTO SPECIFICATIONS, AND ANY OTHER SITE OR LOCAL STANDARDS.
5. CONCRETE RISER SECTIONS FROM BOTTOM TO TOP WILL BE ADDED AS REQUIRED INCLUDING TRANSITION PIECES TO SMALLER DIAMETER RISERS FOR SURFACE ACCESSES WHERE WARRANTED BY SERVICING DEPTH.
6. IF MINIMUM DEPTH FROM TOP OF CARTRIDGE DECK TO BOTTOM OF STRUCTURAL TOP SLAB CANNOT BE ACHIEVED DUE TO PIPING INVERT ELEVATIONS OR OTHER SITE CONSTRAINTS. ALTERNATIVE HATCH CONFIGURATIONS MAY BE AVAILABLE. HATCH DOORS SHOULD BE SIZED TO PROVIDE FULL ACCESS ABOVE THE CARTRIDGES TO ACCOMMODATE MAINTENANCE.
7. STEPS TO BE APPROXIMATELY 330 MM (13") APART AND DIMENSIONS MUST MEET LOCAL STANDARDS. STEPS MUST BE INSTALLED AFTER CARTRIDGE DECK IS IN PLACE.
8. CONFIGURATION OF INLET AND OUTLET PIPE CAN VARY TO MEET SITE'S NEEDS.
9. IT IS THE RESPONSIBILITY OF OTHERS TO PROPERLY PROTECT THE TREATMENT DEVICE, AND KEEP THE DEVICE OFFLINE DURING CONSTRUCTION. FILTER CARTRIDGES SHALL NOT BE INSTALLED UNTIL THE PROJECT SITE IS CLEAN AND FREE OF DEBRIS, BY OTHERS. THE PROJECT SITE INCLUDES ANY SURFACE THAT CONTRIBUTES STORM DRAINAGE TO THE TREATMENT DEVICE. CARTRIDGES SHALL BE FURNISHED NEW, AT THE TIME OF FINAL ACCEPTANCE.
10. THIS DRAWING MUST BE VIEWED IN CONJUNCTION WITH THE STANDARD JELLYFISH SPECIFICATION, AND STORMWATER QUALITY FILTER TREATMENT JELLYFISH DOCUMENTS.

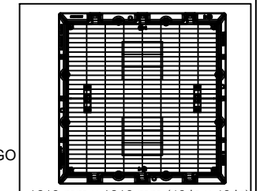
INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY IMBRIUM, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT IMBRIUM TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

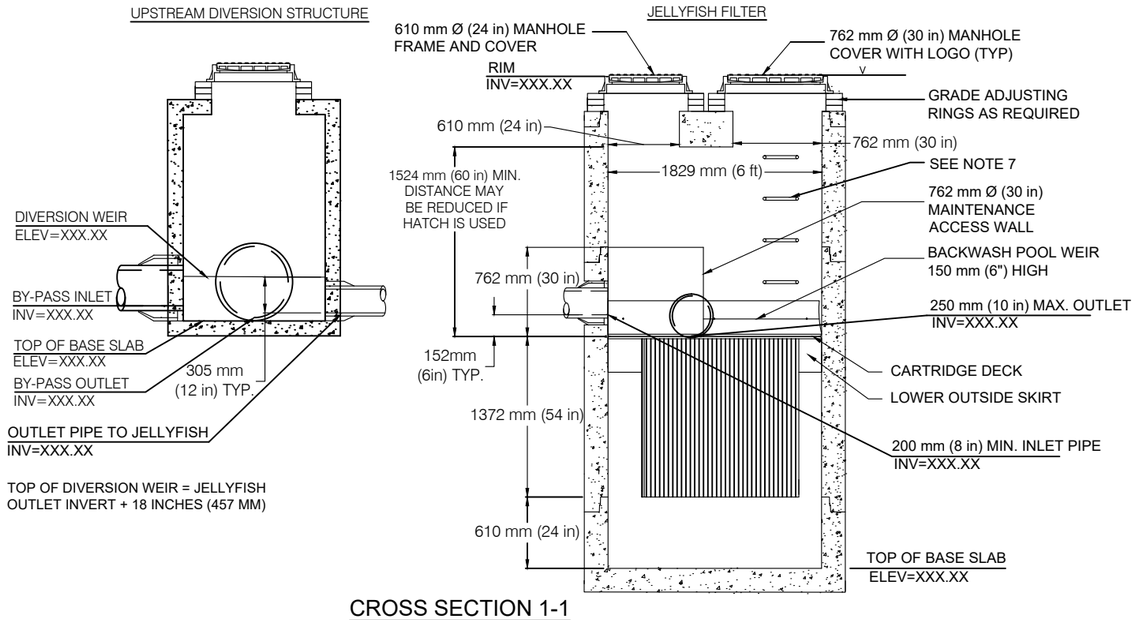
STANDARD OFFLINE JELLYFISH RECOMMENDED PIPE DIAMETERS			
MODEL DIAMETER (m)	MINIMUM ANGLE INLET/OUTLET PIPES	MINIMUM INLET PIPE DIAMETER (mm)	MINIMUM OULTET PIPE DIAMETER (mm)
1.2	62	150	200
1.8	59	200	250
2.4	52	250	300
3.0	48	300	450
3.6	40	300	450
CONTACT IMBRIUM SYSTEMS FOR ALTERNATE PIPE DIAMETERS			

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL JELLYFISH FILTER REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE.




1219 mm x 1219 mm (48 in x 48 in) OPTIONAL HATCH

refer to civil plan C903 for proposed treatment unit inv's



CROSS SECTION 1-1

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø1829 mm (72") MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 32.8 L/s (1.16 CFS). TREATMENT FLOW RATE IS BASED ON 457 MM (18") OF HEAD PRESSURE.

CARTRIDGE SELECTION	54"	40"	27"	15"			
CARTRIDGE DEPTH	90"	76"	63"	51"			
OUTLET INVERT TO STRUCTURE BASE SLAB	5.09 / 2.55	3.68 / 1.84	2.55 / 1.27	1.41 / 0.71			
FLOW RATE HIGH-FLO / DRAINDOWN (L/s) (per cart)	57 / 28	42 / 21	28 / 14	16 / 8			
SEDIMENT CAPACITY HIGH-FLO / DRAINDOWN (kg) (per cart)			6 / 1				
MAX. CARTS HIGH-FLO/DRAINDOWN							
MAX. SEDIMENT CAPACITY (kg)	370	273	182	104			
MAX. TREATMENT (L/s)	32.8	24.6	16.4	9.06			

SITE SPECIFIC DATA REQUIREMENTS

JELLYFISH MODEL	*				
STRUCTURE ID					*
WATER QUALITY FLOW RATE (L/s)					*
PEAK FLOW RATE (L/s)					*
RETURN PERIOD OF PEAK FLOW (yrs)					*
# OF CARTRIDGES REQUIRED (HF / DD)					*
CARTRIDGE SIZE (inches)					*
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

MARK	DATE	REVISION DESCRIPTION	BY
1	08/01/2015	NOTES	BSF
0	10/01/2014	INTIAL RELEASE	BSF

Jellyfish

JF6 STANDARD

Scale = 1:50

info@imbriumsystems.com
www.imbriumsystems.com

imbrium

7037 Ridge Road, Suite 350, Hanover, MD 21076
USA 888-279-8826 CA 800-565-4801 INT. +1-416-960-9900

Jellyfish® Filter

DATE: #########

DESIGNED:	DRAWN:
	BSF
CHECKED:	APPROVED:
BSF	SP
PROJECT #:	PROJECT NAME:
######	######

SHEET: 1 OF 2

I:\IMBRIUM\PRODUCTS\JELLYFISH FILTER\40 DRAWINGS & DETAILS\STANDARD DETAILS\JELLYFISH FILTER - OFFLINE\JELLYFISH FILTER JF6 - OFFLINE DIVERSION MANHOLE.DWG 5/17/2017 1:49 PM

JELLYFISH® FILTER - SPECIFICATIONS

GENERAL

A. WORK INCLUDED: SPECIFIES REQUIREMENTS FOR CONSTRUCTION AND PERFORMANCE OF AN UNDERGROUND STORMWATER QUALITY, MEMBRANE FILTRATION, AND TREATMENT DEVICE THAT REMOVES POLLUTANTS FROM STORMWATER RUNOFF THROUGH THE UNIT OPERATIONS OF SEDIMENTATION, FLOATATION, AND MEMBRANE FILTRATION.

B. REFERENCE STANDARDS:
ASTM C 891: SPECIFICATION FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES
ASTM C 478: SPECIFICATION FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C 990: SPECIFICATION FOR JOINTS FOR CONCRETE MANHOLES USING PREFORMED FLEXIBLE JOINT SEALANTS
ASTM D 4101: SPECIFICATION FOR COPOLYMER STEPS CONSTRUCTION

C. SHOP DRAWINGS: SHOP DRAWINGS FOR THE STRUCTURE AND PERFORMANCE ARE TO BE SUBMITTED WITH EACH ORDER TO THE CONTRACTOR. CONTRACTOR SHALL FORWARD SHOP DRAWING SUBMITTAL TO THE CONSULTING ENGINEER FOR APPROVAL. SHOP DRAWINGS ARE TO DETAIL THE STRUCTURE PRECAST CONCRETE AND CALL OUT OR NOTE THE FIBERGLASS (FRP) INTERNALS/COMPONENTS.

D. PRODUCT SUBSTITUTIONS: NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD. SUBMISSIONS FOR SUBSTITUTIONS REQUIRE REVIEW AND APPROVAL BY THE ENGINEER OF RECORD, FOR HYDRAULIC PERFORMANCE, IMPACT TO PROJECT DESIGNS, EQUIVALENT TREATMENT PERFORMANCE, AND ANY REQUIRED PROJECT PLAN AND REPORT (HYDROLOGY/HYDRAULIC, WATER QUALITY, STORMWATER POLLUTION) MODIFICATIONS THAT WOULD BE REQUIRED BY THE APPROVING JURISDICTIONS/AGENCIES. CONTRACTOR TO COORDINATE WITH THE ENGINEER OF RECORD ANY APPLICABLE MODIFICATIONS TO THE PROJECT ESTIMATES OF COST, BONDING AMOUNT DETERMINATIONS, PLAN CHECK FEES FOR CHANGES TO APPROVED DOCUMENTS, AND/OR ANY OTHER REGULATORY REQUIREMENTS RESULTING FROM THE PRODUCT SUBSTITUTION.

E. HANDLING AND STORAGE: PREVENT DAMAGE TO MATERIALS DURING STORAGE AND HANDLING.

PRODUCTS

A. THE DEVICE SHALL BE A CYLINDRICAL OR RECTANGULAR, ALL CONCRETE STRUCTURE (INCLUDING RISERS), CONSTRUCTED FROM PRECAST CONCRETE RISER AND SLAB COMPONENTS OR MONOLITHIC PRECAST STRUCTURE(S), INSTALLED TO CONFORM TO ASTM C 891 AND TO ANY REQUIRED STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS; WHICHEVER IS MORE STRINGENT. THE DEVICE SHALL BE WATERTIGHT.

B. THE CYLINDRICAL CONCRETE DEVICE SHALL INCLUDE A FIBERGLASS CARTRIDGE DECK INSERT. THE RECTANGULAR CONCRETE DEVICE SHALL INCLUDE A COATED ALUMINUM INSERT. IN EITHER INSTANCE, THE INSERT SHALL BE BOLTED AND SEALED WATERTIGHT INSIDE THE PRECAST CONCRETE CHAMBER. THE INSERT SHALL SERVE AS: (A) A HORIZONTAL DIVIDER BETWEEN THE LOWER TREATMENT ZONE AND THE UPPER TREATED EFFLUENT ZONE; (B) A DECK FOR ATTACHMENT OF FILTER CARTRIDGES SUCH THAT THE MEMBRANE FILTER ELEMENTS OF EACH CARTRIDGE EXTEND INTO THE LOWER TREATMENT ZONE; (C) A PLATFORM FOR MAINTENANCE WORKERS TO SERVICE THE FILTER CARTRIDGES (MAXIMUM MANNED WEIGHT = 450 POUNDS); (D) A CONDUIT FOR CONVEYANCE OF TREATED WATER TO THE EFFLUENT PIPE.

C. MEMBRANE FILTER CARTRIDGES SHALL BE COMPRISED OF REUSABLE CYLINDRICAL MEMBRANE FILTER ELEMENTS CONNECTED TO A PERFORATED HEAD PLATE. THE NUMBER OF MEMBRANE FILTER ELEMENTS PER CARTRIDGE SHALL BE A MINIMUM OF ELEVEN 2.75-INCH (70-MM) OR GREATER DIAMETER ELEMENTS. THE LENGTH OF EACH FILTER ELEMENT SHALL BE A MINIMUM 15 INCHES (381 MM). EACH CARTRIDGE SHALL BE FITTED INTO THE CARTRIDGE DECK BY INSERTION INTO A CARTRIDGE RECEPTACLE THAT IS PERMANENTLY MOUNTED INTO THE CARTRIDGE DECK. EACH CARTRIDGE SHALL BE SECURED BY A CARTRIDGE LID THAT IS THREADED ONTO THE RECEPTACLE, OR SIMILAR MECHANISM TO SECURE THE CARTRIDGE INTO THE DECK. THE MAXIMUM TREATMENT FLOW RATE OF A FILTER CARTRIDGE SHALL BE CONTROLLED BY AN ORIFICE IN THE CARTRIDGE LID, OR ON THE INDIVIDUAL CARTRIDGE ITSELF, AND BASED ON A DESIGN FLUX RATE (SURFACE LOADING RATE) DETERMINED BY THE MAXIMUM TREATMENT FLOW RATE PER UNIT OF FILTRATION MEMBRANE SURFACE AREA. THE MAXIMUM FLUX RATE SHALL BE 0.21 GPM/FT2 (0.142 LPS/M2). EACH MEMBRANE FILTER CARTRIDGE SHALL ALLOW FOR MANUAL INSTALLATION AND REMOVAL.

D. ALL FILTER CARTRIDGES AND MEMBRANES SHALL BE REUSABLE AND ALLOW FOR THE USE OF FILTRATION MEMBRANE RINSING PROCEDURES TO RESTORE FLOW CAPACITY AND SEDIMENT CAPACITY; EXTENDING CARTRIDGE SERVICE LIFE.

E. ACCESS SHALL HAVE A MINIMUM CLEAR HEIGHT OF 60" OVER ALL OF THE FILTER CARTRIDGES, OR BE ACCESSIBLE BY A HATCH OR OTHER MECHANISM THAT PROVIDES MINIMUM 60" VERTICAL CLEAR SPACE OVER ALL OF THE FILTER CARTRIDGES. FILTER CARTRIDGES SHALL BE ABLE TO BE LIFTED STRAIGHT VERTICALLY OUT OF THE RECEPTACLES AND DECK FOR THE ENTIRE LENGTH OF THE CARTRIDGE.

F. THE DEVICE SHALL INCLUDE A MINIMUM 24 INCHES (610 MM) OF SUMP BELOW THE BOTTOM OF THE CARTRIDGES FOR SEDIMENT ACCUMULATION, UNLESS OTHERWISE SPECIFIED BY THE DESIGN ENGINEER. DEPTHS LESS THAN 24" MAY HAVE AN IMPACT ON THE TOTAL PERFORMANCE AND/OR LONGEVITY BETWEEN CARTRIDGE MAINTENANCE/REPLACEMENT OF THE DEVICE.

G. ALL PRECAST CONCRETE COMPONENTS SHALL BE MANUFACTURED TO A MINIMUM LIVE LOAD OF HS-20 TRUCK LOADING OR GREATER BASED ON LOCAL REGULATORY SPECIFICATIONS, UNLESS OTHERWISE MODIFIED OR SPECIFIED BY THE DESIGN ENGINEER, AND SHALL BE WATERTIGHT.

H. GASKETS AND/OR SEALANTS TO PROVIDE WATER TIGHT SEAL BETWEEN CONCRETE JOINTS. JOINTS SHALL BE SEALED WITH PREFORMED JOINT SEALING COMPOUND CONFORMING TO ASTM C 990.

I. FRAME AND COVERS MUST BE MANUFACTURED FROM CAST-IRON OR OTHER COMPOSITE MATERIAL TESTED TO WITHSTAND H-20 OR GREATER DESIGN LOADS, AND AS APPROVED BY THE LOCAL REGULATORY BODY. FRAMES AND COVERS MUST BE EMBOSSED WITH THE NAME OF THE DEVICE MANUFACTURER OR THE DEVICE BRAND NAME.

J. DOOR AND HATCHES, IF PROVIDED SHALL MEET DESIGNATED LOADING REQUIREMENTS OR AT A MINIMUM FOR INCIDENTAL VEHICULAR TRAFFIC.

K. ALL CONCRETE COMPONENTS SHALL BE MANUFACTURED ACCORDING TO LOCAL SPECIFICATIONS AND SHALL MEET THE REQUIREMENTS OF ASTM C 478.

L. THE FIBERGLASS PORTION OF THE FILTER DEVICE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING STANDARD: ASTM D-4097: CONTACT MOLDED GLASS FIBER REINFORCED CHEMICAL RESISTANT TANKS.

M. STEPS SHALL BE CONSTRUCTED ACCORDING TO ASTM D4101 OF COPOLYMER POLYPROPYLENE, AND BE DRIVEN INTO PREFORMED OR PRE-DRILLED HOLES AFTER THE CONCRETE HAS CURED, INSTALLED TO CONFORM TO APPLICABLE SECTIONS OF STATE, PROVINCIAL AND MUNICIPAL BUILDING CODES, HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS FOR THE CONSTRUCTION OF SUCH DEVICES.

N. ALL PRECAST CONCRETE SECTIONS SHALL BE INSPECTED TO ENSURE THAT DIMENSIONS, APPEARANCE AND QUALITY OF THE PRODUCT MEET LOCAL MUNICIPAL SPECIFICATIONS AND ASTM C 478.

PERFORMANCE

A. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL FUNCTION TO REMOVE POLLUTANTS BY THE FOLLOWING UNIT TREATMENT PROCESSES; SEDIMENTATION, FLOATATION, AND MEMBRANE FILTRATION.

B. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL REMOVE OIL, DEBRIS, TRASH, COARSE AND FINE PARTICULATES, PARTICULATE-BOUND POLLUTANTS, METALS AND NUTRIENTS FROM STORMWATER DURING RUNOFF EVENTS.

C. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL TYPICALLY UTILIZE AN EXTERNAL BYPASS TO DIVERT EXCESSIVE FLOWS. INTERNAL BYPASS SYSTEMS SHALL BE EQUIPPED WITH A FLOATABLES BAFFLE, AND MUST PASS WATER OVER THE CARTRIDGE DECK, AND AVOID PASSAGE THROUGH THE SUMP AND/OR CARTRIDGE FILTRATION ZONE.

D. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL TREAT 100% OF THE REQUIRED WATER QUALITY TREATMENT FLOW BASED ON A MAXIMUM TREATMENT FLUX RATE (SURFACE LOADING RATE) ACROSS THE MEMBRANE FILTER CARTRIDGES NOT TO EXCEED 0.21 GPM/FT2 (0.142 LPS/M2).

E. AT A MINIMUM, THE STORMWATER QUALITY FILTER DEVICE SHALL HAVE BEEN FIELD TESTED AND VERIFIED WITH A MINIMUM 25 QUALIFYING STORM EVENTS AND FIELD MONITORING CONDUCTED ACCORDING TO THE TARP TIER II OR TAPE FIELD TEST PROTOCOL, AND HAVE RECEIVED NJCAT VERIFICATION.

F. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TSS REMOVAL EFFICIENCY OF 85% AND A MINIMUM MEDIAN SSC REMOVAL EFFICIENCY OF 95%.

G. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED THE ABILITY TO CAPTURE FINE PARTICLES AS INDICATED BY A MINIMUM MEDIAN REMOVAL EFFICIENCY OF 75% FOR THE PARTICLE FRACTION LESS THAN 25 MICRONS, AN EFFLUENT D50 OF 15 MICRONS OR LOWER FOR ALL MONITORED STORM EVENTS, AND AN EFFLUENT TURBIDITY OF 15 NTUS OR LOWER.

H. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TOTAL PHOSPHORUS REMOVAL OF 55%, AND A MINIMUM MEDIAN TOTAL NITROGEN REMOVAL OF 50%.

I. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TOTAL ZINC REMOVAL OF 50%, AND A MINIMUM MEDIAN TOTAL COPPER REMOVAL OF 75%.

INSPECTION AND MAINTENANCE

A. DURABILITY OF MEMBRANES ARE SUBJECT TO GOOD HANDLING PRACTICES DURING INSPECTION AND MAINTENANCE (REMOVAL, RINSING, AND REINSERTION) EVENTS, AND SITE SPECIFIC CONDITIONS THAT MAY HAVE HEAVIER OR LIGHTER LOADING ONTO THE CARTRIDGES, AND POLLUTANT VARIABILITY THAT MAY IMPACT THE MEMBRANE STRUCTURAL INTEGRITY. MEMBRANE MAINTENANCE AND REPLACEMENT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

B. INSPECTION WHICH INCLUDES TRASH AND FLOATABLES COLLECTION, SEDIMENT DEPTH DETERMINATION, AND VISIBLE DETERMINATION OF BACKWASH POOL DEPTH SHALL BE EASILY CONDUCTED FROM GRADE (OUTSIDE THE STRUCTURE).

C. MANUAL RINSING OF THE REUSABLE FILTER CARTRIDGES SHALL PROMOTE RESTORATION OF THE FLOW CAPACITY AND SEDIMENT CAPACITY OF THE FILTER CARTRIDGES, EXTENDING CARTRIDGE SERVICE LIFE.

D. SEDIMENT REMOVAL FROM THE FILTER TREATMENT DEVICE SHALL BE ABLE TO BE CONDUCTED USING A STANDARD MAINTENANCE TRUCK AND VACUUM APPARATUS, AND A MINIMUM ONE POINT OF ENTRY TO THE SUMP THAT IS UNOBSTRUCTED BY FILTER CARTRIDGES.

E. MAINTENANCE ACCESS SHALL HAVE A MINIMUM CLEAR HEIGHT OF 60" OVER ALL OF THE FILTER CARTRIDGES, OR BE ACCESSIBLE BY A HATCH OR OTHER MECHANISM THAT PROVIDES MINIMUM 60" VERTICAL CLEAR SPACE OVER ALL OF THE FILTER CARTRIDGES. FILTER CARTRIDGES SHALL BE ABLE TO BE LIFTED STRAIGHT VERTICALLY OUT OF THE RECEPTACLES AND DECK FOR THE ENTIRE LENGTH OF THE CARTRIDGE.

F. FILTER CARTRIDGES SHALL BE ABLE TO BE MAINTAINED WITHOUT THE USE OF ADDITIONAL LIFTING EQUIPMENT.

EXECUTION

A. THE INSTALLATION OF A WATERTIGHT PRECAST CONCRETE DEVICE SHOULD CONFORM TO ASTM C 891 AND TO ANY STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS FOR THE CONSTRUCTION OF MANHOLES, WHICHEVER IS MORE STRINGENT. SELECTED SECTIONS OF A GENERAL SPECIFICATION THAT ARE APPLICABLE ARE SUMMARIZED BELOW.

B. THE WATERTIGHT PRECAST CONCRETE DEVICE IS INSTALLED IN SECTIONS IN THE FOLLOWING SEQUENCE:
- AGGREGATE BASE
- BASE SLAB
- TREATMENT CHAMBER AND CARTRIDGE DECK RISER SECTION(S)
- BYPASS SECTION
- CONNECT INLET AND OUTLET PIPES
- CONCRETE RISER SECTION(S) AND/OR TRANSITION SLAB (IF REQUIRED)
- MAINTENANCE RISER SECTION(S) (IF REQUIRED)
- FRAME AND ACCESS COVER

C. INLET AND OUTLET PIPES SHOULD BE SECURELY SET INTO THE DEVICE USING APPROVED PIPE SEALS (FLEXIBLE BOOT CONNECTIONS, WHERE APPLICABLE) SO THAT THE STRUCTURE IS WATERTIGHT, AND SUCH THAT ANY PIPE INTRUSION INTO THE DEVICE DOES NOT IMPACT THE DEVICE FUNCTIONALITY.

D. ADJUSTMENT UNITS (E.G. GRADE RINGS) SHOULD BE INSTALLED TO SET THE FRAME AND COVER AT THE REQUIRED ELEVATION. THE ADJUSTMENT UNITS SHOULD BE LAID IN A FULL BED OF MORTAR WITH SUCCESSIVE UNITS BEING JOINED USING SEALANT RECOMMENDED BY THE MANUFACTURER. FRAMES FOR THE COVER SHOULD BE SET IN A FULL BED OF MORTAR AT THE ELEVATION SPECIFIED.

E. IN SOME INSTANCES THE MAINTENANCE ACCESS WALL, IF PROVIDED, SHALL REQUIRE AN EXTENSION ATTACHMENT AND SEALING TO THE PRECAST WALL AND CARTRIDGE DECK AT THE JOB SITE, RATHER THAN AT THE PRECAST FACILITY. IN THIS INSTANCE, INSTALLATION OF THESE COMPONENTS SHALL BE PERFORMED ACCORDING TO INSTRUCTIONS PROVIDED BY THE MANUFACTURER.

F. FILTER CARTRIDGES SHALL BE INSTALLED IN THE CARTRIDGE DECK AFTER THE CONSTRUCTION SITE IS FULLY STABILIZED AND IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES AND RECOMMENDATIONS. CONTRACTOR TO CONTACT THE MANUFACTURER TO SCHEDULE CARTRIDGE DELIVERY AND REVIEW PROCEDURES/REQUIREMENTS TO BE COMPLETED TO THE DEVICE PRIOR TO INSTALLATION OF THE CARTRIDGES AND ACTIVATION OF THE SYSTEM.

G. MANUFACTURER SHALL COORDINATE DELIVERY OF FILTER CARTRIDGES AND OTHER INTERNAL COMPONENTS WITH CONTRACTOR. FILTER CARTRIDGES SHALL BE DELIVERED AND INSTALLED COMPLETE AFTER SITE IS STABILIZED AND UNIT IS READY TO ACCEPT CARTRIDGES. UNIT IS READY TO ACCEPT CARTRIDGES AFTER IS HAS BEEN CLEANED OUT AND ANY STANDING WATER, DEBRIS, AND OTHER MATERIALS HAVE BEEN REMOVED. CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO PROTECT THE FILTER CARTRIDGE RECEPTACLES AND FILTER CARTRIDGES FROM DAMAGE DURING CONSTRUCTION, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND GUIDANCE. FOR SYSTEMS WITH CARTRIDGES INSTALLED PRIOR TO FULL SITE STABILIZATION AND PRIOR TO SYSTEM ACTIVATION, THE CONTRACTOR CAN PLUG INLET AND OUTLET PIPES TO PREVENT STORMWATER AND OTHER INFLUENT FROM ENTERING THE DEVICE. PLUGS MUST BE REMOVED DURING THE ACTIVATION PROCESS.

H. THE MANUFACTURER SHALL PROVIDE AN OWNER'S MANUAL UPON REQUEST.

I. AFTER CONSTRUCTION AND INSTALLATION, AND DURING OPERATION, THE DEVICE SHALL BE INSPECTED AND CLEANED AS NECESSARY BASED ON THE MANUFACTURER'S RECOMMENDED INSPECTION AND MAINTENANCE GUIDELINES AND THE LOCAL REGULATORY AGENCY/BODY.

J. WHEN REPLACEMENT MEMBRANE FILTER ELEMENTS AND/OR OTHER PARTS ARE REQUIRED, ONLY MEMBRANE FILTER ELEMENTS AND PARTS APPROVED BY THE MANUFACTURER FOR USE WITH THE STORMWATER QUALITY FILTER DEVICE SHALL BE INSTALLED.

END OF SECTION

MARK	DATE	REVISION DESCRIPTION	BY
0	10/01/2014	INITIAL RELEASE	BSF
#	#	#	#
#	#	#	#
#	#	#	#
#	#	#	#

JELLYFISH FILTER SPECIFICATIONS

Jellyfish®

JF6 STANDARD

Scale = 1:50

www.imbriumsystems.com
info@imbriumsystems.com

imbrium
7037 Ridge Road, Suite 350, Hanover, MD 21076
USA 888-279-8826 CA 800-565-4801 INTL +1 416-560-9900

Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,511,595; 6,649,048; 6,891,085; 7,470,366; 7,857,967; 8,431,016; 8,470,173; 8,961,777; 9,227,151; 9,352,256; 9,861,922; 9,861,923; 9,861,924; 9,861,925; 9,861,926; 9,861,927; 9,861,928; 9,861,929; 9,861,930; 9,861,931; 9,861,932; 9,861,933; 9,861,934; 9,861,935; 9,861,936; 9,861,937; 9,861,938; 9,861,939; 9,861,940; 9,861,941; 9,861,942; 9,861,943; 9,861,944; 9,861,945; 9,861,946; 9,861,947; 9,861,948; 9,861,949; 9,861,950; 9,861,951; 9,861,952; 9,861,953; 9,861,954; 9,861,955; 9,861,956; 9,861,957; 9,861,958; 9,861,959; 9,861,960; 9,861,961;

STANDARD OFFLINE
Jellyfish Filter Sizing Report

Project Information

Date	Tuesday, November 24, 2020
Project Name	Hindu Heritage Center
Project Number	
Location	Ottawa

Jellyfish Filter Design Overview

This report provides information for the sizing and specification of the Jellyfish Filter. When designed properly in accordance to the guidelines detailed in the Jellyfish Filter Technical Manual, the Jellyfish Filter will exceed the performance and longevity of conventional horizontal bed and granular media filters.

Please see ***www.ImbriumSystems.com*** *for more information.*

Jellyfish Filter System Recommendation

The Jellyfish Filter model JF6-4-1 is recommended to meet the water quality objective by treating a flow of 22.7 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 36 years of OTTAWA MACDONALD-CARTIER INT'L A rainfall data for this site. This model has a sediment capacity of 256 kg, which meets or exceeds the estimated average annual sediment load.

Jellyfish Model	Number of High-Flo Cartridges	Number of Draindown Cartridges	Manhole Diameter (m)	Treatment Flow Rate (L/s)	Sediment Capacity (kg)
JF6-4-1	4	1	1.8	22.7	256

The Jellyfish Filter System

The patented Jellyfish Filter is an engineered stormwater quality treatment technology featuring unique membrane filtration in a compact stand-alone treatment system that removes a high level and wide variety of stormwater pollutants. Exceptional pollutant removal is achieved at high treatment flow rates with minimal head loss and low maintenance costs. Each lightweight Jellyfish Filter cartridge contains an extraordinarily large amount of membrane surface area, resulting in superior flow capacity and pollutant removal capacity.

Maintenance

Regular scheduled inspections and maintenance is necessary to assure proper functioning of the Jellyfish Filter. The maintenance interval is designed to be a minimum of 12 months, but this will vary depending on site loading conditions and upstream pretreatment measures. Quarterly inspections and inspections after all storms beyond the 5-year event are recommended until enough historical performance data has been logged to comfortably initiate an alternative inspection interval.

Please see ***www.ImbriumSystems.com*** *for more information.*

Thank you for the opportunity to present this information to you and your client.

Performance

Jellyfish efficiently captures a high level of Stormwater pollutants, including:

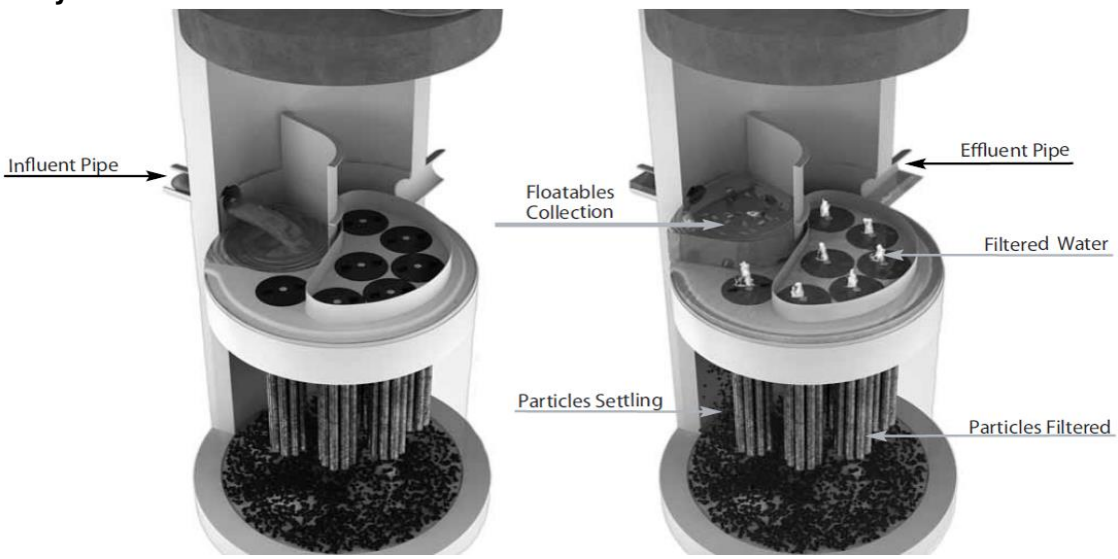
- ☑ 89% of the total suspended solids (TSS) load, including particles less than 5 microns
- ☑ 59% TP removal & 51% TN removal
- ☑ 90% Total Copper, 81% Total Lead, 70% Total Zinc
- ☑ Particulate-bound pollutants such as nutrients, toxic metals, hydrocarbons and bacteria
- ☑ Free oil, Floatable trash and debris

Field Proven Peformance

The Jellyfish filter has been field-tested on an urban site with 25 TARP qualifying rain events and field monitored according to the TARP field test protocol, demonstrating:

- A median TSS removal efficiency of 89%, and a median SSC removal of 99%;
- The ability to capture fine particles as indicated by an effluent d50 median of 3 microns for all monitotred storm events, and a median effluent turbidity of 5 NTUs;
- A median Total Phosphorus removal of 59%, and a median Total Nitrogen removal of 51%.

Jellyfish Filter Treatment Functions



Pre-treatment and Membrane Filtration

Project Information

Date:	Tuesday, November 24, 2020
Project Name:	Hindu Heritage Center
Project Number:	
Location:	Ottawa

Designer Information

Company:	LRL Associates Ltd.
Contact:	Kyle Herold
Phone #:	

Notes

Rainfall

Name:	OTTAWA MACDONALD-CARTIER INT'L A
State:	ON
ID:	6000
Record:	1967 to 2003
Co-ords:	45°19'N, 75°40'W

Drainage Area

Total Area:	1.316 ha
Runoff Coefficient:	0.59

Upstream Detention

Peak Release Rate:	n/a
Pretreatment Credit:	n/a

Design System Requirements

Flow Loading	90% of the Average Annual Runoff based on 36 years of OTTAWA MACDONALD-CARTIER INT'L A rainfall	**17.5 L/s**
Sediment Loading	Treating 90% of the average annual runoff volume, 3541 m³, with a suspended sediment concentration of 60 mg/L.	**212 kg***

** Indicates that sediment loading is the limiting parameter in the sizing of this Jellyfish system*

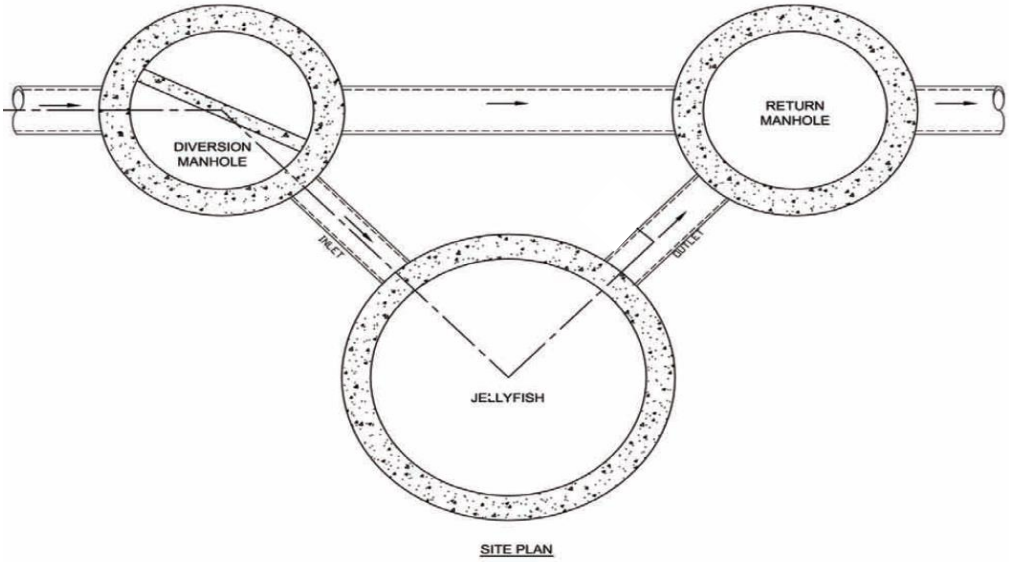
Recommendation

The Jellyfish Filter model JF6-4-1 is recommended to meet the water quality objective by treating a flow of 22.7 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 36 years of OTTAWA MACDONALD-CARTIER INT'L A rainfall data for this site. This model has a sediment capacity of 256 kg, which meets or exceeds the estimated average annual sediment load.

Jellyfish Model	Number of High-Flo Cartridges	Number of Draindown Cartridges	Manhole Diameter (m)	Wet Vol Below Deck (L)	Sump Storage (m³)	Oil Capacity (L)	Treatment Flow Rate (L/s)	Sediment Capacity (kg)
JF4-1-1	1	1	1.2	2313	0.34	379	7.6	85
JF4-2-1	2	1	1.2	2313	0.34	379	12.6	142
JF6-3-1	3	1	1.8	5205	0.79	848	17.7	199
JF6-4-1	**4**	**1**	**1.8**	**5205**	**0.79**	**848**	**22.7**	**256**
JF6-5-1	5	1	1.8	5205	0.79	848	27.8	313
JF6-6-1	6	1	1.8	5205	0.79	848	28.6	370
JF8-6-2	6	2	2.4	9252	1.42	1469	35.3	398
JF8-7-2	7	2	2.4	9252	1.42	1469	40.4	455
JF8-8-2	8	2	2.4	9252	1.42	1469	45.4	512
JF8-9-2	9	2	2.4	9252	1.42	1469	50.5	569
JF8-10-2	10	2	2.4	9252	1.42	1469	50.5	626
JF10-11-3	11	3	3.0	14456	2.21	2302	63.1	711
JF10-12-3	12	3	3.0	14456	2.21	2302	68.2	768
JF10-12-4	12	4	3.0	14456	2.21	2302	70.7	796
JF10-13-4	13	4	3.0	14456	2.21	2302	75.7	853
JF10-14-4	14	4	3.0	14456	2.21	2302	78.9	910
JF10-15-4	15	4	3.0	14456	2.21	2302	78.9	967
JF10-16-4	16	4	3.0	14456	2.21	2302	78.9	1024
JF10-17-4	17	4	3.0	14456	2.21	2302	78.9	1081
JF10-18-4	18	4	3.0	14456	2.21	2302	78.9	1138
JF10-19-4	19	4	3.0	14456	2.21	2302	78.9	1195
JF12-20-5	20	5	3.6	20820	3.2	2771	113.6	1280
JF12-21-5	21	5	3.6	20820	3.2	2771	113.7	1337
JF12-22-5	22	5	3.6	20820	3.2	2771	113.7	1394
JF12-23-5	23	5	3.6	20820	3.2	2771	113.7	1451
JF12-24-5	24	5	3.6	20820	3.2	2771	113.7	1508
JF12-25-5	25	5	3.6	20820	3.2	2771	113.7	1565
JF12-26-5	26	5	3.6	20820	3.2	2771	113.7	1622
JF12-27-5	27	5	3.6	20820	3.2	2771	113.7	1679

Jellyfish Filter Design Notes

- Typically the Jellyfish Filter is designed in an offline configuration, as all stormwater filter systems will perform for a longer duration between required maintenance services when designed and applied in off-line configurations. Depending on the design parameters, an optional internal bypass may be incorporated into the Jellyfish Filter, however note the inspection and maintenance frequency should be expected to increase above that of an off-line system. Speak to your local representative for more information.



Jellyfish Filter Typical Layout

- Typically, 18 inches (457 mm) of driving head is designed into the system, calculated as the difference in elevation between the top of the diversion structure weir and the invert of the Jellyfish Filter outlet pipe. Alternative driving head values can be designed as 12 to 24 inches (305 to 610mm) depending on specific site requirements, requiring additional sizing and design assistance.
- Typically, the Jellyfish Filter is designed with the inlet pipe configured 6 inches (150 mm) above the outlet invert elevation. However, depending on site parameters this can vary to an optional configuration of the inlet pipe entering the unit below the outlet invert elevation.
- The Jellyfish Filter can accommodate multiple inlet pipes within certain restrictions.
- While the optional inlet below deck configuration offers 0 to 360 degree flexibility between the inlet and outlet pipe, typical systems conform to the following:

Model Diameter (m)	Minimum Angle Inlet / Outlet Pipes	Minimum Inlet Pipe Diameter (mm)	Minimum Outlet Pipe Diameter (mm)
1.2	62º	150	200
1.8	**59º**	**200**	**250**
2.4	52º	250	300
3.0	48º	300	450
3.6	40º	300	450

- The Jellyfish Filter can be built at all depths of cover generally associated with conventional stormwater conveyance systems. For sites that require minimal depth of cover for the stormwater infrastructure, the Jellyfish Filter can be applied in a shallow application using a hatch cover. The general minimum depth of cover is 36 inches (915 mm) from top of the underslab to outlet invert.
- If driving head caclulations account for water elevation during submerged conditions the Jellyfish Filter will function effectively under submerged condtions.
- Jellyfish Filter systems may incorporate grated inlets depending on system configuration.
- For sites with water quality treatment flow rates or mass loadings that exceed the design flow rate of the largest standard Jellyfish Filter manhole models, systems can be designed that hydraulically connect multiple Jellyfish Filters in series or alternatively Jellyfish Vault units can be designed.

STANDARD SPECIFICATION
STORMWATER QUALITY – MEMBRANE FILTRATION TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

Specifies requirements for construction and performance of an underground stormwater quality membrane filtration treatment device that removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

1.2 REFERENCE STANDARDS

ASTM C 891: Specification for Installation of Underground Precast Concrete Utility Structures
ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM D 4101: Specification for Copolymer steps construction

CAN/CSA-A257.4-M92
Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets

CAN/CSA-A257.4-M92
Precast Reinforced Circular Concrete Manhole Sections, Catch Basins and Fittings

Canadian Highway Bridge Design Code

1.3 SHOP DRAWINGS

Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure's precast concrete and call out or note the fiberglass (FRP) internals/components.

1.4 PRODUCT SUBSTITUTIONS

No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the engineer of record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

1.5 HANDLING AND STORAGE

Prevent damage to materials during storage and handling.

PART 2 – PRODUCTS

2.1 GENERAL

2.1.1 The device shall be a cylindrical or rectangular, all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s), installed to conform to ASTM C 891 and to any required state highway, municipal or local specifications; whichever is more stringent. The device shall be watertight.

2.1.2 Cartridge Deck The cylindrical concrete device shall include a fiberglass deck. The rectangular concrete device shall include a coated aluminum deck. In either instance, the insert shall be bolted and sealed watertight inside the precast concrete chamber. The deck shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges (maximum manned weight = 450 pounds (204 kg)); (d) a conduit for conveyance of treated water to the effluent pipe.

2.1.3 Membrane Filter Cartridges Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) diameter elements. The length of each filter element shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft² (0.142 lps/m²).

Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

Filter Cartridge Length (in / mm)	Minimum Filtration Membrane Surface Area (ft2 / m2)	Maximum Filter Cartridge Dry Weight (lbs / kg)
15	106 / 9.8	10.5 / 4.8
27	190 / 17.7	15.0 / 6.8
40	282 / 26.2	20.5 / 9.3
54	381 / 35.4	25.5 / 11.6

2.1.4 Backwashing Cartridges The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow

event subsides. All filter cartridges and membranes shall be reusable and allow for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

2.1.5 Maintenance Access to Captured Pollutants The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

2.1.6 Bend Structure The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.1.7 Double-Wall Containment of Hydrocarbons The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.1.8 Baffle The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.1.9 Sump The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.2 PRECAST CONCRETE SECTIONS

All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer, and shall be watertight.

