



Assessment of Adequacy of Public Services Report

400 Coventry Road, Ottawa, ON

Prepared for:

Groupe Oradev Inc.

Attention: Simon Éthier

LRL File No.: 220200

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Groupe Oradev Inc. to prepare a functional serviceability report to review and assess the adequacy of public services to support an Official Plan amendment and Zoning By-law amendment application for the proposed re-development at 400 Coventry Road within the City of Ottawa.

The subject site is within the Rideau-Rockcliffe Ward, located on the south side of Coventry Road, and has an approximate area of **1.99 ha**. Under the City of Ottawa Zoning by-law, the property is currently zoned as GM6 H(34), which supports a wide range of general mixed uses such as commercial uses, hotels and medium to high density residential towers up to a maximum of 30 storeys. The land is currently used as an office building and fenced in storage yard for the business operations of Enbridge Gas distribution, consisting mainly of a building in the North-East corner, large paved area and landscaping. The subject site can be seen below in Figure 1.

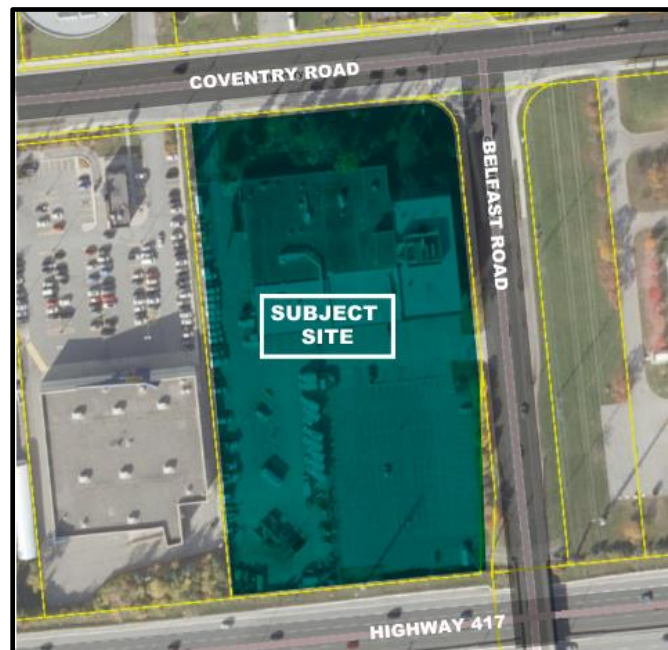


Figure 1: Aerial View of Subject Lands

Groupe Oradev Inc. intends to intensify the subject property by removing the existing structures, surface parking lot, and aggregate storage and replace this with a mixed-use community of (7) high-rise towers with residential and commercial uses, underground parking and a new public park with frontage onto a new east-west public street. The resulting development will divide the subject property into two blocks with the east-west public street separating the northern block from the southern block. The northern block is planned to be developed with a building with two (2) high-rise towers of 25 and 28 storeys connected by a six-storey podium, underground parking and a 1,747 square metre public park in the southwest corner of the block. The southern block will consist of four (4) residential use towers ranging from 21 to 35 storeys in height connected by six-storey podiums, surface and underground parking, outdoor amenity areas, as well as a required Ministry of Transportation (MTO) buffer along the abutting Provincial Highway 417 to the south.

As a result of this proposal, the subject parcel is seeking rezoning to implement an appropriate Transit oriented development zone that considers the proposed development's building envelope as well as an official plan amendment to seek relief from the maximum building heights assigned to this parcel of land. The planning documentation completed by Fotenn Consultants Inc. accompanying this submission further outlines this.

Following the Official Plan Amendment and Zoning By-law amendment application, a detailed design will advance with intentions for full Site Plan Control application submission.

2 PREVIOUS STUDIES FOR DEVELOPMENT

Historically, the City of Ottawa has completed plans and reports in relation to Transit Oriented Development (TOD) which includes the location of the subject land. The high-level analysis reviewed existing infrastructure capacities. This parcel of land falls within the 800m study area of the Tremblay Transit Oriented Development Plan.

Below is a brief summary of the notable conclusions gathered from the *Transit-Oriented Development (TOD) Plans- Lees, Hurdman, Tremblay, St. Laurent, Cyrville and Blair*, and the *LRT Transit Oriented Development Study Areas Servicing Overview Report (2012)* relating to the civil servicing and surrounding infrastructure for the site located at 400 Coventry Road;

- Sanitary:
 - The area north of the Highway discharges to the Rideau River Collector on North River Road just north of the RCMP facility and generally follows the Coventry Road corridor.
 - In a full buildout situation for the Tremblay/Train TOD area, surcharging of the Coventry corridor would exist.
- Water:
 - Recent upgrades completed for the watermain along Coventry (completed in 2014/2015) were noted to be used to service the lands north of the highway for future growth. Additionally, there are several looped pipe systems in this area which are intended to provide redundancy; however, this is to be confirmed during detailed design.
 - The existing and new feeder mains are all fed from a strong reliable source (Hurdman Bridge Pump Station) and are expected to be adequate to provide all peak domestic demands and fire flows to the TOD study areas.
- Storm:
 - The existing trunk storm sewers are of sufficient capacity to convey flows at the TOD build-out level.
 - Stormwater management will occur on the site of proposed development projects to provide 100 year level-of-service by containing storage volume on-site. Current City stormwater management criteria for redevelopment are sufficient and should continue to be implemented.
 - Weeping tile and roof tops will be directed to a storm sewer during redevelopment