2.3 JOINTS All precast concrete manhole configuration joints shall use nitrile rubber gaskets and shall meet the requirements of ASTM C443, Specification C1619, Class D or engineer approved equal to ensure oil resistance. Mastic sealants or butyl tape are not an acceptable alternative.

2.4 GASKETS Only profile neoprene or nitrile rubber gaskets in accordance to CSA A257.3-M92 will be accepted. Mastic sealants, butyl tape or Conseal CS-101 are not acceptable gasket materials.

2.5 FRAME AND COVER Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the

local regulatory body. Frames and covers must be embossed with the name of the device manufacturer or the device brand name.

2.6 DOORS AND HATCHES If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

2.7 CONCRETE All concrete components shall be manufactured according to local specifications and shall meet the requirements of ASTM C 478.

2.8 FIBERGLASS The fiberglass portion of the filter device shall be constructed in accordance with the following standard: ASTM D-4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.9 STEPS Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.10 INSPECTION All precast concrete sections shall be inspected to ensure that dimensions, appearance and quality of the product meet local municipal specifications and ASTM C 478.

PART 3 – PERFORMANCE

3.1 GENERAL

3.1.1 Verification – The stormwater quality filter must be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV).

3.1.2 Function - The stormwater quality filter treatment device shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.1.3 Pollutants - The stormwater quality filter treatment device shall remove oil, debris, trash, coarse and fine particulates, particulate-bound pollutants, metals and nutrients from stormwater during runoff events.

3.1.4 Bypass - The stormwater quality filter treatment device shall typically utilize an external bypass to divert excessive flows. Internal bypass systems shall be equipped with a floatables baffle, and must avoid passage through the sump and/or cartridge filtration zone.

3.1.5 Treatment Flux Rate (Surface Loading Rate) – The stormwater quality filter treatment device shall treat 100% of the required water quality treatment flow based on a maximum design treatment flux rate (surface loading rate) across the membrane filter cartridges of 0.21 gpm/ft² (0.142 lps/m²).

3.2 FIELD TEST PERFORMANCE

At a minimum, the stormwater quality filter device shall have been field tested and verified with a minimum 25 TARP qualifying storm events and field monitoring shall have been conducted according to the TARP 2009 NJDEP TARP field test protocol, and have received NJCAT verification.

3.2.1 Suspended Solids Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median TSS removal efficiency of 85% and a minimum median SSC removal efficiency of 95%.

3.2.2 Runoff Volume – The stormwater quality filter treatment device shall be engineered, designed, and sized to treat a minimum of 90 percent of the annual runoff volume determined from use of a minimum 15-year rainfall data set.

3.2.3 Fine Particle Removal - The stormwater quality filter treatment device shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction less than 25 microns, an effluent d_{50} of 15 microns or lower for all monitored storm events.

3.2.4 Turbidity Reduction - The stormwater quality filter treatment device shall have demonstrated the ability to reduce the turbidity from influent from a range of 5 to 171 NTU to an effluent turbidity of 15 NTU or lower.

3.2.5 Nutrient (Total Phosphorus & Total Nitrogen) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Phosphorus removal of 55%, and a minimum median Total Nitrogen removal of 50%.

3.2.6 Metals (Total Zinc & Total Copper) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Zinc removal of 55%, and a minimum median Total Copper removal of 85%.

3.3 INSPECTION and MAINTENANCE

The stormwater quality filter device shall have the following features:

3.3.1 Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with manufacturer's recommendations.

3.3.2 Inspection which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth shall be easily conducted from grade (outside the structure).

3.3.3 Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.

3.3.4 The filter device shall have a minimum 12 inches (305 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

3.3.5 Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.

3.3.6 Maintenance access shall have a minimum clear height that provides suitable vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

3.3.7 Filter cartridges shall be able to be maintained without the requirement of additional lifting equipment.

PART 4 – EXECUTION

4.1 INSTALLATION

4.1.1 PRECAST DEVICE CONSTRUCTION SEQUENCE

The installation of a watertight precast concrete device should conform to ASTM C 891 and to any state highway, municipal or local specifications for the construction of manholes, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.1.1.1 The watertight precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.1.2 The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

4.1.3 Adjustment of the stormwater quality treatment device can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and watertight seals. Once the stormwater quality treatment device has been constructed, any/all lift holes must be plugged watertight with mortar or non-shrink grout.

4.1.4 Inlet and Outlet Pipes Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable) so that the structure is watertight, and such that any pipe intrusion into the device does not impact the device functionality.

4.1.5 Frame and Cover Installation Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified.

4.2 MAINTENANCE ACCESS WALL
In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by the manufacturer.

4.3 FILTER CARTRIDGE INSTALLATION Filter cartridges shall be installed in the cartridge deck only after the construction site is fully stabilized and in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.

PART 5 – QUALITY ASSURANCE

5.1 FILTER CARTRIDGE INSTALLATION Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be delivered and installed complete after site is stabilized and unit is ready to accept cartridges. Unit is ready to accept cartridges after is has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization and prior to system activation, the contractor can plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs must be removed during the activation process.

5.2 INSPECTION AND MAINTENANCE

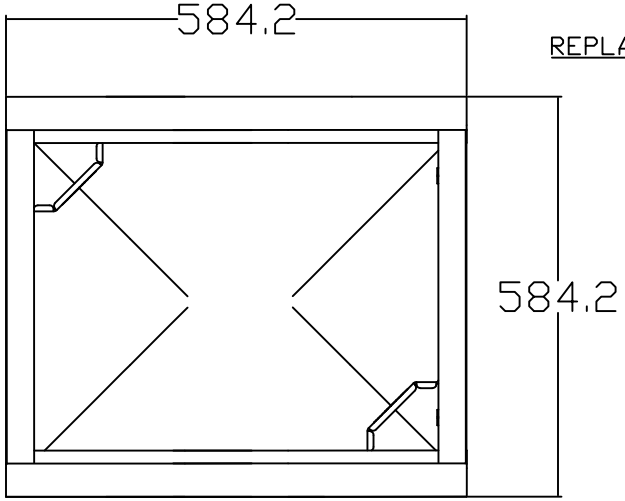
5.2.1 The manufacturer shall provide an Owner's Manual upon request.

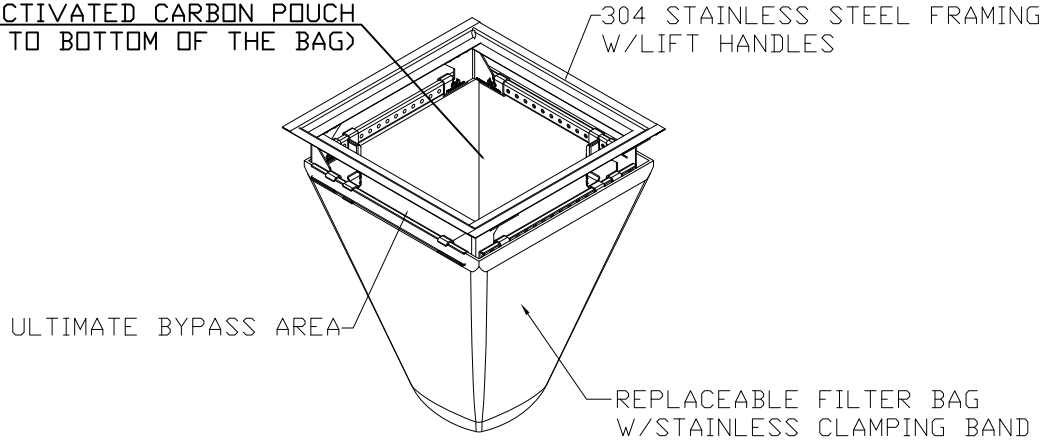
5.2.2 After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on the manufacturer's recommended inspection and maintenance guidelines and the local regulatory agency/body.

5.3 REPLACEMENT FILTER CARTRIDGES When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by the manufacturer for use with the stormwater quality filter device shall be installed.

END OF SECTION

FLEXSTORM INLET FILTER: 62MHDFX FOR ODSD 400.__ Std.



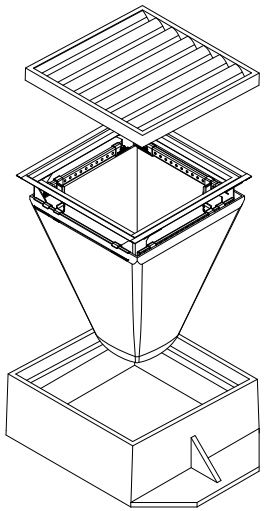


FLEXSTORM PURE INLET FILTERS FOR
RECTANGULAR OPENINGS WITH GRATES

Product selection for FLEXSTORM PURE Filters (Permanent Inlet Protection)

Standard	Inlet Type	Grate Size	Opening Size	Bag Cap (liters^3)	Flow Ratings (liters/second)			FX	FX+	PC	PC+
					FX/FX+	PC/PC+	Bypass				
ODSP 400.__	Square/Rect (SQ) tab supports	604 X 604	508 x 508	67.8	53.8	33.9	124.6	62MHDONTFX	62MHDONTFXP	62MHDONTFX	62MHDONTPCP

*Ratings shown at 50% capacity to accommodate filter bag midway through service life.



ALL PRODUCTS MANUFACTURED
FLEXSTORM
A DIVISION OF ADS, INC.
WWW.INLETFILTERS.COM
(866) 287-8655 PH
(630) 355-3477 FX
INFO@INLETFILTERS.COM

SIZE	FRAME TYPE	DWG NO	REV
C			A
SCALE	Drawn	SHEET 1 OF 1	

FLEXSTORM™ Inlet Filter Specifications and Work Instructions

Product: **FLEXSTORM Inlet Filters**

Manufacturer: **Inlet & Pipe Protection, Inc** www.inletfilters.com

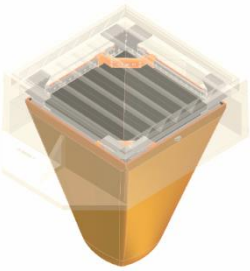
A subsidiary of **Advanced Drainage Systems (ADS)** www.ads-pipe.com

1.0 Description of Work:

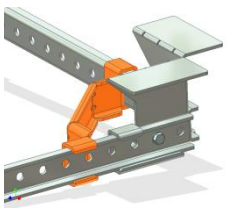
1.1 The work covered shall consist of supplying, installing, and maintaining/cleaning of the FLEXSTORM Inlet Filter assembly. The purpose of the FLEXSTORM Inlet Filter system is to collect silt and sediment from surface storm water runoff at drainage locations shown on the plans or as directed by the Engineer. FLEXSTORM PURE, permanent filters, are capable of removing small particles, hydrocarbons, and other contaminants from drainage "hot spots".

2.0 Material:

2.1 The FLEXSTORM Inlet Filter system is comprised of a corrosion resistant steel frame and a replaceable geotextile sediment bag attached to the frame with a stainless steel locking band. The sediment bag hangs suspended from the rigid frame at a distance below the grate that shall allow full water flow into the drainage structure if the bag is completely filled with sediment.

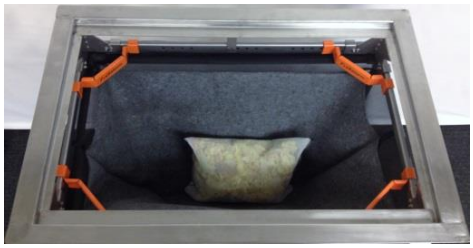



2.2 The FLEXSTORM Inlet Filter frame includes lifting handles in addition to the standard overflow feature. A FLEXSTORM Removal Tool engages the lifting bars or handles to allow manual removal of the assembly without machine assistance. The frame suspension system on most rectangular designs is adjustable in ½" increments up to 5" per side should the casting or drainage structure have imperfections.


2.3 **FLEXSTORM CATCH-IT** Inlet Filters for temporary inlet protection: The FLEXSTORM CATCH-IT framing is galvanized or zinc plated for corrosion resistance. The **"FX"** Woven Polypropylene filter bag is the design standard, although the **"IL"** Nonwoven geotextile is also available if preferred by the engineer. These products are typically used for temporary inlet protection lasting 3 months (short term road work) to 5 years (residential developments).

2.4 **FLEXSTORM PURE** Inlet Filters for permanent inlet protection: The FLEXSTORM PURE framing is comprised of 304 stainless steel with a 25 year life rating. Multiple filter bags are available: **FX, FX+, PC, PC+, LL** and others. The Post Construction **"PC+"** is the design standard consisting of the **"FX"** Woven Polypropylene sediment bag lined with Adsorb-it filter fabric, which is made from recycled polyester fibers. The **"PC+"** includes a replaceable hydrocarbon skimmer pouch strapped to the bottom of the bag for advanced TPH removal.



3.0 Filter Bag Specifications and Capabilities:

3.1 Material Properties (taken from manufacturers average roll value):

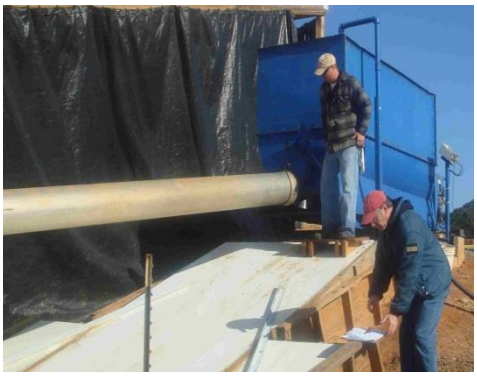
FLEXSTORM FILTER BAGS	(22" depth) STD Bag P/N	(12" depth) Short Bag P/N	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
FX: Standard Woven Bag	FX	FX-S	200	40
FX+: Woven w/ Oil Skimmer	FXP	FXP-S	200	40
FXO: Woven w/ Oil Boom	FXO	FXO-S	200	40
PC: Post Construction Bag	PC	PC-S	137	140
PC+: PC w/ Oil Skimmer	PCP	PCP-S	137	140
LL: Litter and Leaf Bag	LL	LL-S	High	3.5
IL: IDOT Non-Woven Bag	IL	IL-S	145	70

3.2 Standard Bag Sizes and Capabilities: Bag Sizes are determined by clear opening dimensions of the drainage structure. Once frame design size is confirmed, Small - XL bag ratings can be confirmed to meet design criteria. Ratings below are for standard 22" deep bags.

Standard Bag Size§	Solids Storage Capacity (CuFt)	Filtered Flow Rate at 50% Max (CFS)			Oil Retention (Oz)	
		FX	PC	IL	PC*	PCP**
Small	1.6	1.2	0.8	0.9	66	155
Medium	2.1	1.8	1.2	1.3	96	185
Large	3.8	2.2	1.5	1.6	120	209
XL	4.2	3.6	2.4	2.6	192	370

4.0 Tested Filtration Efficiency and Removal Rates: Filtration Efficiency, TSS, and TPH testing performed under large scale, real world conditions at accredited third party erosion and sediment control testing laboratory. (See Full Test Reports at www.inletfilters.com)

Inside View of Hopper Agitator



Hopper With Outlet Pipe Leading To Area Inlet

Area Inlet Simulated Showing Influent Discharge From Pipe

4.1 **FLEXSTORM "FX" Filtration Efficiency Test Results:** All testing performed in general accordance with the ASTM D 7351, *Standard Test Method For Determination of Sediment Retention Device Effectiveness in Sheet Flow Application,* with flow diverted into an area inlet. Test Soil used as sediment had the following characteristics with a nominal 7% sediment to water concentration mix. This is representative of a heavy sediment load running off of a construction site.

Soil Characteristics	Test Method	Value		Filtration Efficiency of "FX" FLEXSTORM Bag
% Gravel	ASTM D 422	2		**82%**
% Sand		60		
% Silt		24		
% Clay		14		
Liquid Limit, %	ASTM D 4318	34		
Plasticity Index, %		9		
Soil Classification	USDA	Sandy Loam		
Soil Classification	USCS	Silty Sand (SM)		

4.2 **FLEXSTORM "PC" and "PC+" Test Results:** TSS measured on effluent samples in accordance with SM 2540D and TPH in accordance with EPA 1664A.

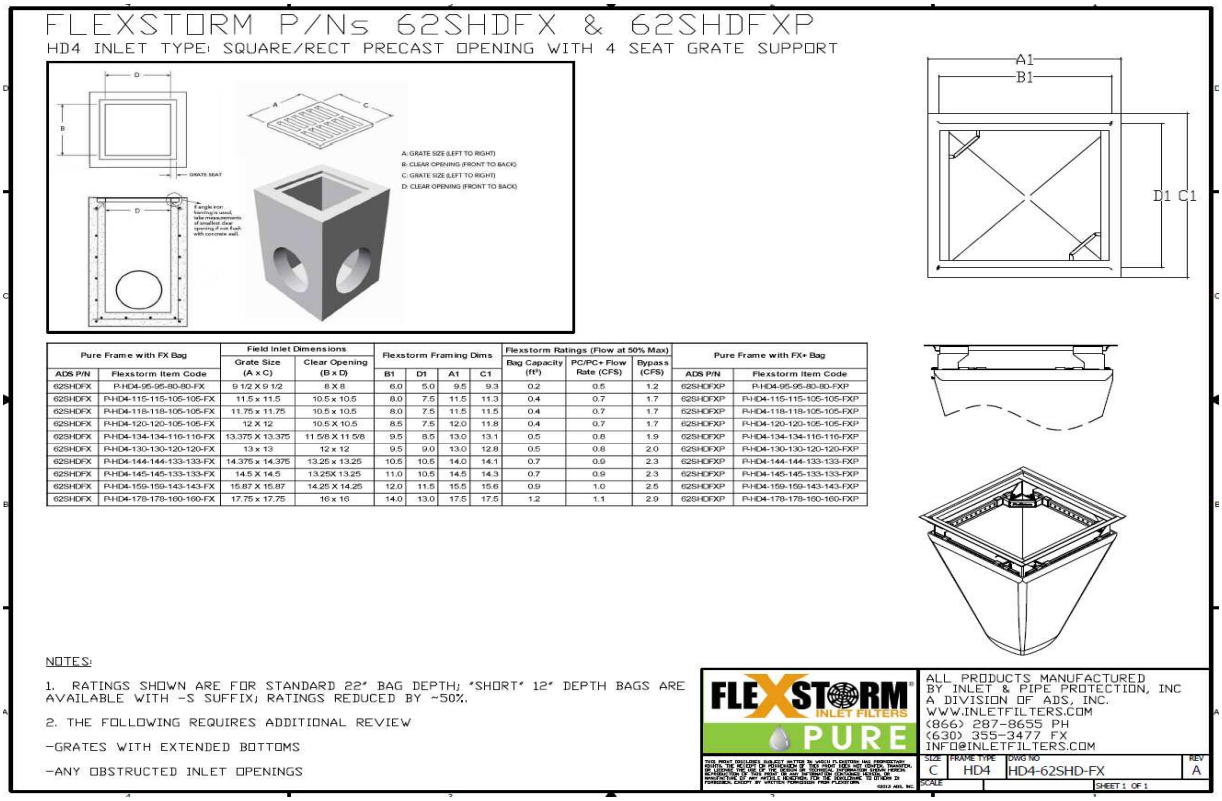
Product Tested	110 micron Sediment Load	Ave Flow Rate GPM	% TSS Removal	Soil Retention Efficiency
FLEXSTORM PC Sediment Bag	1750 mg/L using OK-110 Silica Sand and Clean Water	23	**99.28%**	98.96%
		48	**99.32%**	99.25%
		70	**98.89%**	98.80%

Product Tested	Street Sweep Sediment Load	Particle Size of Sediment Load	% TSS Removal	Soil Retention Efficiency
FLEXSTORM PC Sediment Bag	2.5% = 100 lbs Sed / 4000 lbs water	.001 mm – 10.0 mm (median 200 micron)	**99.68%**	95.61%

Product Tested	Hydrocarbon Load	Ave Flow Rate GPM	% TPH Removal	Oil Retention Efficiency
FLEXSTORM PC+	243 mg/L using 750 mL (1.45 lb) used motor oil + lube oil and clean water	19	**99.04%**	97.22%
FLEXSTORM PC		20	**97.67%**	91.61%
FLEXSTORM PC+		92	**96.88%**	99.11%

5.0 Identification of Drainage Structures to Determine FLEXSTORM Item Codes:

5.1 The Installer (Contactor) shall inspect the plans and/or worksite to determine the quantity of each drainage structure casting type. The foundry casting number or the exact grate size and clear opening size will provide the information necessary to identify the required FLEXSTORM Inlet Filter part number. Inlet Filters are supplied to the field pre-configured to fit the specified drainage structure. Item Codes can be built using the FLEXSTORM Product Configurator at www.inletfilters.com. Detailed Submittal / Specification drawings are linked to each Item Code and available for download by engineers and contractors to include on plans and/or verify field inlet requirements. An example of a typical drawing is shown below.



Pure Frame with FX Bag		Field Inlet Dimensions		Flexstorm Framing Dims				Flexstorm Ratings (Flow at 50% Max)			Pure Frame with FX+ Bag	
		Grate Size (A x C)	Clear Opening (B x D)					Bag Capacity (ft³)	PC/PC+ Flow Rate (CFS)	Bypass (CFS)		
ADS P/N	Flexstorm Item Code			B1	D1	A1	C1				ADS P/N	Flexstorm Item Code
62SHDFX	P-HD4-95-95-80-80-FX	9 1/2 X 9 1/2	8 X 8	6.0	5.0	9.5	9.3	0.2	0.5	1.2	62SHDFXP	P-HD4-95-95-80-80-FXP
62SHDFX	P-HD4-115-115-105-105-FX	11.5 x 11.5	10.5 x 10.5	8.0	7.5	11.5	11.3	0.4	0.7	1.7	62SHDFXP	P-HD4-115-115-105-105-FXP
62SHDFX	P-HD4-118-118-105-105-FX	11.75 x 11.75	10.5 x 10.5	8.0	7.5	11.5	11.5	0.4	0.7	1.7	62SHDFXP	P-HD4-118-118-105-105-FXP
62SHDFX	P-HD4-120-120-105-105-FX	12 X 12	10.5 X 10.5	8.5	7.5	12.0	11.8	0.4	0.7	1.7	62SHDFXP	P-HD4-120-120-105-105-FXP
62SHDFX	P-HD4-134-134-116-116-FX	13.375 X 13.375	11 5/8 X 11 5/8	9.5	8.5	13.0	13.1	0.5	0.8	1.9	62SHDFXP	P-HD4-134-134-116-116-FXP
62SHDFX	P-HD4-130-130-120-120-FX	13 x 13	12 x 12	9.5	9.0	13.0	12.8	0.5	0.8	2.0	62SHDFXP	P-HD4-130-130-120-120-FXP
62SHDFX	P-HD4-144-144-133-133-FX	14.375 x 14.375	13.25 x 13.25	10.5	10.5	14.0	14.1	0.7	0.9	2.3	62SHDFXP	P-HD4-144-144-133-133-FXP
62SHDFX	P-HD4-145-145-133-133-FX	14.5 X 14.5	13.25X 13.25	11.0	10.5	14.5	14.3	0.7	0.9	2.3	62SHDFXP	P-HD4-145-145-133-133-FXP
62SHDFX	P-HD4-159-159-143-143-FX	15.87 X 15.87	14.25 X 14.25	12.0	11.5	15.5	15.6	0.9	1.0	2.5	62SHDFXP	P-HD4-159-159-143-143-FXP
62SHDFX	P-HD4-178-178-160-160-FX	17.75 x 17.75	16 x 16	14.0	13.0	17.5	17.5	1.2	1.1	2.9	62SHDFXP	P-HD4-178-178-160-160-FXP

6.0 Installation Into Standard Grated Drainage Structures:

6.1 Remove the grate from the casting or concrete drainage structure. Clean the ledge (lip) of the casting frame or drainage structure to ensure it is free of stone and dirt. Drop in the FLEXSTORM Inlet Filter through the clear opening and be sure the suspension hangers rest firmly on the inside ledge (lip) of the casting. Replace the grate and confirm it is elevated no more than 1/8", which is the thickness of the steel hangers. For Curb Box Inlet Filters: Insert FLEXSTORM CATCH IT Inlet Filter as described above, pull the rear curb guard flap up and over the open curb box until tight, align magnets to ensure firm attachment to the top portion of the curb box casting. If the curb back opening is not magnetic, slide a typical rock sack or 2 x 4 through the 2-ply rear curb box flap to create a dam which will direct runoff into the sediment bag.




7.0 Maintenance Guidelines: The frequency of maintenance will vary depending on the application (during construction, post construction, or industrial use), the area of installation (relative to grade and runoff exposure), and the time of year relative to the geographic location (infrequent rain, year round rain, rain and snow conditions). The FLEXSTORM Operation & Maintenance Plan (as shown in 7.5) or other maintenance log should be kept on file.

7.1 Frequency of Inspections: Construction site inspection should occur following each ½" or more rain event. Post Construction inspections should occur three times per year (every four months) in areas with year round rainfall and three times per year (every three months) in areas with rainy seasons before and after snowfall season. Industrial application site inspections (loading ramps, wash racks, maintenance facilities) should occur on a regularly scheduled basis no less than three times per year.

7.2 General Maintenance for standard sediment bags: Upon inspection, the FLEXSTORM Inlet Filter should be emptied if the sediment bag is more than half filled with sediment and debris, or as directed by the Engineer. Remove the grate, engage the lifting bars or handles with the FLEXSTORM Removal Tool, and lift the FLEXSTORM Inlet Filter from the drainage structure. Machine assistance is not required. Dispose of the sediment or debris as directed by the Engineer. As an alternative, an industrial vacuum may be used to collect the accumulated sediment if available. Remove any caked on silt from the sediment bag and reverse flush the bag for optimal filtration. Replace the bag if the geotextile is torn or punctured to ½" diameter or greater on the lower half of the bag. If properly maintained, the Woven sediment bag will last a minimum of 4 years in the field.

7.3 Inspection and Handling of the FLEXSTORM PC / PC+ post construction sediment bag: The PC+ sediment bags will collect oil until saturated. Both the Adsorb-it filter liner and the skimmer pouch will retain oil. The volume of oils retained will depend on sediment bag size. Unlike other passive oil sorbent products, Adsorb-it filter fabric has the ability to remove hydrocarbons at high flow rates while retaining 10- 20 times its weight in oil (weight of fabric is 12.8 oz / sq yd). The average 2' x 2' PC Bag contains approx .8 sq yds, or 10 oz of fabric. At 50% saturation, the average Adsorb-it lined PC filter will retain approximately 75 oz (4.2 lbs) of oil. Once the bag has become saturated with oils, it can be centrifuged or passed through a wringer to recover the oils, and the fabric reused with 85% to 90% efficacy. If it is determined, per Maintenance Contracts or Engineering Instructions, that the saturated PC sediment bags will be completely replaced, it is the responsibility of the service technician to place the filter medium and associated debris in an approved container and dispose of in accordance with EPA regulations. Spent Adsorb-it can be recycled for its fuel value through waste to energy incineration with a higher BTU per pound value than coal. The oil skimmers start white in color and will gradually turn brown/black as they become saturated, indicating time for replacement. The average skimmer pouch will absorb approximately 62 oz (4 lbs) of oil before requiring replacement. To remove the pouch simply unclip it from the swivel strap sewn to the bottom of the bag. Dispose of all oil contaminated products in accordance to EPA guidelines. The ClearTec Rubberizer media used in the pouch, since a solidifier, will not leach under pressure and can be disposed of in most landfills, recycled for industrial applications, or burned as fuel.

7.4 Sediment Bag Replacement: When replacing a Sediment Bag, remove the bag by loosening or cutting off the clamping band. Take the new sediment bag, which is equipped with a stainless steel worm drive clamping band, and use a drill or screw driver to tighten the bag around the frame channel. Ensure the bag is secure and that there is no slack around the perimeter of the band. For Oil absorbent boom bags, simply replace the oil boom or pouch when saturated by sliding it through the mesh support sleeve.

7.5 Operation & Maintenance Plan. (Download at www.inletfilters.com or www.ads-pipe.com)

FLEXSTORM OPERATION AND MAINTENANCE PLAN

OPERATION & MAINTENANCE PLAN

Installation Instructions:

1. Remove grate from the drainage structure
2. Clean stone and dirt from ledge (lip) of drainage structure
3. Drop the FLEXSTORM inlet filter through the clear opening such that the hangers rest firmly on the lip of the structure.
4. Replace the grate and confirm it is not elevated more than 1/8", the thickness of the steel hangers.

Frequency of Inspections:

1. Inspection should occur following any rain event >½".
2. Post construction inspections should occur 4 times per year. In snowfall affected regions additional inspections should take place before and after snowfall season.
3. Industrial application site inspections (loading ramps, wash racks, maintenance facilities) should occur on a regularly scheduled basis no less than 3 times/year.

Maintenance Guidelines:

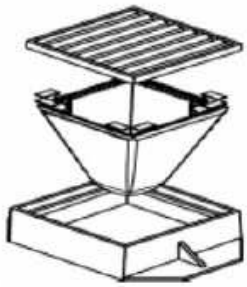
1. Empty the sediment bag if more than half filled with sediment and debris, or as directed.
2. Remove the grate, engage the lifting bars with the FLEXSTORM Removal Tool, and lift from drainage structure.
3. Dispose of sediment or debris as directed by the Engineer or Maintenance contract.
4. An industrial vacuum can be used to collect sediment.
5. Remove caked on silt from sediment bag and flush with Medium spray with optimal filtration.
6. Replace bag if torn or punctured to >½" diameter on lower half of bag.

Post Construction PC Bag Maintenance:

1. At 50% saturation the average 2'x2' Adsorb-it lined PC filter will retain approximately 75 oz (4.2 lbs) of oil and should be serviced. To recover the oils the filter can be centrifuged or passed through a wringer.
2. Oil skimmer pouches start to turn black when saturated, indicating time for replacement. Each ClearTec Rubberizer pouch will absorb ~62oz (4 lbs) of oil before needing replacement.
3. Dispose of all oil contaminated products in accordance with EPA guidelines. ClearTec Rubberizer, since a solidifier, will not leach under pressure and can be disposed of in most landfills, recycled for industrial applications, or burned as fuel.

Sediment Bag Replacement:

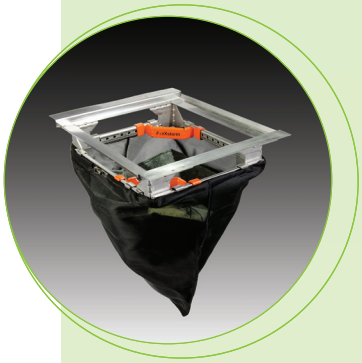
1. Remove the bag by loosening or cutting off clamping bag.
2. Take new sediment bag and secure worm drive clamping band to the frame channel.
3. Ensure Bag is secure and there is no slack around perimeter.



STRUCTURE ID#/LOCATION:

DATE	TASK PERFORMED	INSPECTOR

FLEXSTORM® PURE PERMANENT INLET PROTECTION



SPECIFY WITH CONFIDENCE

State DOTs and municipalities across the country now have a universal structural BMP to address the issue of storm sewer inlet protection: FLEXSTORM PURE Inlet Filters.

The FLEXSTORM PURE system is the preferred choice for permanent inlet protection and storm water runoff control. Constructed of versatile stainless steel, FLEXSTORM PURE Inlet Filters will fit any drainage structure and are available with site-specific filter bags providing various levels of filtration. Whether you're the specifier or the user, it's clear to see how FLEXSTORM PURE Inlet Filters outperform the competition.

APPLICATIONS:

Car Washes	Gas Stations
Commercial	Parking Lots
Loading Ramps	Dock Drains
Industrial	Maintenance

FEATURES:

- Stainless Steel filter framing is custom configured to fit perfectly into any drainage structure, whether a standard design or obstructed inlet opening
- Filtered Flow Rates and Ultimate Bypass Rates are designed to meet your specific inlet requirements
- Multiple Filter Bags are available targeting site specific removal of trash, litter, leaves, or small particles, oil and grease
- Filters work below grade with an ultimate bypass allowing inlet area to drain with a full bag
- Units install in seconds and are easily maintained with the FLEXSTORM Universal Removal Tool (no heavy machinery required)

FEATURES:

- Receive payback on your investment: durable stainless steel framing provides extended service life while replaceable filter bags handle loads with a safety factor of 5
- Meets stringent removal requirements:
  - FX filter bags are rated for >80% removal efficiency of street sweep-size particles
  - PC/PC+ filter bags have been tested to 99% TSS removal of OK-110 US Silica Sand and 97% TPH (total petroleum hydrocarbon) removal
- Help prevent fines: FLEXSTORM Inlet Filters comply with EPA NPDES initiatives as a temporary or permanent BMP
- If not in stock, orders up to 100 pieces can ship within 48 hours

ADS Service: ADS representatives are committed to providing you with the answers to all your questions, including selecting the proper filter, specifications, installation and more. Also try the ADS FLEXSTORM Online Product Configurator at www.inletfilters.com

FLEXSTORM PURE INLET FILTERS SPECIFICATION

IDENTIFICATION

The installer shall inspect the plans and/or worksite to determine the quantity of each drainage structure casting type. The foundry casting number, exact grate size and clear opening size, or other information will be necessary to finalize the FLEXSTORM part number and dimensions. The units are shipped to the field configured precisely to fit the identified drainage structure.

MATERIAL AND PERFORMANCE

The FLEXSTORM Inlet Filter system is comprised of a corrosion resistant steel frame and a replaceable geotextile filter bag attached to the frame with a stainless steel locking band. The filter bag hangs suspended at a distance below the grate that shall allow full water flow into the drainage structure if the bag is completely filled with sediment. The standard Woven Polypropylene FX filter bags are rated for 200 gpm/sqft with a removal efficiency of 82% when filtering a USDA Sandy Loam sediment load. The Post Construction PC filter bags are rated for 137 gpm/sqft and have been 3rd party tested at 99% TSS removal to 110 micron and 97% TPH removal of used motor oil hydrocarbon mix.

INSTALLATION

Remove the grate from the casting or concrete drainage structure. Clean the ledge (lip) of the casting frame or drainage structure to ensure it is free of stone and dirt. Drop in the FLEXSTORM Inlet Filter through the clear opening and be sure the suspension hangers rest firmly on the inside ledge (lip) of the casting. Replace the grate and confirm it is elevated no more than 1/8", which is the thickness of the steel hangers. For wall mount units, follow instructions for attaching the stainless steel mounting brackets using the provided concrete fasteners.

INSPECTION FREQUENCY

Construction site inspection should occur following each ½" or more rain event. Post Construction inspections should occur three times per year (every four months) in areas with mild year round rainfall and four times per year (every three months Feb–Nov) in areas with summer rains and before and after the winter snowfall season. Industrial application site inspections (loading ramps, wash racks, maintenance facilities) should occur on a regularly scheduled basis no less than three times per year.

MAINTENANCE GUIDELINES

Empty the filter bag if more than half filled with sediment and debris, or as directed by the engineer. Remove the grate, engage the lifting bars or handles with the FLEXSTORM Removal Tool, and lift from the drainage structure. Dispose of the sediment or debris as directed by the engineer or maintenance contract in accordance with EPA guidelines.

As an alternative, an industrial vacuum may be used to collect the accumulated sediment. Remove any caked-on silt from the sediment bag and reverse flush the bag with medium spray for optimal filtration. Replace the bag if torn or punctured to ½" diameter or greater on the lower half of the bag. Post Construction PC/PC+ Bags should be maintained prior to 50% oil saturation. The average 2' x 2' PC filter bag will retain approx. 96 oz (5.4 lbs) of oil at which time it should be serviced or replaced. It can be centrifuged or passed through a wringer to recover the oils, and the fabric reused with 85% to 90% efficacy. It may also be recycled for its fuel value through waste to energy incineration. When utilizing the Cleartec Rubberizer Pouches in the + bags, note that these oil skimmers will gradually turn brown and solidify as they become saturated, indicating time for replacement. Each pouch will absorb approximately 62 oz (4 lbs) of oil before requiring replacement. The spent media may also be recycled for its fuel value through waste to energy incineration. Dispose of all oil contaminated products in accordance with EPA guidelines.

FILTER BAG REPLACEMENT

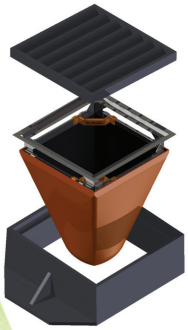
Remove the bag by loosening or cutting off the clamping band. Take the new filter bag, which is equipped with a stainless steel worm drive clamping band, and use a screw driver to tighten the bag around the frame channel. Ensure the bag is secure and that there is no slack around the perimeter of the band.

Lift Handles ease installation and maintenance

Replaceable Sediment Bag

1/8" thick steel hangers & channels; precision stampings **configured to fit each individual casting**

CAD drawings, work instructions and test reports on website: ***www.inletfilters.com***



For more information on FLEXSTORM Inlet Filters and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710
Try the ADS FLEXSTORM Online Product Configurator at www.inletfilters.com.

APPENDIX F

Stormwater Management Plan

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 01911968038 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparisons, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

PROPOSED MH01 EQUIPPED W/ 152mm ORIFICE PLATE
100y MAX FLOW = 39.5 L/s
100y DESIGN HEAD = 0.65m
5Y MAX FLOW = 28.00 L/s
5Y DESIGN HEAD = 0.33m
C/L ORIFICE INV = 97.82

PROPOSED OVERLAND STORAGE EXTENT
100 YEAR STORMPONDING EXTENT (HWL = 98.47)
MAXIMUM PONDING DEPTH = 0.82m
TOTAL STORAGE PROVIDED = 428.14m³

PROPOSED EMERGENCY OVERLAND FLOW ROUTE
ELEV = 98.47

PROPOSED OVERLAND STORAGE EXTENT
5 YEAR STORMPONDING EXTENT (HWL = 98.15)
MAXIMUM PONDING DEPTH = 0.50m
TOTAL STORAGE PROVIDED = 210.92m³

JOB BENCHMARK
Fire Hydrant
Top of Spindle
Elevation= 100.17

JOB BENCHMARK
FIRE HYDRANT
TOP OF SPINDLE
ELEVATION = 100.17

No. 4835 Bank Street
Hindu Temple of Ottawa-Carleton

CONCESSION ROAD ALLOWANCE BETWEEN CONCESSIONS 4 AND 5 (RIDEAU FRONT)
(GLOUCESTER)
(RIDEAU FRONT)
LOT 5 plan 4M-1156
part 1 plan 4R-9484
part 1 plan 5r-1091
part 3 plan 5r-3156 together with easement inst. ns271193
part 2 plan 5r-3156 subject to easement inst. ns271193
part 1 plan 5r-3156
part 1 plan 4R-9484
pin 04326 - 0583
pin 04326 - 0012
pin 04326 - 0011
pin 04326 - 0284
pin 04326 - 0284
Established Division Line Between Lots 21 & 22
N 59° 48' 50" E 143.20 (P2) & Meas.
N 59° 50' 20" E (N 60° 34' 30" E P2) (N 60° 18' 30" E P2)
401.48 Meas. (N 60° 14' 00" E 401.48 P1)
N 23° 06' 50" W (N 23° 06' 50" W P1)
N 30° 36' 00" E
Brick clay with Concrete base
Shrubs
Grass
Asphalt
Concrete
Interlock
Sidewalk
Edge of Asphalt
Brick Curb
Sandy Soil
Heavy Bush
Normal High Water Mark
Top of Bank
Toe of Bank
East Bank of Creek Not Located
Hedge
Fence
Gate
Utility Pole
Hydro Pole
Guy Wire
Light Standard
Sign
Mailbox
Catch Basin
Manhole
Hydrant
Valve
Water Meter
Gas Meter
Air Conditioner
Hydro Meter
Telephone Pedestal
Cable TV Pedestal
Hydro Transformer
Bell Box
Gas Valve
Gas Line
Bell Line
Hydro Line
Cable TV Line
Overhead Wire
Tree
Deciduous
Coniferous
Stump
Bush
Flood Light
Wall Mount Light
Bollard
Bench
Garbage Container
Recycling Container
Bicycle Rack
Flag Pole
Sign
Finish Floor Elevation 100.80
Finish Floor Elevation 100.80
3 Cyr Garage (Siding)
Asphalt Shingles
Concrete
Brick Cladding
Stone Cladding
Metal Cladding
Glass
Overhang
Canopy
Roof Drain
Roof Hatch
Roof Access
Roof Vent
Roof Fan
Roof Unit
Roof Screen
Roof Parapet
Roof Edge
Roof Slope
Roof Ridge
Roof Valley
Roof Hip
Roof Gable
Roof Dormer
Roof Skylight
Roof Chimney
Roof Antenna
Roof Satellite Dish
Roof Solar Panel
Roof Wind Turbine
Roof Weather Vane
Roof Lightning Rod
Roof Guy Wire
Roof Flood Light
Roof Wall Mount Light
Roof Bollard
Roof Bench
Roof Garbage Container
Roof Recycling Container
Roof Bicycle Rack
Roof Flag Pole
Roof Sign
Roof Mailbox
Roof Catch Basin
Roof Manhole
Roof Hydrant
Roof Valve
Roof Water Meter
Roof Gas Meter
Roof Air Conditioner
Roof Hydro Meter
Roof Telephone Pedestal
Roof Cable TV Pedestal
Roof Hydro Transformer
Roof Bell Box
Roof Gas Valve
Roof Gas Line
Roof Bell Line
Roof Hydro Line
Roof Cable TV Line
Roof Overhead Wire
Roof Tree
Roof Deciduous
Roof Coniferous
Roof Stump
Roof Bush
Roof Flood Light
Roof Wall Mount Light
Roof Bollard
Roof Bench
Roof Garbage Container
Roof Recycling Container
Roof Bicycle Rack
Roof Flag Pole
Roof Sign
Roof Mailbox
Roof Catch Basin
Roof Manhole
Roof Hydrant
Roof Valve
Roof Water Meter
Roof Gas Meter
Roof Air Conditioner
Roof Hydro Meter
Roof Telephone Pedestal
Roof Cable TV Pedestal
Roof Hydro Transformer
Roof Bell Box
Roof Gas Valve
Roof Gas Line
Roof Bell Line
Roof Hydro Line
Roof Cable TV Line
Roof Overhead Wire
Roof Tree
Roof Deciduous
Roof Coniferous
Roof Stump
Roof Bush

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/9/8
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
170132

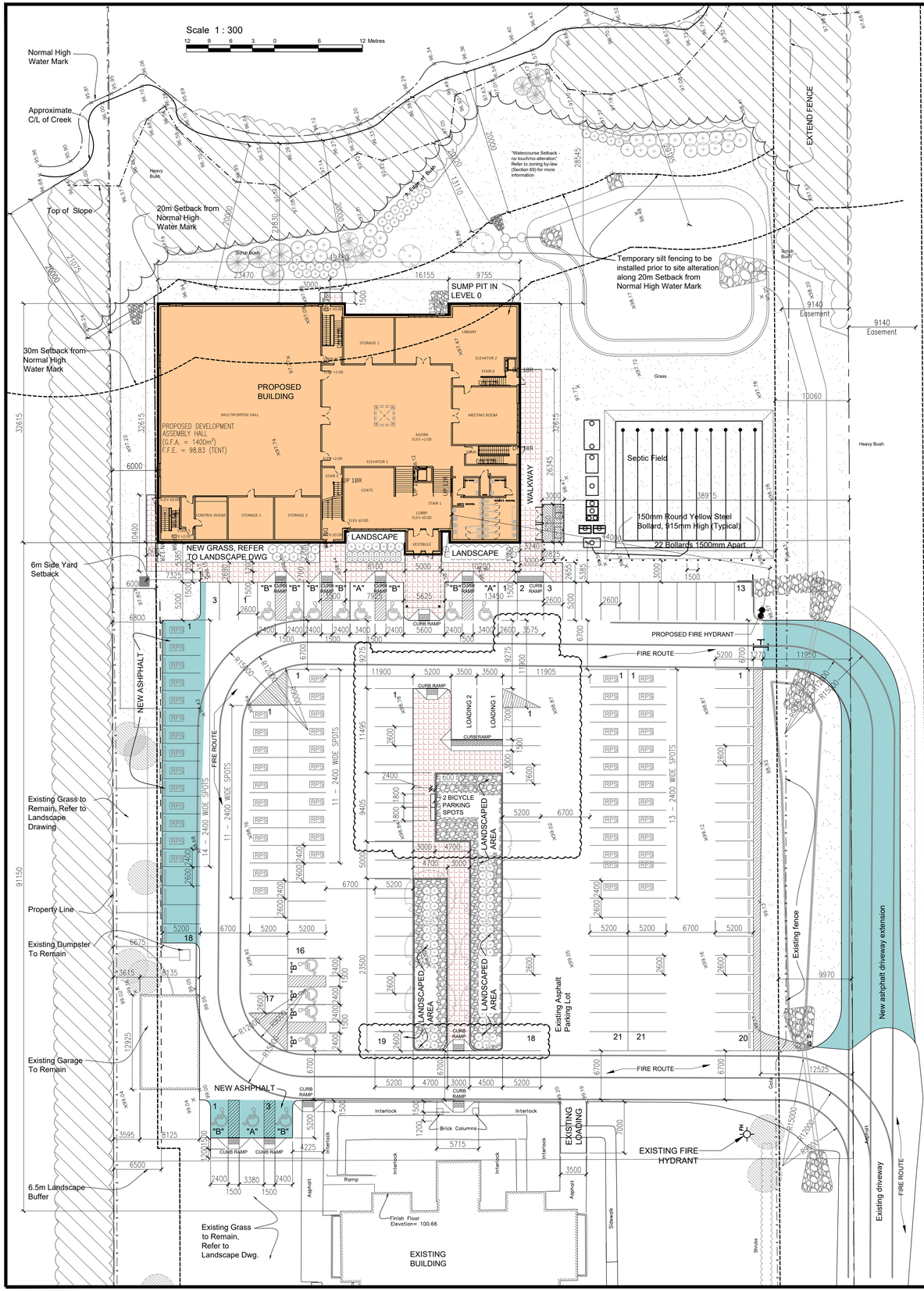
DATE
JAN2020

C601

D017-12-20-0059 PLAN # 18407

APPENDIX G

Architectural Drawings



SITE INFORMATION

Zoning By-Law Amendment approved - 2018
City File : ACS 2018-PIE-PS-0060

Address: 4835 Bank Street-Ottawa

Legal Description: Part of Lot 22, Con 5 (Rideau Front), Ottawa, ON

Owner: Hindu Temple of Ottawa-Carleton

Existing Zoning : RI5 Rural Institutional

Amended Zoning: RI5[865r] within the Area of Development &
RI5[866r] on the remainder of the property east of the watercourse centreline

Zoning Mechanisms Provisions - RI5	Required	Provided
(a) Minimum lot area	10,000m2	40,480 m2 (4.048 ha)
(b) Minimum lot width	75m	101.095m
(c) Minimum front yard setback	9m	27.975m (Existing Building)
(d) Minimum rear yard setback		
(i) abutting a residential use or zone	10m	Not Applicable
(ii) all other cases	10m	Not Applicable
(iii) from normal high water mark	20m	21m
(e) Minimum interior side yard setback	9m	Not Applicable
(i) Approved side yard setback	6m	6m
per application ACS2018-PIE-TS-0060Approved on July 12. 2018		
(f) Minimum corner side yard setback	9m	Not Applicable
(g) Maximum principal building height	12m	12m
(h) Maximum lot coverage	30%	11.70%
(i) Minimum landscaped area	20%	65.50%

AREA OF DEVELOPMENT (Same as RI5[865R] zone boundary): 23,598m2 (2.359 ha)

Existing Temple Place of Assembly GFA: 630 m2

Proposed Hall GFA: 1,400 m2

Within Area of Development	Existing (Temple)	Proposed (Temple + Hall)
Lot Coverage	1,168 m2 (4.95 %)	2,761 m2 (11.70 %)
Landscaped Area	17,353 m2 (73.53%)	15028.08 m2 (63.68 %)
Parking Lot & Driveway (Paved Area)	5,077 m2 (21.52%)	5808.92 m2 (24.62%)

LANDSCAPING BUFFER AT PARKING LOT:

	Required	Provided
Perimeter or interior landscaped area	Minimum of 15% of the area of any parking lot = 15% of 8317.67 = 1247.65 m2	Total landscape Area = 2779.15 m2 (33.41%) (> required 15%) Interior landscape area = 521.87 m2 Perimeter landscape area = 2257.28 m2
Minimum Required Width and Location of a Landscaped Buffer of a Parking Lot		
Abutting a street	3 metres	Not applicable
Not abutting a street	3 metres	6.5 metre in location closest to property Line

OUTDOOR REFUSE COLLECTION AND REFUSE LOADING AREAS:

- are accessed via the parking lot and
- do not abut a public street;
- are located at least 3.0 metres from any other lot line; and
- are screened from view by an opaque screen with a minimum height of 2.0 metres.
  - Refuse collecting area is Located at >38m away from the side property line
  - Size of Waste Enclosure 3.0m x 5.25m, refer to architectural drawing A040 for details
  - Size of Garbage Bins will be determined by private collector, bins will be placed in garbage enclosure

PARKING

Parking type	Required	Provided
Spaces (8.4 spaces /100 m2 of GFA)	171 spots	181 spots
Regular size spots	- 93 spots	- 104 spots
Reduced size - 40% of 167 spaces	- 67 spots	- 62 spots
Barrier-Free Type "A" 3400 wide	- 3 spots	- 3 spots
Barrier-Free Type "B" 2400 wide	- 4 spots	- 12 spots
Loading spaces	3 spots (1 Existing)	3 spots (1 Existing + 2 new)
Bicycle	2 spots	2 spots
TOTAL SPACES	171 spots	181 spots

PROPOSED STORMWATER MANAGEMENT:

(a) Ponding volume achieved via stormwater detention area

(b) Flow control provided via inlet control device installed at detention area outlet

(Refer to civil documents)

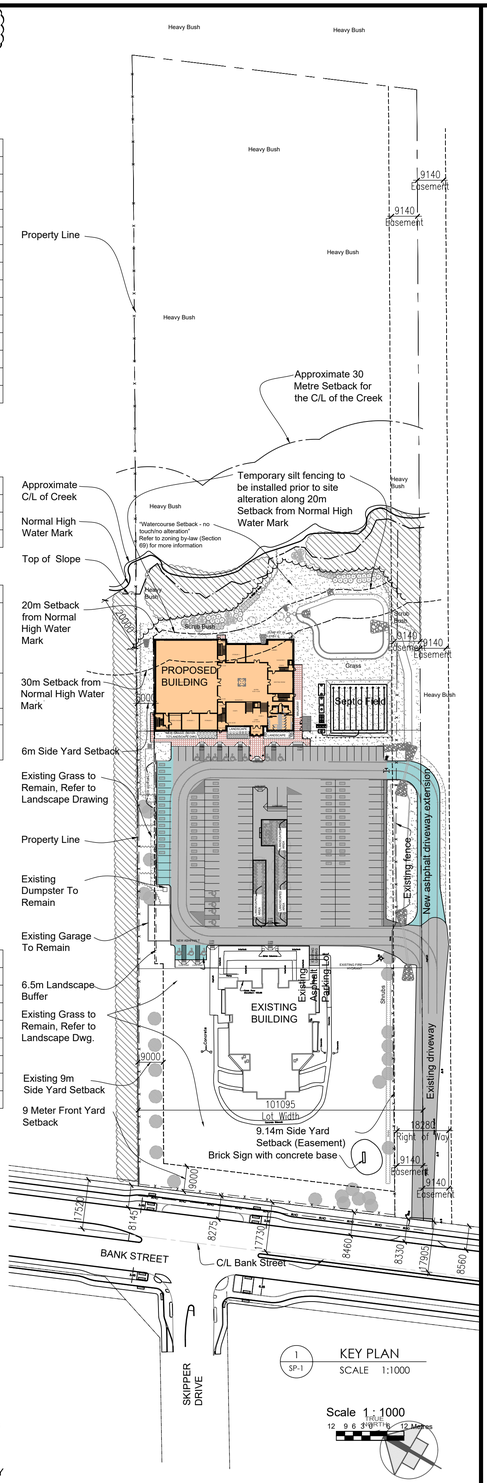
SNOW CLEARING: Snow will be cleared by private contractor and taken away to be dumped off the site

- DOTTED LINE DELINEATES AREA OF DEVELOPMENT (SAME AS RI5[865R] ZONE BOUNDARY)
- HATCHED AREA SHOWS EXTENT OF EXISTING PAVING
- HATCHED AREA SHOWS EXTENT OF NEW BUILDING
- HATCHED AREA SHOWS EXTENT OF ASPHALT REMOVAL
- HATCHED AREA SHOWS EXTENT OF NEW ASPHALT
- HATCHED AREA SHOWS EXTENT OF NEW PAVING (Refer to landscape drawing for material)
- PROPOSED RIP RAP (Refer to civil drawing)
- RPS REDUCED PARKING SPOT
- GROUP OF EXISTING TREES TO REMAIN (Refer to landscape drawing)
- EXISTING TREE TO REMAIN (Refer to landscape drawing)
- PROPOSED DECIDUOUS TREE (Refer to landscape drawing)
- PROPOSED CONIFEROUS TREE (Refer to landscape drawing)
- PROPOSED SHRUBS/ PERENNIALS/ ORNAMENTAL GRASSES (Refer to landscape drawing)
- PROPOSED NON-IRRIGATED SPORTS FIELD SEED MIXTURE (Refer to landscape drawing)
- PROPOSED ONTARIO SEED COMPANY LTD. CREEK BANK SEED MIXTURE (Refer to landscape drawing)
- PROPOSED RIVERSTONE MULCH (Refer to landscape drawing)

NOTE:

- See Landscape Drawings for tree protection fences
- The property boundary information was derived from documents prepared by ANNIS, O'SULLIVAN, VOLLEBEKK

2 SP-1 SITE PLAN
SCALE 1:300



GENERAL NOTES

1. CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, DRAWINGS, DETAILS, SPECIFICATIONS & REPORT ANY DISCREPANCIES TO OWNERS BEFORE PROCEEDING WITH WORK.
2. ALL DRAWINGS & SPECIFICATIONS ARE INSTRUMENTS OF SERVICE & THE PROPERTY OF THE ARCHITECTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK, & MAY NOT BE REPRODUCED WITHOUT THEIR WRITTEN PERMISSION.

No.	Revision/Issue	Date
16	ISSUED FOR REVISION TO PERMIT	2025FEB08
15	ISSUED FOR CLIENT REVIEW	2024DEC19
14	ISSUED FOR CLIENT REVIEW	2024NOV11
13	ISSUED FOR SITE PLAN	2024SEP24

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PROJECT AND LOCATION

HERITAGE CENTRE - HINDU TEMPLE - PHASE 2, 4835 BANK ST., OTTAWA, ON
PIN 04326-0011

TITLE OF DRAWING

SITE PLAN

JOB NUMBER

17033

DATE	DWG NUMBER
2019 05	SP-1
SCALE: AS NOTED	
DRAWN BY: SJK	

APPENDIX H

Servicing Plan

NOTES: GENERAL

1. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
2. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
3. JOB BENCH MARK - CONFIRM WITH LRL PRIOR TO UTILIZATION.
4. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE, CATCH BASIN OUTLETS AND/OR STORM DETENTION AREAS ARE PROVIDED.
5. STRIP AND REMOVE ALL TOPSOIL FROM IMPROVED AREAS.
6. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
7. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A CLEAN STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
8. CURBS TO BE BARRIER, CONSTRUCTED AS PER OPSD 600.110.
9. ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSS 206, 310 & 314. MATERIALS TO OPSS 1001, 1003 & 1010.
10. ABUTTING PROPERTY GRADE TO BE MATCHED.
11. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
12. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
13. FILTER FABRIC TO BE INSTALLED AND MAINTAINED BETWEEN THE FRAME AND COVER OF ALL CATCHBASINS, CATCHBASIN MANHOLES AND MANHOLES DURING THE CONSTRUCTION PERIOD TO MINIMIZE SEDIMENTS ENTERING THE STORM SEWER SYSTEM. ALL GRASSED AREAS MUST BE COMPLETED PRIOR TO THE REMOVAL OF THE FILTER FABRIC IN THE DRAINAGE STRUCTURES.
14. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS, IF ANY, LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
15. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS BUT NOT LIMITED TO; ROAD CUT PERMITS, SEWER PERMITS, WATER PERMIT, ETC.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. ALL SIDEWALK CONSTRUCTION TO BE AS PER OPSD 310.010 & OPSD 310.050.

NOTES: SEWERS

1. SEWER BEDDING AS PER PIPE TRENCH DETAIL WITH GRANULAR 'A' BEDDING COMPACTED TO 95% OF ITS SPMDD.
2. ALL WORK SHALL BE PERFORMED, AS APPLICABLE IN ACCORDANCE WITH OPSS 407, AND 410.
3. CONTRACTOR TO CONFIRM ELEVATION OF EXISTING SEWERS AT PROPOSED CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK.
4. ALL SEWERS WITH LESS THAN 2.0m OF COVER ARE SUBJECT TO INSULATION DETAIL.

NOTES: WATER SERVICE

1. PROPOSED WATER SERVICE TO BE INSULATED WHEN COVER IS LESS THAN 2.4m AS PER DETAIL PROVIDED IN C901.

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 0191119680388 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparisons, (P1) and (P2) are Astronomic Plans.

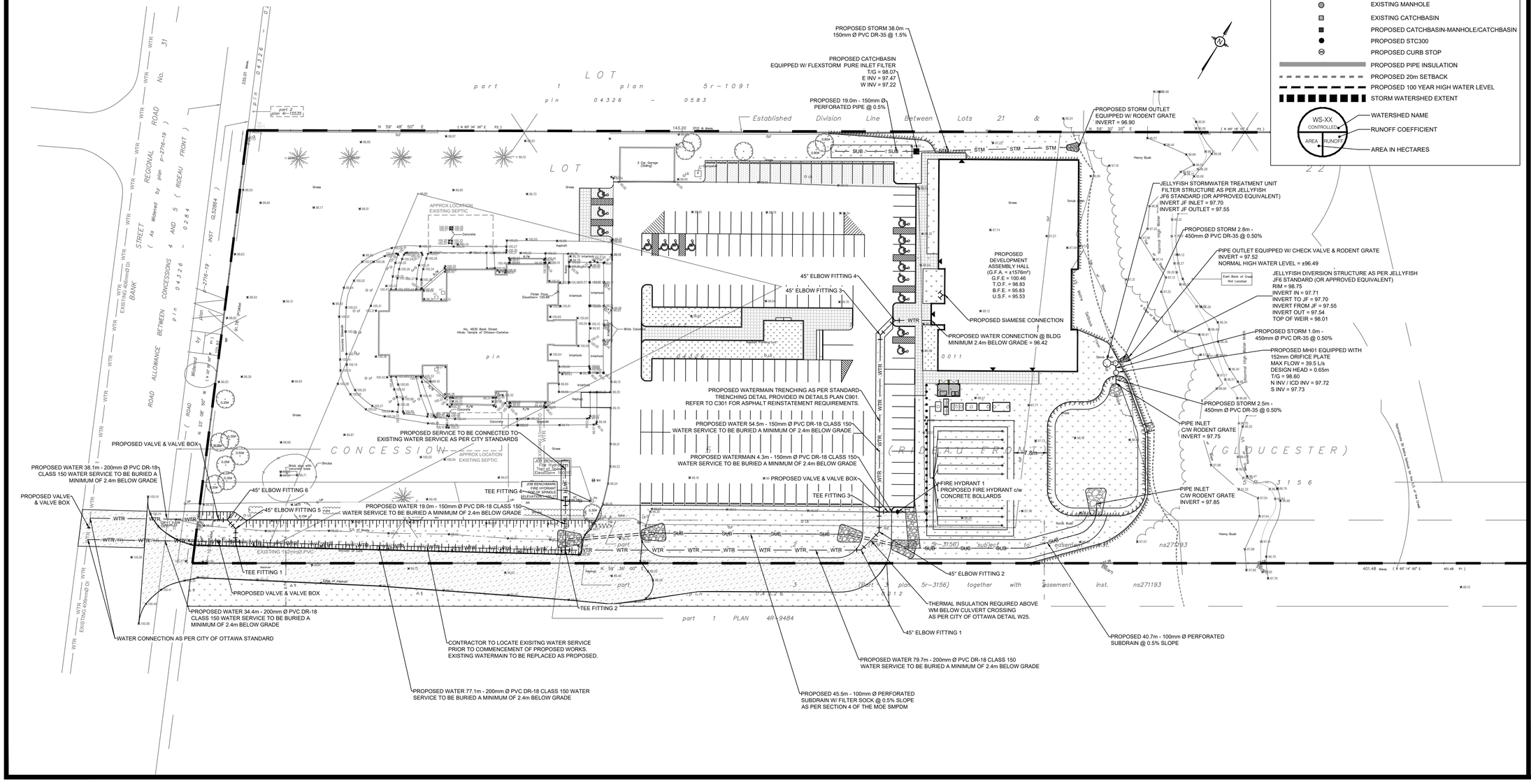
SITE AREA = 4.048 Hectares.

Existing Watermain Table

Location	Station	Min. Obv	Grade	Notes
Connection to Existing Water Service	0+130.5	97.40	99.80	
Connection to Proposed Building	0+151.5	EX	99.63	

Proposed Watermain Table

Location	Station	Min. Obv	Grade	Notes
Main Line				
Connection to City WM	0+000.0	Match Ex WM OBV	100.24	
Tee Fitting 1	0+034.4	97.65	100.05	
Tee Fitting 2	0+111.5	96.92	99.32	
45° Elbow Fitting 1	0+180.5	96.60	99.00	
45° Elbow Fitting 2	0+186.5	96.75	99.15	
Tee Fitting 3	0+191.2	96.40	98.80	
Fire Hydrant 1	0+195.5*	96.16	98.56	*diverges at Tee Fitting 3
45° Elbow Fitting 3	0+232.5	96.30	98.70	
45° Elbow Fitting 4	0+237.2	96.25	98.65	
Connection to Proposed Building	0+245.7	96.42	98.82	
Branch NW off Tee Fitting 1 @ 0+034.4				
Tee Fitting 1	0+034.4	96.92	99.32	
Elbow Fitting 5	0+037.6	96.86	99.26	
Elbow Fitting 6	0+040.4	97.03	99.43	
Connection to City WM	0+072.5	Match Ex WM OBV	100.28	
Branch NW off Tee Fitting 2 @ 0+111.5				
Tee Fitting 2	0+111.5	96.92	99.32	
Tee Fitting 4	0+122.9	96.9	99.30	
Existing Fire Hydrant	0+129.0*	96.88	99.28	**diverges at Tee Fitting 4
Connection to Existing Water Service	0+130.5	Match EX WTR OBV	99.46	



LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWINGS. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/4/8 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
SERVICING PLAN

PROJECT NO.
170132

DATE
JAN2020

C401

D017-12-20-0059 PLAN # 18407

APPENDIX I

Erosion and Sediment Control Plan

EROSION AND SEDIMENT CONTROL MEASURES:

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES **

THE SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY

1. PRIOR TO START OF CONSTRUCTION:

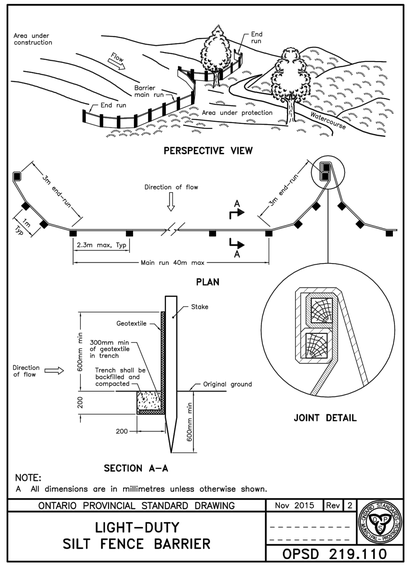
- PRIOR TO THE REMOVAL OF ANY VEGETATIVE COVER, MOVING OF SOIL AND CONSTRUCTION:
- INSTALL SILT FENCE IMMEDIATELY DOWNSTREAM FROM AREAS TO BE DISTURBED (SEE PLAN FOR LOCATION).
- INSTALL GEOSOCK INSERTS WITH AN OVERFLOW IN ALL THE DOWNSTREAM CATCHBASINS AND MANHOLES
- INSTALL SILTSACK FILTERS IN ALL CONCRETE CATCH BASINS STRUCTURES
- INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.

2. DURING CONSTRUCTION:

- WORK TO BE DONE IN THE VICINITY OF MAJOR WATERWAYS TO BE CARRIED OUT FROM JULY TO SEPTEMBER ONLY.
- MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE.
- PROTECT DISTURBED AREAS FROM RUNOFF.
- PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
- INSPECT SILT FENCES, FILTER CLOTHS AND CATCH BASIN SUMPS WEEKLY AND AFTER EVERY MAJOR STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
- CONSTRUCT SWALES AS PER DETAIL.
- PLAN TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION
- EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
- DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.0m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
- CONTROL WIND-BLOWN DUST OFF SITE TO ACCEPTABLE LEVELS BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED).
- ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THIS CONSULTING ENGINEER AND THE CITY DEPARTMENT OF PUBLIC WORKS.
- CONTRACTOR RESPONSIBLE FOR CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING ETC. AT THE END OF EACH WORK DAY.
- PROVIDE GRAVEL ENTRANCE WHEREVER EQUIPMENT LEAVES THE SITE TO PREVENT MUD TRACKING ONTO PAVED SURFACES. GRAVEL BED SHALL BE A MINIMUM OF 15m LONG, 4M WIDE AND 0.3m DEEP AND SHALL CONSIST OF COARSE (50mm CRUSHERT-RUN LIMESTONE) MATERIAL. MAINTAIN GRAVEL ENTRANCE IN CLEAN CONDITION.
- DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
- ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
- TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.

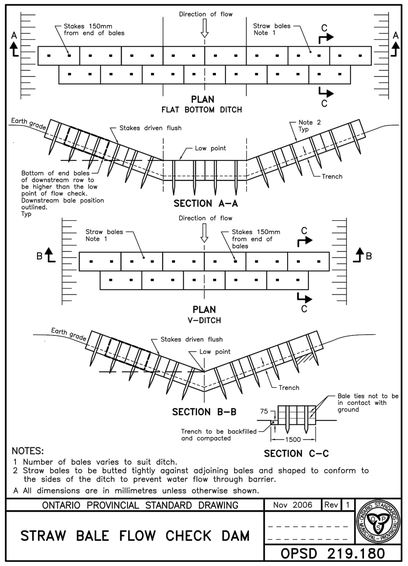
3. AFTER CONSTRUCTION:

- PROVIDE PERMANENT COVER CONSISTING OF TOPSOIL AND SEED TO DISTURBED AREAS.
- REMOVE STRAW BALE FLOW CHECK DAMS, SILT FENCES AND FILTER CLOTHS ON CATCH BASINS AND MANHOLE COVERS AFTER DISTURBED AREAS HAVE BEEN REHABILITATED AND STABILIZED.
- INSPECT AND CLEAN CATCH BASIN SUMPS AND STORM SEWERS.



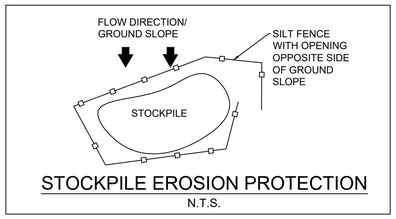
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

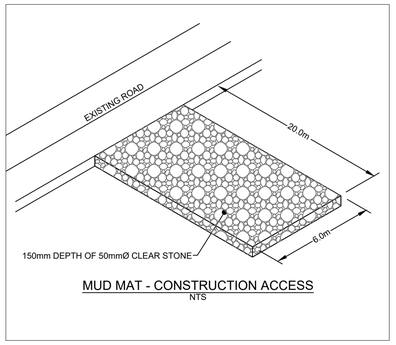


NOTES:
1 Number of bales varies to suit ditch.
2 Straw bales to be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow through barrier.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2006	Rev 1
STRAW BALE FLOW CHECK DAM		OPSD 219.180



STOCKPILE EROSION PROTECTION
N.T.S.



MUD MAT - CONSTRUCTION ACCESS
NTS

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.10 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 019119680388 having an elevation of 92.16 metres.

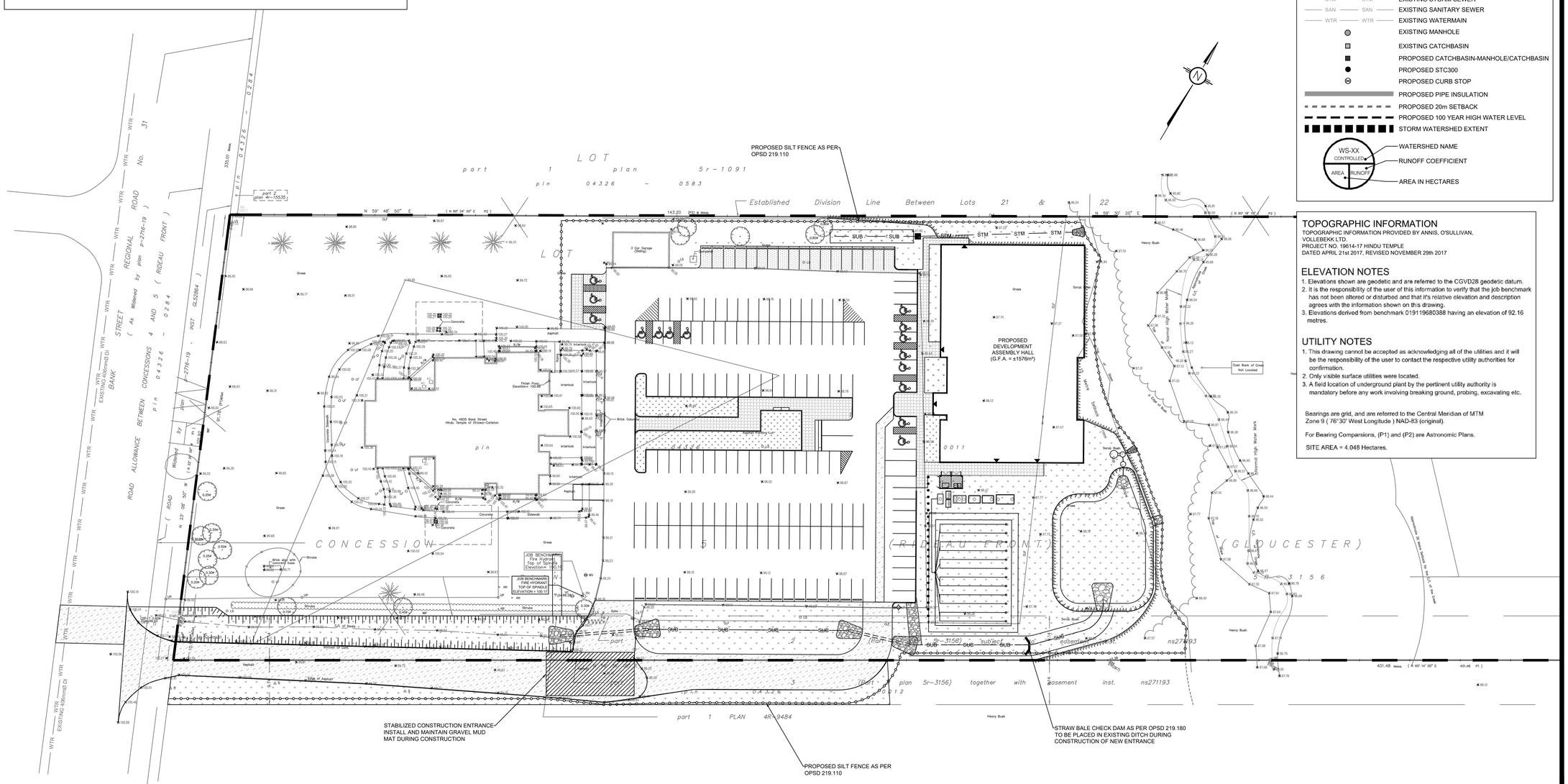
UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparsions, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.



USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/04/08 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO. 170132
DATE JAN2020
C101

D017-12-20-0059 PLAN # 18407

APPENDIX J

Domestic Water Demand Calculations

Water Service Calculations

LRL File No. : 170132
Project : Hindu Heritage Centre
Date : October 31, 2022
Designed by : Kyle Herold

Water Demand - Proposed Development

Total fixture units: 120 (as per OBC Table 7.6.3.2.A)
Conversion of fixture units to equivalent gpm: 48 gpm (as per PS&D)

Average water demand = 261647.52 L / day
= 3.03 L/s

Maximum daily peak factor: 1.5
Maximum daily demand = 392471 L / day
= 4.54 L / s

Maximum hour peak factor: 1.8
Maximum hour demand = 706448 L / day
= 8.18 L / s

Water Demand - Existing Building

Total fixture units: 55 (as per OBC Table 7.6.3.2.A)
Conversion of fixture units to equivalent gpm: 31 gpm (as per PS&D)

Average water demand = 168980.69 L / day
= 1.96 L/s

Maximum daily peak factor: 1.5
Maximum daily demand = 253471 L / day
= 2.93 L / s

Maximum hour peak factor: 1.8
Maximum hour demand = 456248 L / day
= 5.28 L / s

Total Water Demand

Avg water demand = 430628.21 L / day
= 4.98 L / s

Max daily demand = 645942.3 L / day

	=	7.48	L / s
Max hour demand	=	1162696.2	L / day
	=	13.46	L / s

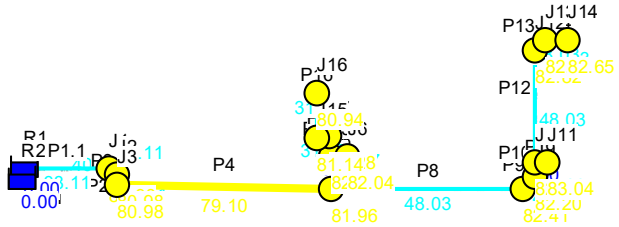
Appendix K

EPANET

Hydraulic Analysis

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 1: Avg Day (Existing Conditions)

```
**************************************************************************
*                            E P A N E T                                 *
*                     Hydraulic and Water Quality                        *
*                     Analysis for Pipe Networks                         *
*                           Version 2.2                                  *
**************************************************************************
```

Input File: Scenario 1-Avg Day.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	507.08	80.98	0.00
J2	0.00	507.08	80.98	0.00
J3	0.00	507.08	80.98	0.00
J4	0.00	507.05	81.96	0.00
J5	0.00	507.05	82.04	0.00
J6	0.00	507.05	82.04	0.00
J7	0.00	507.05	81.28	0.00
J8	0.00	507.04	82.41	0.00
J9	0.00	507.04	82.20	0.00
J10	0.00	507.04	82.69	0.00
J11	0.00	507.04	83.04	0.00
J12	0.00	507.01	82.82	0.00
J13	0.00	507.00	82.89	0.00
J14	48.03	507.00	82.65	0.00

Node Results: (continued)

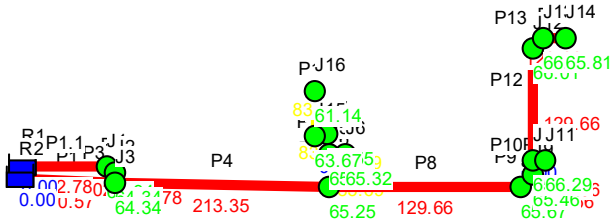
Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	506.72	81.14	0.00	
J16	31.07	505.70	80.94	0.00	
R1	-38.11	507.09	0.00	0.00	Reservoir
R2	-40.99	507.09	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	40.99	0.26	0.04	Open
P2	38.11	0.24	0.03	Open
P3	38.11	0.24	0.03	Open
P4	79.10	0.50	0.13	Open
P5	31.07	0.35	0.09	Open
P6	0.00	0.00	0.00	Open
P7	31.07	0.35	0.09	Open
P8	48.03	0.31	0.05	Open
P9	48.03	0.31	0.05	Open
P10	48.03	0.31	0.05	Open
P11	0.00	0.00	0.00	Open
P12	48.03	0.55	0.21	Open
P13	48.03	0.55	0.21	Open
P14	48.03	0.55	0.21	Open
P1.1	38.11	0.24	0.03	Open
P15	31.07	3.17	19.36	Open
P16	31.07	3.17	19.36	Open

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 2: Peak Hour (Existing Conditions)

```
*********************************************************************
*                          E P A N E T                              *
*                   Hydraulic and Water Quality                     *
*                   Analysis for Pipe Networks                      *
*                         Version 2.2                               *
*********************************************************************
```

Input File: Scenario 2-Peak Hour.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	468.69	64.34	0.00
J2	0.00	468.69	64.34	0.00
J3	0.00	468.69	64.34	0.00
J4	0.00	468.48	65.25	0.00
J5	0.00	468.46	65.32	0.00
J6	0.00	468.46	65.32	0.00
J7	0.00	468.45	64.55	0.00
J8	0.00	468.41	65.67	0.00
J9	0.00	468.40	65.46	0.00
J10	0.00	468.40	65.95	0.00
J11	0.00	468.40	66.29	0.00
J12	0.00	468.20	66.01	0.00
J13	0.00	468.18	66.07	0.00
J14	129.66	468.14	65.81	0.00

Node Results: (continued)

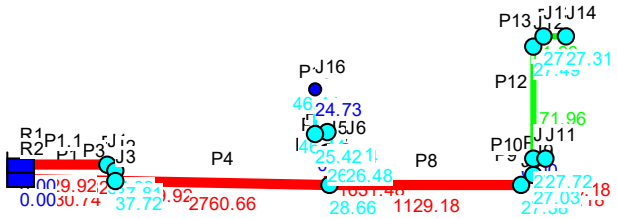
Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	466.42	63.67	0.00	
J16	83.69	460.01	61.14	0.00	
R1	-102.78	468.71	0.00	0.00	Reservoir
R2	-110.57	468.71	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	110.57	0.71	0.24	Open
P2	102.78	0.66	0.21	Open
P3	102.78	0.66	0.20	Open
P4	213.35	1.36	0.80	Open
P5	83.69	0.95	0.58	Open
P6	0.00	0.00	0.00	Open
P7	83.69	0.95	0.58	Open
P8	129.66	0.83	0.32	Open
P9	129.66	0.83	0.32	Open
P10	129.66	0.83	0.32	Open
P11	0.00	0.00	0.00	Open
P12	129.66	1.47	1.29	Open
P13	129.66	1.47	1.30	Open
P14	129.66	1.47	1.29	Open
P1.1	102.78	0.66	0.21	Open
P15	83.69	8.55	121.33	Open
P16	83.69	8.55	121.33	Open

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 3: Max Day + Fire Flow (Existing Conditions)

```
*********************************************************************
*                          E P A N E T                              *
*                   Hydraulic and Water Quality                     *
*                   Analysis for Pipe Networks                      *
*                         Version 2.2                               *
*********************************************************************
```

Input File: Scenario 3-Avg Day+Fire.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	407.64	37.89	0.00
J2	0.00	407.45	37.81	0.00
J3	0.00	407.25	37.72	0.00
J4	0.00	384.04	28.66	0.00
J5	1585.04	378.82	26.48	0.00
J6	0.00	378.82	26.48	0.00
J7	0.00	378.81	25.71	0.00
J8	0.00	380.04	27.38	0.00
J9	0.00	379.72	27.03	0.00
J10	1057.22	379.36	27.37	0.00
J11	0.00	379.36	27.72	0.00
J12	0.00	379.30	27.49	0.00
J13	0.00	379.29	27.55	0.00
J14	71.96	379.28	27.31	0.00

Node Results: (continued)

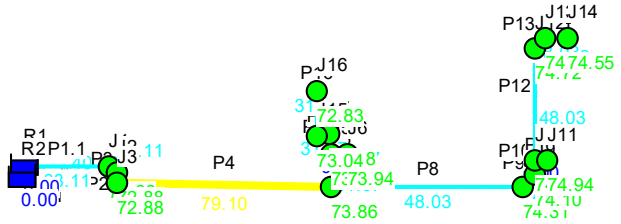
Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	378.13	25.42	0.00	
J16	46.44	375.98	24.73	0.00	
R1	-1329.92	410.33	0.00	0.00	Reservoir
R2	-1430.74	410.33	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	1430.74	9.13	27.20	Open
P2	1329.92	8.49	23.76	Open
P3	1329.92	8.49	23.76	Open
P4	2760.66	17.62	91.90	Open
P5	1631.48	18.51	140.87	Open
P6	0.00	0.00	0.00	Open
P7	46.44	0.53	0.19	Open
P8	1129.18	7.21	17.55	Open
P9	1129.18	7.21	17.55	Open
P10	1129.18	7.21	17.55	Open
P11	0.00	0.00	0.00	Open
P12	71.96	0.82	0.43	Open
P13	71.96	0.82	0.43	Open
P14	71.96	0.82	0.43	Open
P1.1	1329.92	8.49	23.76	Open
P15	46.44	4.74	40.76	Open
P16	46.44	4.74	40.76	Open

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 1: Avg Day
(SUC Zone Reconfiguration)

```
******************************************************************
*                          E P A N E T                           *
*                   Hydraulic and Water Quality                  *
*                   Analysis for Pipe Networks                   *
*                         Version 2.2                            *
******************************************************************
```

Input File: Scenario 1-Avg Day_SUC.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	488.39	72.88	0.00
J2	0.00	488.39	72.88	0.00
J3	0.00	488.39	72.88	0.00
J4	0.00	488.36	73.86	0.00
J5	0.00	488.35	73.94	0.00
J6	0.00	488.35	73.94	0.00
J7	0.00	488.35	73.18	0.00
J8	0.00	488.34	74.31	0.00
J9	0.00	488.34	74.10	0.00
J10	0.00	488.34	74.59	0.00
J11	0.00	488.34	74.94	0.00
J12	0.00	488.31	74.72	0.00
J13	0.00	488.31	74.79	0.00
J14	48.03	488.30	74.55	0.00

Node Results: (continued)

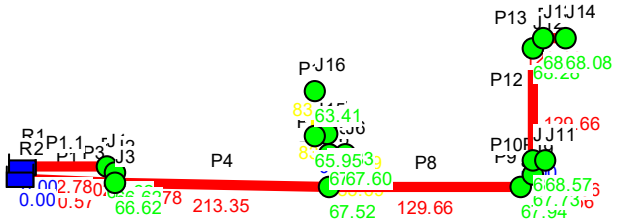
Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	488.03	73.04	0.00	
J16	31.07	487.00	72.83	0.00	
R1	-38.11	488.39	0.00	0.00	Reservoir
R2	-40.99	488.39	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	40.99	0.26	0.04	Open
P2	38.11	0.24	0.03	Open
P3	38.11	0.24	0.03	Open
P4	79.10	0.50	0.13	Open
P5	31.07	0.35	0.09	Open
P6	0.00	0.00	0.00	Open
P7	31.07	0.35	0.09	Open
P8	48.03	0.31	0.05	Open
P9	48.03	0.31	0.05	Open
P10	48.03	0.31	0.05	Open
P11	0.00	0.00	0.00	Open
P12	48.03	0.55	0.21	Open
P13	48.03	0.55	0.21	Open
P14	48.03	0.55	0.21	Open
P1.1	38.11	0.24	0.03	Open
P15	31.07	3.17	19.36	Open
P16	31.07	3.17	19.36	Open

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 2: Peak Hour
(SUC Zone Reconfiguration)

```
*********************************************************************
*                          E P A N E T                              *
*                   Hydraulic and Water Quality                     *
*                   Analysis for Pipe Networks                      *
*                         Version 2.2                               *
*********************************************************************
```

Input File: Scenario 2-Peak Hour_SUC.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	473.94	66.62	0.00
J2	0.00	473.93	66.62	0.00
J3	0.00	473.93	66.62	0.00
J4	0.00	473.73	67.52	0.00
J5	0.00	473.71	67.60	0.00
J6	0.00	473.71	67.60	0.00
J7	0.00	473.69	66.83	0.00
J8	0.00	473.66	67.94	0.00
J9	0.00	473.65	67.73	0.00
J10	0.00	473.65	68.23	0.00
J11	0.00	473.65	68.57	0.00
J12	0.00	473.44	68.28	0.00
J13	0.00	473.42	68.34	0.00
J14	129.66	473.39	68.08	0.00

Node Results: (continued)

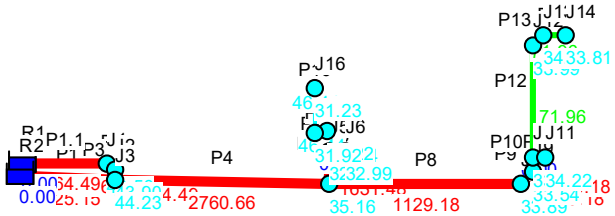
Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	471.67	65.95	0.00	
J16	83.69	465.26	63.41	0.00	
R1	-102.78	473.96	0.00	0.00	Reservoir
R2	-110.57	473.96	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	110.57	0.71	0.24	Open
P2	102.78	0.66	0.21	Open
P3	102.78	0.66	0.21	Open
P4	213.35	1.36	0.80	Open
P5	83.69	0.95	0.58	Open
P6	0.00	0.00	0.00	Open
P7	83.69	0.95	0.58	Open
P8	129.66	0.83	0.32	Open
P9	129.66	0.83	0.32	Open
P10	129.66	0.83	0.32	Open
P11	0.00	0.00	0.00	Open
P12	129.66	1.47	1.29	Open
P13	129.66	1.47	1.29	Open
P14	129.66	1.47	1.29	Open
P1.1	102.78	0.66	0.21	Open
P15	83.69	8.55	121.33	Open
P16	83.69	8.55	121.33	Open

Pressure
25.00
50.00
75.00
100.00
psi

Flow
25.00
50.00
75.00
100.00
GPM



Scenario 3: Max Day + Fire Flow (SUC Zone Reconfiguration)

```
*********************************************************************
*                          E P A N E T                              *
*                   Hydraulic and Water Quality                     *
*                   Analysis for Pipe Networks                      *
*                         Version 2.2                               *
*********************************************************************
```

Input File: Scenario 3-Max Day+Fire_SUC Zone.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R2	J3	113.16	8
P2	J1	J2	8.2	8
P3	J2	J3	8.2	8
P4	J3	J4	252.6	8
P5	J4	J5	37.06	6
P6	J5	J6	16.4	6
P7	J5	J7	24.93	6
P8	J4	J8	227.96	8
P9	J8	J9	18.04	8
P10	J9	J10	20.34	8
P11	J10	J11	14.1	6
P12	J10	J12	155.47	6
P13	J12	J13	16.07	6
P14	J13	J14	28.21	6
P1.1	R1	J1	113.16	8
P15	J7	J15	16.73	2
P16	J15	J16	52.81	2

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J1	0.00	420.76	43.58	0.00
J2	0.00	421.51	43.90	0.00
J3	0.00	422.27	44.23	0.00
J4	0.00	399.05	35.16	0.00
J5	1585.04	393.83	32.99	0.00
J6	0.00	393.83	32.99	0.00
J7	0.00	393.83	32.22	0.00
J8	0.00	395.05	33.89	0.00
J9	0.00	394.74	33.54	0.00
J10	1057.22	394.38	33.88	0.00
J11	0.00	394.38	34.22	0.00
J12	0.00	394.31	33.99	0.00
J13	0.00	394.30	34.06	0.00
J14	71.96	394.29	33.81	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J15	0.00	393.15	31.92	0.00	
J16	46.44	390.99	31.23	0.00	
R1	2764.49	410.33	0.00	0.00	Reservoir
R2	-5525.15	459.86	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	5525.15	35.27	332.18	Open
P2	-2764.49	17.65	92.14	Open
P3	-2764.49	17.65	92.13	Open
P4	2760.66	17.62	91.90	Open
P5	1631.48	18.51	140.87	Open
P6	0.00	0.00	0.00	Open
P7	46.44	0.53	0.19	Open
P8	1129.18	7.21	17.55	Open
P9	1129.18	7.21	17.55	Open
P10	1129.18	7.21	17.55	Open
P11	0.00	0.00	0.00	Open
P12	71.96	0.82	0.43	Open
P13	71.96	0.82	0.43	Open
P14	71.96	0.82	0.43	Open
P1.1	-2764.49	17.65	92.13	Open
P15	46.44	4.74	40.76	Open
P16	46.44	4.74	40.76	Open

APPENDIX L

FUS Fire Flow Calculations

Fire Flow Calculations - Proposed Building

LRL File No. 170132
Project Hindu Heritage Centre
Date October 31, 2022
Method Fire Underwriters Survey (FUS)
Designed by Philippe Paquette, C.E.T.