- Transportation and ROW Upgrades:
 - The corner of Belfast and Coventry has been identified as a future Key Pedestrian Crossing within the Study. Both Coventry and Belfast have been highlighted to be critical to the planning of a bicycle network as well.
 - As part of the planning of future street network, this site has been identified to benefit from a future public Road, private road or Multi-use pathway intersecting the site in half in the north south direction, with the road running East-West. This is to be considered during planning and design while finalizing the site plan.
 - East of the development falls within the St. Laurent Street Network TOD Plan Area which outlines potential future roadway realignment and widening along Coventry.
- Hydro: Circuit capacity will have to be increased by either upgrading existing lines or adding new lines, especially within the Lees, Hurdman, and Tremblay areas to support the City's vision of ultimate build out. and to a lesser extent, the St. Laurent and Blair areas.

3 EXISTING SITE AND AVAILABLE SERVICES

The site is consisting of an office building, asphalt parking lot and storage yard for the current building operations, as well as a landscaped buffer surrounding the exterior of the parcel.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent Coventry Road right-of-way:

- 1350mmØ CONC Storm Sewer running across Coventry Road
- 300mmØ PVC Sanitary Sewer
- 914mmØ CONC Watermain (Feedermain)
- 300mmØ PVC Watermain

No service mains are located adjacent to the subject property on Belfast Road at this time.

4 CONCEPT DEVELOPMENT

The intention of this serviceability report is to review existing conditions to determine the servicing feasibility of a high density residential development within the subject property. The contemplated development to be utilized for high level assessment purposes includes seven (7) high-rise towers with residential and commercial uses, underground parking and a new public park. The contemplated buildings transition down from 35 storeys at the south portion (bordered by Highway 417) to 25 storeys as the site transitions to the Coventry Road corridor.

Tables 1 and 2 below, provide a breakdown of the unit types and the commercial and amenity areas within buildings A to E.



Table 1 – Residential Unit Breakdown

Building	Unit Types				Total
	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	
A + B + C1 + C2	196	585	312	111	1204
E1 + E2	75	261	201	27	564
Total	271	846	513	164	1768

Table 2 – Commercial/ Amenity Areas

Building	Commercial Space (m ²)	Amenity Space (m ²)
A	0	290
B + C1 + C2	0	1417
E1 + E2	1208	1113
Total	1208	2820

It was determined that a population of approximately 3069 people would be associated with the 1,768 residential units proposed within the development.

Refer to **Appendix A** for an overview of the Site Plan prepared by NEUF Architects and the unit statistics.

5 PROPOSED SERVICES CONNECTION

The proposed development is intended to be serviced with Water, Sanitary, and Storm infrastructure routed throughout the development. These services are intended to connect to the municipal infrastructure within Coventry Rd, with primary connection points positioned along the northern boundary due to the lack of municipal services along Belfast Rd.

Given the potential for future development on the parcel located to the west of the subject site, there have been 2 servicing alignment options investigated at this time to support the ZBLA and OPA application. The following sections and **Appendix H** further details the design options for servicing connections:

5.1 Option 1:

In this configuration, the proposed Storm and Sanitary sewers are routed along the western property boundary, outside the development limits, and extend northward to connect within the Coventry Rd ROW. Given the ultimate build-out scenario of the development, the watermain extension is proposed to form a looped connection originating from Coventry Rd, running south along Belfast Rd, and passing through the development before reconnecting to Coventry Rd, separated by a valve. This design ensures service reliability and allows for potential future connections.

- **Storm Sewer:** A 525mm Storm sewer is proposed to connect to the existing 1350mm municipal Storm sewer within Coventry Rd. The development will be serviced by two (2) 200mm storm laterals—one serving the northern portion and another servicing the southern half of the site.

- **Sanitary Sewer:** A 250mm Sanitary sewer is proposed to connect to the existing 300mm municipal Sanitary sewer via a proposed manhole. Two (2) 200mm sanitary laterals will provide service to the northern and southern portions of the development.
- **Water Main:** The proposed 200mm water main will connect to an existing 914mm feeder main via two (2) connection points within Coventry Rd. Additionally, two (2) 150mm water service laterals are proposed—one to serve the northern portion and another for the southern half of the development.

This option places the services outside the western property boundary to facilitate potential future connections. However, contingency routing is incorporated in Option 2 should adjustments be required.

The proposed services layouts can be found on civil drawing C401-1 found in **Appendix H**.