Step	Task	Term	Options	Multiplier	Choose:	Value	unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Non-combustible construction	0.8		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area								
2	Choose type of housing	Type of housing	Single family dwelling	0	Building - no. of units per floor	1	unit(s)	
			Townhouse - no. of units	0				
			Building - no. of units per floor	1				
3	Enter area of a unit	Enter floor space area of one unit (excluding basement)		1	1576.0		sq.m.	
4	Obtain fire flow before reductions	Required fire flow	**Fire Flow = 220 x C x Area$^{0.5}$**				L/min	**7,000**
							L/s	116.7
Reductions or surcharge due to factors affecting burning								
5	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-0.25	Combustible	0		
			Limited combustible	-0.15				
			Combustible	0				
			Free burning	0.15			L/min	**7,000**
			Rapid burning	0.25			L/s	116.7
6	Choose reduction for sprinklers	Sprinkler reduction	Sprinklers (NFPA13)	-0.30	True	-0.3		
			Water supply is standard for both the system and fire department hose lines	-0.10	True	-0.1	L/min	**3,500**
			Fully supervised system	-0.10	True	-0.1	L/s	58.3
7	Choose separation	Exposure distance between units	North side	Over 45m	0			
			East side	Over 45m	0			
			South side	Over 45m	0		L/min	**4,000**
			West side	Over 45m	0	0	L/s	66.7
Net required fire flow								
8	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	**4,000**
		Minimum required fire flow rate					L/s	**66.7**
		Required duration of fire flow					hr	**1.5**

Fire Flow Calculations - Existing Building

LRL File No. 170132
Project Hindu Heritage Centre
Date October 31, 2022
Method Fire Underwriters Survey (FUS)
Designed by Philippe Paquette, C.E.T.

Step	Task	Term	Options	Multiplier	Choose:	Value	unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Non-combustible construction	0.8		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area								
2	Choose type of housing	Type of housing	Single family dwelling	0	Building - no. of units per floor	1	unit(s)	
			Townhouse - no. of units	0				
			Building - no. of units per floor	1				
3	Enter area of a unit	Enter floor space area of one unit (excluding basement)		1	1062.0		sq.m.	
4	Obtain fire flow before reductions	Required fire flow	**Fire Flow = 220 x C x Area$^{0.5}$**				L/min	**6,000**
							L/s	100.0
Reductions or surcharge due to factors affecting burning								
5	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-0.25	Limited combustible	-0.15		
			Limited combustible	-0.15				
			Combustible	0				
			Free burning	0.15			L/min	**5,100**
			Rapid burning	0.25			L/s	85.0
6	Choose reduction for sprinklers	Sprinkler reduction	Sprinklers (NFPA13)	-0.30	False	0		
			Water supply is standard for both the system and fire department hose lines	-0.10	False	0	L/min	**6,000**
			Fully supervised system	-0.10	False	0	L/s	100.0
7	Choose separation	Exposure distance between units	North side	Over 45m	0			
			East side	Over 45m	0			
			South side	Over 45m	0		L/min	**6,000**
			West side	Over 45m	0	0	L/s	100.0
Net required fire flow								
8	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	**6,000**
		Minimum required fire flow rate					L/s	**100.0**
		Required duration of fire flow					hr	**2.0**

APPENDIX M

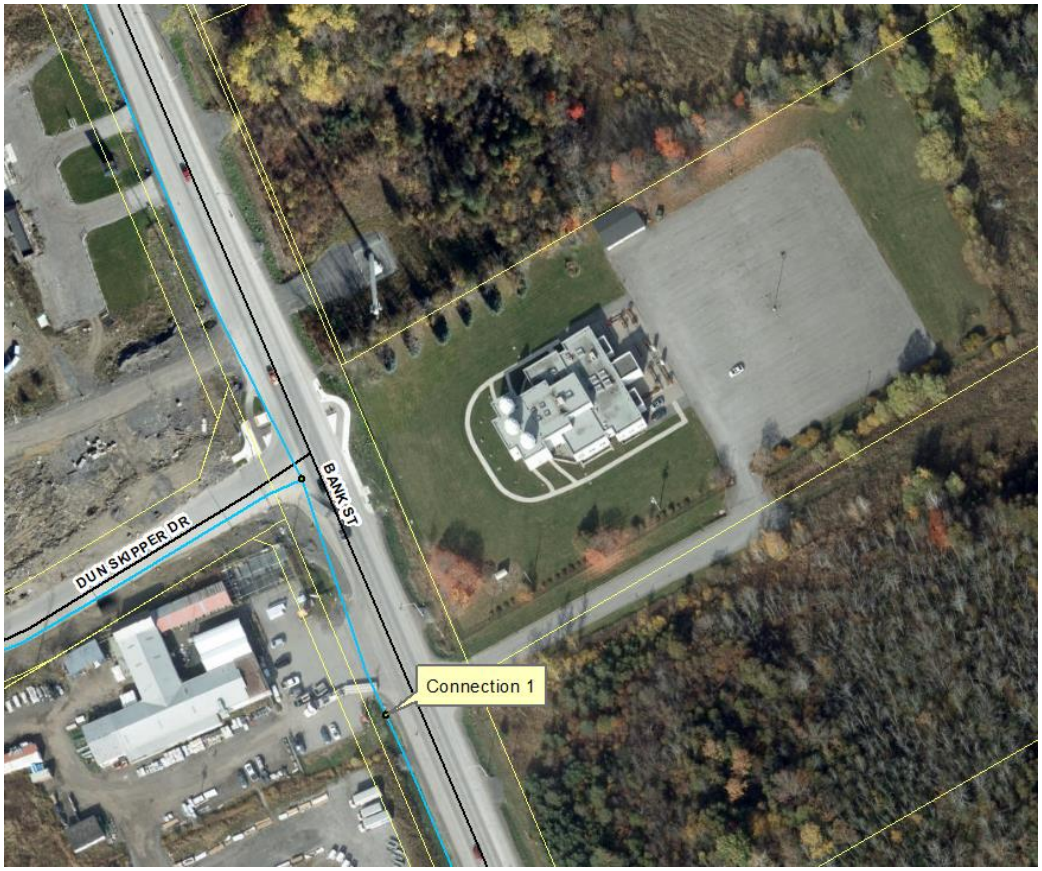
City of Ottawa Boundary Calculations

Boundary Conditions
4835 Bank Street

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	299	4.98
Maximum Daily Demand	449	7.48
Peak Hour	808	13.46
Fire Flow Demand #1	10,000	166.67

Location



Results – Existing Conditions

Connection 1 – Bank St.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.6	79.3
Peak Hour	142.9	62.7
Max Day plus Fire 1	125.1	37.4

Ground Elevation = 98.8 m

Results – SUC Zone Reconfiguration

Connection 1 – Bank St.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.9	71.2
Peak Hour	144.5	65.0
Max Day plus Fire 1	140.2	59.0

Ground Elevation = 98.8 m

Notes

1. A second connection to the watermain, separated by an isolation valve, is required to decrease vulnerability of the water system in case of breaks.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

APPENDIX N

1/5 Year & 1/100 Year SWM Storage Tables

LRL Associates Ltd.

Storm Watershed Summary

LRL File No.	170132-10
Project:	Hindu Heritage Centre
Location:	4835 Bank Street, Ottawa
Date:	April 8, 2025
Designed:	K. Herold
Checked:	M. Basnet
Drawing Reference:	C.701, C.702

Pre-Development Catchments

WATERSHED	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
EWS-01	1.298	0.000	0.819	2.117	0.47
TOTAL	**1.298**	**0.000**	**0.819**	**2.117**	**0.47**

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
WS-01 (CONTROLLED)	0.571	0.023	0.618	1.212	0.57
TOTAL CONTROL	**0.571**	**0.023**	**0.618**	**1.212**	**0.57**
WS-02 (UNCONTROLLED)	0.112	0.000	0.299	0.411	0.71
WS-03 (UNCONTROLLED)	0.454	0.000	0.016	0.470	0.22
WS-04 (UNCONTROLLED)	0.024	0.000	0.000	0.024	0.20
TOTAL UNCONTROLLED	**0.590**	**0.000**	**0.315**	**0.905**	**0.44**
TOTAL	**1.161**	**0.023**	**0.933**	**2.117**	**0.52**

LRL File No. 170132-10
Project: Hindu Heritage Centre
Location: 4835 Bank Street, Ottawa
Date: April 8, 2025
Designed: K. Herold
Checked: M. Basnet
Drawing Ref.: C.401

Stormwater Management Design Sheet

STORM - 100 YEAR

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) $= A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-Development Catchments within Development Area

	Total Area =	**2.117**	ha	**∑R=**	**0.47**
Un-Controlled	EWS-01	2.117	ha	R=	0.47
	Total Uncontrolled =	**2.117**	**ha**	**∑R=**	**0.47**

Allowable Release Rate (Max C=0.5, 5-year Pre-Dev FR)

5 Year Pre-Development Flow Rate

$I_5 =$ **998.071 / (Td + 6.053)$^{0.814}$** **a = 998.071** **b = 0.814** **C = 6.053**

C =	0.47	the smaller of 0.5 or the actual existing as per the City of Ottawa
I =	104.2	mm/hr
Tc =	10	min
Total =	2.117	ha
Allowable Release Rate=	**288.68**	L/s
Controlled Release Rate=	**39.50**	L/s

Post-development Stormwater Management

					$\sum R_5$	$\sum R_{100}$
	Total Site Area =	**2.117**	ha	**∑R=**	**0.52**	**0.64**
Controlled	**Total Controlled =**	**1.212**	**ha**	**∑R=**	**0.57**	**0.71**
Un-controlled	**Total Un-Controlled =**	**0.905**	**ha**	**∑R=**	**0.44**	**0.55**

Post-development Stormwater Management

$I_{100} =$ **1735.688 / (Td + 6.014)$^{0.820}$** **a = 1735.688** **b = 0.82** **C = 6.014**

Time (min)	Intensity (mm/hr)	Controlled Runoff** (L/s)	Storage Volume* (m^3)	Controlled Release Rate (L/s)	Halved Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	427.40	244.59	39.50	19.75	249.13	288.63
15	142.9	342.03	290.05	39.50	19.75	199.37	238.87
20	120.0	287.11	320.83	39.50	19.75	167.36	206.86
30	91.9	219.89	360.26	39.50	19.75	128.18	167.68
45	69.1	165.28	392.92	39.50	19.75	96.34	135.84
60	55.9	133.79	410.54	39.50	19.75	77.98	117.48
75	47.3	113.11	420.12	39.50	19.75	65.93	105.43
90	41.1	98.40	424.72	39.50	19.75	57.36	96.86
120	32.9	78.74	424.70	39.50	19.75	45.90	85.40
150	27.6	66.09	417.05	39.50	19.75	38.52	78.02
180	23.9	57.21	404.60	39.50	19.75	33.35	72.85

*** for volume calculation, controlled release rate taken as half of the discharge rate of 39.50L/s**

LRL File No.	170132-10
Project:	Hindu Heritage Centre
Location:	4835 Bank Street, Ottawa
Date:	April 8, 2025
Designed:	K. Herold
Checked:	M. Basnet
Drawing Ref.:	C.401

Stormwater Management Design Sheet

STORM - 100 YEAR

Onsite Stormwater Retention

Total Storage Required =	**424.72**	**m^3**	
Pipe Storage =	0.00	m^3	
CB/MH Storage =	0.00	m^3	
Underground Storage =	0.00	m^3	
Surface/Detention Area Storage =	428.14	m^3	refer to LRL Plans C301 & C601
Total Available Storage =	**428.14**	**m^3**	

LRL File No. 170132-10
Project: Hindu Heritage Centre
Location: 4835 Bank Street, Ottawa
Date: April 8, 2025
Designed: K. Herold
Checked: M. Basnet
Drawing Ref.: C.401

Stormwater Management Design Sheet

STORM - 5 YEAR

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) = $A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-Development Catchments within Development Area

	Total Area =	**2.117**	ha	**∑R=**	**0.47**
Un-Controlled	EWS-01	2.117	ha	R=	0.47
	Total Uncontrolled =	**2.117**	**ha**	**∑R=**	**0.47**

Allowable Release Rate (Max C=0.5, 5-year Pre-Dev FR)

5 Year Pre-Development Flow Rate

$I_5 =$ **998.071 / (Td + 6.053)$^{0.814}$** **a = 998.071** **b = 0.814** **C = 6.053**

C =	0.47	the smaller of 0.5 or the actual existing as per the City of Ottawa
I =	104.2	mm/hr
Tc =	10	min
Total =	2.117	ha
Allowable Release Rate=	**288.68**	**L/s**
Controlled Release Rate=	**28.00**	**L/s**

Post-Development Stormwater Management (Storage Calculations)

					$\sum R_5$	$\sum R_{100}$
	Total Site Area =	**2.117**	ha	**∑R=**	**0.52**	**0.64**
Controlled	**Total Controlled =**	**1.212**	**ha**	**∑R=**	**0.57**	**0.71**
Un-controlled	**Total Un-Controlled =**	**0.905**	**ha**	**∑R=**	**0.44**	**0.55**

Post-development Stormwater Management

$I_5 =$ **998.071 / (Td + 6.053)$^{0.814}$** **a = 998.071** **b = 0.814** **C = 6.053**

Time (min)	Intensity (mm/hr)	Controlled Runoff** (L/s)	Storage Volume* (m^3)	Controlled Release Rate* (L/s)	Halved Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
5	141.2	270.34	76.90	28.00	14.00	157.58	171.58
10	104.2	199.52	111.31	28.00	14.00	116.30	130.30
15	83.6	160.00	131.40	28.00	14.00	93.26	107.26
20	70.3	134.52	144.63	28.00	14.00	78.41	92.41
30	53.9	103.26	160.68	28.00	14.00	60.19	74.19
35	48.5	92.90	165.70	28.00	14.00	54.15	68.15
40	44.2	84.61	169.46	28.00	14.00	49.32	63.32
45	40.6	77.80	172.26	28.00	14.00	45.35	59.35
50	37.7	72.10	174.30	28.00	14.00	42.03	56.03
60	32.9	63.08	176.70	28.00	14.00	36.77	50.77
70	29.4	56.24	177.42	28.00	14.00	32.78	46.78
80	26.6	50.86	176.94	28.00	14.00	29.65	43.65
90	24.3	46.51	175.55	28.00	14.00	27.11	41.11

*** for volume calculation, controlled release rate taken as half of the discharge rate of 28.00L/s**

LRL File No. 170132-10
Project: Hindu Heritage Centre
Location: 4835 Bank Street, Ottawa
Date: April 8, 2025
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Drawing Ref.: C.401

Stormwater Management Design Sheet

STORM - 5 YEAR

Onsite Stormwater Retention

Total Storage Required =	**177.42**	**m^3**	
Pipe Storage =	0.00	m^3	
CB/MH Storage =	0.00	m^3	
Underground Storage =	0.00	m^3	
Surface/Detention Area Storage =	210.92	m^3	refer to LRL Plans C301 & C601
Total Available Storage =	**210.92**	**m^3**	

LRL Associates Ltd.

Storm Design Sheet

LRL File No.	170132-10
Project:	Hindu Heritage Centre
Location:	4835 Bank Street, Ottawa
Date:	April 8, 2025
Designed:	K. Herold
Checked:	M. Basnet
Drawing Reference:	C.401

Storm Design Parameters

Rational Method Q = 2.78CIA

Q = Peak flow in litres per second (L/s)
A = Drainage area in hectares (ha)
C = Runoff coefficient
I = Rainfall intensity (mm/hr)

Runoff Coefficient (C)

Grass	0.20
Gravel	0.80
Asphalt / rooftop	0.90

Ottawa Macdonald-Cartier International Airport IDF curve equation (5 year event, intensity in mm/hr)
$I = 998.071 / (T_c + 6.053)^{0.814}$
Min. velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW					STORM SEWER								MANHOLE						
WATERSHED / STREET	From MH	To MH	C = 0.20	C = 0.80	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (l/s)	Pipe Diameter (mm)	Type	Slope (%)	Length (m)	Capacity Full (L/s)	Velocity Full (m/s)	Time of Flow (min.)	Ratio (Q/Q_{FULL})	Up Invert (m)	Down Invert (m)	T/G Up Stream (m)	T/G Down Stream	Up Depth obv (m)	Down Depth obv (m)	Up Depth inv (m)
STORMWATER DETENTION AREA OUTLET																									
WS-01	/	CB02	0.571	0.023	0.722	2.18	2.18	15.00	83.56	181.74	450	PVC	0.60%	2.6	220.84	1.39	0.03	**0.82**							
UPSTREAM CULVERT, SW ENT. TO PARKING LOT																									
WS-01 (PARTIAL)*	DET.AREA		0.301	0.003	0.226	0.74	0.74	15.00	83.56	61.79	500	CSP	0.50%	20.0	267.00	1.36	0.25	**0.23**							
DOWNSTREAM CULVERT, SE ENT. TO PARKING LOT																									
WS-01 (PARTIAL)**	DET.AREA		0.370	0.011	0.577	1.67	1.67	15.00	83.56	139.86	500	CSP	0.50%	14.0	267.00	1.36	0.17	**0.52**							

Note: The Peak flow controlled by the orifice plates are shown in this design sheet.

*REFER TO CIVIL PLAN C301 & C401

*design takes into consideration existing building, existing asphalt entrance and grass area south of existing building

**design takes into consideration existing building, existing asphalt entrance, grass area south of existing building, south half of existing parking lot, proposed entrances and existing ditch

APPENDIX O

Civil Engineering Plans

EROSION AND SEDIMENT CONTROL MEASURES:

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES **

THE SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY

1. PRIOR TO START OF CONSTRUCTION:

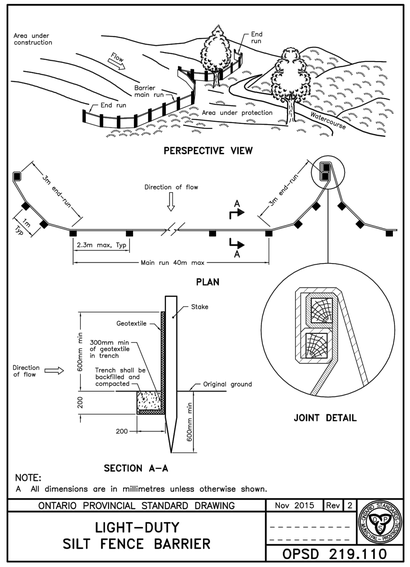
- PRIOR TO THE REMOVAL OF ANY VEGETATIVE COVER, MOVING OF SOIL AND CONSTRUCTION:
- INSTALL SILT FENCE IMMEDIATELY DOWNSTREAM FROM AREAS TO BE DISTURBED (SEE PLAN FOR LOCATION).
- INSTALL GEOSOCK INSERTS WITH AN OVERFLOW IN ALL THE DOWNSTREAM CATCHBASINS AND MANHOLES
- INSTALL SILTSACK FILTERS IN ALL CONCRETE CATCH BASINS STRUCTURES
- INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.

2. DURING CONSTRUCTION:

- WORK TO BE DONE IN THE VICINITY OF MAJOR WATERWAYS TO BE CARRIED OUT FROM JULY TO SEPTEMBER ONLY.
- MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE.
- PROTECT DISTURBED AREAS FROM RUNOFF.
- PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
- INSPECT SILT FENCES, FILTER CLOTHS AND CATCH BASIN SUMPS WEEKLY AND AFTER EVERY MAJOR STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
- CONSTRUCT SWALES AS PER DETAIL.
- PLAN TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION
- EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
- DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.0m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
- CONTROL WIND-BLOWN DUST OFF SITE TO ACCEPTABLE LEVELS BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED).
- ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THIS CONSULTING ENGINEER AND THE CITY DEPARTMENT OF PUBLIC WORKS.
- CONTRACTOR RESPONSIBLE FOR CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING ETC. AT THE END OF EACH WORK DAY.
- PROVIDE GRAVEL ENTRANCE WHEREVER EQUIPMENT LEAVES THE SITE TO PREVENT MUD TRACKING ONTO PAVED SURFACES. GRAVEL BED SHALL BE A MINIMUM OF 15m LONG, 4M WIDE AND 0.3m DEEP AND SHALL CONSIST OF COARSE (50mm CRUSHERT-RUN LIMESTONE) MATERIAL. MAINTAIN GRAVEL ENTRANCE IN CLEAN CONDITION.
- DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
- ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
- TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.

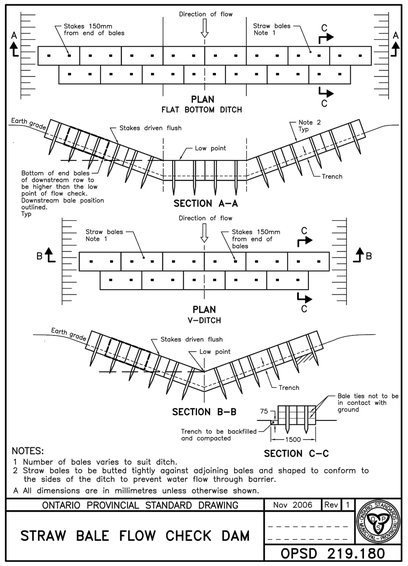
3. AFTER CONSTRUCTION:

- PROVIDE PERMANENT COVER CONSISTING OF TOPSOIL AND SEED TO DISTURBED AREAS.
- REMOVE STRAW BALE FLOW CHECK DAMS, SILT FENCES AND FILTER CLOTHS ON CATCH BASINS AND MANHOLE COVERS AFTER DISTURBED AREAS HAVE BEEN REHABILITATED AND STABILIZED.
- INSPECT AND CLEAN CATCH BASIN SUMPS AND STORM SEWERS.



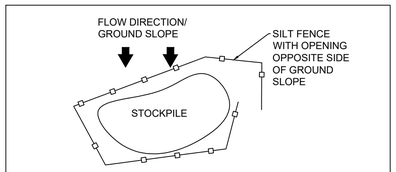
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

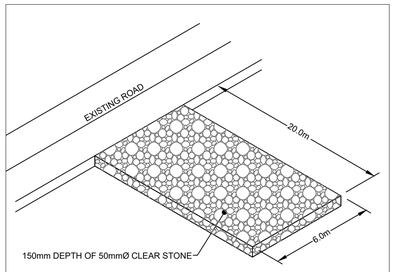


NOTES:
1 Number of bales varies to suit ditch.
2 Straw bales to be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow through barrier.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2006	Rev 1
STRAW BALE FLOW CHECK DAM		OPSD 219.180



STOCKPILE EROSION PROTECTION
N.T.S.



MUD MAT - CONSTRUCTION ACCESS
NTS

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
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- PROPOSED HEAY-DUTY ASPHALT
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- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 019119680388 having an elevation of 92.16 metres.

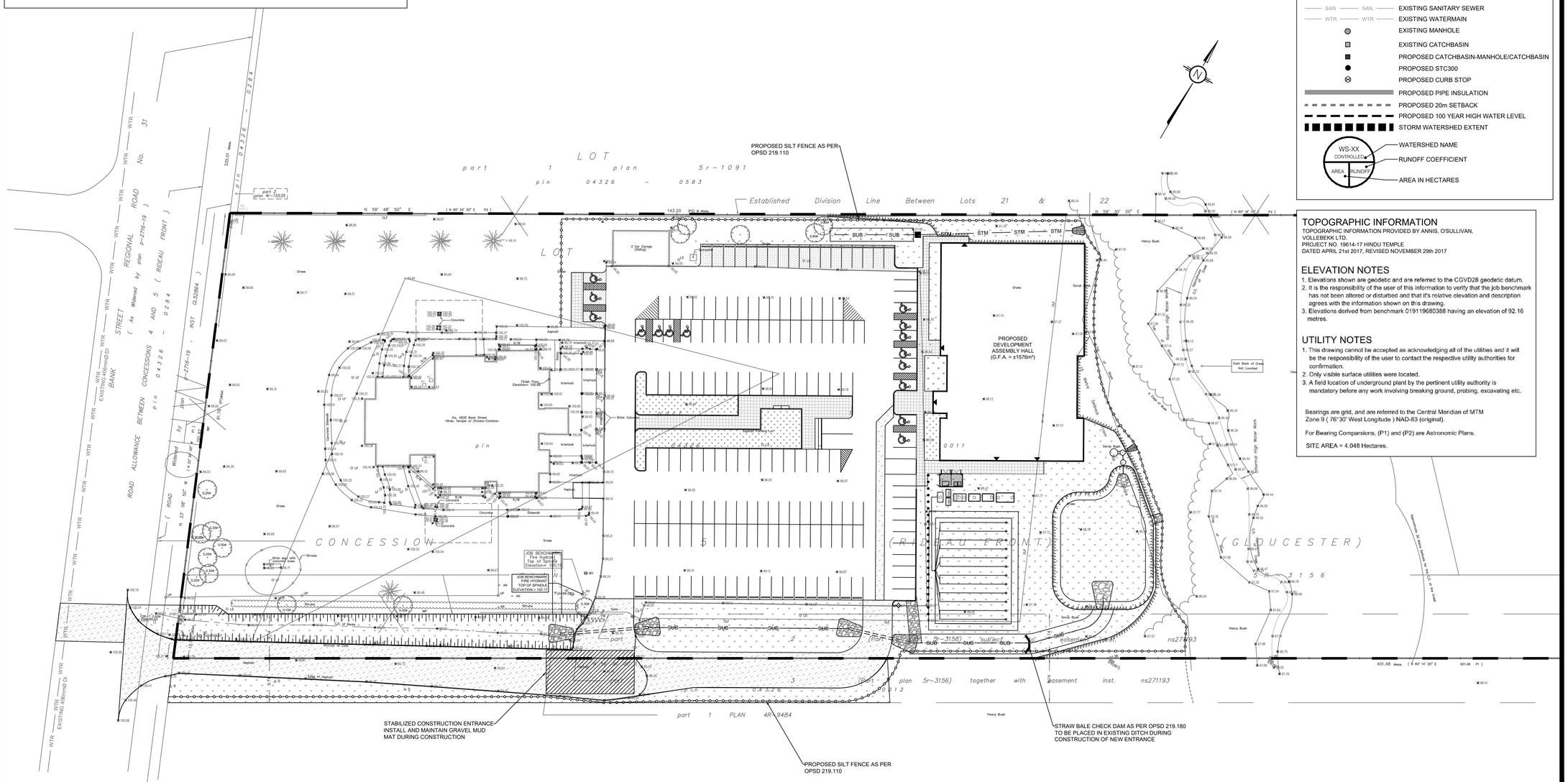
UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparsions, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.



USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/04/18 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

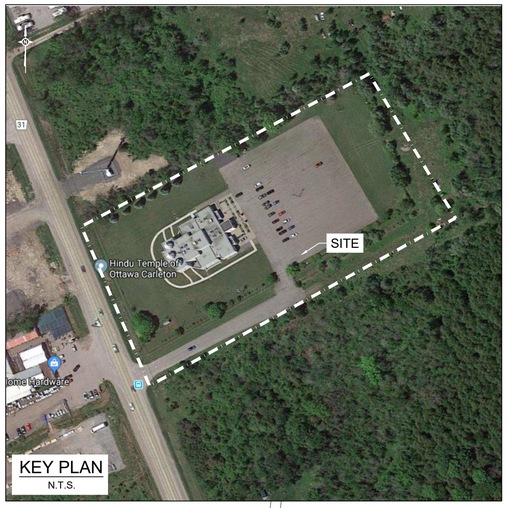
DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
170132

DATE
JAN2020

C101

D017-12-20-0059 PLAN # 18407



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SITE AREA = 4.048 Hectares.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
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- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
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- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME; RUNOFF COEFFICIENT; AREA IN HECTARES

SITE PLAN NOTES:

1. PROPOSED DEVELOPMENT
2. PROPOSED GARBAGE / WASTE CONTAINERS LOCATION (REFER TO ARCH SITE PLAN)
3. PROPOSED NO PARKING AREA FOR GARBAGE & LOADING AREA (WITH NO PARKING SIGNS/PAVEMENT MARKINGS)
4. PROPOSED PAVEMENT MARKINGS FOR FIRE ROUTE
5. PROPOSED CONCRETE BARRIER CURB AS PER OPSD 600.110
6. PROPOSED ACCESSIBLE SPACES C/W LINE PAINTING
7. EXISTING ASPHALT TO REMAIN
8. EXISTING ASPHALT PARKING LOT TO BE REMOVED & REPLACED WITH 100mm TOPSOIL & SOD
9. PROPOSED LIGHT DUTY PAVEMENT STRUCTURE
10. PROPOSED HEAVY TRAFFIC PAVEMENT STRUCTURE
11. PROPOSED LANDSCAPING (AS PER LANDSCAPING PLAN)
12. PROPOSED FIRE ROUTE
13. PROPOSED FIRE ROUTE SIGNAGE
14. PROPOSED ROOF DRAINAGE OUTLET
15. 30 x 45 cm "DISABLED PARKING PERMIT" SIGN (Rb-93) AS PER MTO BOOK 5 AND AS PER SECTION 11 OF THE ONTARIO REGULATION 581/90. SIGN TO BE MOUNTED ON BUILDING WALL OR POST
16. PROPOSED CONCRETE WALKWAY, AND VEHICULAR ACCESS ROUTE TO REAR SITE
17. PROPOSED PRECAST CONCRETE BUMPER CURBS
18. PROPOSED SEPTIC TANKS & LEACHING BED (REFER TO SEPTIC DESIGN BY GREEN VALLEY ENVIRONMENTAL) C/W BOLLARDS (AS PER ARCHITECTURAL SITE PLAN).
19. PROPOSED CATCHBASIN & INFILTRATION GALLERY
20. PROPOSED STORMWATER DETENTION AREA
21. EXISTING CULVERT TO BE REMOVED AND REPLACED
22. PROP RIP-RAP FOR DEPRESSED CURBS & PIPE OUTLET
23. PROPOSED FIRE HYDRANT
24. PROPOSED TACTILE WALKING SURFACE INDICATOR AS PER CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS SECTIONS 2.7 & 3.4.6.
25. EXISTING LIGHT STANDARD TO REMAIN
26. PROPOSED STORMWATER QUANTITY CONTROL AND TREATMENT UNITS
27. PROPOSED DITCH W/ SUBDRAIN
28. EXISTING SEPTIC SYSTEM TO BE REMOVED
29. EXISTING SEPTIC SYSTEM TO BE UPGRADED
30. PROPOSED 2 BICYCLE PARKING SPOTS

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER — M. BASNET 100501996 — 2025/4/8 — PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRJ
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON. K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

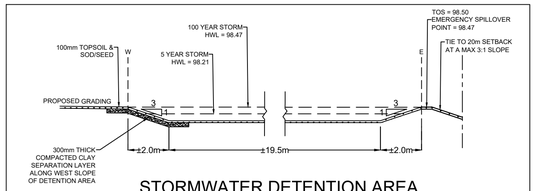
DRAWING TITLE
SITE DEVELOPMENT PLAN

PROJECT NO.
170132

DATE
JAN2020

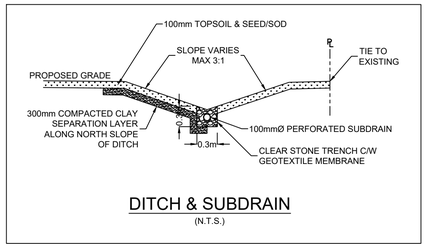
C201

D017-12-20-0059 PLAN # 184017



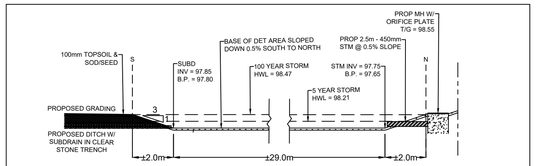
STORMWATER DETENTION AREA CROSS SECTION A-A

(N.T.S.)



DITCH & SUBDRAIN

(N.T.S.)



STORMWATER DETENTION AREA CROSS SECTION B-B

(N.T.S.)

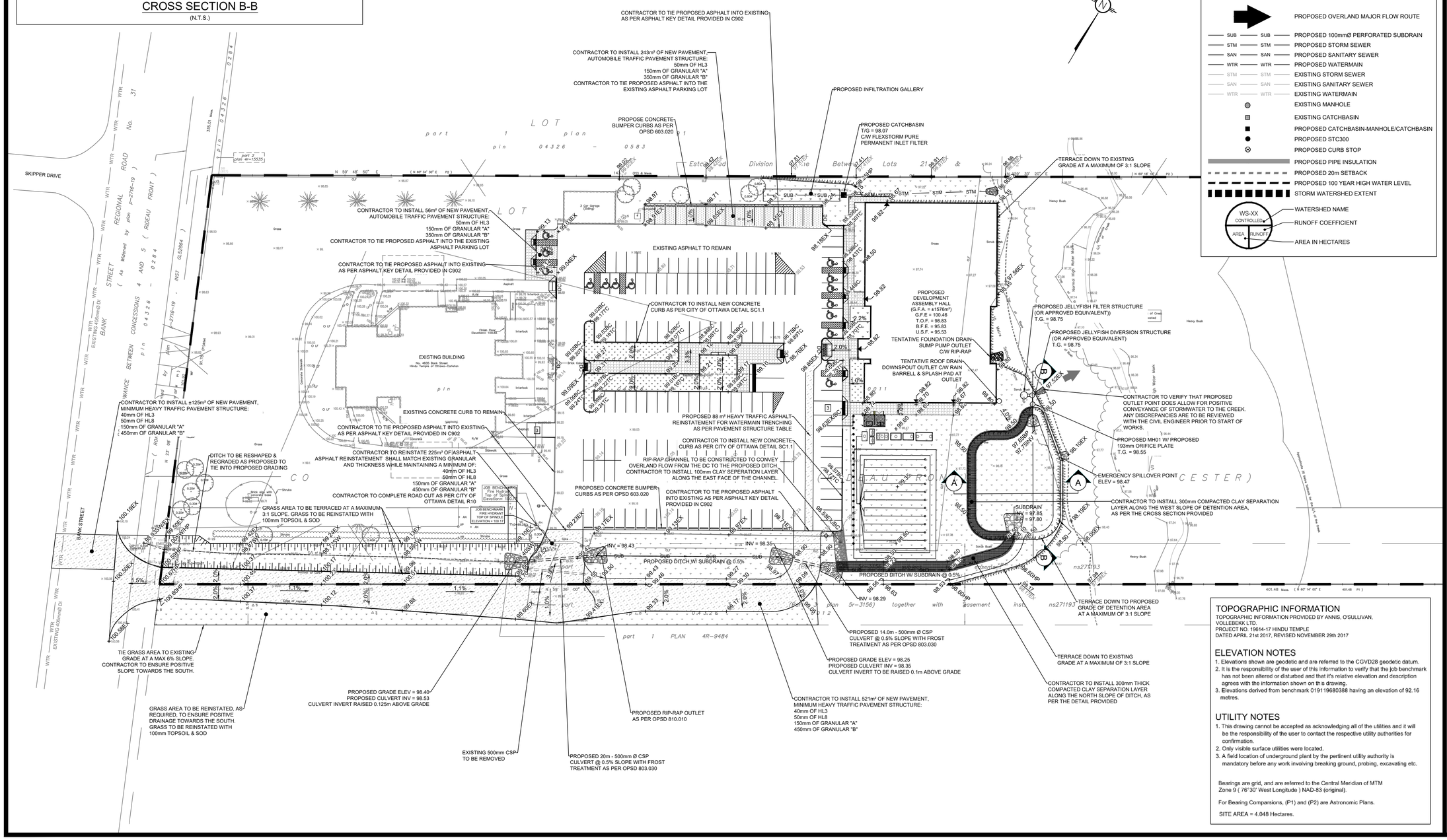
PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) AUTOMOBILE PARKING	THICKNESS (mm) TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL.3 A/C (PG 58-34)	50	40
BINDER	HL.8 A/C (PG 58-34)	--	50
BASECOURSE	GRANULAR "A"	150	150
SUBBASE	GRANULAR "B" TYPE II	350	450

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED. PAVEMENT STRUCTURE AS PER THE GEOTECHNICAL REPORT PREPARED BY LRL ASSOCIATES DATED NOVEMBER 2019.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- DC — PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 — PROPOSED ELEVATION
- ×50.00HP — PROPOSED HIGH POINT ELEVATION
- ×50.00SW — PROPOSED SWALE ELEVATION
- ×50.00BC — PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC — PROPOSED TOP OF CURB ELEVATION
- ×50.00EX — MATCH INTO EXISTING ELEVATION
- ×70.19 — EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB — PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM — PROPOSED STORM SEWER
- SAN SAN — PROPOSED SANITARY SEWER
- WTR WTR — PROPOSED WATERMAIN
- STM STM — EXISTING STORM SEWER
- SAN SAN — EXISTING SANITARY SEWER
- WTR WTR — EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES


CONTRACTOR TO TIE PROPOSED ASPHALT INTO EXISTING AS PER ASPHALT KEY DETAIL PROVIDED IN C902
CONTRACTOR TO INSTALL 243m² OF NEW PAVEMENT. AUTOMOBILE TRAFFIC PAVEMENT STRUCTURE: 50mm OF HL3 150mm OF GRANULAR "A" 350mm OF GRANULAR "B"
CONTRACTOR TO TIE PROPOSED ASPHALT INTO THE EXISTING ASPHALT PARKING LOT
PROPOSED INFILTRATION GALLERY
PROPOSE CONCRETE BUMPER CURBS AS PER OPSD 603.020
PROPOSED CATCHBASIN T/G = 98.07 C/W FLEXSTORM PURE PERMANENT INLET FILTER
TERRACE DOWN TO EXISTING GRADE AT A MAXIMUM OF 3:1 SLOPE
CONTRACTOR TO INSTALL 56m² OF NEW PAVEMENT. AUTOMOBILE TRAFFIC PAVEMENT STRUCTURE: 50mm OF HL3 150mm OF GRANULAR "A" 350mm OF GRANULAR "B"
CONTRACTOR TO TIE PROPOSED ASPHALT INTO THE EXISTING ASPHALT PARKING LOT
EXISTING ASPHALT TO REMAIN
CONTRACTOR TO TIE PROPOSED ASPHALT INTO EXISTING AS PER ASPHALT KEY DETAIL PROVIDED IN C902
CONTRACTOR TO INSTALL NEW CONCRETE CURB AS PER CITY OF OTTAWA DETAIL SC1.1
PROPOSED DEVELOPMENT ASSEMBLY HALL (G.F.A. = ±1576m²) G.F.E = 100.46 T.O.F. = 98.83 B.F.E. = 95.83 U.S.F. = 95.53
TENTATIVE FOUNDATION DRAIN SUMP PUMP OUTLET C/W RIP-RAP
TENTATIVE ROOF DRAIN DOWNSPOUT OUTLET C/W RAIN BARRELL & SPLASH PAD AT OUTLET
PROPOSED JELLYFISH FILTER STRUCTURE (OR APPROVED EQUIVALENT)) T.G. = 98.75
PROPOSED JELLYFISH DIVERSION STRUCTURE (OR APPROVED EQUIVALENT) T.G. = 98.75
CONTRACTOR TO VERIFY THAT PROPOSED OUTLET POINT DOES ALLOW FOR POSITIVE CONVEYANCE OF STORMWATER TO THE CREEK. ANY DISCREPANCIES ARE TO BE REVIEWED WITH THE CIVIL ENGINEER PRIOR TO START OF WORKS.
PROPOSED MH01 W/ PROPOSED 193mm ORIFICE PLATE T.G. = 98.55
EMERGENCY SPILLOVER POINT ELEV = 98.47
CONTRACTOR TO INSTALL 300mm COMPACTED CLAY SEPARATION LAYER ALONG THE WEST SLOPE OF DETENTION AREA, AS PER THE CROSS SECTION PROVIDED
SUBDRAIN INV = 97.85 B.P. = 97.80
CONTRACTOR TO INSTALL ±125m² OF NEW PAVEMENT, MINIMUM HEAVY TRAFFIC PAVEMENT STRUCTURE: 40mm OF HL3 50mm OF HL8 150mm OF GRANULAR "A" 450mm OF GRANULAR "B"
EXISTING CONCRETE CURB TO REMAIN
CONTRACTOR TO TIE PROPOSED ASPHALT INTO EXISTING AS PER ASPHALT KEY DETAIL PROVIDED IN C902
CONTRACTOR TO REINSTATE 225m² OF ASPHALT. ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND THICKNESS WHILE MAINTAINING A MINIMUM OF: 40m OF HL3 80mm OF HL8 150mm OF GRANULAR "A" 450mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10
PROPOSED 88 m² HEAVY TRAFFIC ASPHALT REINSTATEMENT FOR WATERMAIN TRENCHING AS PER PAVEMENT STRUCTURE TABLE
CONTRACTOR TO INSTALL NEW CONCRETE CURB AS PER CITY OF OTTAWA DETAIL SC1.1
RIP-RAP CHANNEL TO BE CONSTRUCTED TO CONVEY OVERLAND FLOW FROM THE DC TO THE PROPOSED DITCH
CONTRACTOR TO INSTALL 100mm CLAY SEPERATION LAYER ALONG THE EAST FACE OF THE CHANNEL
PROPOSED CONCRETE BUMPER CURBS AS PER OPSD 603.020
CONTRACTOR TO TIE PROPOSED ASPHALT INTO EXISTING AS PER ASPHALT KEY DETAIL PROVIDED IN C902
DITCH TO BE RESHAPED & REGRADED AS PROPOSED TO TIE INTO PROPOSED GRADING
GRASS AREA TO BE TERRACED AT A MAXIMUM 3:1 SLOPE. GRASS TO BE REINSTATED WITH 100mm TOPSOIL & SOD
PROPOSED DITCH W/ SUBDRAIN @ 0.5%
PROPOSED DITCH W/ SUBDRAIN @ 0.5%
EXISTING BUILDING
No. 4835 Bank Street
Hindu Temple of Ottawa-Carleton
PROPOSED 14.0m - 500mm Ø CSP CULVERT @ 0.5% SLOPE WITH FROST TREATMENT AS PER OPSD 803.030
PROPOSED GRADE ELEV = 98.25
PROPOSED CULVERT INV = 98.35
CULVERT INVERT TO BE RAISED 0.1m ABOVE GRADE
TERRACE DOWN TO EXISTING GRADE AT A MAXIMUM OF 3:1 SLOPE
CONTRACTOR TO INSTALL 521m² OF NEW PAVEMENT, MINIMUM HEAVY TRAFFIC PAVEMENT STRUCTURE: 40mm OF HL3 50mm OF HL8 150mm OF GRANULAR "A" 450mm OF GRANULAR "B"
CONTRACTOR TO INSTALL 300mm THICK COMPACTED CLAY SEPARATION LAYER ALONG THE NORTH SLOPE OF DITCH, AS PER THE DETAIL PROVIDED
TERRACE DOWN TO PROPOSED GRADE OF DETENTION AREA AT A MAXIMUM OF 3:1 SLOPE
TIE GRASS AREA TO EXISTING GRADE AT A MAX 6% SLOPE. CONTRACTOR TO ENSURE POSITIVE SLOPE TOWARDS THE SOUTH.
GRASS AREA TO BE REINSTATED, AS REQUIRED, TO ENSURE POSITIVE DRAINAGE TOWARDS THE SOUTH. GRASS TO BE REINSTATED WITH 100mm TOPSOIL & SOD
PROPOSED GRADE ELEV = 98.40
PROPOSED CULVERT INV = 98.53
CULVERT INVERT RAISED 0.125m ABOVE GRADE
EXISTING 500mm CSP TO BE REMOVED
PROPOSED 20m - 500mm Ø CSP CULVERT @ 0.5% SLOPE WITH FROST TREATMENT AS PER OPSD 803.030
PROPOSED RIP-RAP OUTLET AS PER OPSD 810.010
SKIPPER DRIVE
BANK STREET
REGIONAL ROAD No. 31
STREET (As Widened by plan 5R-3156)
BANK
MANCE
BETWEEN CONCESSIONS 4 AND 5 (RIDEAU FRONT)
EXISTING 400mmØ DI
EXISTING 600mmØ DI
EXISTING 200mmØ DI
EXISTING 250mmØ DI
EXISTING 300mmØ DI
EXISTING 450mmØ DI
EXISTING 750mmØ DI
EXISTING 1200mmØ DI
EXISTING 1500mmØ DI
EXISTING 1800mmØ DI
EXISTING 2100mmØ DI
EXISTING 2400mmØ DI
EXISTING 2700mmØ DI
EXISTING 3000mmØ DI
EXISTING 3300mmØ DI
EXISTING 3600mmØ DI
EXISTING 3900mmØ DI
EXISTING 4200mmØ DI
EXISTING 4500mmØ DI
EXISTING 4800mmØ DI
EXISTING

NOTES: GENERAL

1. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
2. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
3. JOB BENCH MARK - CONFIRM WITH LRL PRIOR TO UTILIZATION.
4. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE, CATCH BASIN OUTLETS AND/OR STORM DETENTION AREAS ARE PROVIDED.
5. STRIP AND REMOVE ALL TOPSOIL FROM IMPROVED AREAS.
6. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
7. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A CLEAN STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
8. CURBS TO BE BARRIER, CONSTRUCTED AS PER OPSD 600.110.
9. ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSS 206, 310 & 314. MATERIALS TO OPSS 1001, 1003 & 1010.
10. ABUTTING PROPERTY GRADE TO BE MATCHED.
11. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
12. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
13. FILTER FABRIC TO BE INSTALLED AND MAINTAINED BETWEEN THE FRAME AND COVER OF ALL CATCHBASINS, CATCHBASIN MANHOLES AND MANHOLES DURING THE CONSTRUCTION PERIOD TO MINIMIZE SEDIMENTS ENTERING THE STORM SEWER SYSTEM. ALL GRASSED AREAS MUST BE COMPLETED PRIOR TO THE REMOVAL OF THE FILTER FABRIC IN THE DRAINAGE STRUCTURES.
14. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS, IF ANY, LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
15. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS BUT NOT LIMITED TO; ROAD CUT PERMITS, SEWER PERMITS, WATER PERMIT, ETC.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. ALL SIDEWALK CONSTRUCTION TO BE AS PER OPSD 310.010 & OPSD 310.050.