5.2 Option 2:

This alternative configuration modifies the routing of the Sanitary and Storm sewer systems by positioning them parallel to the western property boundary within the development limits, extending northward to connect within Coventry Rd ROW. In this layout, the storm sewer is placed 1.0m from the building foundation, while the sanitary sewer is positioned 1.5m west of the storm sewer. This approach ensures that all underground service pipes remain within the site boundaries, preventing any disturbances to adjacent properties.

The Water main network follows an alternative distribution pattern by relocating two (2) water main lines along the eastern property boundary within Belfast Rd, maintaining a 0.5m separation between them. Laterals have been provided to independently service the northern and southern portions of the development, each equipped with a dedicated control valve.

- **Storm Sewer:** Similar to Option 1, a 525mm Storm sewer will connect to the existing 1350mm municipal Storm sewer within Coventry Rd. Two (2) 200mm storm service laterals will independently serve the northern and southern sections of the site.
- **Sanitary Sewer:** A 250mm Sanitary sewer will connect to the existing 300mm municipal Sanitary sewer via a newly proposed manhole. Two (2) 200mm sanitary laterals will service both the northern and southern portions of the development.
- **Water Main:** The 200mm water main will connect to an existing 914mm feeder main via three (3) proposed connection points within Coventry Rd and continue south along Belfast Rd to feed the entire development. The 200mm service laterals, each equipped with independent control valves, will provide water distribution to the northern and southern portions of the site.

This option ensures that all major services remain within the property boundaries, minimizing conflicts with adjacent properties while maintaining service flexibility.

The proposed services layouts can be found on civil drawing C401-2 found in **Appendix H**.

6 WATER SUPPLY AND FIRE PROTECTION

6.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 1E water distribution network pressure zone of the central water distribution system.



There is an existing 914 mm feedermain within Coventry Road as well as a 300 mm watermain which exists within the Coventry Road ROW currently servicing the site. As concluded from previous studies completed for the area, the existing feedermain are all fed from a reliable source and are expected to be adequate to provide peak domestic demands and fire flows.

There are currently five (5) existing fire hydrants within close proximity of the subject property. Refer to **Appendix D** for the water pressure zone and location of fire hydrants.

6.2 Water supply Servicing Design

According to the City of Ottawa Water Distribution Guidelines (Technical Bulletin ISDTB-2014-02), since the subject buildings are anticipated to house more than 50 residential units, it is required to be serviced by two water service laterals, separated by an isolation valve, for redundancy and to avoid creation of a vulnerable service area. Hence, the contemplated buildings are anticipated to be serviced via two services connected to an internal network on the site which will then tie to the existing 300 mm watermain within Coventry Road. The service laterals are to be looped inside the building in coordination with the mechanical engineer at detailed design stage. At the time of detailed design, it would be recommended that a hydraulic model is developed to incorporate boundary conditions provided by the city at that time, as well as the connections to all buildings within the parcel. This will allow full review of peak domestic demands as well as fire demand scenarios to be further analyzed.

Table 3, included below, summarizes the City of Ottawa Design Guidelines design parameters in the preparation of the water demand estimate.

Table 3: City of Ottawa Design Guidelines- Water Parameters

Design Parameter	Value
Residential Bachelor / 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential 3 Bedroom Apartment	3.1 P/unit
Commercial Average Daily Demand	2.8 L/m ² /d
Average Daily Demand	280 L/d/per
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during normal operating conditions	350 kPa and 480 kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure shall not exceed	552 kPa
During fire flow operating conditions pressure must not drop below	140 kPa
<i>*Table updated to reflect technical Bulletin ISDTB-2018-02</i>	

6.3 Residential Water Demands

Anticipated population demands have been interpreted from the Concept Plan provided by NEUF Architects. The proposed development is anticipated to include 1768 residential units, which translates to a population of 3069 as per the City of Ottawa Water Distribution Design Guidelines.

Table 4 below summarizes the proposed population count as interpreted using Table 4.1 of the *City of Ottawa Water Distribution Design Guidelines*.

Table 4: Development Residential Population Estimate

Domestic Demand			
Unit Type	Persons Per Unit	Number of Units	Population
Bachelor	1.4	271	379.4
1 Bedroom	1.4	846	1184.4
2 Bedroom	2.1	513	1077.3
3 Bedroom	3.1	138	427.8
Total		1768	3068.9

The required water supply requirements for the residential units in the proposed development have been calculated using the following formula:

$$\text{Where: } Q = (q \times P \times M)$$

q = average water consumption (L/capita/day)

P = design population (capita)

M = Peak factor

With reference to *Table 4.2 of the City of Ottawa Water Distribution Design Guidelines*, using an average water consumption rate of 280 L/c/d, a calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 2.5 and 2.2, respectively, anticipated demands were calculated as follows:

- Average daily domestic water demand is **9.95 L/s**,
- Maximum daily demand is **24.86 L/s**, and
- Maximum hourly demand is **21.88 L/s**.

6.4 Commercial Water Demands

As previously mentioned, the concept plan indicates that a portion of the floor area will be dedicated to commercial/retail space. As per Concept Plan, this commercial space would work out to a GFA of approximately **1208 m²**.

The required water supply requirements for the commercial space within the proposed development based on the concept provided have been calculated using the following formula:

$$\text{Where: } Q = (q \times A \times M)$$

q = average water consumption (L/m²/day)

A = commercial area (m²)

M = Peak factor

With reference to Table 4.2 of the *City of Ottawa Water Distribution Design Guidelines* and *technical bulletin ISTB-18-02*, using an average water consumption rate of 2.8 L/m²/d, a



calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 1.5 and 1.8, respectively, anticipated commercial demands were calculated as follows:

- Average daily domestic water demand is **0.04** L/s,
- Maximum daily demand is **0.06** L/s, and
- Maximum hourly demand is **0.07** L/s.

6.5 Total Water Demands

Based on calculated residential and commercial demands for the concept development, the total anticipated water demands are as follows

- Average daily domestic water demand is **9.98** L/s,
- Maximum daily demand is **24.92** L/s, and
- Maximum hourly demand is **21.95** L/s.

For greater detail on Water Demand Calculations, please refer to **Appendix C**.

Once the subject development moves forward into the detailed design phase, further confirmation of the concept and site layout will be required. At that time, the City of Ottawa will be necessary to contact the City of Ottawa to obtain boundary conditions associated with the estimated water demand. This will be used to develop a hydraulic model for the site and confirm the available pressure for the water supply.

6.6 Fire Protection

The required fire flow will be calculated once the layout is finalized architectural during the detailed design stage. Critical details to consider when calculation of the fire flow will be completed include:

- Type of construction
- Building Separation
- Occupancy type
- Sprinkler Protection
- Floor Area

There are at least five (5) existing fire hydrants in close proximity to the contemplated buildings that are available to provide a maximum fire flow of **21,765 L/min**. Refer to **Appendix D** for fire hydrant locations.

Table 5 below summarizes the aggregate fire flow of the contributing hydrants in close proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 5: Fire Protection Hydrant Summary Table

	Max. Fire Flow Demand (L/min)	Fire Hydrants(s) within 75m	Fire Hydrant(s) within 150m	Fire Hydrant(s) within 300m	Available Combined Fire Flow (L/min)
Contemplated Development	To be determined during detailed design	2	2	1	(2 x 5678) + (2 x 3785) + (1 x 2839) = 21,765



The total available fire flow from contributing hydrants is equal to **21,765 L/min**. A certified fire protection system specialist will need to be employed to design the building's fire suppression system and confirm the actual fire flow demand.

7 SANITARY SERVICE

7.1 Proposed Connection and Demands

There is an existing 300mm municipal sanitary sewer located on Coventry Road. It is anticipated that the contemplated development will connect the proposed 250mm diameter PVC DR-35 sanitary sewer into the existing 300mm sanitary main.

The sanitary sewer proposed will offer 3 separate connections for the development.

- 200mm diameter PVC DR-35 connection from Phase 1 (Towers E1, E2)
- Connection opportunity to the City owned parkland.
- 200mm diameter PVC DR-35 connection from Phase 2 (Towers A, B, C1 and C2)

The total anticipated post development total flow was calculated to be is **30.03 L/s** as a result of proposed residential population, commercial use and a small portion of infiltration.

The parameters used to calculate the anticipated sanitary flows are:

- residential average population per unit of
 - 1.4 person for single units
 - 2.1 persons for two-bedroom units
 - 3.1 persons for three-bedroom units
- a residential daily demand of 280 L/p/day
- a residential peaking factor of 2.9
- a total infiltration rate of 0.33 L/s/ha

Refer to **Appendix E** for further information on the calculated sanitary flows.

7.2 Downstream Infrastructure Capacities

Based on correspondence between the City of Ottawa's Asset Management department during previous OPA and ZBLA applications, it was confirmed that the sanitary infrastructure in Coventry Road has availability for additional capacity in the range of the expected sanitary effluent (previously corresponded as 28.82L/s).

However, it was noted that this capacity is only able to be allocated to the subject development once detailed design and site plan application is received. As noted in the TOD studies in the past, it is recognized that in a full buildout situation for the Tremblay/Train TOD area, surcharging of the Coventry corridor would exist. Therefore, the available capacity is not guaranteed shall much redevelopment take place on a similar timeline.

Refer to **Appendix G** for correspondence and confirmation e-mail for the available capacity along Coventry Road.



8 STORMWATER MANAGEMENT

8.1 Existing Conditions and Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system as such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

In pre-development conditions, stormwater runoff from subject site would generally flows away from the existing building, towards Coventry, with a small portion flowing overland south towards the highway 417 corridor.

There is an existing 1350mm municipal storm sewer located on Coventry Road.

The site sits at a lower elevation than Belfast Road, and the profile of Coventry reduces in elevation as it proceeds west. During this review, it is not confirmed if existing stormwater management exists on the site; however it is assumed that any collection and conveyance of stormwater in the underground sewers on site is directed to Coventry Road storm sewers.

8.2 Design Criteria

The stormwater management criteria for this development is based on general understanding of City of Ottawa design requirements, 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 Planning and Design Manual, 2003 (SWMPD Manual).