NOTES: SEWERS

1. SEWER BEDDING AS PER PIPE TRENCH DETAIL WITH GRANULAR 'A' BEDDING COMPACTED TO 95% OF ITS SPMDD.
2. ALL WORK SHALL BE PERFORMED, AS APPLICABLE IN ACCORDANCE WITH OPSS 407, AND 410.
3. CONTRACTOR TO CONFIRM ELEVATION OF EXISTING SEWERS AT PROPOSED CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK.
4. ALL SEWERS WITH LESS THAN 2.0m OF COVER ARE SUBJECT TO INSULATION DETAIL.

NOTES: WATER SERVICE

1. PROPOSED WATER SERVICE TO BE INSULATED WHEN COVER IS LESS THAN 2.4m AS PER DETAIL PROVIDED IN C901.

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 0191119680388 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparisions, (P1) and (P2) are Astronomic Plans.

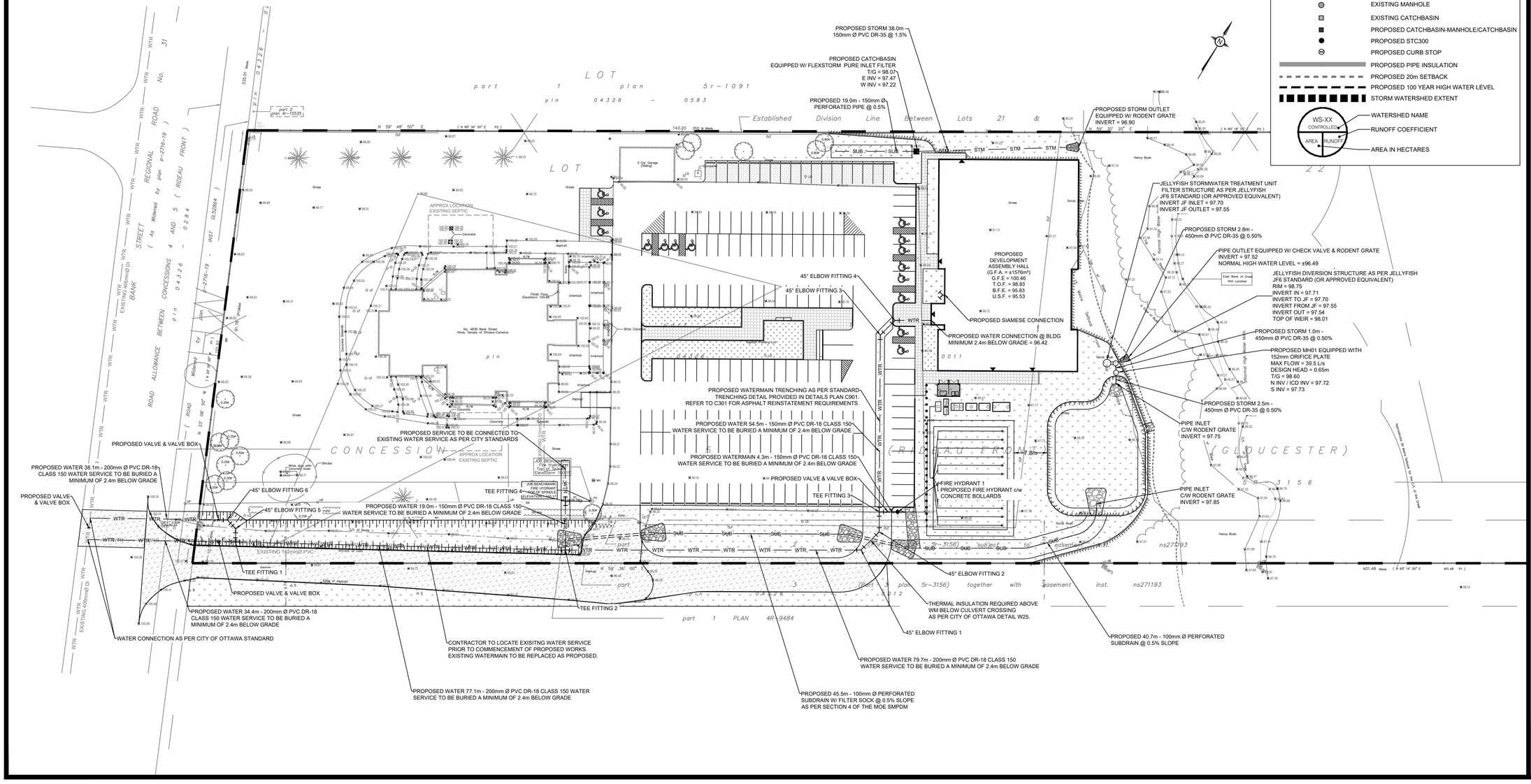
SITE AREA = 4.048 Hectares.

Existing Watermain Table

Location	Station	Min. Obv	Grade	Notes
Connection to Existing Water Service	0+130.5	97.40	99.80	
Connection to Proposed Building	0+151.5	EX	99.63	

Proposed Watermain Table

Location	Station	Min. Obv	Grade	Notes
Main Line				
Connection to City WM	0+000.0	Match Ex WM OBV	100.24	
Tee Fitting 1	0+034.4	97.65	100.05	
Tee Fitting 2	0+111.5	96.92	99.32	
45° Elbow Fitting 1	0+180.5	96.60	99.00	
45° Elbow Fitting 2	0+186.5	96.75	99.15	
Tee Fitting 3	0+191.2	96.40	98.80	
Fire Hydrant 1	0+195.5*	96.16	98.56	*diverges at Tee Fitting 3
45° Elbow Fitting 3	0+232.5	96.30	98.70	
45° Elbow Fitting 4	0+237.2	96.25	98.65	
Connection to Proposed Building	0+245.7	96.42	98.82	
Branch NW off Tee Fitting 1 @ 0+034.4				
Tee Fitting 1	0+034.4	96.92	99.32	
Elbow Fitting 5	0+037.6	96.86	99.26	
Elbow Fitting 6	0+040.4	97.03	99.43	
Connection to City WM	0+072.5	Match Ex WM OBV	100.28	
Branch NW off Tee Fitting 2 @ 0+111.5				
Tee Fitting 2	0+111.5	96.92	99.32	
Tee Fitting 4	0+122.9	96.9	99.30	
Existing Fire Hydrant	0+129.0*	96.88	99.28	**diverges at Tee Fitting 4
Connection to Existing Water Service	0+130.5	Match EX WTR OBV	99.46	



LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
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- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM PROPOSED STORM SEWER
- SAN PROPOSED SANITARY SEWER
- WTR PROPOSED WATERMAIN
- STM EXISTING STORM SEWER
- SAN EXISTING SANITARY SEWER
- WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

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10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
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LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/4/8 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
SERVICING PLAN

PROJECT NO.
170132

DATE
JAN2020

C401

D017-12-20-0059 PLAN # 18407

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

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3. Elevations derived from benchmark 01911968038 having an elevation of 92.16 metres.

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Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparisons, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.

LEGEND:

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PROPOSED MH01 EQUIPPED W/
152mm ORIFICE PLATE
100y MAX FLOW = 39.5 L/s
100y DESIGN HEAD = 0.65m
5Y MAX FLOW = 28.00 L/s
5Y DESIGN HEAD = 0.33m
C/L ORIFICE INV = 97.82

PROPOSED OVERLAND STORAGE EXTENT
100 YEAR STORMPONDING EXTENT (HWL = 98.47)
MAXIMUM PONDING DEPTH = 0.82m
TOTAL STORAGE PROVIDED = 428.14m³

PROPOSED EMERGENCY OVERLAND FLOW ROUTE
ELEV = 98.47

PROPOSED OVERLAND STORAGE EXTENT
5 YEAR STORMPONDING EXTENT (HWL = 98.15)
MAXIMUM PONDING DEPTH = 0.50m
TOTAL STORAGE PROVIDED = 210.92m³

PROPOSED DEVELOPMENT ASSEMBLY HALL (G.F.A. = ±1576m²)

JOB BENCHMARK
Fire Hydrant
Top of Spindle
Elevation= 100.17

JOB BENCHMARK
FIRE HYDRANT
TOP OF SPINDLE
ELEVATION = 100.17

No. 4835 Bank Street
Hindu Temple of Ottawa-Carleton

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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/9/8
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

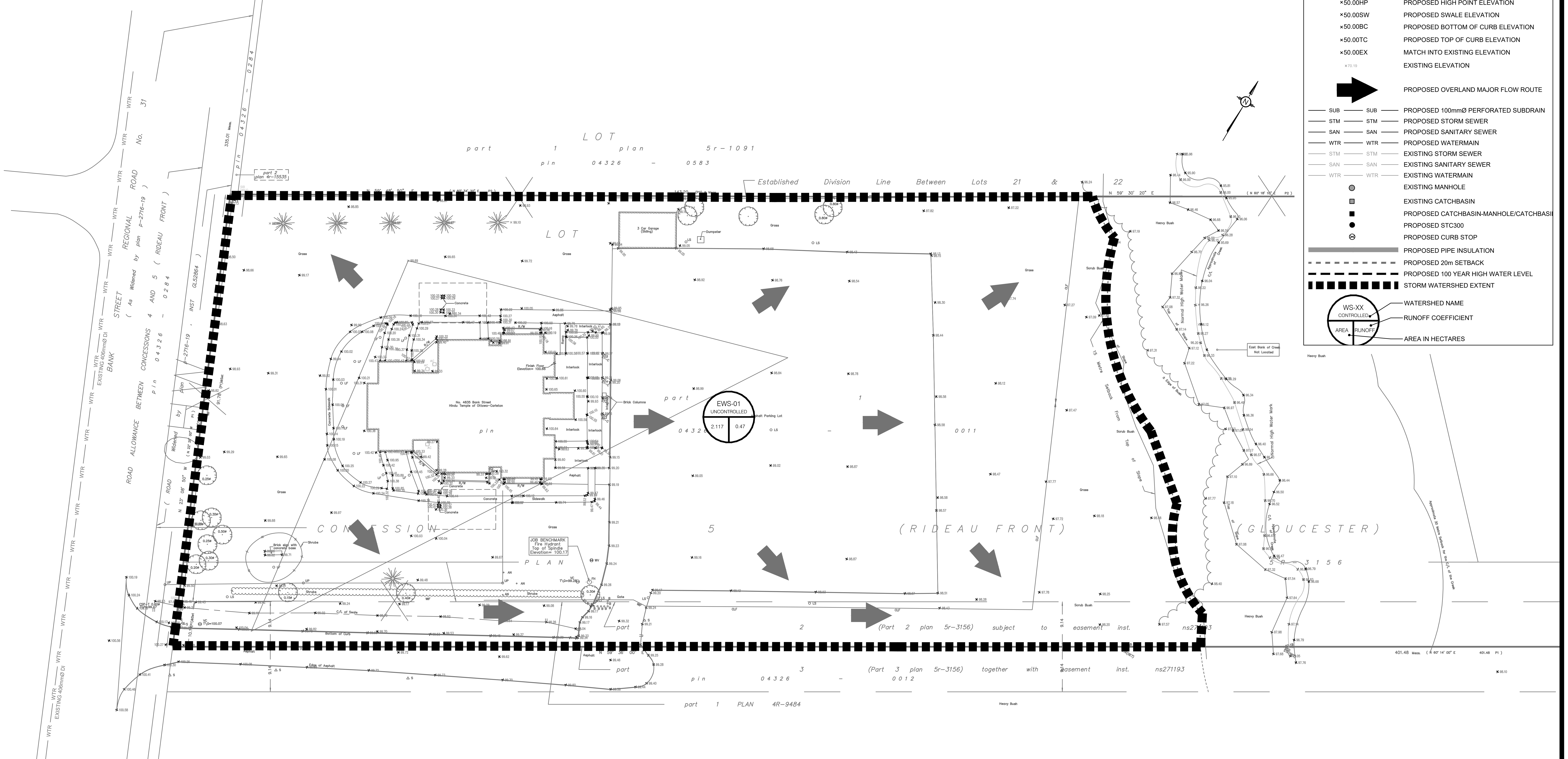
DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
170132

DATE
JAN2020

C601

D017-12-20-0059 PLAN # 18407



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PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

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LICENSED PROFESSIONAL ENGINEER
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CLIENT
THE HINDU HERITAGE CENTRE
OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
170132
DATE
JAN2020

C701

D017-12-20-0059 PLAN # 18407

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJECT NO. 19614-17 HINDU TEMPLE
DATED APRIL 21st 2017, REVISED NOVEMBER 29th 2017

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Elevations derived from benchmark 01911968038 having an elevation of 92.16 metres.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

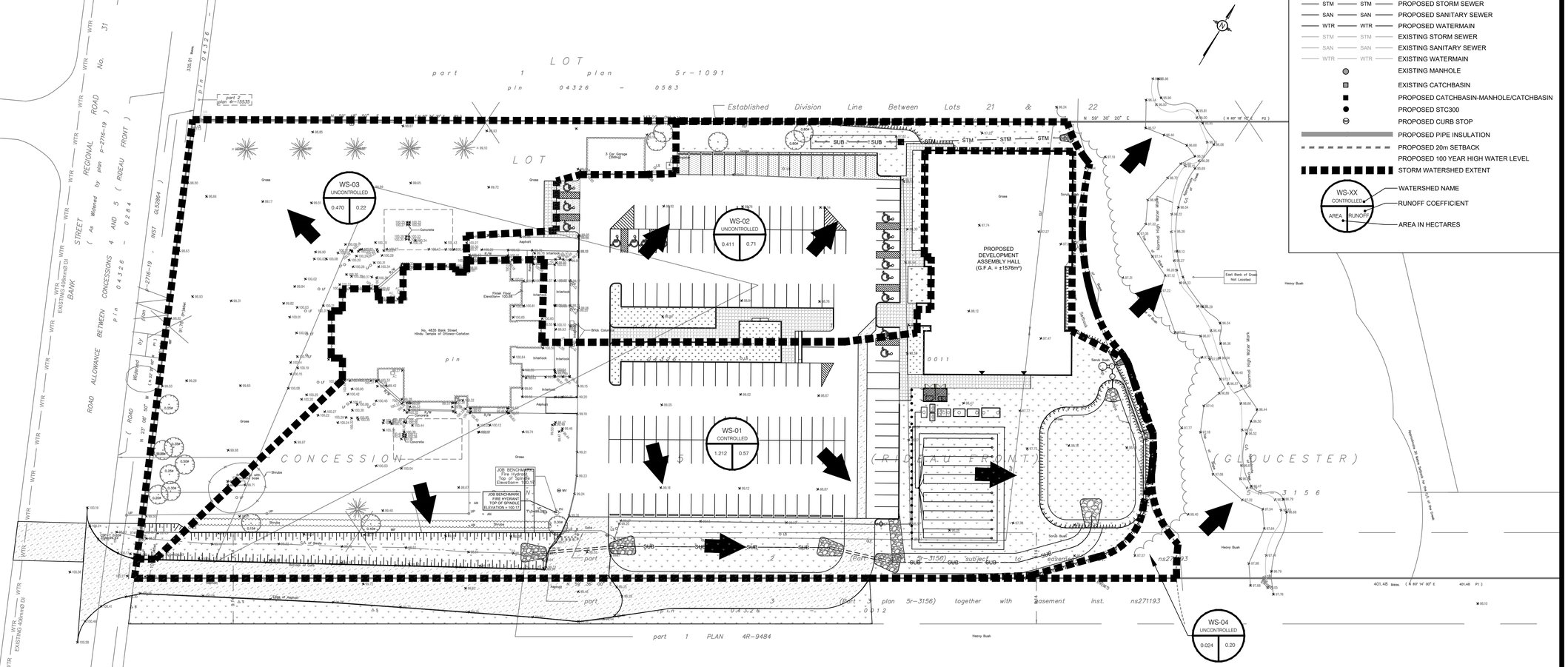
Bearings are grid, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For Bearing Comparsions, (P1) and (P2) are Astronomic Plans.

SITE AREA = 4.048 Hectares.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED / AREA / RUNOFF — WATERSHED NAME; RUNOFF COEFFICIENT; AREA IN HECTARES



USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

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UNAUTHORIZED CHANGES:

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CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
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02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/4/8
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

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DRAWING TITLE
POST-DEVELOPMENT WATERSHED PLAN

PROJECT NO.
170132

DATE
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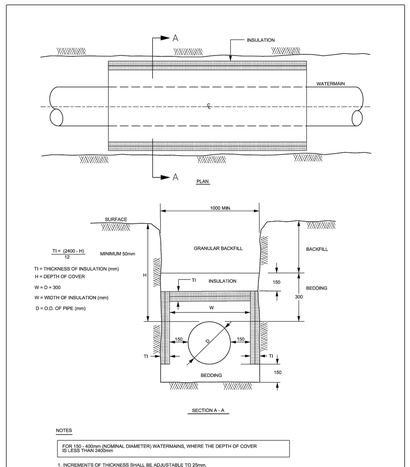
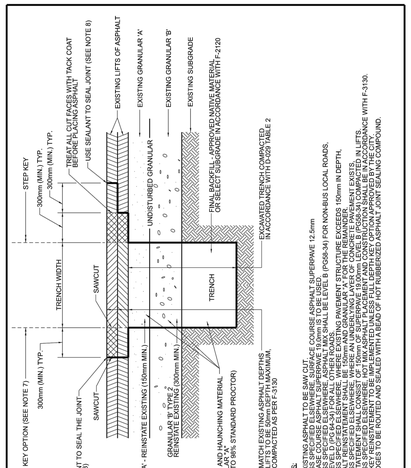
C702

D017-12-20-0059 PLAN # 18407

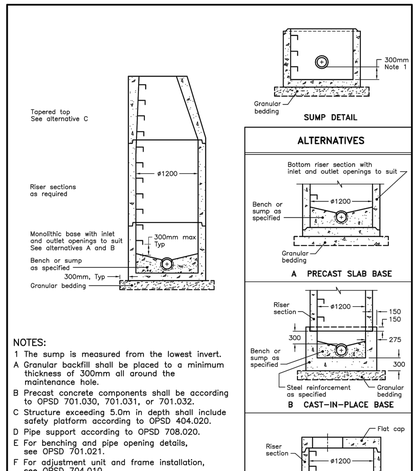


Ottawa	THERMAL INSULATION FOR WATERMAINS IN SHALLOW TRENCHES
DATE:	MAY 2001
REV. DATE:	MARCH 2013
DWG. No.:	W22



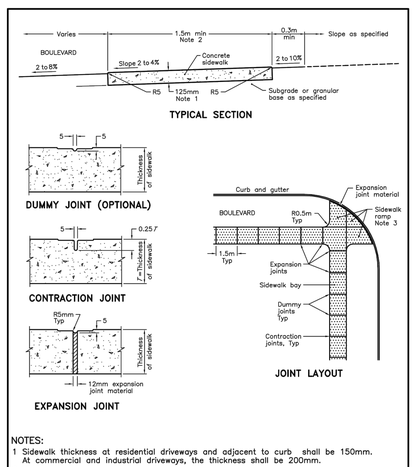
Ottawa	STANDARD TRENCH REINSTATEMENT IN PAVED SURFACE
DATE:	MAY 2001
REV. DATE:	MARCH 2022
DWG. No.:	R10

N.T.S.



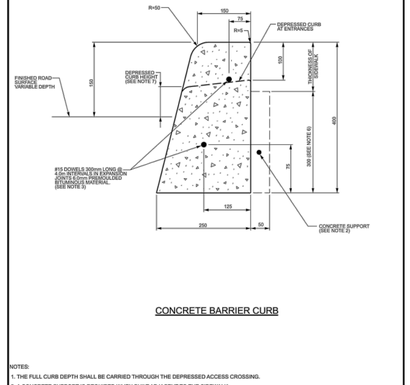
NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER			
		OPSD 701.010	



NOTES:
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.032, 310.033 and 310.039.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2015	Rev 2
CONCRETE SIDEWALK			
		OPSD 310.010	



CONCRETE BARRIER CURB

NOTES:
1. THE FULL CURB DEPTH SHALL BE CARRIED THROUGH THE DEPRESSED ACCESS CROSSING.
2. A CONCRETE SUPPORT IS REQUIRED WHEN BUILT ADJACENT TO THE SIDEWALK.
3. IF AN EXTRUSION CURBING MACHINE IS USED, THE EXPANSION BITUMINOUS MATERIAL AND THE #15 DOWELS ARE TO BE PLACED AT THE END OF THE EXTRUSION.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
5. DUMMY JOINTS SHALL BE 25mm DEEP, FRONT, BACK AND TOP OF SECTION AT 4m SPACING OR MATCH JOINTING WHERE SIDEWALK IS ADJACENT.
6. FOR DEPRESSED CURB AT ENTRANCES USE 250.
7. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm.

N.T.S.

Ottawa	CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT (MODIFIED OPSD-600.110)
DATE:	JANUARY 2003
REV. DATE:	MARCH 2021
DWG. No.:	SC1.1

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NOTES:
1. REFER TO CONSTRUCTION SPECIFICATION F-4414

Ottawa	HYDRANT LOCATION
DATE:	MAY 2001
REV. DATE:	MARCH 2013
DWG. No.:	W18

NOTES
FOR ALL WATERMAINS
1. SEE DETAIL W20 FOR HYDRANTS IN DITCH AREAS.
2. FOR WATERMAINS 400mm AND LARGER, LOCATE VALVE WITHIN 1.0m OF CENTERLINE. RETAINING/STRAINING DEVICES SHALL BE INSTALLED ON ALL VALVES LARGER THAN 300mm. BOLT VALVE WITH FLANGED END DIRECTLY TO FLANGED TEE.
3. RETAINING/STRAINING DEVICES TO BE LOCATED.
4. HYDRANT BREAKABLE FLANGE ELEVATION TO BE ESTABLISHED PRIOR TO INSTALLATION. REFER TO MW-19.4 AND F-4414.
5. SEE SPP-4120 FOR ENGINEERING REQUIREMENTS IN THIS AREA.
6. * SEE F-4414 FOR HYDRANT LOCATION REQUIREMENTS.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
8. FOR ALL 200mm WATERMAINS USE A 300x150 TANGENTIAL TEE WITH THE 150mm OUTLET ON TOP.
9. FOR ALL 400mm WATERMAINS USE A 400x150 TANGENTIAL TEE WITH THE 150mm OUTLET ON TOP.
10. DUCTILE IRON ONLY. THERMIS WELD TWO #6 BRAIDED CABLES ACROSS EACH PIPE/FITTING JOINT OR CONNECTION TO ENSURE ELECTRICAL CONTINUITY ALONG ALL METALLIC COMPONENTS.
11. ALL MATERIALS SHALL BE IN ACCORDANCE WITH MW-19.15.
12. TRACER WIRE SPLICE CONNECTIONS TO BE COMPLETED PER W55.
13. TRACER WIRE SPLICES TO BE COMPLETED PER W47.

Ottawa	HYDRANT INSTALLATION – NEW CONSTRUCTION
DATE:	MAY 2001
REV. DATE:	MARCH 2022
DWG. No.:	W19

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. FOR 200 AND 250mm VALVES, ADD BEDDING BELOW THE CONCRETE BLOCKS AS REQUIRED TO RAISE BELL HIGH ENOUGH TO PREVENT CONTACT WITH THE VALVE BONNET.

Ottawa	VALVE BOX ASSEMBLY
DATE:	MAY 2001
REV. DATE:	MARCH 2021
DWG. No.:	W24

NOTES:
1. PIPE EMBEDMENT MATERIAL - GRANULAR 'A'.
2. FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH F-2120
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4.

PIPE OUTSIDE DIA. (mm)	CLEARANCE (mm)
900 or LESS	450
OVER 900	500

5. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, POOR SOILS SHALL BE EXCAVATED TO CREATE A FOUNDATION THAT SHALL BE FILLED TO THE BEDDING WITH GRANULAR 'B'.

Ottawa	STANDARD TRENCH DETAIL
DATE:	MAY 2001
REV. DATE:	MARCH 2016
DWG. No.:	W17

NOTES:
1. FOR 300mm OR GREATER DIAMETER WATERMAIN, BENDS SHALL BE MAXIMUM 22½.
2. INSULATION PER W23 AT EXISTING WATERMAIN.
3. REFER TO W33.5 FOR RESTRAINED LENGTH REQUIREMENTS.
4. REFER TO W33.3 AND W35.4 FOR THRUST BLOCK REQUIREMENTS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
6. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W35, W40, AND W42.
7. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W36.

Ottawa	TYPICAL CONNECTION DETAIL FROM NEW TO EXISTING WATERMAIN
DATE:	MAY 2001
REV. DATE:	MARCH 2021
DWG. No.:	W25.1

FROST TREATMENT
RIGID AND FLEXIBLE PIPE

NOTES:
1 Pipe embedment or bedding, cover, and backfill shall be according to:
a) Flexible OPSD 802.010, 802.013, 802.014, 802.020, 802.023, and 802.024.
b) Rigid – OPSD 802.030, 803.031, 802.032, 802.033, 802.034, 802.050, 802.051, 802.052, 802.053, and 802.054.
2 Frost tapers shall start at bedding grade.

LEGEND:
d –depth of roadbed granular
K –depth of frost treatment below profile grade
f –depth of frost penetration below profile grade

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2015	Rev 3
FROST TREATMENT – PIPE CULVERTS FROST PENETRATION LINE BELOW BEDDING GRADE			
		OPSD 803.030	

NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2018	Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES			
		OPSD 401.010	

NOTES:
1 The thickness of the rip–rap layer shall be at least 1.5 times the rip–rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2018	Rev 3
GENERAL RIP–RAP LAYOUT FOR SEWER AND CULVERT OUTLETS			
		OPSD 810.010	

Ottawa	WATERMAIN CROSSING BELOW SEWER
DATE:	MAY 2001
REV. DATE:	MARCH 2021
DWG. No.:	W25

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
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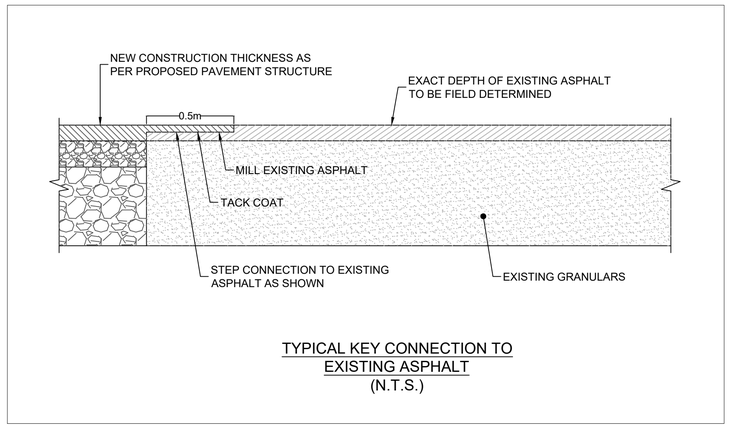
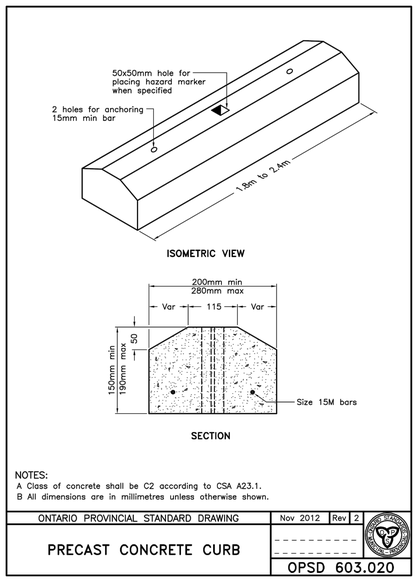
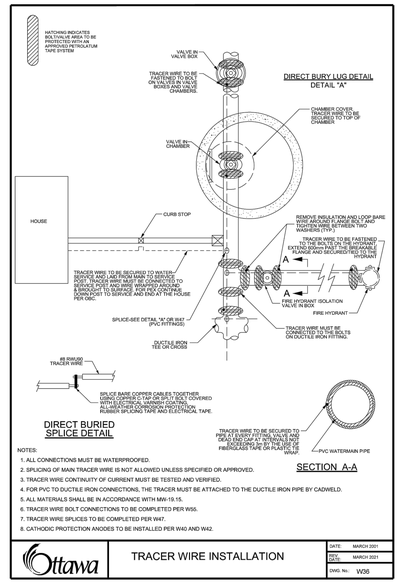


TYPICAL KEY CONNECTION TO EXISTING ASPHALT (N.T.S.)



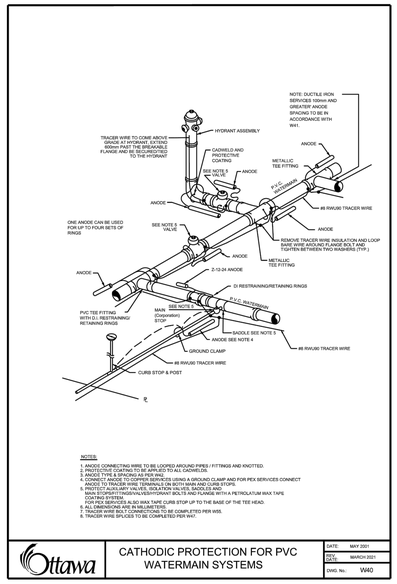
NOTES:
A Class of concrete shall be C2 according to CSA A23.1.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev	2
PRECAST CONCRETE CURB			
	OPSD 603.020		



NOTES:
1. ALL CONNECTIONS MUST BE WATERPROOFED.
2. SPLICING OF MAIN TRACER WIRE IS NOT ALLOWED UNLESS SPECIFIED OR APPROVED.
3. TRACER WIRE CONTINUITY OF CURRENT MUST BE TESTED AND VERIFIED.
4. FOR PVC TO DUCTILE IRON CONNECTIONS, THE TRACER MUST BE ATTACHED TO THE DUCTILE IRON PIPE BY CADWELD.
5. ALL MATERIALS SHALL BE IN ACCORDANCE WITH MW-19.15.
6. TRACER WIRE BOLT CONNECTIONS TO BE COMPLETED PER W55.
7. TRACER WIRE SPLICES TO BE COMPLETED PER W47.
8. CATHODIC PROTECTION ANODES TO BE INSTALLED PER W40 AND W42

Ottawa	TRACER WIRE INSTALLATION	DATE:	MARCH 2001
		REV. DATE:	MARCH 2021
		DWG. No.:	W38



NOTES:
1. ANODE CONNECTING WIRE TO BE LOOPED AROUND PIPES / FITTINGS AND KNOTTED.
2. PROTECTIVE COATING TO BE APPLIED TO ALL CADWELDS.
3. ANODES TO BE INSTALLED ON WATERMAIN.
4. CONNECT ANODE TO COPPER SERVICES USING A GROUND CLAMP AND FOR PEX SERVICES CONNECT ANODE TO A SADDLE WITH INSULATION BOOTS ON BOTH TOPS.
5. PROTECT EXPOSED WIRE CONNECTIONS TO BURIED CURB STOPS:
MAIN STOP/FITTING/VALVES/DI FITTINGS/ BOLTS AND FLANGE WITH A PETROLATUM WAX TAPE
SYSTEM AS FOLLOWS:
FOR PEX SERVICES ALSO WAX TAPE CURB STOP UP TO THE BASE OF THE TEE HEAD.
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. TRACER WIRE BOLT CONNECTIONS TO BE COMPLETED PER W55.
8. TRACER WIRE SPLICES TO BE COMPLETED PER W47.

Ottawa	CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS	DATE:	MAY 2001
		REV. DATE:	MARCH 2021
		DWG. No.:	W40

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHANGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES, THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

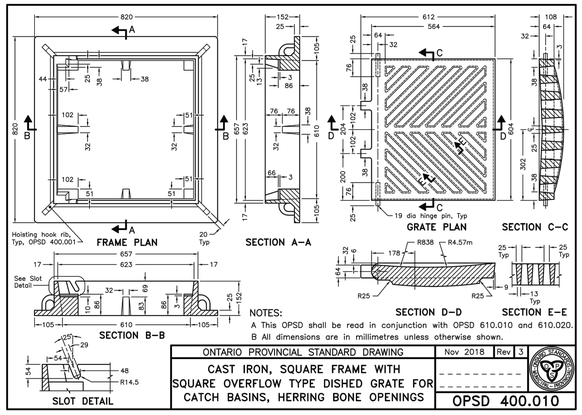
EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

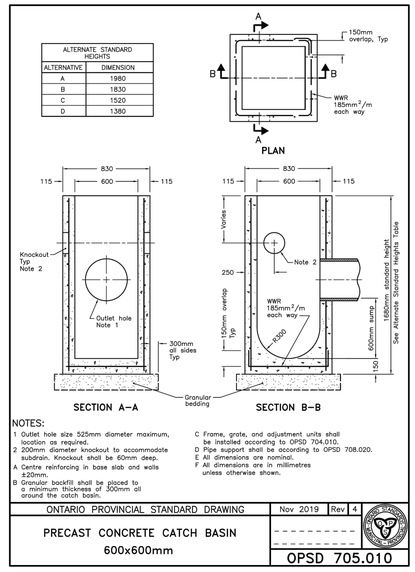
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

INFILTRATION GALLERY CROSS SECTION (N.T.S.)



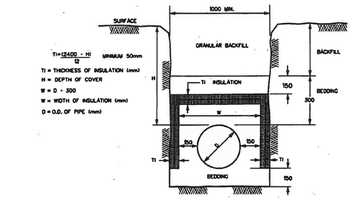
NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev	3
CAST IRON, SQUARE FRAME WITH SQUARE OVERFLOW TYPE DISHED GRATE FOR CATCH BASINS, HERRING BONE OPENINGS			
	OPSD 400.010		



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev	4
PRECAST CONCRETE CATCH BASIN 600x600mm			
	OPSD 705.010		



NOTES:
-FOR STORM INSULATION USE AN X VALUE OF 2000 IN THE ABOVE "TI" EQUATION.
-FOR SANITARY INSULATION USE AN X VALUE OF 2500 IN THE ABOVE "TI" EQUATION.
-FOR WATERMAIN INSULATION USE AN X VALUE OF 2400 IN THE ABOVE "TI" EQUATION.
-INCREMENTS OF INSULATION THICKNESS SHALL BE ADJUSTABLE TO 25mm.
-STAGGER JOINTS OF MULTIPLE SHEETS.
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SHOWN OTHERWISE.

TYPICAL STORM AND SANITARY SEWER, AND WATERMAIN INSULATION DETAIL (N.T.S.)

No.	REVISIONS	BY	DATE
10	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	08 APR 2025
09	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 AUG 2024
08	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	09 MAY 2024
07	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	24 APR 2024
06	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	17 MAR 2023
05	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	31 OCT 2022
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRJ
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

PROJECT NO.
170132

DATE
JAN2020

C902

D017-12-20-0059 PLAN # 184407

DRAWING NOT TO BE USED FOR CONSTRUCTION

GENERAL NOTES:

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. JELLYFISH STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE JELLYFISH SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEERS SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECTS BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

JELLYFISH STRUCTURE & DESIGN NOTES:

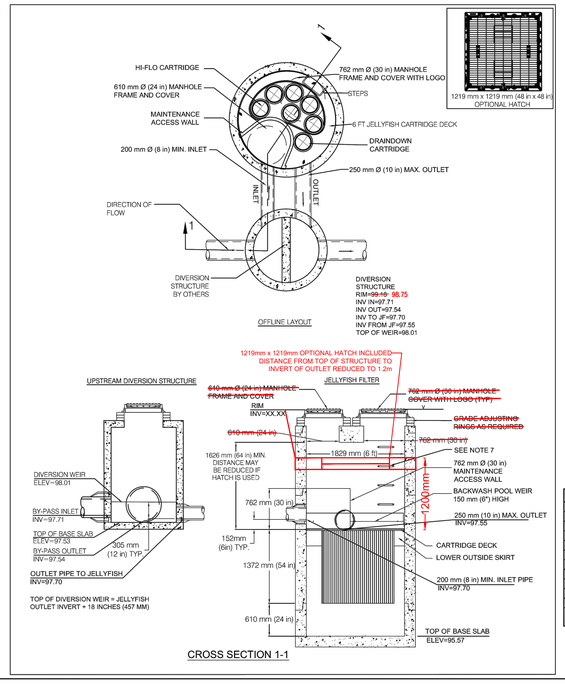
1. 762 MM Ø (30") MAINTENANCE ACCESS WALL TO BE USED FOR CLEANOUT AND ACCESS TO ENV CARTRIDGE DECK.
2. CASTINGS OR DOORS OF THE JELLYFISH MANHOLE STRUCTURE TO EXTEND TO DESIGN FINISH GRADE. DEPTHS IN EXCESS OF 3.65 M (12') MAY REQUIRE THE DESIGN AND INSTALLATION OF INTERMEDIATE SAFETY GRATES OR OTHER STRUCTURAL ELEMENTS.
3. CASTINGS AND GRADE RINGS, OR DOORS AND DOOR R/SERS, OR BOTH, SHALL BE GROUTED FOR WATERTIGHTNESS STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE IMBRIUM LOGO.
4. ALL STRUCTURAL SECTIONS AND PARTS TO MEET OR EXCEED ASTM C-478, ASTM C-443, AND ASTM D-4097 CORRESPONDING TO AASHTO SPECIFICATIONS, AND ANY OTHER SITE OR LOCAL STANDARDS.
5. CONCRETE R/SER SECTIONS FROM BOTTOM TO TOP WILL BE ADDED AS REQUIRED INCLUDING TRANSITION PIECES TO SMALLER DIAMETER R/SERS FOR SURFACE ACCESSES WHERE WARRANTED BY SERVICING DEPTH.
6. IF MINIMUM DEPTH FROM TOP OF CARTRIDGE DECK TO BOTTOM OF STRUCTURAL TOP SLAB CANNOT BE ACHIEVED DUE TO PIPING INVERT ELEVATIONS OR OTHER SITE CONSTRAINTS. ALTERNATIVE HATCH CONFIGURATIONS MAY BE AVAILABLE. HATCH DOORS SHOULD BE SIZED TO PROVIDE FULL ACCESS ABOVE THE CARTRIDGES TO ACCOMMODATE MAINTENANCE.
7. STEPS TO BE APPROXIMATELY 300 MM (13") APART AND DIMENSIONS MUST MEET LOCAL STANDARDS. STEPS MUST BE INSTALLED AFTER CARTRIDGE DECK IS IN PLACE.
8. CONFIGURATION OF INLET AND OUTLET PIPE CAN VARY TO MEET SITE'S NEEDS.
9. IT IS THE RESPONSIBILITY OF OTHERS TO PROPERLY PROTECT THE TREATMENT DEVICE, AND KEEP THE DEVICE OFFLINE DURING CONSTRUCTION. FILTER CARTRIDGES SHALL NOT BE INSTALLED UNTIL THE PROJECT SITE IS CLEAN AND FREE OF DEBRIS, BY OTHERS. THE PROJECT SITE INCLUDES ANY SURFACE THAT CONTRIBUTES STORM DRAINAGE TO THE TREATMENT DEVICE. CARTRIDGES SHALL BE FURNISHED NEW, AT THE TIME OF FINAL ACCEPTANCE.
10. THIS DRAWING MUST BE VIEWED IN CONJUNCTION WITH THE STANDARD JELLYFISH SPECIFICATION, AND STORMWATER QUALITY FILTER TREATMENT JELLYFISH DOCUMENTS.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY IMBRIUM, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT IMBRIUM TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

STANDARD OFFLINE JELLYFISH RECOMMENDED PIPE DIAMETERS			
MODEL DIAMETER (M)	MINIMUM INLET/OUTLET PIPE DIAMETER (mm)	MAXIMUM INLET PIPE DIAMETER (mm)	MINIMUM OUTLET PIPE DIAMETER (mm)
1.2	42	150	200
1.7	42	200	300
2.4	42	250	300
3.0	48	300	400
3.6	48	300	400
CONTACT IMBRIUM SYSTEMS FOR ALTERNATE PIPE DIAMETERS			

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL JELLYFISH FILTER REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE.



CROSS SECTION 1-1

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø1829 mm (72") MANHOLE: JELLYFISH PEAK TREATMENT CAPACITY IS 22.8 L/s (1.18 CFS). TREATMENT FLOW RATE IS BASED ON 4M (13ft") OF HEAD PRESSURE.

CONFIGURATION	54"	40"	27"	15"
CARTRIDGE DEPTH	90"	76"	63"	51"
OUTLET INVERT TO STRUCTURE BASE SLAB	5.0 ft (1.5m)	3.5 ft (1.05m)	2.5 ft (0.77m)	1.5 ft (0.47m)
TREATMENT CAPACITY HIGH-FLO (CFS/MGD/L/s)	1.18 / 0.76 / 34	0.75 / 0.48 / 21	0.42 / 0.27 / 12	0.18 / 0.12 / 5
SEDIMENT CAPACITY HIGH-FLO (CF/M3/KG/LBS) [per cart]	6 / 0.17 / 226	4 / 0.11 / 151	2 / 0.06 / 75	1 / 0.03 / 38
MAX. CARTS HIGH-FLO/DRAINDOWN	6 / 1	4 / 1	2 / 1	1 / 1
MAX. TREATMENT CAPACITY (l/s)	205	137	68	34
MAX. TREATMENT FLOW	328	219	109	54

MARK	DATE	REVISION DESCRIPTION
B	05/01/2015	NOTES
C	10/01/2014	INITIAL RELEASE
D		
E		
F		
G		
H		

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Jellyfish
JF/S STANDARD
Scale - 1:20

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WARRENS BUSINESS PARK, WARRENS, ST. MICHAEL, BARBADOS, BB22026
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DATE: ########
DESIGNED: BSF
DRAWN: BSF
CHECKED: BSF
APPROVED: SP
PROJECT #: #####
PROJECT NAME: #####
SHEET: OF 2

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JELLYFISH® FILTER - SPECIFICATIONS

GENERAL

A. WORK INCLUDED: SPECIFIES REQUIREMENTS FOR CONSTRUCTION AND PERFORMANCE OF AN UNDERGROUND STORMWATER QUALITY, MEMBRANE FILTRATION, AND TREATMENT DEVICE THAT REMOVES POLLUTANTS FROM STORMWATER RUNOFF THROUGH THE UNIT OPERATIONS OF SEDIMENTATION, FLOATATION, AND MEMBRANE FILTRATION.