The stormwater management will need to meet the following stormwater design criteria;

- Meet an allowable release rate based on the pre-development Rational Method Coefficient or a maximum of 0.50, employing the City of Ottawa IDF parameters for a 2-year storm with a calculated time of concentration equal to or greater than 10 minutes;
- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site;
- It is assumed that no quality control is required for runoff given that the flow enters into the city sewers, and a large portion of the site is considered clean runoff collected on the proposed rooftops.

During detailed design, the stormwater system will be designed following the principles of dual drainage, making accommodations for both major and minor flow.

It was determined that the allowable release rate for the subject site would be **212.64 L/s** for all storms up to and including the 100-year storm event. Refer to **Appendix F** for all storm calculations.

Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site to quantify the detention storage required for quantity control of the development. Refer to **Appendix F** for storage calculations.



8.3 Proposed Stormwater Management System

The proposed stormwater management quantity control for this development will be accomplished through the use of two underground cisterns with a controlled release rate located in the parking garage of both the northern portion of the development (Phase 1) and the southern extend (Phase 2).

The proposed site storm sewer and stormwater management system are shown on drawings C401 and C601 found in **Appendix H**. The detailed calculations, including the design sheet, can be found in **Appendix F**.

The proposed site development has been analyzed and post development watersheds have been allocated.

- WS-01 (0.707 ha), which consists of pavers and grass cover and building rooftop in Phase 1, will be collected visa roof drains or surface area drains directed to the cistern located in the parking garage.
- WS-02 (0.928ha), which consists of pavers and grass cover, rear landscaping buffer and building rooftop in Phase 2, will be collected visa roof drains or surface area drains directed to the cistern located in the parking garage.
- WS-03 (0.069ha), which consists pavers and landscaping fronting Coventry Road, uncontrolled flowing overland to the ROW.
- WS-04 (0.025ha), which consists of landscaping and hardscape leaving overland uncontrolled towards Belfast Road.
- WS-05 (0.055ha), consisting of a landscape buffer around the southern and eastern edge of the site utilized as a location to alter the grading and tie into the existing elevation sat the property line. Flow will leave uncontrolled overland.
- WS-06 (0.165ha), which consists of roadway and small landscaping areas, entering the proposed CB's within the roadway, with no controls in place.
- WS-07 (0.045ha), which consists of roadway and small landscaping areas, leaving the site uncontrolled to the west.

Table 6 below summarizes the post development drainage areas. Calculations can be seen in **Appendix F**.

Table 6: Post Development Watershed Summary

Watershed	Total Area (ha)	Combined C
WS-01 CONTROLLED	0.707	0.63
WS-02 CONTROLLED	0.928	0.61
WS-03 UN-CONTROLLED COVENTRY	0.069	0.72
WS-04 UNCONTROLLED - BELFAST ROAD	0.025	0.48
WS-05 UNCONTROLLED	0.055	0.21



WS-06 UNCONTROLLED ROAD TO STM MH	0.165	0.84
WS-07 UNCONTROLLED	0.044	0.86
Total	1.992	0.63

Based on stormwater objectives for the subject site, the allowable release rate for the proposed development is 212.64 L/s for all storms up to and including the 100-year storms.

8.3.1 Stormwater Storage and Collection

To meet the stormwater objectives, the contemplated development will contain a combination of roof top collection and area drain collection where possible, which will be directed and conveyed to underground cisterns in the parking garages. The cisterns have been sized to provide the storage requirements.

Of the allowable 212.64 L/s of flow, due to grading constraints as well as the roadway running through the central area of the site, 154.99 L/s of flow is expected to be lost uncontrolled. Therefore, each phase has been assigned a controlled release rate of 28.83 L/s.

8.3.1.1 Phase 1 – North Towers (WS-01)

WS-01 will be directed to the underground cistern. Flows from the cistern will be controlled to a release rate of 28.83 L/s and a minimum cistern storage volume of 208.94 m³ of storage will be required. Internal plumbing and detailed mechanical design will be required to ensure all pipes convey to the cistern location, and the pump in the cistern accommodated the allowable release rate with the variable head.

8.3.1.2 Phase 2 – South Towers (WS-02)

Similar to above, WS-02 will be directed to the underground cistern located in phase 2. Flows from the cistern will also be controlled to a release rate of 28.83 L/s and the cistern will have a minimum volume of 291.32m³.

Table 7 below summarizes the release rates and storage volumes required to meet the allowable release rate of **212.64 L/s** for the 100-year storm event.

Table 7: Stormwater Release Rate and Storage Volume Summary (100 Year)

Summary of Release Rates and Storage Volumes		
Catchment Areas	100-Year Release Rate (L/s)	100-Year Required Storage (m ³)
WS-01(Phase 1)	28.83	208.94
WS-02 (Phase 2)	28.83	291.32
WS-03, WS-04, WS-05 (Exterior Uncontrolled)	45.62	-
WS-06, WS-07 (ROW Uncontrolled)	103.74	-
Total	207.02	500.26



It has been determined that a minimum of **500.26 m³** of storage will be required on site to attenuate flow to the established release rate of **216.64 L/s** in the 100-year storm; storage calculations are contained within **Appendix F**. Storage volumes will need to be confirmed at the detailed design stage based on several factors, including grading constraints and landscape featured integrated into the site plan.