B. REFERENCE STANDARDS
ASTM C 891: SPECIFICATION FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES
ASTM C 478: SPECIFICATION FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C 990: SPECIFICATION FOR JOINTS FOR CONCRETE MANHOLES USING PREFORMED FLEXIBLE JOINT SEALANTS
ASTM D 4101: SPECIFICATION FOR COPOLYMER/STEPS CONSTRUCTION

C. SHOP DRAWINGS: SHOP DRAWINGS FOR THE STRUCTURE AND PERFORMANCE ARE TO BE SUBMITTED WITH EACH ORDER TO THE CONTRACTOR. CONTRACTOR SHALL FORWARD SHOP DRAWING SUBMITTAL TO THE CONSULTING ENGINEER FOR APPROVAL. SHOP DRAWINGS ARE TO DETAIL THE STRUCTURE PRECAST CONCRETE AND CALL OUT OR NOTE THE FIBERGLASS (FRP) INTERNALS/COMPONENTS.

D. PRODUCT SUBSTITUTIONS: NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD. SUBMISSIONS FOR SUBSTITUTIONS REQUIRE REVIEW AND APPROVAL BY THE ENGINEER OF RECORD, FOR HYDRAULIC PERFORMANCE, IMPACT TO PROJECT DESIGNS, EQUIVALENT TREATMENT PERFORMANCE, AND ANY REQUIRED PROJECT PLAN AND REPORT (HYDROLOGY/HYDRAULIC, WATER QUALITY, STORMWATER POLLUTION) MODIFICATIONS THAT WOULD BE REQUIRED BY THE APPROVING JURISDICTIONS/AGENCIES. CONTRACTOR TO COORDINATE WITH THE ENGINEER OF RECORD ANY APPLICABLE MODIFICATIONS TO THE PROJECT ESTIMATES OF COST, BONDING AMOUNT DETERMINATIONS, PLAN CHECK FEES FOR CHANGES TO APPROVED DOCUMENTS, AND/OR ANY OTHER REGULATORY REQUIREMENTS RESULTING FROM THE PRODUCT SUBSTITUTION.

E. HANDLING AND STORAGE: PREVENT DAMAGE TO MATERIALS DURING STORAGE AND HANDLING.

PRODUCTS

A. THE DEVICE SHALL BE A CYLINDRICAL OR RECTANGULAR, ALL CONCRETE STRUCTURE (INCLUDING R/SERS), CONSTRUCTED FROM PRECAST CONCRETE R/SER AND SLAB COMPONENTS OR MONOLITHIC PRECAST STRUCTURE(S), INSTALLED TO CONFORM TO ASTM C 891 AND TO ANY REQUIRED STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATION(S) WHICHEVER IS MORE STRINGENT. THE DEVICE SHALL BE WATERTIGHT.

B. THE CYLINDRICAL CONCRETE DEVICE SHALL INCLUDE A FIBERGLASS CARTRIDGE DECK INSERT. THE RECTANGULAR CONCRETE DEVICE SHALL INCLUDE A COATED ALUMINUM INSERT. IN EITHER INSTANCE, THE INSERT SHALL BE BOLTED AND SEALED WATERTIGHT INSIDE THE PRECAST CONCRETE CHAMBER. THE INSERT SHALL SERVE AS (A) A HORIZONTAL DIVIDER BETWEEN THE LOWER TREATMENT ZONE AND THE UPPER TREATED EFFLUENT ZONE; (B) A DECK FOR ATTACHMENT OF FILTER CARTRIDGES SUCH THAT THE MEMBRANE FILTER ELEMENTS OF EACH CARTRIDGE EXTEND INTO THE LOWER TREATMENT ZONE; (C) A PLATFORM FOR MAINTENANCE WORKERS TO SERVICE THE FILTER CARTRIDGES (MAXIMUM MANNED WEIGHT = 450 POUNDS); (D) A CONDUIT FOR CONVEYANCE OF TREATED WATER TO THE EFFLUENT PIPE.

C. MEMBRANE FILTER CARTRIDGES SHALL BE COMPRISED OF REUSABLE CYLINDRICAL MEMBRANE FILTER ELEMENTS CONNECTED TO A PERFORATED HEAD PLATE. THE NUMBER OF MEMBRANE FILTER ELEMENTS PER CARTRIDGE SHALL BE A MINIMUM OF ELEVEN 2.75-INCH (70-MM) OR GREATER DIAMETER ELEMENTS. THE LENGTH OF EACH FILTER ELEMENT SHALL BE A MINIMUM 15 INCHES (381 MM). EACH CARTRIDGE SHALL BE FITTED INTO THE CARTRIDGE DECK BY INSERTION INTO A CARTRIDGE RECEPTACLE THAT IS PERMANENTLY MOUNTED INTO THE CARTRIDGE DECK. EACH CARTRIDGE SHALL BE SECURED BY A CARTRIDGE LID THAT IS THREADED ONTO THE RECEPTACLE, OR SIMILAR MECHANISM TO SECURE THE CARTRIDGE INTO THE DECK. THE MAXIMUM TREATMENT FLOW RATE OF A FILTER CARTRIDGE SHALL BE CONTROLLED BY AN ORIFICE IN THE CARTRIDGE LID, OR ON THE INDIVIDUAL CARTRIDGE ITSELF, AND BASED ON A DESIGN FLUX RATE (SURFACE LOADING RATE) DETERMINED BY THE MAXIMUM TREATMENT FLOW RATE PER UNIT OF FILTRATION MEMBRANE SURFACE AREA. THE MAXIMUM FLUX RATE SHALL BE 0.21 GPM/FT2 (0.142 L/FT/SEC). EACH MEMBRANE FILTER CARTRIDGE SHALL ALLOW FOR MANUAL INSTALLATION AND REMOVAL.

D. ALL FILTER CARTRIDGES AND MEMBRANES SHALL BE REUSABLE AND ALLOW FOR THE USE OF FILTRATION MEMBRANE RINSING PROCEDURES TO RESTORE FLOW CAPACITY AND SEDIMENT CAPACITY, EXTENDING CARTRIDGE SERVICE LIFE.

E. ACCESS SHALL HAVE A MINIMUM CLEAR HEIGHT OF 60" OVER ALL OF THE FILTER CARTRIDGES, OR BE ACCESSIBLE BY A HATCH OR OTHER MECHANISM THAT PROVIDES MINIMUM 60" VERTICAL CLEAR SPACE OVER ALL OF THE FILTER CARTRIDGES. FILTER CARTRIDGES SHALL BE ABLE TO BE LIFTED STRAIGHT VERTICALLY OUT OF THE RECEPTACLES AND DECK FOR THE ENTIRE LENGTH OF THE CARTRIDGE.

F. THE DEVICE SHALL INCLUDE A MINIMUM 24 INCHES (610 MM) OF SUMP BELOW THE BOTTOM OF THE CARTRIDGES FOR SEDIMENT ACCUMULATION, UNLESS OTHERWISE SPECIFIED BY THE DESIGN ENGINEER. DEPTHS LESS THAN 24" MAY HAVE AN IMPACT ON THE TOTAL PERFORMANCE AND/OR LONGEVITY BETWEEN CARTRIDGE MAINTENANCE/REPLACEMENT OF THE DEVICE.

G. ALL PRECAST CONCRETE COMPONENTS SHALL BE MANUFACTURED TO A MINIMUM LIVE LOAD OF HS-20 TRUCK LOADING OR GREATER BASED ON LOCAL REGULATORY SPECIFICATIONS, UNLESS OTHERWISE MODIFIED OR SPECIFIED BY THE DESIGN ENGINEER, AND SHALL BE WATERTIGHT.

H. GASKETS AND/OR SEALANTS TO PROVIDE WATER TIGHT SEAL BETWEEN CONCRETE JOINTS: JOINTS SHALL BE SEALED WITH PREFORMED JOINT SEALING COMPOUND CONFORMING TO ASTM C 990.

I. FRAME AND COVERS MUST BE MANUFACTURED FROM CAST-IRON OR OTHER COMPOSITE MATERIAL TESTED TO WITHSTAND H-20 OR GREATER DESIGN LOADS, AND AS APPROVED BY THE LOCAL REGULATORY BODY. FRAMES AND COVERS MUST BE EMBOSSED WITH THE NAME OF THE DEVICE MANUFACTURER OR THE DEVICE BRAND NAME.

J. DOOR AND HATCHES, IF PROVIDED SHALL MEET DESIGNATED LOADING REQUIREMENTS OR AT A MINIMUM FOR INCIDENTAL VEHICULAR TRAFFIC.

K. ALL CONCRETE COMPONENTS SHALL BE MANUFACTURED ACCORDING TO LOCAL SPECIFICATIONS AND SHALL MEET THE REQUIREMENTS OF ASTM C 478.

L. THE FIBERGLASS PORTION OF THE FILTER DEVICE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING STANDARD: ASTM D-4097. CONTACT MOLDED GLASS FIBER REINFORCED CHEMICAL RESISTANT TANKS.

M. STEPS SHALL BE CONSTRUCTED ACCORDING TO ASTM D4101 OF COPOLYMER POLYPROPYLENE, AND BE DRIVEN INTO PREFORMED OR PRE-DRILLED HOLES AFTER THE CONCRETE HAS CURED, INSTALLED TO CONFORM TO APPLICABLE SECTIONS OF STATE, PROVINCIAL AND MUNICIPAL BUILDING CODES, HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS FOR THE CONSTRUCTION OF SUCH DEVICES.

N. ALL PRECAST CONCRETE SECTIONS SHALL BE INSPECTED TO ENSURE THAT DIMENSIONS, APPEARANCE AND QUALITY OF THE PRODUCT MEET LOCAL MUNICIPAL SPECIFICATIONS AND ASTM C 478.

PERFORMANCE

A. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL FUNCTION TO REMOVE POLLUTANTS BY THE FOLLOWING UNIT TREATMENT PROCESSES; SEDIMENTATION, FLOATATION, AND MEMBRANE FILTRATION.

B. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL REMOVE OIL, DEBRIS, TRASH, COARSE AND FINE PARTICULATES, PARTICULATE-BOUND POLLUTANTS, METALS AND NUTRIENTS FROM STORMWATER DURING RUNOFF EVENTS.

C. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL TYPICALLY UTILIZE AN EXTERNAL BYPASS TO DIVERT EXCESSIVE FLOWS. INTERNAL BYPASS SYSTEMS SHALL BE EQUIPPED WITH A FLOATABLES BAFFLE, AND MUST PASS WATER OVER THE CARTRIDGE DECK, AND AVOID PASSAGE THROUGH THE SUMP AND/OR CARTRIDGE FILTRATION ZONE.

D. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL TREAT 100% OF THE REQUIRED WATER QUALITY TREATMENT FLOW BASED ON A MAXIMUM TREATMENT FLUX RATE (SURFACE LOADING RATE) ACROSS THE MEMBRANE FILTER CARTRIDGES NOT TO EXCEED 0.21 GPM/FT2 (0.142 L/FT/SEC).

E. AT A MINIMUM, THE STORMWATER QUALITY FILTER DEVICE SHALL HAVE BEEN FIELD TESTED AND VERIFIED WITH A MINIMUM 25 QUALIFYING STORM EVENTS AND FIELD MONITORING CONDUCTED ACCORDING TO THE TAPE TIER II OR TAPE FIELD TEST PROTOCOL, AND HAVE RECEIVED NJCAT VERIFICATION.

F. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TSS REMOVAL EFFICIENCY OF 85% AND A MINIMUM MEDIAN SSC REMOVAL EFFICIENCY OF 95%.

G. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED THE ABILITY TO CAPTURE FINE PARTICLES AS INDICATED BY A MINIMUM MEDIAN REMOVAL EFFICIENCY OF 75% FOR THE PARTICLE FRACTION LESS THAN 25 MICRONS, AN EFFLUENT D50 OF 15 MICRONS OR LOWER FOR ALL MONITORED STORM EVENTS, AND AN EFFLUENT TURBIDITY OF 15 NTUS OR LOWER.

H. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TOTAL PHOSPHORUS REMOVAL OF 55%, AND A MINIMUM MEDIAN TOTAL NITROGEN REMOVAL OF 50%.

I. THE STORMWATER QUALITY FILTER TREATMENT DEVICE SHALL HAVE DEMONSTRATED A MINIMUM MEDIAN TOTAL ZINC REMOVAL OF 50%, AND A MINIMUM MEDIAN TOTAL COPPER REMOVAL OF 75%.

INSPECTION AND MAINTENANCE

A. DURABILITY OF MEMBRANES ARE SUBJECT TO GOOD HANDLING PRACTICES DURING INSPECTION AND MAINTENANCE (REMOVAL, RINSING, AND REINSERTION) EVENTS, AND SITE SPECIFIC CONDITIONS THAT MAY HAVE HEAVIER OR LIGHTER LOADING ONTO THE CARTRIDGES, AND POLLUTANT VARIABILITY THAT MAY IMPACT THE MEMBRANE STRUCTURAL INTEGRITY. MEMBRANE MAINTENANCE AND REPLACEMENT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

B. INSPECTION WHICH INCLUDES TRASH AND FLOATABLES COLLECTION, SEDIMENT DEPTH DETERMINATION, AND VISIBLE DETERMINATION OF BACKWASH POOL DEPTH SHALL BE EASILY CONDUCTED FROM GRADE (OUTSIDE THE STRUCTURE).

C. MANUAL RINSING OF THE REUSABLE FILTER CARTRIDGES SHALL PROMOTE RESTORATION OF THE FLOW CAPACITY AND SEDIMENT CAPACITY OF THE FILTER CARTRIDGES, EXTENDING CARTRIDGE SERVICE LIFE.

D. SEDIMENT REMOVAL FROM THE FILTER TREATMENT DEVICE SHALL BE ABLE TO BE CONDUCTED USING A STANDARD MAINTENANCE TRUCK AND VACUUM APPARATUS, AND A MINIMUM ONE POINT OF ENTRY TO THE SUMP THAT IS UNOBSTRUCTED BY FILTER CARTRIDGES.

E. MAINTENANCE ACCESS SHALL HAVE A MINIMUM CLEAR HEIGHT OF 60" OVER ALL OF THE FILTER CARTRIDGES, OR BE ACCESSIBLE BY A HATCH OR OTHER MECHANISM THAT PROVIDES MINIMUM 60" VERTICAL CLEAR SPACE OVER ALL OF THE FILTER CARTRIDGES. FILTER CARTRIDGES SHALL BE ABLE TO BE LIFTED STRAIGHT VERTICALLY OUT OF THE RECEPTACLES AND DECK FOR THE ENTIRE LENGTH OF THE CARTRIDGE.

F. FILTER CARTRIDGES SHALL BE ABLE TO BE MAINTAINED WITHOUT THE USE OF ADDITIONAL LIFTING EQUIPMENT.

EXECUTION

A. THE INSTALLATION OF A WATERTIGHT PRECAST CONCRETE DEVICE SHOULD CONFORM TO ASTM C 891 AND TO ANY STATE HIGHWAY, MUNICIPAL OR LOCAL SPECIFICATIONS FOR THE CONSTRUCTION OF MANHOLES, WHICHEVER IS MORE STRINGENT. SELECTED SECTIONS OF A GENERAL SPECIFICATION THAT ARE APPLICABLE ARE SUMMARIZED BELOW.

B. THE WATERTIGHT PRECAST CONCRETE DEVICE IS INSTALLED IN SECTIONS IN THE FOLLOWING SEQUENCE:
- AGGREGATE BASE
- BASE SLAB
- TREATMENT CHAMBER AND CARTRIDGE DECK R/SER SECTION(S)
- BYPASS SECTION
- CONNECT INLET AND OUTLET PIPES
- CONCRETE R/SER SECTION(S) AND/OR TRANSITION SLAB (IF REQUIRED)
- MAINTENANCE R/SER SECTION(S) (IF REQUIRED)
- FRAME AND ACCESS COVER

C. INLET AND OUTLET PIPES SHOULD BE SECURELY SET INTO THE DEVICE USING APPROVED PIPE SEALS (FLEXIBLE BOOT CONNECTIONS, WHERE APPLICABLE) SO THAT THE STRUCTURE IS WATERTIGHT, AND SUCH THAT ANY PIPE INTRUSION INTO THE DEVICE DOES NOT IMPACT THE DEVICE FUNCTIONALITY.

D. ADJUSTMENT UNITS (E.G. GRADE RINGS) SHOULD BE INSTALLED TO SET THE FRAME AND COVER AT THE REQUIRED ELEVATION. THE ADJUSTMENT UNITS SHOULD BE LAID IN A FULL BED OF MORTAR WITH SUCCESSIVE UNITS BEING JOINED USING SEALANT RECOMMENDED BY THE MANUFACTURER. FRAMES FOR THE COVER SHOULD BE SET IN A FULL BED OF MORTAR AT THE ELEVATION SPECIFIED.

E. IN SOME INSTANCES THE MAINTENANCE ACCESS WALL, IF PROVIDED, SHALL REQUIRE AN EXTENSION ATTACHMENT AND SEALING TO THE PRECAST WALL AND CARTRIDGE DECK AT THE JOB SITE, RATHER THAN AT THE PRECAST FACILITY. IN THIS INSTANCE, INSTALLATION OF THESE COMPONENTS SHALL BE PERFORMED ACCORDING TO INSTRUCTIONS PROVIDED BY THE MANUFACTURER.

F. FILTER CARTRIDGES SHALL BE INSTALLED IN THE CARTRIDGE DECK AFTER THE CONSTRUCTION SITE IS FULLY STABILIZED AND IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES AND RECOMMENDATIONS. CONTRACTOR TO CONTACT THE MANUFACTURER TO SCHEDULE CARTRIDGE DELIVERY AND REVIEW PROCEDURES/REQUIREMENTS TO BE COMPLETED TO THE DEVICE PRIOR TO INSTALLATION OF THE CARTRIDGES AND ACTIVATION OF THE SYSTEM.

G. MANUFACTURER SHALL COORDINATE DELIVERY OF FILTER CARTRIDGES AND OTHER INTERNAL COMPONENTS WITH CONTRACTOR. FILTER CARTRIDGES SHALL BE DELIVERED AND INSTALLED COMPLETE AFTER SITE IS STABILIZED AND UNIT IS READY TO ACCEPT CARTRIDGES. UNIT IS READY TO ACCEPT CARTRIDGES AFTER IS HAS BEEN CLEANED OUT AND ANY STANDING WATER, DEBRIS, AND OTHER MATERIALS HAVE BEEN REMOVED. CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO PROTECT THE FILTER CARTRIDGE RECEPTACLES AND FILTER CARTRIDGES FROM DAMAGE DURING CONSTRUCTION, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND GUIDANCE. FOR SYSTEMS WITH CARTRIDGES INSTALLED PRIOR TO FULL SITE STABILIZATION AND PRIOR TO SYSTEM ACTIVATION, THE CONTRACTOR CAN PLUG INLET AND OUTLET PIPES TO PREVENT STORMWATER AND OTHER INFLUENT FROM ENTERING THE DEVICE. PLUGS MUST BE REMOVED DURING THE ACTIVATION PROCESS.

H. THE MANUFACTURER SHALL PROVIDE AN OWNER'S MANUAL UPON REQUEST.

I. AFTER CONSTRUCTION AND INSTALLATION, AND DURING OPERATION, THE DEVICE SHALL BE INSPECTED AND CLEANED AS NECESSARY BASED ON THE MANUFACTURER'S RECOMMENDED INSPECTION AND MAINTENANCE GUIDELINES AND THE LOCAL REGULATORY AGENCY/BODY.

J. WHEN REPLACEMENT MEMBRANE FILTER ELEMENTS AND/OR OTHER PARTS ARE REQUIRED, ONLY MEMBRANE FILTER ELEMENTS AND PARTS APPROVED BY THE MANUFACTURER FOR USE WITH THE STORMWATER QUALITY FILTER DEVICE SHALL BE INSTALLED.

END OF SECTION

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MARK	DATE	REVISION DESCRIPTION
B		
C		
D		
E		
F		
G		
H		
0	10/01/2014	INITIAL RELEASE
A		
B		

Jellyfish
JELLYFISH FILTER SPECIFICATIONS
JF6 STANDARD
Scale - 1:20

imbrium
IMBRIUM (BARBADOS) LTD.
WARRENS BUSINESS PARK, WARRENS, ST. MICHAEL, BARBADOS, BB22026
TEL: (246) 435-7400 FAX: (246) 435-8880 WEB: www.imbrium.com

DATE: ########
DESIGNED: BSF
DRAWN: BSF
CHECKED: BSF
APPROVED: SP
PROJECT #: #####
PROJECT NAME: #####
SHEET: OF 2

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DR

APPENDIX P

Septic Design

Green Valley Environmental Inc.

LETTER OF AUTHORIZATION

Owner: Hindu Temple of Ottawa Carleton (attention: Harish Gupta)

Address: 4835 Bank Street

Ottawa, Ontario

Phone No.: 613-737-5939 **Cell No.:** 613-866-2984

Work No.: **Fax No.:**

LOCATION OF PROPERTY:

Lot No.: 22

Concession No.: 5RF

Sub lot/Part No.:

R. Plan No.: 5R3156

Civic Address: 4835 Bank Street

Municipality: Gloucester

Roll No.:

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SEPTIC FILE #
24-016
OTTAWA

Commercial: **(provide description of building and intended use)**

Place of Worship with Assembly Hall

I, the above – mentioned authorize Green Valley Environmental Services to act as my agent to apply for and obtain a sewage system permit from the responsible Approval Agency.

Signature: Jessica Arthurs Date: January 11, 2024

6107 First Line Rd. • P.O. Box 882 Manotick, Ontario, K4M 1A7 • Phone: (613) 692-2616 • Fax: (613) 692-1802

www.gvegroup.ca

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

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For use by Principal Authority

Application number:	Permit number (if different): SEPTIC FILE #
Date received:	Roll number: 24-016

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name: 4835 Bank St.		Unit number:	Lot/con.: 22/5RF
Municipality: Gloucester	Postal code: K1X 1G6	Plan number/other description: 5R3156	
Project value est. $:		Area of work (m²):	

B. Purpose of application

New construction | Addition to an existing building | Alteration/repair | Demolition | Conditional Permit

Proposed use of building: Commercial Assembly bldg.	Current use of building:

Description of proposed work: Install a new septic system for proposed assembly building.

C. Applicant

Applicant is: Owner or Authorized agent of owner

Last name: Patel	First name: Davis	Corporation or partnership: Green Valley Environmental Inc.	
Street address: 6107 First Line. Rd.		Unit number:	Lot/con.:
Municipality: North Gower	Postal code: K4M 1A7	Province: ON	E-mail: engineering@agregroup.ca
Telephone number: (613) 692-2616	Fax: (613) 692-1802	Cell number: ( )	

D. Owner (if different from applicant)

Last name: Gupta	First name: Harish	Corporation or partnership: The Hindu Temple	
Street address: 4835 Bank St.		Unit number:	Lot/con.: 22/5RF
Municipality: Gloucester	Postal code: K1X 1G6	Province: ON	E-mail:
Telephone number: (613) 737-5939	Fax: ( )	Cell number: (613) 866-2984	

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

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OTTAWA

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No ✓
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No ✓

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes ✓	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes ✓	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992*.	Yes ✓	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes ✓	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes ✓	No

I. Declaration of applicant

I Davis Patel declare that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date Dec 21, 2023 Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

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JAN 19 2024

SEPTIC FILE #
24-016

Schedule 1: Designer Information

OTTAWA

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name		Unit no.	Lot/con.
4835 Bank St.			22/5RF
Municipality	**Postal code**	**Plan number/ other description**	
Gloucester	K1X 1G6	5R3156	

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Davis Patil		Green Valley Environmental Inc.	
Street address		**Unit no.**	**Lot/con.**
6107 First Line Rd.			
Municipality	**Postal code / Province**	**E-mail**	
North Gower	K4M 1A7 ON	engineering@gvegroup.ca	
Telephone number	**Fax number**	**Cell number**	
(613) 692-2616	(613) 692-1802	( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	✓ On-site Sewage Systems

Description of designer's work

Design a septic system for proposed assembly building.

D. Declaration of Designer

I Davis Patil declare that (choose one as appropriate):
(print name)

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 119685

Firm BCIN: 16035

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date Dec 21, 2023 Signature of Designer Davis

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

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SEPTIC FILE # 24-016

Schedule 2: Sewage System Installer Information

A. Project Information

Building number, street name		Unit number	Lot/con.
4835 Bank St.			22 OTTAWA
Municipality	**Postal code**	**Plan number/ other description**	
Gloucester	K1X 1G6	5R3156	

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

✓ Yes (Continue to Section C) No (Continue to Section E) Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")

Name		BCIN
Green Valley Environmental Inc.		11234
Street address		**Unit number / Lot/con.**
6107 Third Line Rd.		
Municipality	**Postal code / Province**	**E-mail**
North Gower	K4M 1A1 ON	
Telephone number	**Fax**	**Cell number**
(613) 692-2616	(613) 692-1802	(613) 229-3900

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	Building Code Identification Number (BCIN)
Bill Seabrook	11234

E. Declaration of Applicant:

I Davis Patel (print name) declare that:

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date Dec 21, 2023 Signature of applicant Davis

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

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OTTAWA

Do Not Complete
Permit # _____
Revision # _____
Date _____

Schedule 4
Proposed Services
Complete Sections 1 thru 7

1. **Engineered**
   - ☐ Yes
   - ☑ No

2. **Water supply**
   - ☐ Proposed
   - ☑ Existing

3. **Type of work proposed**
   - ☑ New Installation
   - ☐ Replacement
   - ☐ Alteration

4. **Type of Well**
   - ☐ Dug/bored/Sandpoint well
   - ☐ Drilled well
   - ☑ Municipal
   - ☐ Other

5. **Residential** Sewage Design Flow Info.
   Bedrooms _____
   House (floor area) _____ **m²**
   People _____
   Total Fixture Units _____ **(Schedule 8)**
   Residential Flow _____ **L/day**

6. Sewage Design Flow **Other Occupancies**
   Design Flow 4000 L/day
   Detailed sewage flow calculations:
   No food preparation in assembly building.
   500 x 8 V = 4000 L/day (500 people)

7. **Type of System**
   - ☑ Treatment Unit Norweco HK 4730-3M
   - ☐ Class 2 – Leaching Pit
   - ☐ Class 3 – Cesspool
   - ☑ Class 4 – Shallow Buried Trench
     12 Runs, 13.08m each.
   - ☐ Class 4 – Trench **(Schedule 9)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – Filter Media **(Schedule 10)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – BMEC Area Bed **(Schedule 11)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type A" Dispersal **(Schedule 13)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type B" Dispersal **(Schedule 14)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 5 – Holding Tank (9000L min)
   - ☐ Tank/TreatmentUnit/PumpChamber ONLY
   - ☐ Effluent Filter/Risers ONLY

Ottawa Septic System Office
Bureau des systèmes septiques d'Ottawa

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OTTAWA

Do Not Complete
Permit No _____
Revision No _____
Date _____

Schedule 5
Sewage System Details

Type of System Class 4 Shallow Buried Trench Bed (Schedule 4)
Septic/~~Holding~~ Tank Size: 9000 Litres Make: MACGREGOR
Septic Tank Effluent Filter Make: POLYLOK Model: PL250
Tertiary Treatment System
Treatment Unit – Make & Model Norweco MK 4730-3M
Number of Units: 1
Other: 800 GAL PUMP CHAMBER
Refer to Typical Drawing # PC-5-1174
Pump(s) required Liberty 250 / 0.5hp
Mantle Information:
Pump Rate _____ L/15min
Native or imported =15m in _____ direction(s)
Note: Alarm required for all pumping systems
Slope subgrade _____ % slope
_____ direction(s)

Site to be Scarified (If clay) YES / NO
Clay Seal Required (If bedrock) YES / NO

☐ **Trench**
Distribution Pipe Length _____ m
Loading Area _____ m²
Type of Chamber _____
Length of Chamber _____ m

☐ **Dispersal Bed**

☐ **BMEC** ☐ **Type A** ☐ **Type B**
Stone _____ m²
Sand _____ m²
Pipe _____ m²
Linear Loading _____ L/m²

☑ **Shallow Buried Trench**
Pipe Length 156.96 m
12 runs of 13.08m each.

☐ **Filter Media Bed**
Stone _____ m²
Extended Base _____ m²
Pipe _____ m
Weight of Filter Media _____ Kg
Loading Area _____ m

☐ **Tank/Treatment Unit/Pump Chamber Replacement** ONLY
☐ **Effluent Filter & Riser** ONLY

Construction Notes: Any contaminated material present in the excavation area to be removed and replaced with sandfill. Trees within 5m of the septic system to be removed.

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R.V.C.A. RECEIVED
JAN 19 2024

SEPTIC FILE #
Do Not Complete
Permit # 24-016
Revision #
Date OTTAWA

Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Name of Applicant/Agent: LRL
Date: May 8, 2017 Time: 10 AM
Applicant/Agent Signature:

Inspector:
Date: Time:
Inspector Signature:

EG (……..) Soil Description	T	EG (……..) Soil Description	
.5m 1.0 m 1.5m 2.0 m See attached Testpit logs		.5m 1.0 m 1.5m 2.0 m Test pits not available for inspection. Engineer assumes all liability for soil and HGWT info/elv's	
EG (……..) Soil Description	T	EG (……..) Soil Description	T
.5m 1.0 m 1.5m 2.0 m		.5m 1.0 m 1.5m 2.0 m	

LEGEND
BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Do Not Complete
Permit # _____
Revision # _____
Date _____

Scale: 1Block = NTS

Schedule 7
Layout Section

N

SEE ATTACHED DWG.

○Dug Well ●Drilled Well ▲Neighbouring Homes ◊Benchmark ---Tile Drainage —Property Line

Elevations (metric only)
B.M. 100.17 m
B.M.Description East arm of hydrant located west of southern entrance to site.
Exact Location

Min. of 5 elevations in proposed system area (in X pattern)
X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 see attached dwg. X_6 (toe) _____
X_7 _____ X_8 _____

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SEPTIC FILE # 24-016

OTTAWA

Do Not Complete
Permit # _____
Revision # _____
Date _____

Schedule 8
Fixture unit count

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom Bathroom group (toilet, sink and tub or shower) installed in the **same** room		+		X	6	=	
Urinal wall mounted washout type		+	10	X	1.5	=	15
Shower stall		+	2	X	1.5	=	3
Wash basin (SINK) (1½inch trap)		+	19	X	1.5	=	28.5
Watercloset (TOILET) tank operated		+	22	X	4	=	88
Bidet		+		X	1	=	
Kitchen Dishwasher		+		X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap		+		X	1.5	=	
Other Domestic washing machine		+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	

***Total:** 134.5

***Insert the TOTAL in section 5 of Schedule 4** (0.Reg 151/13 Table 7.4.9.3)

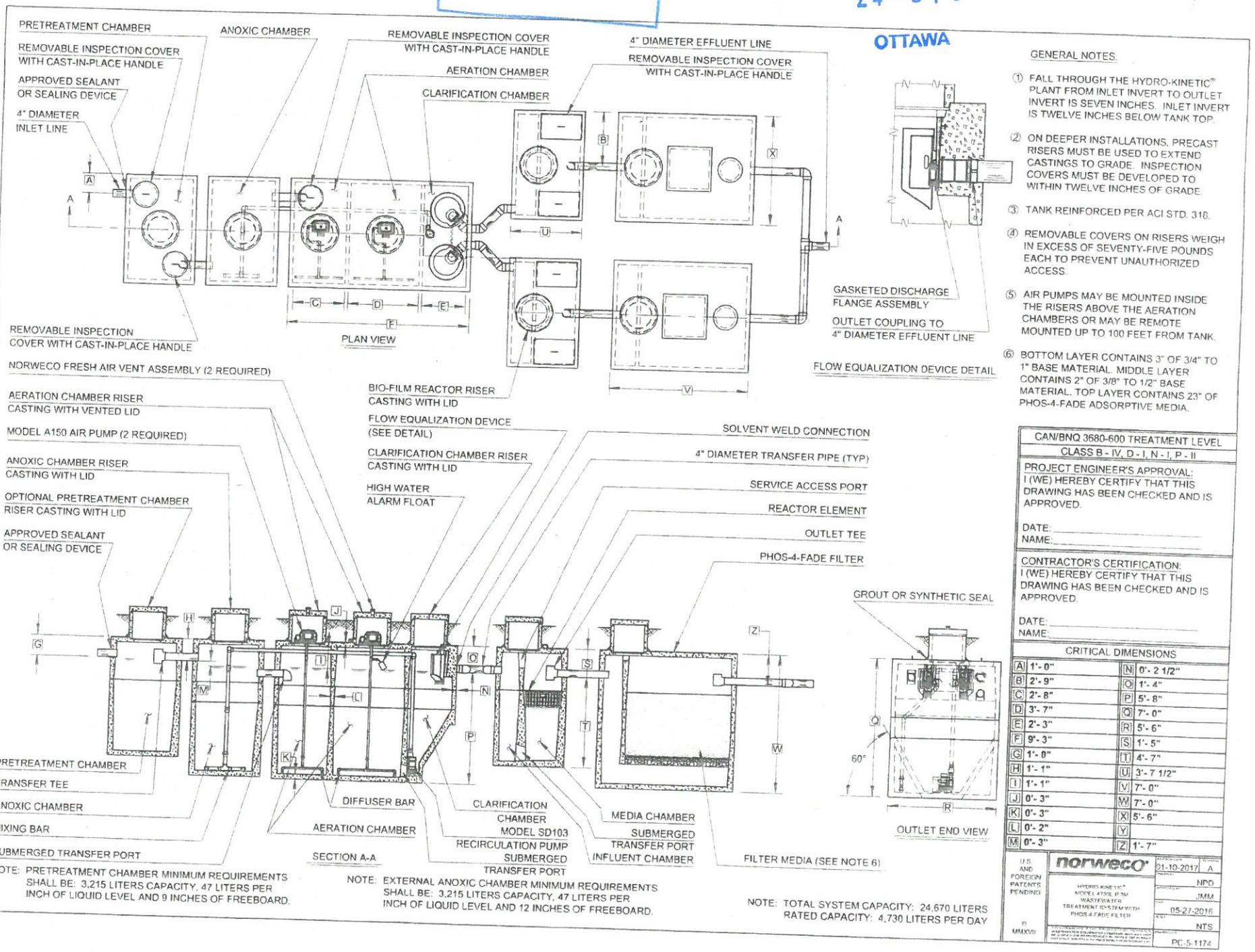
1. **Sump pumps and floor drains are not to be connected to the sewage system.** Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

_____ Dec 21, 2023

Agent/Owner signature **Date**

SEPTIC FILE #
24-016

OTTAWA



NOTE: PRETREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 3,215 LITERS CAPACITY, 47 LITERS PER INCH OF LIQUID LEVEL AND 9 INCHES OF FREEBOARD.

NOTE: EXTERNAL ANOXIC CHAMBER MINIMUM REQUIREMENTS SHALL BE: 3,215 LITERS CAPACITY, 47 LITERS PER INCH OF LIQUID LEVEL AND 12 INCHES OF FREEBOARD.

NOTE: TOTAL SYSTEM CAPACITY: 24,670 LITERS
RATED CAPACITY: 4,730 LITERS PER DAY

GENERAL NOTES:

① FALL THROUGH THE HYDRO-KINETIC® PLANT FROM INLET INVERT TO OUTLET INVERT IS SEVEN INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.

② ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND CASTINGS TO GRADE. INSPECTION COVERS MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.

③ TANK REINFORCED PER ACI STD. 318.

④ REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.

⑤ AIR PUMPS MAY BE MOUNTED INSIDE THE RISERS ABOVE THE AERATION CHAMBERS OR MAY BE REMOTE MOUNTED UP TO 100 FEET FROM TANK.

⑥ BOTTOM LAYER CONTAINS 3" OF 3/4" TO 1" BASE MATERIAL. MIDDLE LAYER CONTAINS 2" OF 3/8" TO 1/2" BASE MATERIAL. TOP LAYER CONTAINS 23" OF PHOS-4-FADE ADSORPTIVE MEDIA.

CAN/BNQ 3680-600 TREATMENT LEVEL
CLASS B - IV, D - I, N - I, P - II

PROJECT ENGINEER'S APPROVAL:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.

DATE: _____
NAME: _____

CONTRACTOR'S CERTIFICATION:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.

DATE: _____
NAME: _____

CRITICAL DIMENSIONS

A	1'- 0"	N	0'- 2 1/2"
B	2'- 9"	O	1'- 4"
C	2'- 8"	P	5'- 8"
D	3'- 7"	Q	7'- 0"
E	2'- 3"	R	5'- 6"
F	9'- 3"	S	1'- 5"
G	1'- 0"	T	4'- 7"
H	1'- 1"	U	3'- 7 1/2"
I	1'- 1"	V	7'- 0"
J	0'- 3"	W	7'- 0"
K	0'- 3"	X	5'- 6"
L	0'- 2"	Y	
M	0'- 3"	Z	1'- 7"

U.S. AND FOREIGN PATENTS PENDING

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norweco®

HYDRO-KINETIC® MODEL 473IL P.50 WASTEWATER TREATMENT SYSTEM WITH PHOS-4-FADE FILTER

DATE	01-10-2017
REV	A
DRAWN	NPD
CHECKED	JMM
DATE	05-27-2016
SCALE	NTS
DRAWING NO.	PC-5-1174

GREEN VALLEY ENVIRONMENTAL SERVICES

ASSEMBLY BUILDING

4835 Bank St.

In/Output

input	Length of a Lateral (m):	13.08	13.08	13.08	13.08	13.08	13.08	13.08
input	Number of Laterals:	2.00	2.00	2.00	2.00	2.00	2.00	2.00
input	Input spacing of orifices(m):	0.60	0.60	0.60	0.60	0.60	0.60	0.60
→	Number of orifices(calculated):	20.80	20.80	20.80	20.80	20.80	20.80	20.80
input	chosen number of orifices:	20.00	20.00	20.00	20.00	20.00	20.00	20.00
output	space of orifice to edge (m)	0.84	0.84	0.84	0.84	0.84	0.84	0.84
output	total number of orifices:	40.00	40.00	40.00	40.00	40.00	40.00	40.00

diameter of orifice(inch):	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Squirt height (feet):	2.00	5.00	6.00	7.00	8.00	9.00	20.00
Discharge of orifice (US gal/orifice x min)	0.24	0.39	0.42	0.46	0.49	0.52	0.77
Flow in a lateral (US gal/min x lateral)	4.88	7.71	8.45	9.13	9.76	10.35	15.43
Total discharge (US gal/min)	9.76	15.43	16.90	18.25	19.51	20.70	30.85
Total discharge (L/min)	36.93	58.39	63.97	69.09	73.86	78.35	116.79
Total discharge (Imp. gal/min)	8.12	12.85	14.07	15.20	16.25	17.23	25.69

Total Dynamic Head (ft)

		(metric)	(Imperial)						
input	Length of force main(m)	20.00	65.62	65.62	65.62	65.62	65.62	65.62	65.62
input	Diameter of force main (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of manifold (m)	2.00	6.55	6.55	6.55	6.55	6.55	6.55	6.55
input	Diameter of manifold (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of lateral (m)	13.08	42.91	42.91	42.91	42.91	42.91	42.91	42.91
input	Diameter of lateral (in)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
output	Friction loss in forcemain (m/ft)	0.19	0.61	1.42	1.68	1.94	2.20	2.45	5.13
output	Friction loss in manifold (m/ft)	0.01	0.02	0.05	0.06	0.06	0.07	0.08	0.17
output	Friction loss in lateral (m/ft)	0.01	0.04	0.09	0.10	0.12	0.13	0.15	0.31
estimated	Fittings' loss (estimated) (m/ft)	3.05	10.00	10.00	10.00	10.00	10.00	10.00	10.00
input	Residual head on orifice (ft)	0.61	2.00	5.00	6.00	7.00	8.00	9.00	20.00
input	Elevation difference(assumed, from low water level in pump tank to manifold) (m)	4.00	13.12	13.12	13.12	13.12	13.12	13.12	13.12
output	TDH (estimated) (m/ft)	7.86	25.79	29.68	30.97	32.25	33.53	34.80	48.73
	Q (gpm)		9.76	15.43	16.90	18.25	19.51	20.70	30.85

6107 First Line Road, Manotick, Ontario, K4M 1A7
Box 882, Tel. (613) 692-2616, Fax: (613) 693-1802

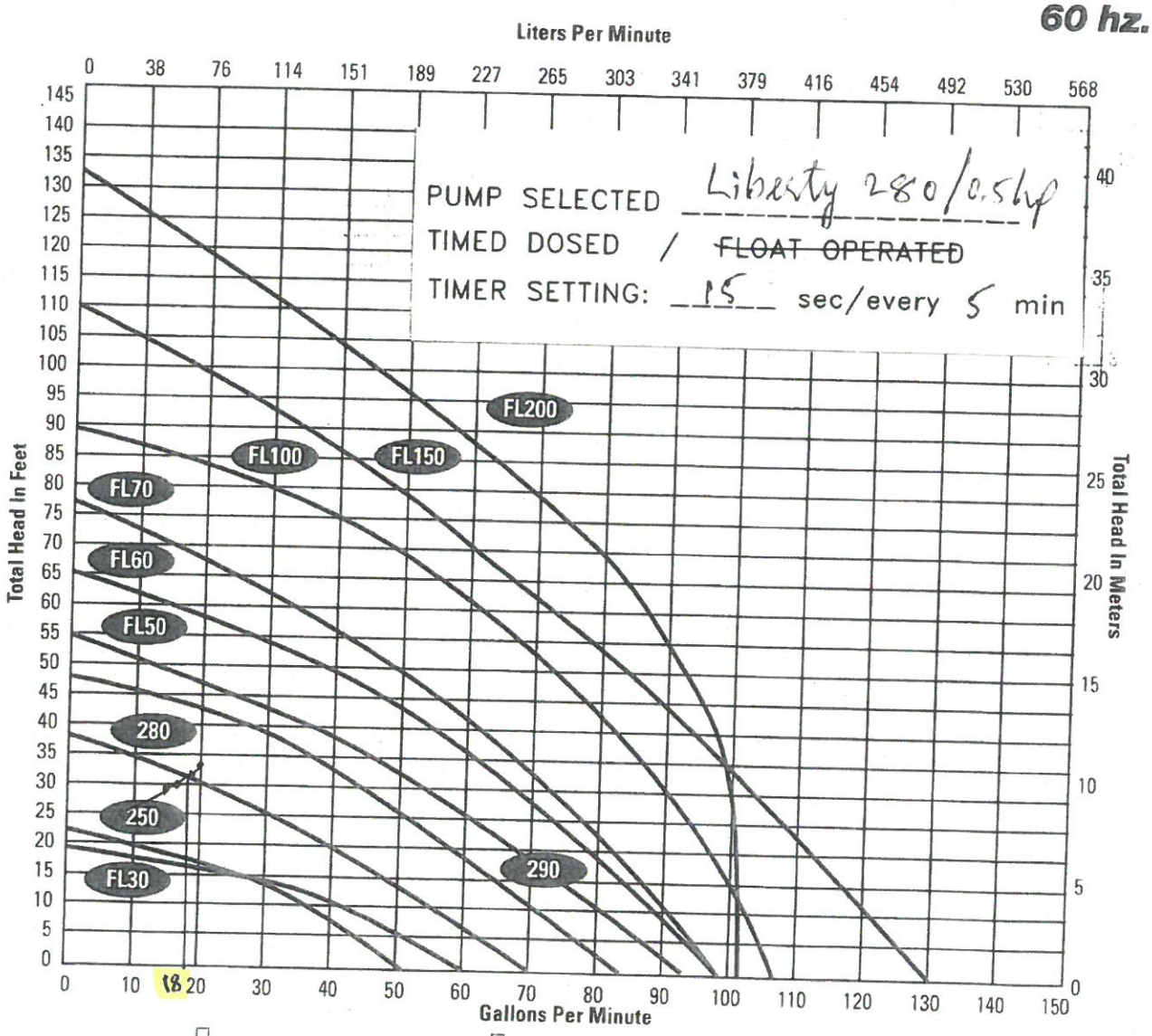
SEPTIC FILE # 24-016 OTTAWA

Liberty Pumps®

Effluent Pumps

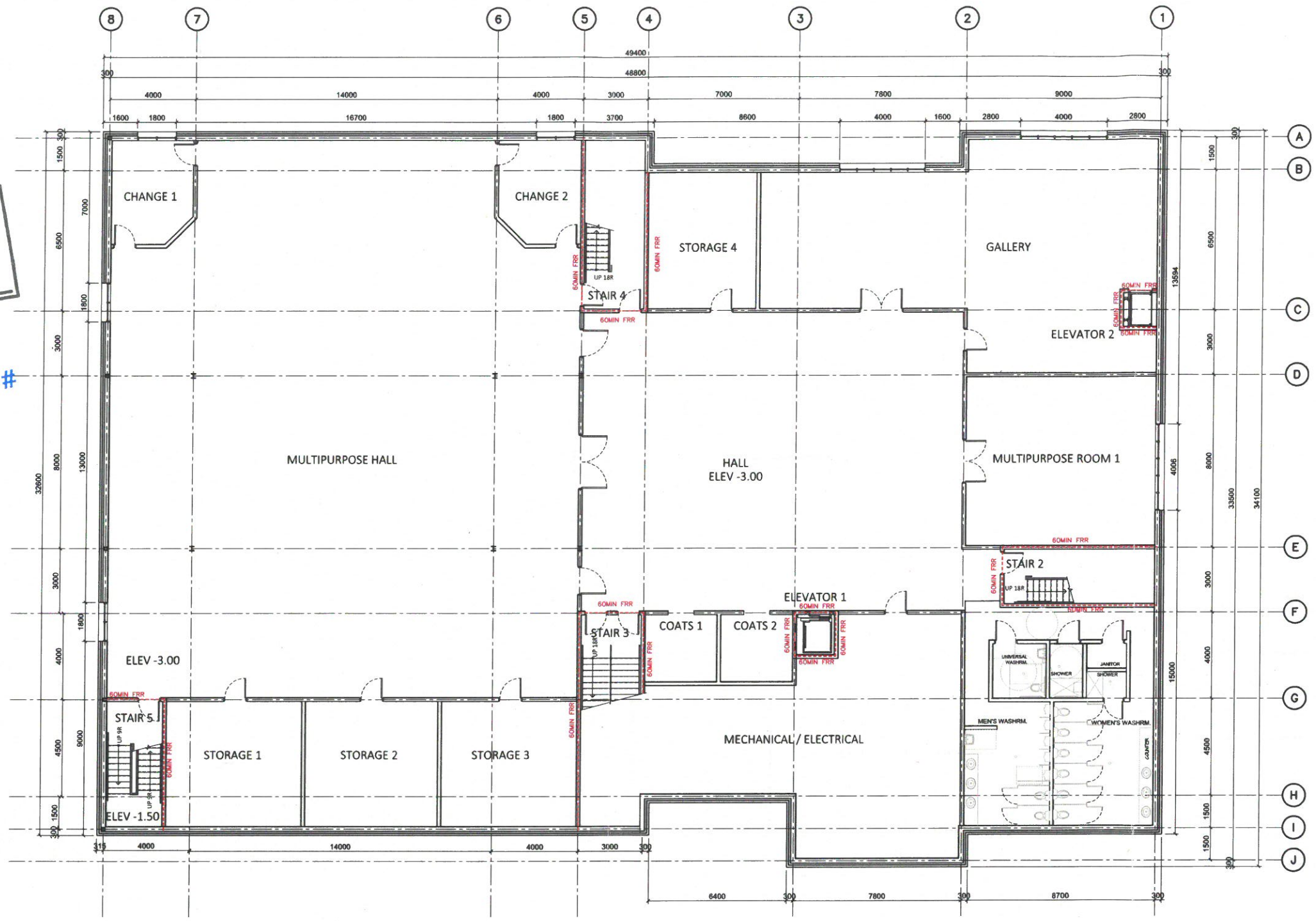
Performance Curve Data

60 hz.



innovate. evolve.