8.4 Quality Control

It is anticipated that the contemplated development would utilize an Oil/Grit Separator (OGS) to achieve the required 80% TSS removal treatment as specified by Rideau Valley Conservation Authority. The OGS would be required to treat all contaminated runoff collected in the surface parking lot before runoff is discharged into ditch.

9 GRADING

Site grading has been completed with considerations given to the current architectural building package. However, as details such as door locations, and connectivity to the surrounding roadways are further refined, the grading will required a detailed review and potential alterations. will be dependent on both the layout and geometry of the buildings, location of drive isles and the tie-in to surrounding roadways (Coventry and Belfast Road) and adjacent properties

10 CONCLUSION

This evaluation is limited to assessing the serviceability of the site described within this document to support an Official Plan Amendment and Zoning By-law Amendment.

Based on the *Concept Plan*, included to **Appendix A**, the following conclusions, in relation to the serviceability of the site, can be made:

- **Water:**
 - The proposed development is anticipated to be serviced via a internal 200mm looped watermain connection to the existing 300mm watermain within Coventry rd.
 - Domestic demands from the proposed re-development are expected to be **9.98 L/s** for the Average daily demand, **24.92 L/s** for the maximum daily and **21.95 L/s** for maximum hourly.
 - The maximum required fire flow will need to be calculated as the architectural design progresses using the FUS method.
 - There are at least five (5) existing fire hydrants available to service the proposed development. They will provide a combined fire flow of **21,765 L/min** to the site.
 - It is recommended that a hydraulic model is carried out to confirm fire flow, demands and input boundary conditions provided by the City of Ottawa for the next detailed submission prior to approval and development.
- **Sanitary:**
 - The post development total sanitary effluent was calculated to be is **30.03 L/s** considering proposed residential & commercial population and a small portion of infiltration.
 - A Sanitary sewer is proposed in a servicing easement through the neighbouring property, providing a connection to each phase of the proposed development



- The City has confirmed that the receiving sewer can accommodate the expected demands; however, it is on a “first come basis” for the contributing area. It will only be confirmed once a Site Plan Application is received.
- **Stormwater:**
 - Site stormwater runoff will need to be controlled to a pre-development release rate of approximately 212.64 L/s and accommodate 500.26 m³ of stormwater storage during the 100-year storm event.
 - The subject site is anticipated to outlet into the existing 1350mm municipal storm sewer located on Coventry Rd.
 - During detailed site plan design, detailed Stormwater Management calcs and strategy shall be further refined.

Prepared by:

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APPENDIX A

Concept Plan

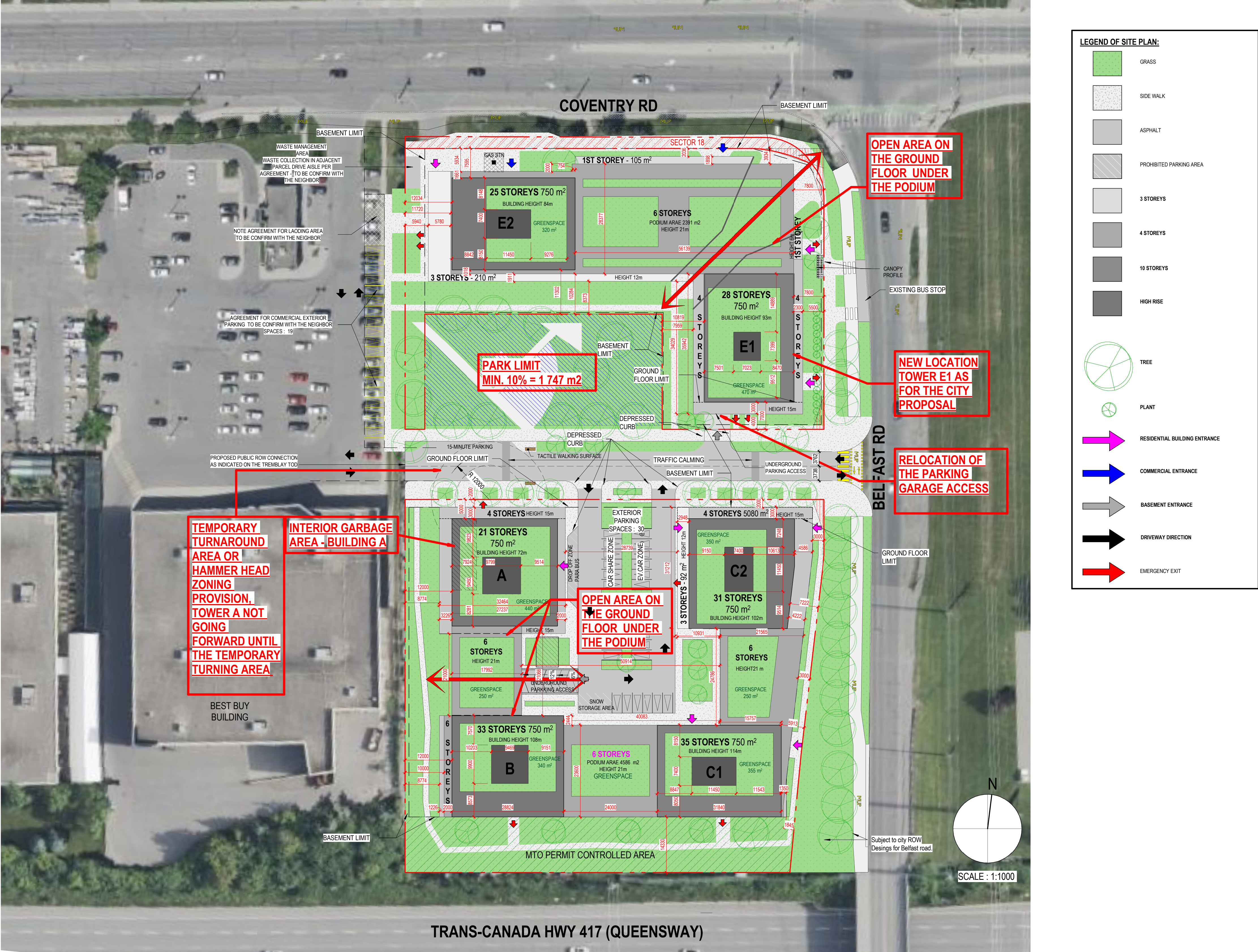




LEGEND OF SITE PLAN:

- GRASS
- SIDE WALK
- ASPHALT
- PROHIBITED PARKING AREA
- 3 STOREYS
- 4 STOREYS
- 10 STOREYS
- HIGH RISE
- TREE
- PLANT
- RESIDENTIAL BUILDING ENTRANCE
- COMMERCIAL ENTRANCE
- BASEMENT ENTRANCE
- DRIVEWAY DIRECTION
- EMERGENCY EXIT

SITE PLAN OPTION 1



SITE PLAN OPTION 2

PROJECT TOTAL								
UNIT MIX								
FLOORS	MULTIPLE	BACH.	1 BED.	1 BED. + D.	2 BED.	2 BED. + D.	3 BED. + TH	TOTAL
TOWER A	21	56	107	6	57	6	11	
TOWER B	33	38	138	18	95	1	33	
TOWER C1	35	65	145	17	95	0	29	
TOWER C2	31	37	147	7	52	6	38	
BLOCK 1 TOTAL		196	537	48	299	13	111	1204
TOWER E1	28	34	127	39	104	5	13	322
TOWER E2	25	41	63	32	92	0	14	242
BLOCK 2 TOTAL		75	190	71	196	5	27	564
PROJECT TOTAL		271	727	119	495	18	138	1768

PROJECT TOTAL				
AREAS				
FLOORS	RETAIL AREA		COMMON AREA	
	m²	ft²	m²	ft²
TOWER A	0	0	290	3 122
TOWER B	0	0	202	2 174
TOWER C1	0	0	429	4 618
TOWER C2	0	0	786	8 461
BLOCK 1 TOTAL	0	0	1 707	18 374
TOWER E1	676	7 276	890	9 580
TOWER E2	532	5 726	223	2 400
BLOCK 2 TOTAL	1 208	13 003	1 113	11 980
PROJECT TOTAL	1 208	13 003	2 820	30 354

APPENDIX B

Coventry Road Profiles





Contract No. ISD12-3028	Dwg. No. PP6
----------------------------	-----------------

Des.	Chk'd.
I.M.	P.L.

Dwn.	Chk'd.
I.M.	P.L.
Unit's Ch. M.	Unit's M.

Utility Circ. No.	Index No.
Const. Inspector	

Scale: HORIZONTAL

ALL NUMERICAL VALUES THAT ARE NOT STROKED OUT AND REPLACED IN ITALICS ON AS-BUILT DRAWINGS ARE CONSIDERED TO BE DESIGN VALUES ONLY AND NOT MEASURED IN THE FIELD.

REVISIONS	No.	Description	By	Date (dd/mm/yy)
	1	ISSUED FOR PRELIMINARY CIRCULATION	G.B.	28.02.13
	2	ISSUED FOR TENDER	G.B.	30.05.13
	3	ISSUED FOR CONSTRUCTION	P.C.	26.05.14
	4	ISSUED FOR CHANGE ORDER	P.L.	09.07.14
5	AS BUILT	P.L.	28.04.16	

STORM SEWER MH DATA							
No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Cover	Grate	Low Inv.	
ST109	10+258.93	7.06 L	2440X2440	S24.1/S25	65.25	62.26	2.99