Liberty Pumps • 7000 Apple Tree Avenue • Bergen, NY 14416
Phone 800-543-2550 Fax (585) 494-1839
www.libertypumps.com



RVCA RECEIVED
JAN 26 2024
REFER TO:

SEPTIC FILE #
24-016
OTTAWA

ONTARIO ASSOCIATION OF ARCHITECTS
SWAPAN JEET KAUR
LICENCE 7839

TRUE NORTH

GENERAL NOTES

1. CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, DRAWINGS, DETAILS, SPECIFICATIONS & REPORT ANY DISCREPANCIES TO OWNERS BEFORE PROCEEDING WITH WORK.
2. ALL DRAWINGS & SPECIFICATIONS ARE INSTRUMENTS OF SERVICE & THE PROPERTY OF THE ARCHITECTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK, & MAY NOT BE REPRODUCED WITHOUT THEIR WRITTEN PERMISSION.

No.	Revision/Issue	Date
9	ISSUED FOR SITE PLAN	2022APR25
8	ISSUED FOR SITE PLAN	2021NOV03
7	ISSUED FOR SITE PLAN	2021OCT22
6	ISSUED FOR SITE PLAN	MAR 16

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STRUCTURAL & WELDING ENGINEERS
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Ottawa, ON K2H 5A8
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PROJECT AND LOCATION
HERITAGE CENTRE - HINDU TEMPLE - PHASE 2,
4835 BANK ST., OTTAWA, ON
PIN 04326-0011

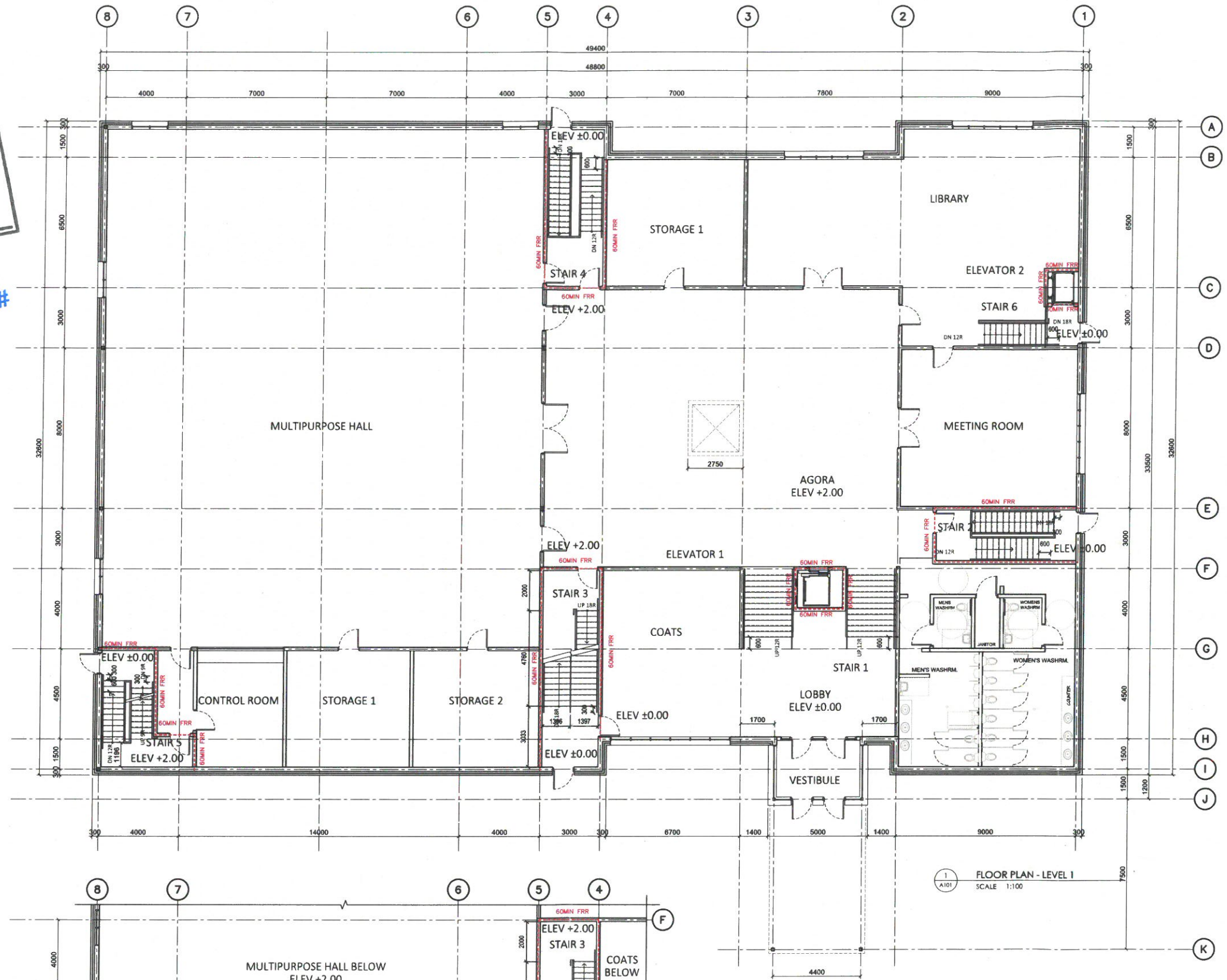
TITLE OF DRAWING
FLOOR PLAN - LEVEL 0

JOB NUMBER
17033

DATE	DWG NUMBER
2019 05	A100
SCALE	
DRAWN BY: SJK	

April 25, 2025

File No.: D07-12-20-0059



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HERITAGE CENTRE - HINDU TEMPLE - PHASE 2,
4835 BANK ST., OTTAWA, ON
PIN 04326-0011

TITLE OF DRAWING
FLOOR PLAN - LEVEL 1 & 2

JOB NUMBER
17033

DATE	DWG NUMBER
2019 05	A101
SCALE	
DRAWN BY: SJK	

ONTARIO ASSOCIATION OF ARCHITECTS
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TRUE NORTH

April 25, 2025

File No.: D07-12-20-0059

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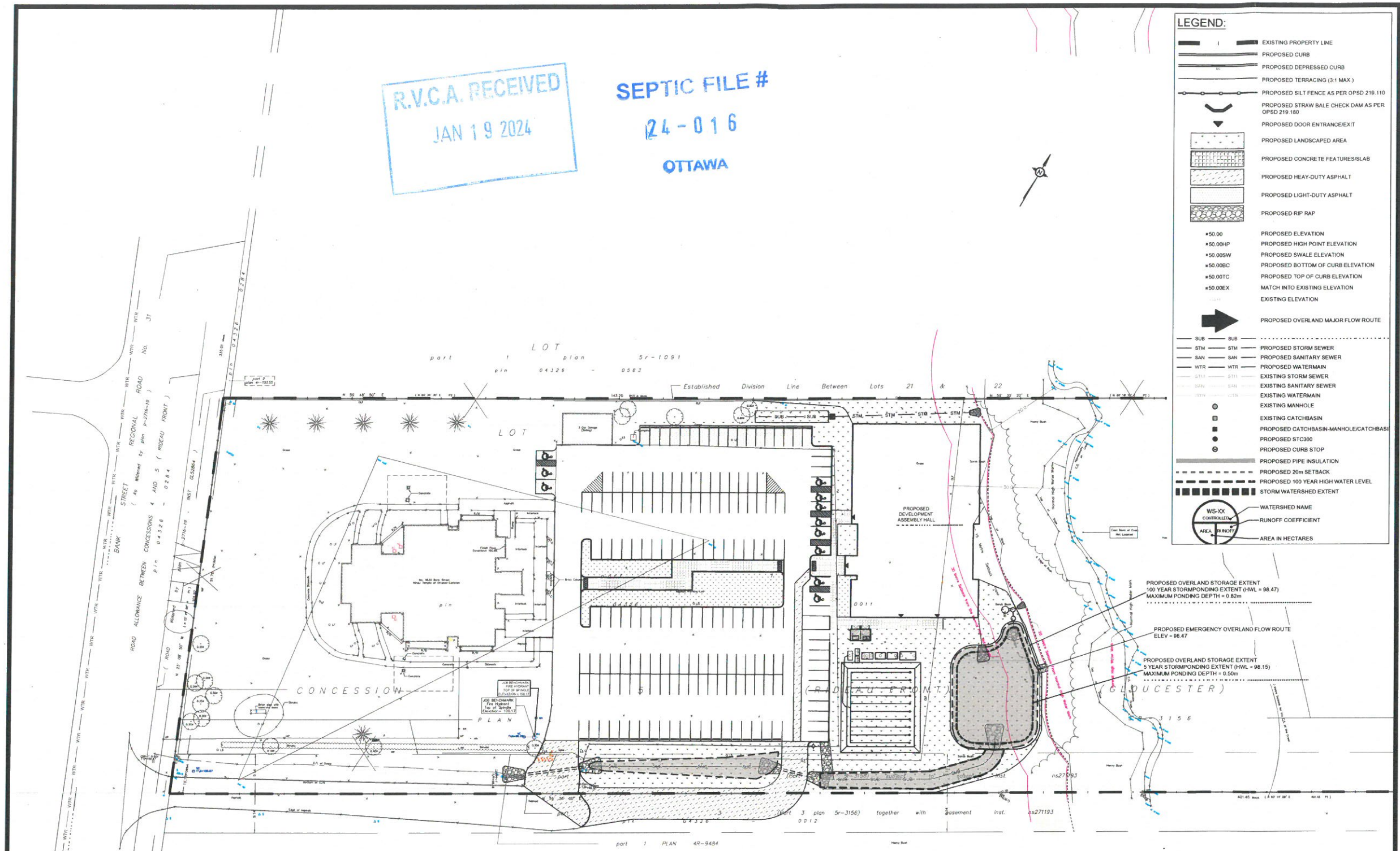
OTTAWA



LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED STORM SEWER
- STM STM PROPOSED SANITARY SEWER
- SAN SAN PROPOSED WATERMAIN
- WTR WTR EXISTING STORM SEWER
- STM STM EXISTING SANITARY SEWER
- SAN SAN EXISTING WATERMAIN
- WTR WTR EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASI
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME, RUNOFF COEFFICIENT, AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWINGS. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THEREOF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS, OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

10m 5 0 10 20m
SCALE: 1:500

No.	REVISIONS	BY	DATE
04	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	22 SEPT 2021
03	RE-ISSUED FOR SITE PLAN APPLICATION	K.H.	23 DEC 2020
02	ISSUED FOR CLIENT REVIEW	K.H.	11 DEC 2020
01	ISSUED FOR CLIENT APPROVAL	K.H.	11 MAR 2020

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

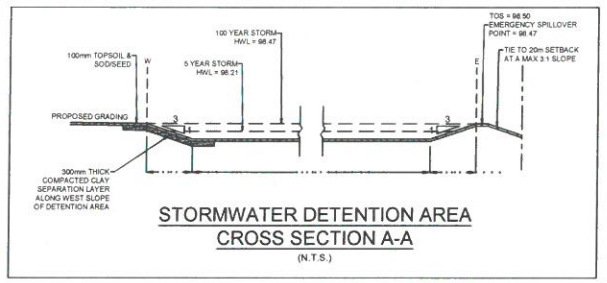
DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

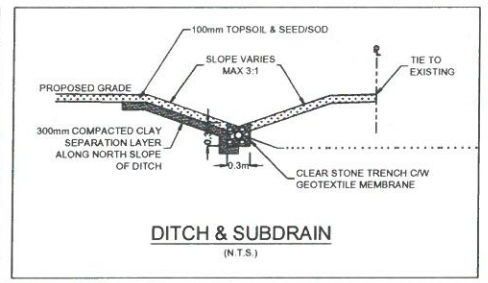
DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
170132
DATE
JAN2020

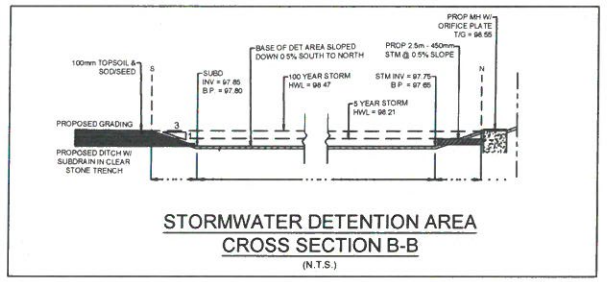
C601



STORMWATER DETENTION AREA CROSS SECTION A-A
(N.T.S.)



DITCH & SUBDRAIN
(N.T.S.)



STORMWATER DETENTION AREA CROSS SECTION B-B
(N.T.S.)

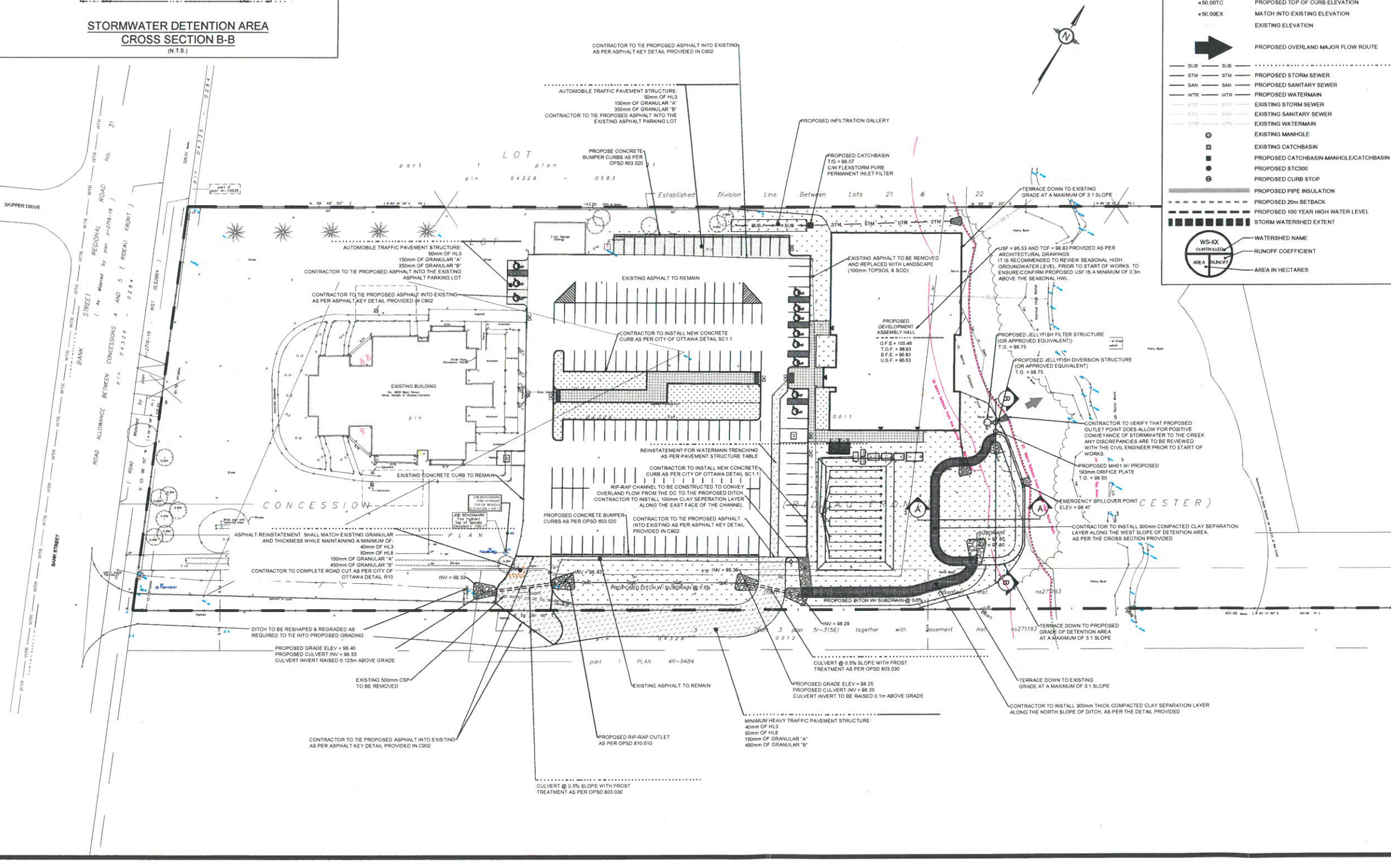
PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) AUTOMOBILE PARKING	THICKNESS (mm) TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL3 A/C (PG 58-34)	50	40
BINDER	HL8 A/C (PG 58-34)	–	50
BASECOURSE	GRANULAR "A"	150	150
SUBBASE	GRANULAR "B" TYPE II	350	450

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL CONSULTANT. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED. PAVEMENT STRUCTURE AS PER THE GEOTECHNICAL REPORT PREPARED BY LRL ASSOCIATES DATED NOVEMBER 2019.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED STRAW BALE CHECK DAM AS PER OPSD 219.180
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED LANDSCAPED AREA
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAY-DUTY ASPHALT
- PROPOSED LIGHT-DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00SW PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- 98.00 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB PROPOSED STORM SEWER
- STM PROPOSED SANITARY SEWER
- SAN PROPOSED WATERMAIN
- WTR EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED STC300
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 20m SETBACK
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX WATERSHED NAME
- C RUNOFF COEFFICIENT
- A AREA IN HECTARES



USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENT, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION". THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY MAY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

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10m 5 0 10 20m
SCALE: 1:500

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LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON. K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
THE HINDU HERITAGE CENTRE OF OTTAWA CARLETON

DESIGNED BY:	DRAWN BY:	APPROVED BY:
P.P.	K.H.	M.B.

PROJECT
PROPOSED ASSEMBLY HALL
4835 BANK STREET, OTTAWA

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
170132
DATE
JAN2020

C301

SEPTIC FILE #
24-016
OTTAWA

Feb 1/24

PROPOSED ASSEMBLY BUILDING

9000L BALANCING TANK WITH LE40-SERIES SEWAGE PUMP TO BE INSTALLED WITH TIMER SETTING TO PREVENT PEAK LOADING IN THE NORWECO TREATMENT UNIT.

4" ABS PIPE @ MIN. 2% SLOPE

INSTALL NORWECO HK 4730L-3M TREATMENT UNIT. SYSTEM COMPONENTS TO MEET MINIMUM REQUIREMENTS AS PER ATTACHED SCHEMATIC.

EXISTING PARKING AREA

INSTALL 800 GAL PUMP CHAMBER WITH 0.5 hp LIBERTY 280 EFFLUENT PUMP, TIMER DOSED @ 15 SECS./5 MINS.

FORCEMAIN, POLYETHYLENE PIPE, 1.5" Ø, BURIED 1.5m DEEP, OR SELF DRAINING, OR INSULATED.

K-RAIN MULTIZONE VALVE MODEL 6606 CAMMED FOR 6 ZONE OPERATION TO BE PROTECTED WITH RISER AND LID.

NOTE: ANY CONTAMINATED MATERIAL PRESENT IN THE EXCAVATION AREA TO BE REMOVED AND REPLACED WITH SANDFILL.

NOTE: TREES WITHIN 5m OF THE SEPTIC SYSTEM TO BE REMOVED.

TP #01
TOP 98.36

99.35

PRESSURIZED SHALLOW BURIED TRENCH BED WITH 12 RUNS OF 13.08m AT 2.0m O/C

EXISTING FENCE TO BE REMOVED

PROPOSED OVERLAND STORAGE EXTENT
100 YEAR STORMPONDING EXTENT
(HWL = 98.47)
MAXIMUM PONDING DEPTH = 0.82m
TOTAL STORAGE PROVIDED = 428.14m³

CLAY SEPARATION LAYER TO BE INSTALLED ON SIDES FACING THE SEPTIC BED. SEE DETAIL ON LRL DRAWING C301.

PROPOSED OVERLAND STORAGE EXTENT
5 YEAR STORMPONDING EXTENT
(HWL = 98.15)
MAXIMUM PONDING DEPTH = 0.50m
TOTAL STORAGE PROVIDED = 210.92m³

PROPOSED STORM WATER DRAINAGE SYSTEM

CERTIFIED ENGINEERING TECHNOLOGIST ONTARIO
DAVIS PATEL
№ 920696

NOTES:

1. ALL TREATMENT UNITS AND LEACHING BED ARE TO BE INSTALLED IN ACCORDANCE WITH MINIMUM OBC CLEARANCE DISTANCES. ANY OMISSIONS OR INACCURACIES SHALL BE BROUGHT TO THE ATTENTION OF GVE AND OSSO.

2. CARE IS TO BE EXERCISED DURING CONSTRUCTION ACTIVITIES NEAR OVERHEAD HYDRO WIRES.

3. EXISTING ELEVATIONS ARE APPROXIMATE. CONTRACTOR MUST VERIFY ALL ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

4. SOIL CONDITIONS ARE ACCURATE FOR THE LOCATIONS SHOWN. CONTRACTOR MUST CONTACT THE DESIGN ENGINEER OR REGULATORY AUTHORITY SHOULD SOIL CONDITIONS DIFFER.

5. ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED ON SITE, FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE.

6. UTILITY LOCATES SHALL BE COMPLETED PRIOR TO ANY EXCAVATION.

7. THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

8. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GVE GROUP. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.

9. EXISTING LOT SERVICED WITH MUNICIPAL WATER.

METRIC:

DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METERS AND MAY BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND:

⬭	PROPOSED ELEVATION
×	EXISTING ELEVATION
———	EXISTING WORKS
———	PROPOSED SEWAGE WORKS
——o——o——	FENCE LINE
——·——	PROPERTY LINE
TBM	TEMPORARY BENCH MARK (DESCRIPTION: TOP OF EAST ARM OF HYDRANT)
▣	TEST PIT LOCATION

SEPARATION DISTANCES:

1. MINIMUM CLEARANCE FROM SEPTIC PIPE TO:
LOT LINE = 5.0m
HOUSE = 7.0m
DRILLED WELL = 17.0m

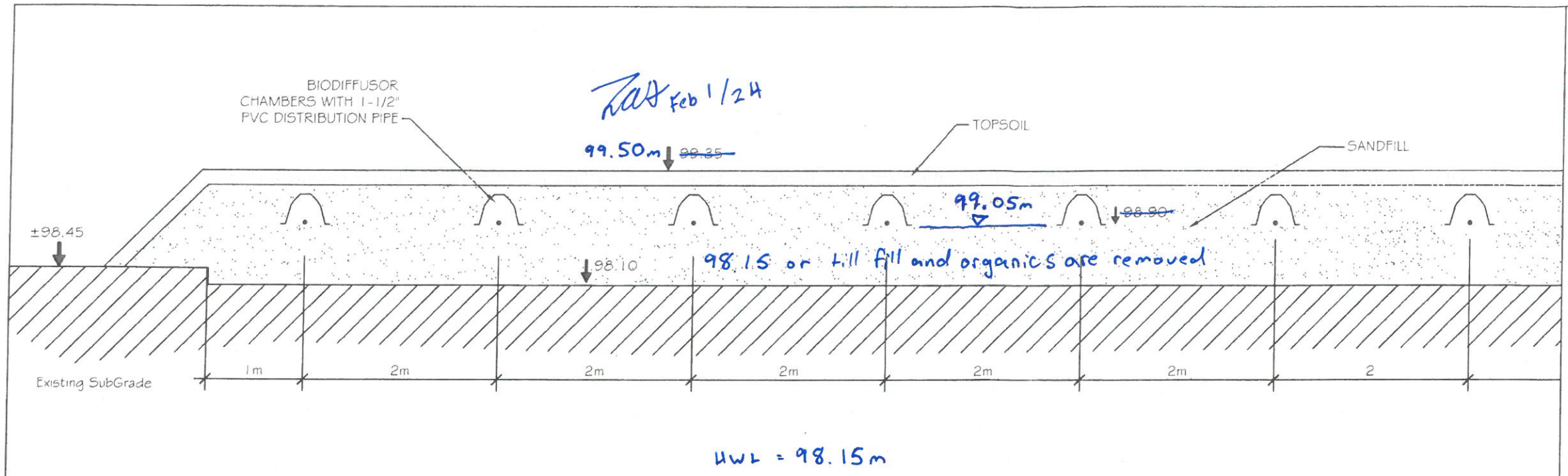
2. MINIMUM CLEARANCE FROM TREATMENT UNITS TO:
LOT LINE = 3.0m
HOUSE = 1.5m
DRILLED WELL = 15.0m

Drawn by: DP	Drawn by: DP	Checked by: WS	
Rev.	Description	Date	Approved

Township	Plan#	Lot	Sublot	Con	
					Dwg. No. SP6951-22-PRB
County:	Civic Address: 4835 BANK ST.				Date: 12/01/24 Scale: 1:200

GREEN VALLEY ENVIRONMENTAL

On Site Sewage Treatment Plan for the Residence of
THE HINDU TEMPLE OF OTTAWA CARLETON



1. THIS CROSS SECTION IS NOT TO SCALE, ALL FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE
2. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GREEN VALLEY ENVIRONMENTAL INC. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.

PRETREATMENT TANK

- INSTALL MIN. 3215L PRETREATMENT TANK.
- A MAXIMUM OF 300mm OF SOIL SHALL COVER THE PRETREATMENT TANK.
- RISERS AND LIDS SHALL BE INSTALLED FOR EASE OF ACCESS

NORWECO TREATMENT UNIT

- THE TREATMENT UNIT SHALL CONSIST OF A NORWECO HYDRO-KENETIC 4730L-3M TREATMENT UNIT.
- THE TREATMENT UNIT SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE PRETREATMENT TANK.
- THE TREATMENT UNIT SHALL PRODUCE A TERTIARY TREATMENT EFFLUENT QUALITY IN ACCORDANCE WITH COLUMN 2 AND 3 OPPOSITE A LEVEL IV TREATMENT UNIT OF TABLE 8.6.2.2. OF THE ONTARIO BUILDING CODE.
- THE TREATMENT UNIT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS BY A CERTIFIED INSTALLER.
- THE OWNER OF THE TREATMENT UNIT MUST ENTER INTO A MAINTENANCE AGREEMENT WITH THE MANUFACTURER'S REPRESENTATIVE.
- THE TREATMENT UNIT SHALL BE BACKFILLED AND COMPACTED, IN LIFTS, WITH SELECT GRANULAR FILL, SUCH AS SAND OR CLEAR STONE
- THE TOP OF THE TREATMENT UNIT SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

NORWECO FILTER VAULT(S)

- FILTER VAULT(S) SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
- FILTER VAULT(S) SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE TREATMENT UNIT
- FILTER VAULT(S) SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

PUMP & PUMP CHAMBER

- INSTALL 800 GAL PUMP CHAMBER WITH 0.5hp LIBERTY 280 EFFLUENT PUMP, TIMER DOSED @ 15 sec./5 mins

INDEXING VALVE

- K-RAIN MULTIZONE VALVE MODEL 6606 CAMMED FOR 6 ZONE OPERATION TO BE INSULATED AND PROTECTED WITH RISER AND LID.
- EACH ZONE WILL SERVE 2 RUNS OF 13.08m EACH.

SHALLOW BURIED TRENCH BED

- THE DISPERSAL BED SHALL CONSIST OF A TOTAL LENGTH EQUAL TO Q/30 = 4000/30 = 133.3
- TOTAL LENGTH USED = 156.9m
- 12 RUNS OF 13.08m EACH.
- SAND FILL SHALL EXTEND 1.0m ON ALL SIDES.
- REMOVE LAYER OF TOP SOIL TO APPROXIMATE FOOT PRINT OF SEPTIC BED AND SIDE SLOPES
- THE PRESSURIZED DISTRIBUTION SYSTEM SHALL HAVE A PRESSURE HEAD OF NOT LESS THAN 600mm WHEN MEASURED AT THE MOST DISTANT POINT FROM THE PUMP.
- DISPERSAL BED SHALL BE BACKFILLED SO AS TO ENSURE THAT THE SURFACE WILL NOT FORM ANY DEPRESSIONS
- ALL SIDE SLOPES SHALL BE AT 1:4
- AT NO POINT DURING OR AFTER CONSTRUCTION SHALL A WHEELED VEHICLE DRIVE OVER THE SEPTIC BED AREA.
- EACH RUN SHALL CONSIST OF ONLY FULL CHAMBERS.
- SEPTIC DESIGN BASED ON ADS BIO3 CHAMBERS.
- EACH RUN SHALL CONSIST OF 6 FULL ADS BIO3 CHAMBERS WITH A TOTAL OF 72 FULL BIO3 CHAMBERS FOR THE ENTIRE SEPTIC BED.

MINIMUM CLEARANCE DISTANCE FROM LEACHING BED

- 6.0m FROM ANY PROPERTY LINE
- 8.0m FROM ANY STRUCTURE
- 18.0m FROM ANY DRILLED WELL

MINIMUM CLEARANCE DISTANCE FROM TANKS

- 3.0m FROM ANY PROPERTY LINE
- 1.5m FROM ANY STRUCTURE
- 15.0m FROM ANY DRILLED WELL

GENERAL

- THE BACKWASH WATERS FROM ANY HOUSEHOLD TREATMENT SUCH AS WATER SOFTENER SHALL NOT DISCHARGE INTO THE SEWAGE SYSTEM
- CONTRACTOR SHALL BE QUALIFIED AND REGISTERED UNDER PART 8 OF THE ONTARIO BUILDING CODE.
- CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL DOCUMENTATION TO DETERMINE SUITABLE METHODS OF CONSTRUCTION.
- INSPECTION BY THE REGULATING AUTHORITIES IS A REQUIREMENT BY SOME REGULATING AUTHORITIES AND IS STRONGLY RECOMMENDED BY GREEN VALLEY ENVIRONMENTAL INC.
- IT IS RECOMMENDED THAT ALL TREES WITHIN 5m OF THE BED AREA BE REMOVED TO PREVENT ROOTS FROM INFILTRATING THE SYSTEM.
- ALL TANKS TO BE FILLED WITH WATER AFTER INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UNDERGROUND SERVICES.
- SHOULD THE CONTRACTOR AT ANY TIME DURING CONSTRUCTION ENCOUNTER CONDITIONS THAT DIFFER FROM THE DESIGN CRITERIA IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE DESIGNER AND THE REGULATING AUTHORITY.
- GREEN VALLEY ENVIRONMENTAL INC. HAS PROVIDED DESIGNS BASED ON OUR INTERPRETATION OF THE ONTARIO BUILDING CODE AND THE TEST HOLES DUG ON THE PROPERTY.

Drawn by: DP	Drawn by: DP	Checked by: WS	
Rev.	Description	Date	Approved

Township	Plan#	Lot	Sublot	Con	
					Drwg. No: 156987-24
County:	Civic Address: 4835 BANK ST.				Date: 19/01/24 Scale: NTS

GREEN VALLEY ENVIRONMENTAL

On-Site Sewage Treatment Plan for the Residence of:

THE HINDU TEMPLE OF OTTAWA CARLETON

Rideau Valley Conservation Authority

Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 24-016
Revision No
Date
Related Application

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13.*

Inspected & Recommended by: Ryan Hiemstra
Owner: Hindu Temple of Ottawa Carleton
Inspection Date & Time:
Weather:
Civic Address: 4835 Bank Street
Legal: Lot 22, Con 5RF, R.Plan 5R3156
In the former Township/City of Gloucester

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 500 x 8 L/day (assembly hall) = 4000 L/day

pretreatment tank _____ L
effluent filter YES
pump rate Timer dosed L/15 MIN
treatment unit Norweco HK 4730-3M
number of units 1

weigh bills for	❒ yes	■ no
grain size analysis required	❒ yes	■ no
site to be scarified	■ yes	❒ no
clay seal inspection	❒ yes	■ no
mantle required	❒ yes	■ no
sub-grade inspection	■ yes	❒ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

❒ **Trench**
○ **Pipe and Stone or** ○ **Chambers**
type of chamber
loading area ____ m^2
total trench length ____ m
trench configuration

❒ **Dispersal Bed**
○ BMEC ○ Type A ○ Type B
stone ____ m^2
sand ____ m^2
pipe
weight of sand ____ kg

■ **Shallow Buried Trench**
pipe length 156.96 (12@13.08) m
orifice spacing 0.6 m

❒ **Filter Media Bed**
stone ____ m^2
extended base ____ m^2
pipe
weight of filter media ____ kg
loading area ____ m^2

❒ **Class 5 Holding Tank**

❒ **Septic Tank Only**

Manager, Septic System Approvals: Terry Davidson Permit Date: JUNE 17, 2024

Comments: 1. There shell be no preparation of food or service of food within the assebly building
2. RVCA to inspect subgrade before the placement of sandfill

■ maintenance/pumping required ❒ ESA permit # required ■ engineer to verify ■ subgrade ■ squirt height
❒ Class 5 Holding Tank approval only valid for three years from date of issue

Manager, Septic System Approvals: ____ Revision Date: ____

Comments: ____

NOTE: For further details, refer to corresponding application.

Green Valley Environmental Inc.

LETTER OF AUTHORIZATION

Owner: Hindu Temple of Ottawa Carleton (attention: Harish Gupta)

Address: 4835 Bank Street

Ottawa, Ontario

Phone No.: 613-737-5939 **Cell No.:** 613-866-2984

Work No.: **Fax No.:**

LOCATION OF PROPERTY:

Lot No.: 22

Concession No.: 5RF

Sub lot/Part No.:

R. Plan No.: 5R3156

Civic Address: 4835 Bank Street

Municipality: Gloucester

Roll No.:

R.V.C.A. RECEIVED
JUN - 4 2024

Commercial: **(provide description of building and intended use)**

Place of Worship (Existing Building)
4 Apartments (2 person per apartment)

I, the above – mentioned authorize Green Valley Environmental Services to act as my agent to apply for and obtain a sewage system permit from the responsible Approval Agency.

Signature: Jessica Arthurs Date: January 11, 2024

6107 First Line Rd. • P.O. Box 882 Manotick, Ontario, K4M 1A7 • Phone: (613) 692-2616 • Fax: (613) 692-1802

www.gvegroup.ca

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority

Application number:	Permit number (if different):
Date received:	Roll number:

R.V.C.A. RECEIVED JUN - 4 2021

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name	Unit number	Lot/con.
4835 Bank St.		22/5RF

Municipality	Postal code	Plan number/other description
Gloucester	K1X 1G6	5R3156
Project value est. $		Area of work (m²)

B. Purpose of application

New construction | Addition to an existing building | Alteration/repair | Demolition | Conditional Permit

Proposed use of building	Current use of building
Commercial worship building	Commercial Worship building

Description of proposed work
Install a new septic system for existing temple/ worship building. Revision to Permit 21-343

C. Applicant

Applicant is: Owner or ✓Authorized agent of owner

Last name	First name	Corporation or partnership
Patel	Dansi	Green Valley Environmental Inc.

Street address	Unit number	Lot/con.
6107 First Line Rd.		

Municipality	Postal code	Province	E-mail
North Gower	K4M 1A7	ON	engineering@gvegroup.ca
Telephone number	Fax		Cell number
(613) 692-2616	(613) 642-1802		( )

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership
Gupta	Harish	The Hindu Temple

Street address	Unit number	Lot/con.
4835 Bank St.		22/5RF

Municipality	Postal code	Province	E-mail
Gloucester	K1X 1G6	ON	
Telephone number	Fax		Cell number
(613) 737-5939	( )		(613) 866-2984

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E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	bot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No ✓
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No ✓

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes ✓	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes ✓	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992*.	Yes ✓	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes ✓	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes ✓	No

I. Declaration of applicant

I Davis Patel declare that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date May 27, 2024 Signature of applicant Davis

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name: 4835 Bank St.		Unit no.	Lot/con.: 22/5RF
Municipality: Gloucester	Postal code: K1X 1G6	Plan number/ other description: 5R3156	

B. Individual who reviews and takes responsibility for design activities

Name: Davis Patel		Firm: Green Valley Environmental	
Street address: 6107 First Line Rd.		Unit no.	Lot/con.
Municipality: North Gower	Postal code: K4M 1A7 / Province: ON	E-mail: engineering@greenvalley.ca	
Telephone number: (613) 692-2616	Fax number: (613) 692-1802	Cell number: ( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	✓ On-site Sewage Systems

Description of designer's work: Design a new septic system to suit existing commercial building. Revision to permit 21-343

D. Declaration of Designer

I Davis Patel declare that (choose one as appropriate):
(print name)

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 119685

Firm BCIN: 16035

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date: May 27, 2024 Signature of Designer: Davis

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1)(c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information

Building number, street name		Unit number	Lot/con.
4835 Bank St.			22/5RF
Municipality	**Postal code**	**Plan number/ other description**	
Gloucester	K1X 1G6	5R3156	

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

✓ Yes (Continue to Section C) No (Continue to Section E) Installer unknown at time of application (Continue to Section E)

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C. Registered installer information (where answer to B is "Yes")

Name		BCIN	
Green Valley Environmental		11234	
Street address		**Unit number**	**Lot/con.**
6107 First Line Rd.			
Municipality	**Postal code / Province**	**E-mail**	
North Gower	K4M 1A7 ON		
Telephone number	**Fax**	**Cell number**	
(613) 692-2616	(613) 692-1802	(613) 229-3900	

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	Building Code Identification Number (BCIN)
Bill Seabrook	11234

E. Declaration of Applicant:

I Davis Patel (print name) declare that:

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date May 27, 2024 Signature of applicant

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

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Permit # _____
Revision # _____
Date _____

Schedule 4
Proposed Services
Complete Sections 1 thru 7

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1. **Engineered**
   - ☐ Yes
   - ☑ No

2. **Water supply**
   - ☐ Proposed
   - ☑ Existing

3. **Type of work proposed**
   - ☑ New Installation
   - ☐ Replacement
   - ☐ Alteration

4. **Type of Well**
   - ☐ Dug/bored/Sandpoint well
   - ☐ Drilled well
   - ☑ Municipal
   - ☐ Other (Assembly Hall)

5. **Residential** Sewage Design Flow Info.
   Bedrooms _____
   House (floor area) _____ **m²**
   People _____
   Total Fixture Units _____ **(Schedule 8)**
   Residential Flow _____ **L/day**

6. Sewage Design Flow **Other Occupancies**
   Design Flow 4200 L/day
   Detailed sewage flow calculations:
   Worship building → 250 people x8 = 2000 L/day
   4 Single Residential Apartments → 8 people x275 = 2200 L/day
   Total Flow → 4200 L/day.

7. **Type of System**
   - ☑ Treatment Unit Norweco 5670HK-3M
   - ☐ Class 2 – Leaching Pit
   - ☐ Class 3 – Cesspool
   - ☑ Class 4 – Shallow Buried Trench
     5 Runs, 28.34m Each.
   - ☐ Class 4 – Trench **(Schedule 9)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – Filter Media **(Schedule 10)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – BMEC Area Bed **(Schedule 11)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type A" Dispersal **(Schedule 13)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type B" Dispersal **(Schedule 14)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 5 – Holding Tank (9000L min)
   - ☐ Tank/TreatmentUnit/PumpChamber ONLY
   - ☐ Effluent Filter/Risers ONLY

Green Valley Environmental

23-May-24

The Hindu Temple 4835 Bank St., Ottawa (Existing Building)			
North Side Septic Tank (North half of bldg: Ground Floor Toilets & Basement fixtures)			
250 People(no Kitchen)	8L/d	Per seat	2000 L/day
Sub-total			2000 L/day
South Side Septic Tank (South half of bldg: 4 Apartments & Basement fixtures)			
4 Apartments (8 people)	275L/d	Per Person	2200 L/day
Sub-total			2200 L/day
Total			4200 L/day

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Revision No
Date

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Schedule 5
Sewage System Details

Type of System Class 4 Shallow Buried Trench Bed (Schedule 4)
Septic/~~Holding~~ Tank Size: 9000 Litres x 2 Make: ? Existing septic tank
Septic Tank Effluent Filter Make: POLYLOK Model: PL250

Treatment Unit – Make & Model Norweco HK 5670 (Tertiary Treatment System)
Number of Units: 1 Other:
Refer to Typical Drawing # PC-5-1176 Pump(s) required Liberty 280, 0.5hp → T
Liberty 280, 0.5hp → F
Mantle Information: Pump Rate L/15min
Native or imported =15m in N/A direction(s) **Note:** Alarm required for all pumping systems

T: Timer dosed
F: Float operated

Slope subgrade 1:4 % slope
direction(s)

Site to be Scarified (If clay) YES (NO)
Clay Seal Required (If bedrock) YES (NO)

☐ **Trench**
- Distribution Pipe Length ____ m
- Loading Area ____ m²
- Type of Chamber ____
- Length of Chamber ____ m

☐ **Dispersal Bed**

☐ **BMEC** ☐ **Type A** ☐ **Type B**
- Stone ____ m²
- Sand ____ m²
- Pipe ____ m²
- Linear Loading ____ L/m²

☑ **Shallow Buried Trench**
- Pipe Length 141.7 m (5 x 28.34m)

☐ **Filter Media Bed**
- Stone ____ m²
- Extended Base ____ m²
- Pipe ____ m
- Weight of Filter Media ____ Kg
- Loading Area ____ m

☐ **Tank/Treatment Unit/Pump Chamber Replacement** ONLY
☐ **Effluent Filter & Riser** ONLY

Construction Notes: Trees within 5m of the septic system to be removed. Any contaminated material present during the excavation to be removed.

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Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Name of Applicant/Agent: Davis Patel
Date: 30 May, 2024 Time: 10:05 AM
Applicant/Agent Signature:

Inspector: Ryan Hiemstra
Date: June 4/24 Time: 11:45 am
Inspector Signature:

Test Pit 1

99.85

EG (……..)	Soil Description	T
0.15m	Topsoil	
.5m		
1.0 m	Clay / glacial till	>50
1.5m	Dry	
2.0 m		

Test Pit 2

99.65

EG (……..)	Soil Description	T
.5m	Top Soil 0 - 0.1 m fine sand 0.1 - 0.3 m till	
1.0 m	gravel & till 0.3 - 1.3	
1.5m		
2.0 m		

Test Pit 3

EG (……..)	Soil Description	T
.5m		
1.0 m		
1.5m		
2.0 m		

Test Pit 4

EG (……..)	Soil Description	T
.5m		
1.0 m		
1.5m		
2.0 m		

LEGEND
BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

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Scale: 1Block = NTS

Schedule 7
Layout Section

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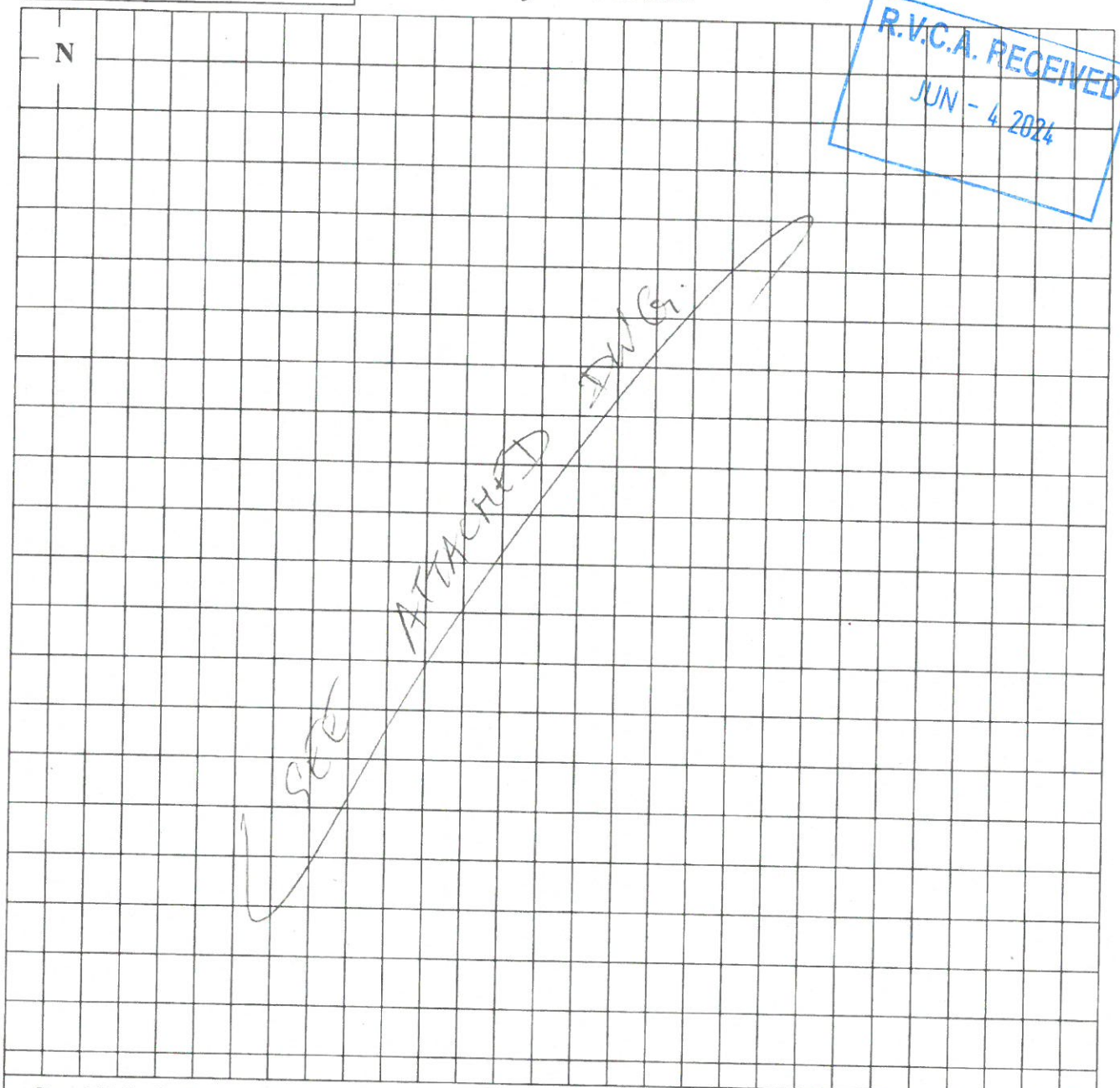

○Dug Well ●Drilled Well ▲Neighbouring Homes ◊Benchmark ---Tile Drainage —Property Line

Elevations (metric only)
B.M. 100.17 m
B.M.Description East asm of hydrant located west of southeast entrance
Exact Location to site

Min. of 5 elevations in proposed system area (in X pattern)
X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 _____ X_6 (toe) _____
X_7 _____ X_8 _____
See Attached dwg

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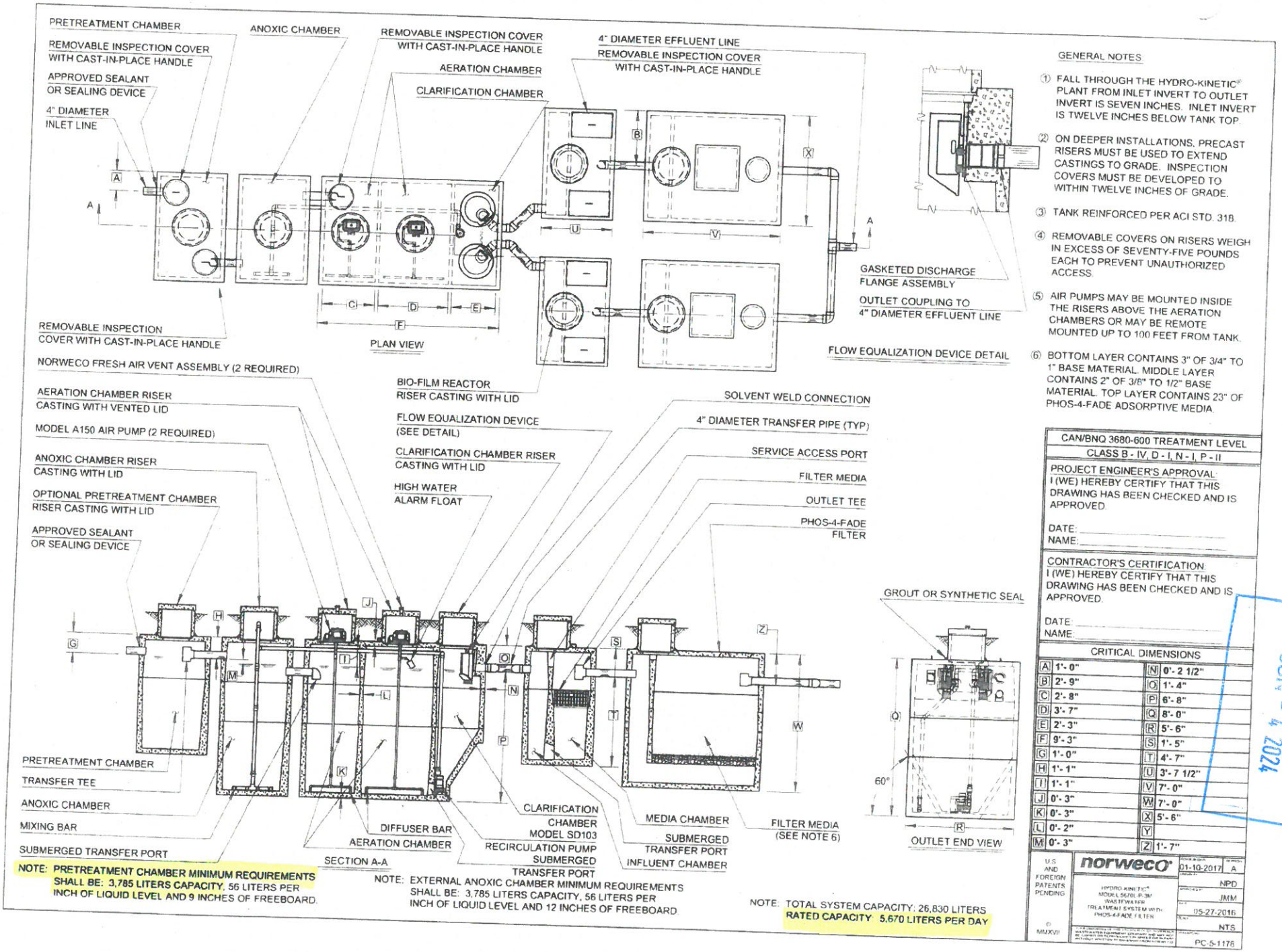
Schedule 8
Fixture unit count

Fixtures	# South	+	# North	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub **or** shower) installed in the **same** room	4	+		X	6	=	
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (SINK) (1½inch trap) / Urinals	3	+	13	X	1.5	=	
Watercloset (TOILET) tank operated	1	+	4	X	4	=	
Bidet		+		X	1	=	
Kitchen							
Dishwasher	0	+	0	X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap	4	+		X	1.5	=	
Other							
Domestic washing machine	1	+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	
	40		35.5			***Total:**	75.5

***Insert the TOTAL in section 5 of Schedule 4** (0.Reg 151/13 Table 7.4.9.3)

1. **Sump pumps and floor drains are not to be connected to the sewage system.** Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Agent/Owner signature | **Date** May 13, 2024



GENERAL NOTES:

① FALL THROUGH THE HYDRO-KINETIC® PLANT FROM INLET INVERT TO OUTLET INVERT IS SEVEN INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.

② ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND CASTINGS TO GRADE. INSPECTION COVERS MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.

③ TANK REINFORCED PER ACI STD. 318.

④ REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.

⑤ AIR PUMPS MAY BE MOUNTED INSIDE THE RISERS ABOVE THE AERATION CHAMBERS OR MAY BE REMOTE MOUNTED UP TO 100 FEET FROM TANK.

⑥ BOTTOM LAYER CONTAINS 3" OF 3/4" TO 1" BASE MATERIAL. MIDDLE LAYER CONTAINS 2" OF 3/8" TO 1/2" BASE MATERIAL. TOP LAYER CONTAINS 23" OF PHOS-4-FADE ADSORPTIVE MEDIA.

CAN/BNQ 3680-600 TREATMENT LEVEL
CLASS B - IV, D - I, N - I, P - II

PROJECT ENGINEER'S APPROVAL:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.

DATE: _____
NAME: _____

CONTRACTOR'S CERTIFICATION:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.

DATE: _____
NAME: _____

CRITICAL DIMENSIONS

A	1'- 0"	N	0'- 2 1/2"
B	2'- 9"	O	1'- 4"
C	2'- 8"	P	6'- 8"
D	3'- 7"	Q	8'- 0"
E	2'- 3"	R	5'- 6"
F	9'- 3"	S	1'- 5"
G	1'- 0"	T	4'- 7"
H	1'- 1"	U	3'- 7 1/2"
I	1'- 1"	V	7'- 0"
J	0'- 3"	W	7'- 0"
K	0'- 3"	X	5'- 6"
L	0'- 2"	Y	
M	0'- 3"	Z	1'- 7"

U.S. AND FOREIGN PATENTS PENDING

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norweco®

HYDRO-KINETIC® MODEL 5670 P-3V WASTEWATER TREATMENT SYSTEM WITH PHOS-4-FADE FILTER

DATE	01-10-2017
REVISION	A
DRAWN BY	NPD
CHECKED BY	JMM
DATE	05-27-2016
SCALE	NTS
DRAWING NO.	PC-5-1176

THE DESIGNS OF THE HYDRO-KINETIC® WASTEWATER EQUIPMENT DEPICTED ARE THE EXCLUSIVE PROPERTY OF NORWECO, INC. AND MAY NOT BE COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM NORWECO, INC.

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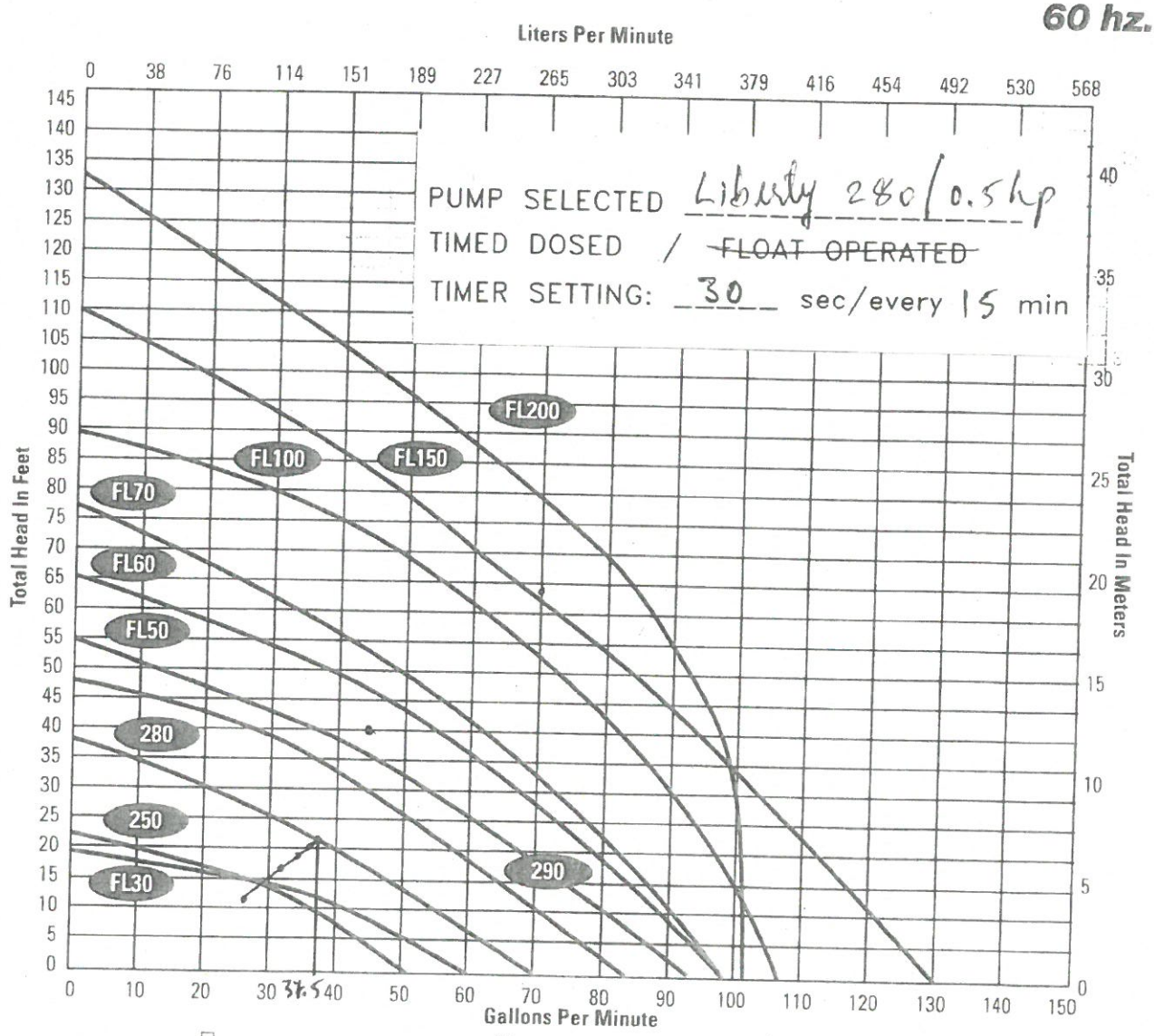
Liberty Pumps®

Effluent Pumps

Performance Curve Data

60 hz.



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GREEN VALLEY ENVIRONMENTAL SERVICES

Existing Worship Building

4835 Bank St.
May 15, 2024

		In/Output						
input	Length of a Lateral (m):	28.34	28.34	28.34	28.34	28.34	28.34	28.34
input	Number of Laterals:	1.00	1.00	1.00	1.00	1.00	1.00	1.00
input	Input spacing of orifices(m):	0.60	0.60	0.60	0.60	0.60	0.60	0.60
→	Number of orifices(calculated):	46.23	46.23	46.23	46.23	46.23	46.23	46.23
input	chosen number of orifices:	46.00	46.00	46.00	46.00	46.00	46.00	46.00
output	space of orifice to edge (m)	0.67	0.67	0.67	0.67	0.67	0.67	0.67
output	total number of orifices:	46.00	46.00	46.00	46.00	46.00	46.00	46.00

diameter of orifice(inch):	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Squirt height (feet):	2.00	5.00	6.00	7.00	8.00	9.00	20.00
Discharge of orifice (US gal/orifice x min)	0.24	0.39	0.42	0.46	0.49	0.52	0.77
Flow in a lateral (US gal/min x lateral)	11.22	17.74	19.43	20.99	22.44	23.80	35.48
Total discharge (US gal/min)	11.22	17.74	19.43	20.99	22.44	23.80	35.48
Total discharge (L/min)	42.47	67.15	73.56	79.46	84.94	90.10	134.31
Total discharge (Imp. gal/min)	9.34	14.77	16.18	17.48	18.69	19.82	29.54

Total Dynamic Head (ft)

		(metric)	(Imperial)						
input	Length of force main(m)	27.00	88.58	88.58	88.58	88.58	88.58	88.58	88.58
input	Diameter of force main (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of manifold (m)	8.00	26.20	26.20	26.20	26.20	26.20	26.20	26.20
input	Diameter of manifold (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of lateral (m)	28.34	92.98	92.98	92.98	92.98	92.98	92.98	92.98
input	Diameter of lateral (in)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
output	Friction loss in forcemain (m/ft)	0.32	1.07	2.49	2.94	3.40	3.84	4.28	8.97
output	Friction loss in manifold (m/ft)	0.03	0.11	0.25	0.29	0.33	0.38	0.42	0.88
output	Friction loss in lateral (m/ft)	0.11	0.37	0.87	1.03	1.19	1.34	1.50	3.14
estimated	Fittings' loss (estimated) (m/ft)	3.05	10.00	10.00	10.00	10.00	10.00	10.00	10.00
input	Residual head on orifice (ft)	0.61	2.00	5.00	6.00	7.00	8.00	9.00	20.00
input	Elevation difference(assumed, from low water level in pump tank to manifold) (m)	4.00	13.12	13.12	13.12	13.12	13.12	13.12	13.12
output	TDH (estimated) (m/ft)	8.13	26.67	31.73	33.39	35.04	36.69	38.33	56.11
	Q (gpm)		11.22	17.74	19.43	20.99	22.44	23.80	35.48

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6107 First Line Road, Manotick, Ontario, K4M 1A7
Box 882, Tel. (613) 692-2616, Fax: (613) 693-1802

HARISH GUPTA

1066 PLANTE DRIVE, OTTAWA, ONTARIO K1V-9E6 TEL: 613.737.5939
e-mail: harishgee40@yahoo.com

May 13, 2024

Rideau Valley Conservation Authority
3889 Rideau Valley Drive
Ottawa ON
K4M 1A5

Attn: Mr. Terry Davidson

Re: Hindu Temple, 4835 Bank Street Ottawa ONT

This relates to septic permits (expired and to be renewed) for the existing and proposed development.

This will confirm as follows:

- Total occupants in existing building- 250 individuals.
- There will not be any cooking, existing warm up kitchen and related items will be removed.

Attached is an updated plan to reflect noted revisions.

Trusting this is the information you required in order to re-new the expired permits.

Harish Gupta B. Arch

Project Manager

EXISTING HINDU TEMPLE

PRADAKSHINA WALKWAY

EXISTING SEPTIC TANK TO BE UTILIZED AS PRE-TREATMENT TANK, IF IN ACCEPTABLE CONDITION AND MIN 4500L OPERATING CAPACITY, ELSE TO BE REPLACED.

INSTALL 600 GAL PUMP CHAMBER WITH 0.5 hp LIBERTY 280 EFFLUENT PUMP, FLOAT OPERATED.

DISTANCE FROM PROPERTY LINE TO THE SEPTIC BED.

28.1

10

10

15.9

100.00

TP #01
TOE 99.85

35.3

28.3

15.2

INSTALL 600 GAL PUMP CHAMBER WITH 0.5 hp LIBERTY 280 EFFLUENT PUMP, TIMER DOSED @ 30 SECS./15 MINS.

29.2

DISTANCE FROM PROPERTY LINE TO THE TREATMENT UNIT.

NOTE: ANY CONTAMINATED MATERIAL PRESENT IN THE EXCAVATION AREA TO BE REMOVED AND REPLACED WITH SANDFILL.

NOTE: TREES WITHIN 5m OF THE SEPTIC SYSTEM TO BE REMOVED.

PRESSURIZED SHALLOW BURIED TRENCH BED WITH 5 RUNS OF 28.34m AT 2.0m O/C

14.4

15

FORCEMAIN, POLYETHYLENE PIPE, 1.5" Ø, BURIED 1.5m DEEP, OR SELF DRAINING, OR INSULATED.

INSTALL NORWECO HK 5670L-3M TREATMENT UNIT. SYSTEM COMPONENTS TO MEET MINIMUM REQUIREMENTS AS PER ATTACHED SCHEMATIC.

GAS OUTLET

K-RAIN MULTIZONE VALVE MODEL 4605 CAMMED FOR 5 ZONE OPERATION TO BE PROTECTED WITH RISER AND LID.

42.6

DISTANCE FROM PROPERTY LINE TO THE SEPTIC BED.

OVERHEAD WIRES

TBM
ELEV = 100.17

TOP OF THE EAST ARM OF HYDRANT

CERTIFIED ENGINEERING TECHNOLOGIST
OACETT
ONTARIO
DAVIS PATEL
Nº 920696

June 11/24

NOTES:

1. ALL TREATMENT UNITS AND LEACHING BED ARE TO BE INSTALLED IN ACCORDANCE WITH MINIMUM OBC CLEARANCE DISTANCES. ANY OMISSIONS OR INACCURACIES SHALL BE BROUGHT TO THE ATTENTION OF GVE AND OSSO.

2. CARE IS TO BE EXERCISED DURING CONSTRUCTION ACTIVITIES NEAR OVERHEAD HYDRO WIRES.

3. EXISTING ELEVATIONS ARE APPROXIMATE. CONTRACTOR MUST VERIFY ALL ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

4. SOIL CONDITIONS ARE ACCURATE FOR THE LOCATIONS SHOWN. CONTRACTOR MUST CONTACT THE DESIGN ENGINEER OR REGULATORY AUTHORITY SHOULD SOIL CONDITIONS DIFFER.

5. ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED ON SITE, FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE.

6. UTILITY LOCATES SHALL BE COMPLETED PRIOR TO ANY EXCAVATION.

7. THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

8. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GVE GROUP. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.

9. EXISTING LOT SERVICED WITH MUNICIPAL WATER.

METRIC:

DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METERS AND MAY BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND:

- PROPOSED ELEVATION
- EXISTING ELEVATION
- EXISTING WORKS
- PROPOSED SEWAGE WORKS
- FENCE LINE
- PROPERTY LINE
- TBM — TEMPORARY BENCH MARK (DESCRIPTION: TOP OF EAST ARM OF HYDRANT)
- TEST PIT LOCATION

SEPARATION DISTANCES:

1. MINIMUM CLEARANCE FROM SEPTIC PIPE TO:
   LOT LINE = 4.2m
   HOUSE = 16.2m
   DRILLED WELL = 16.2m

2. MINIMUM CLEARANCE FROM TREATMENT UNITS TO:
   LOT LINE = 3.0m
   HOUSE = 1.5m
   DRILLED WELL = 15.0m

R.V.C.A. RECEIVED
JUN - 4 2024

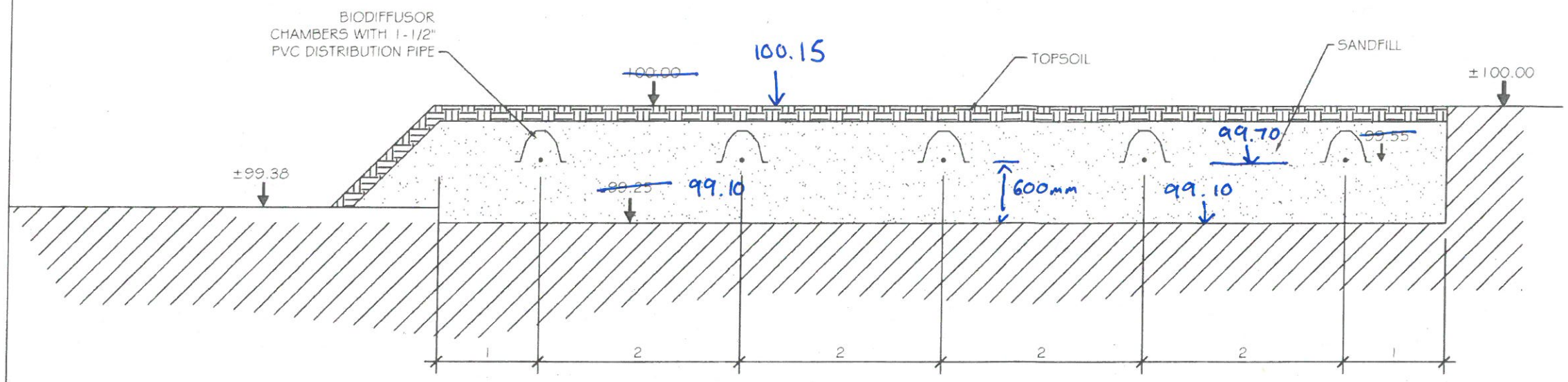
Drawn by: DP	Drawn by: DP	Checked by: WS	
Rev.	Description	Date	Approved

Township	Plan#	Lot	Sublot	Con	
					Drwg. No: SPG951-24-MAY

County	Civic Address: 4835 BANK ST.	Date: 04/06/24	Scale: 1:300

GREEN VALLEY ENVIRONMENTAL

On Site Sewage Treatment Plan for the Residence of:
THE HINDU TEMPLE OF OTTAWA CARLETON



TYPICAL SEPTIC BED PROFILE
N.T.S.

1. THIS CROSS SECTION IS NOT TO SCALE, ALL FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE
2. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GREEN VALLEY ENVIRONMENTAL INC. THIS DRAWING SHALL NOT BE ALTERED IN any MANNER.

PRETREATMENT TANK

- INSTALL MIN. 4500L PRETREATMENT TANK.
- A MAXIMUM OF 300mm OF SOIL SHALL COVER THE PRETREATMENT TANK.
- RISERS AND LIDS SHALL BE INSTALLED FOR EASE OF ACCESS

NORWECO TREATMENT UNIT

- THE TREATMENT UNIT SHALL CONSIST OF A NORWECO HYDRO-KENETIC 5670-3M TREATMENT UNIT.
- THE TREATMENT UNIT SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE PRETREATMENT TANK.
- THE TREATMENT UNIT SHALL PRODUCE A TERTIARY TREATMENT EFFLUENT QUALITY IN ACCORDANCE WITH COLUMN 2 AND 3 OPPOSITE A LEVEL IV TREATMENT UNIT OF TABLE 8.6.2.2. OF THE ONTARIO BUILDING CODE.
- THE TREATMENT UNIT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS BY A CERTIFIED INSTALLER.
- THE OWNER OF THE TREATMENT UNIT MUST ENTER INTO A MAINTENANCE AGREEMENT WITH THE MANUFACTURER'S REPRESENTATIVE.
- THE TREATMENT UNIT SHALL BE BACKFILLED AND COMPACTED, IN LIFTS, WITH SELECT GRANULAR FILL, SUCH AS SAND OR CLEAR STONE
- THE TOP OF THE TREATMENT UNIT SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

NORWECO FILTER VAULT(S)

- FILTER VAULT(S) SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
- FILTER VAULT(S) SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE TREATMENT UNIT
- FILTER VAULT(S) SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

PUMP & PUMP CHAMBER

- INSTALL 600GAL PUMP CHAMBER WITH 0.5hp LIBERTY 280 EFFLUENT PUMP, FLOAT OPERATED ON THE NORTH SIDE OF THE BUILDING.
- INSTALL 600GAL PUMP CHAMBER WITH 0.5hp LIBERTY 280 EFFLUENT PUMP, TIME DOSED AT 30SEC./15MIN. ON THE SOUTH SIDE OF THE BUILDING.

SHALLOW BURIED TRENCH BED

- THE DISPERSAL BED SHALL CONSIST OF A TOTAL LENGTH EQUAL TO Q/30 = 4200/30 = 140
- TOTAL LENGTH USED = 141.7m
- SAND FILL SHALL EXTEND 1.0m ON ALL SIDES.
- REMOVE LAYER OF TOP SOIL TO APPROXIMATE FOOT PRINT OF SEPTIC BED AND SIDE SLOPES
- THE PRESSURIZED DISTRIBUTION SYSTEM SHALL HAVE A PRESSURE HEAD OF NOT LESS THAN 600mm WHEN MEASURED AT THE MOST DISTANT POINT FROM THE PUMP.
- DISPERSAL BED SHALL BE BACKFILLED SO AS TO ENSURE THAT THE SURFACE WILL NOT FORM ANY DEPRESSIONS
- ALL SIDE SLOPES SHALL BE AT 1:4
- AT NO POINT DURING OR AFTER CONSTRUCTION SHALL A WHEELED VEHICLE DRIVE OVER THE SEPTIC BED AREA.
- EACH RUN SHALL CONSIST OF ONLY FULL CHAMBERS.
- SEPTIC DESIGN BASED ON ADS BIO3 CHAMBERS.
- EACH RUN SHALL CONSIST OF 13 FULL ADS BIO3 CHAMBERS WITH A TOTAL OF 65 FULL BIO3 CHAMBERS FOR THE ENTIRE SEPTIC BED.

MINIMUM CLEARANCE DISTANCE FROM LEACHING BED

- 4.2m FROM ANY PROPERTY LINE
- 6.2m FROM ANY STRUCTURE
- 16.2m FROM ANY DRILLED WELL

MINIMUM CLEARANCE DISTANCE FROM TANKS

- 3.0m FROM ANY PROPERTY LINE
- 1.5m FROM ANY STRUCTURE
- 15.0m FROM ANY DRILLED WELL

GENERAL

- THE BACKWASH WATERS FROM ANY HOUSEHOLD TREATMENT SUCH AS WATER SOFTENER SHALL NOT DISCHARGE INTO THE SEWAGE SYSTEM
- CONTRACTOR SHALL BE QUALIFIED AND REGISTERED UNDER PART 8 OF THE ONTARIO BUILDING CODE.
- CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL DOCUMENTATION TO DETERMINE SUITABLE METHODS OF CONSTRUCTION.
- INSPECTION BY THE REGULATING AUTHORITIES IS A REQUIREMENT BY SOME REGULATING AUTHORITIES AND IS STRONGLY RECOMMENDED BY GREEN VALLEY ENVIRONMENTAL INC.
- IT IS RECOMMENDED THAT ALL TREES WITHIN 5m OF THE BED AREA BE REMOVED TO PREVENT ROOTS FROM INFILTRATING THE SYSTEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UNDERGROUND SERVICES.
- SHOULD THE CONTRACTOR AT ANY TIME DURING CONSTRUCTION ENCOUNTER CONDITIONS THAT DIFFER FROM THE DESIGN CRITERIA IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE DESIGNER AND THE REGULATING AUTHORITY.
- GREEN VALLEY ENVIRONMENTAL INC. HAS PROVIDED DESIGNS BASED ON OUR INTERPRETATION OF THE ONTARIO BUILDING CODE AND THE TEST HOLES DUG ON THE PROPERTY.

Tait June 11/24

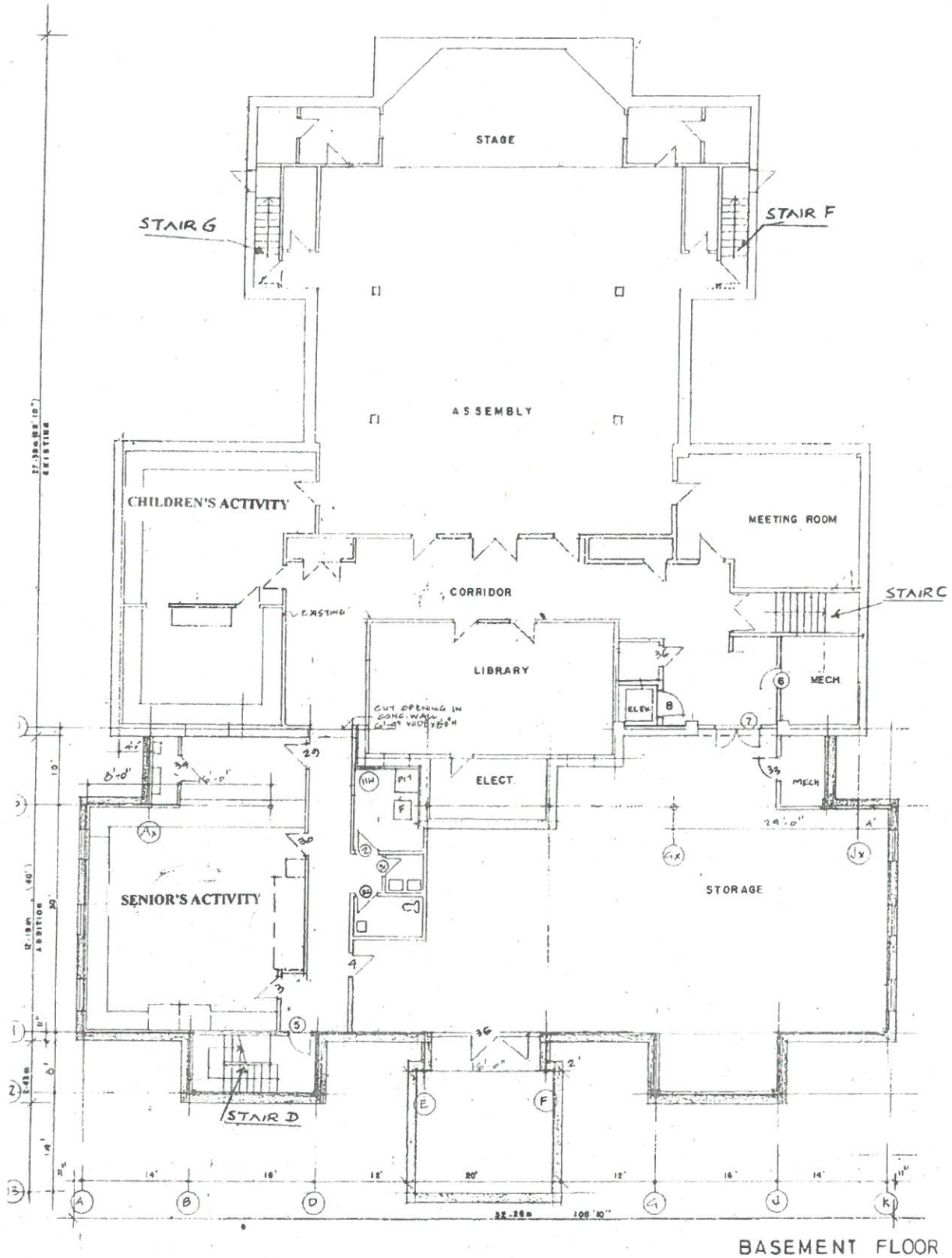
Drawn by: DP	Drawn by: DP	Checked by: WS	
Rev.	Description	Date	Approved

Township	Plan#	Lot	Sublot	Con	
					Drwg. No: IS6951-24
County	Civic Address: 4835 BANK ST.				Date: 04/06/24 Scale: NTS

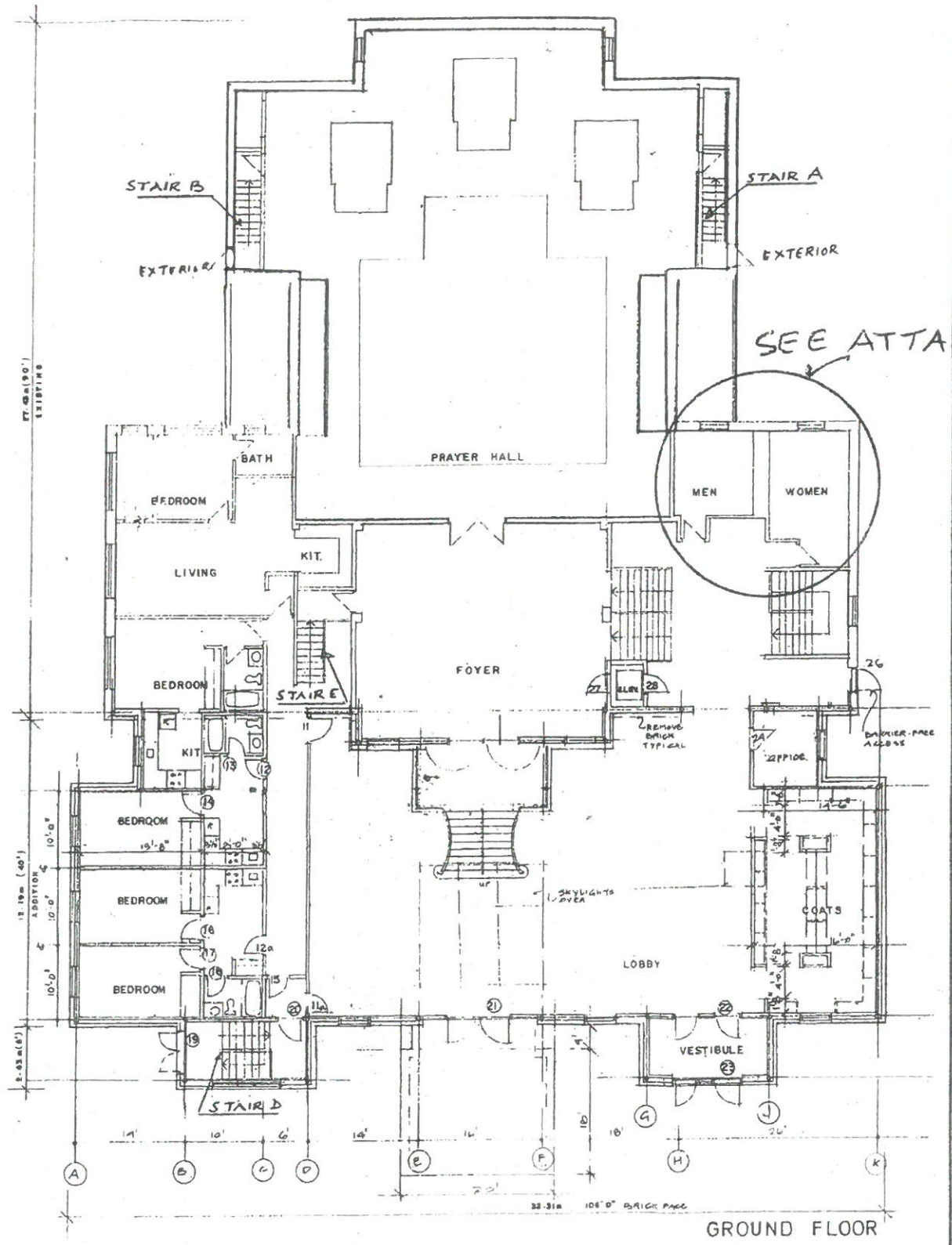
GREEN VALLEY ENVIRONMENTAL

On-Site Sewage Treatment Facility for the Residence of:

THE HINDU TEMPLE OF OTTAWA CARLETON



BASEMENT FLOOR



GROUND FLOOR

HINDU TEMPLE

PRAYER HALL

MEN

WOMEN

FOYER

27

ELEV.

28

REMOVE BRICK TYPICAL

24

OFFICE

14'-6"

4'-0"

1'-2½"

UP

SKYLIGHTS OVER

COATS

16'-0"

1'-8"

4'-0"

1'-8"

LOBBY

21

22

VESTIBULE

Rideau Valley Conservation Authority

Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 24-017
Revision No
Date
Related Application B-24-023

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13.*

Inspected & Recommended by: Ryan Hiemstra
Owner: Hindu Temple of Ottawa Carleton
Inspection Date & Time: June 3,2024 @ 11:45am
Weather: Clear
Civic Address: 4835 Bank Street
Legal: Lot 22, Con 5RF
In the former Township/City of Gloucester

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 4200 L/day

pretreatment tank 2x (4500L min) L
effluent filter YES
pump rate time dosed L/15 MIN
treatment unit Norweco HK6570
number of units 1

weigh bills for	☐ yes	■ no
grain size analysis required	☐ yes	■ no
site to be scarified	■ yes	☐ no
clay seal inspection	☐ yes	■ no
mantle required	☐ yes	■ no
sub-grade inspection	■ yes	☐ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

☐ **Trench**
○ **Pipe and Stone or** ○ **Chambers**
type of chamber
loading area m^2
total trench length m
trench configuration

☐ **Dispersal Bed**
○ BMEC ○ Type A ○ Type B
stone m^2
sand m^2
pipe
weight of sand kg

■ **Shallow Buried Trench**
pipe length 5@28.34 m
orifice spacing 0.67 m

☐ **Filter Media Bed**
stone m^2
extended base m^2
pipe
weight of filter media kg
loading area m^2

☐ **Class 5 Holding Tank**

☐ **Septic Tank Only**

Manager, Septic System Approvals: Jennifer Davidson Permit Date: JUNE 12, 2024

Comments: 1. RVCA to inspect subgrade prior to backfilling sand
2. No food is to be served or prepared outside of the temple apartments

■ maintenance/pumping required ■ ESA permit # required ■ engineer to verify ■ subgrade ■ squirt height

☐ Class 5 Holding Tank approval only valid for three years from date of issue

Manager, Septic System Approvals: Revision Date:

Comments:

NOTE: For further details, refer to corresponding application.

November 20116
Docket: 2K14-1801-OSSO