No.	Station	Offset (m)	Type		Elevations		Grate to
			Structure	Cover	Grate	Low Inv.	Invert
SA209	10+276.87	3.00 L	701.010	S24/S25	65.40	61.15	4.25
SA209A	10+278.87	1.00 L	701.010	S24/S25	65.46	61.23	4.23
SA210	10+351.37	1.06 L	701.010	S24/S25	65.75	61.57	4.18

No.	Station	Offset (m)	Type		Elevations		Grade to Invert
			Structure	Grate	Grate	Low Inv.	
CICB35	10+251.38	22.16 R	705.010	S22 / S23	65.35	63.50	1.85
CICB36	10+279.00	15.85 R	705.010	S22 / S23	65.48	63.93	1.55
CICB37	10+285.06	12.45 L	705.010	S22 / S23	65.43	63.88	1.55
DCICB38	10+301.00	9.21 L	705.020	S22 / S23 (2)	65.82	64.38	1.44
CICB39	10+316.21	8.89 R	705.020	S22 / S23 (2)	65.86	64.26	1.60
DCICB40	10+361.50	8.00 R	705.020	S22 / S23 (2)	65.80	64.20	1.60
CICB41	10+367.00	8.30 L	705.010	S22 / S23	65.82	64.27	1.55

Structure to Structure	Dia.	Type	Length	Invert Elevations		ICD Ctrl. Device Type
				Upstream	Downstream	
CICB35 TO MAIN	200mm	PVC	28.7	63.50	63.21	1
CICB36 TO MAIN	200mm	PVC	17.3	63.93	63.76	1
CICB37 TO MAIN	200mm	PVC	3.2	63.88	63.83	1
DCIC38 TO MAIN	250mm	PVC	1.2	63.98	63.97	2
DCIC39 TO MAIN	250mm	PVC	15.0	64.26	64.11	2
DCICB40 TO MAIN	250mm	PVC	14.4	64.20	64.06	2
CICB41 TO MAIN	200mm	PVC	1.3	64.27	64.26	1

MATCHLINE STA. 10+250

MATCHLINE STA. 10+400

FOR CONTINUATION SEE DWG. PP7

BELFAST
ROAD

PROPOSED 300mmØ PVC DR18 CL150 WATERMAIN

300mmØ PVC SDR 35

300mmØ PVC SDR 35 SANITARY SEWER

~~72.5m - 300mmØ PVC SDR 35 SANITARY SEWER @ 0.40%~~

~~SEWER @ 0.40%~~

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COVENTRY ROAD



10+100

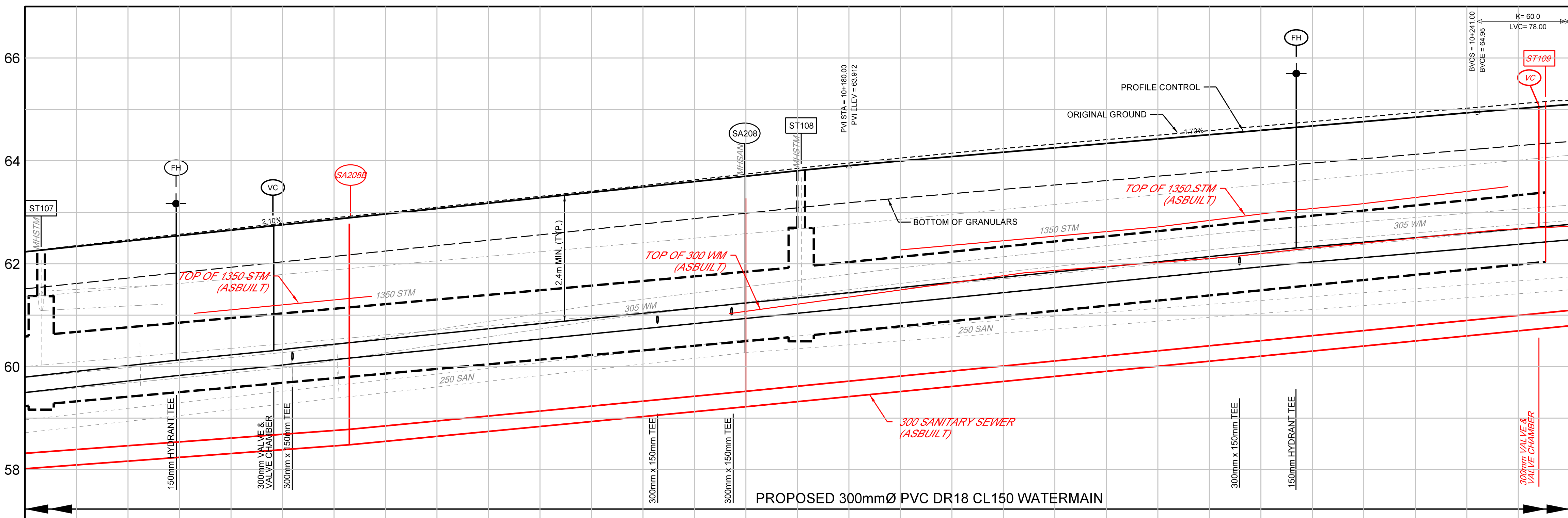
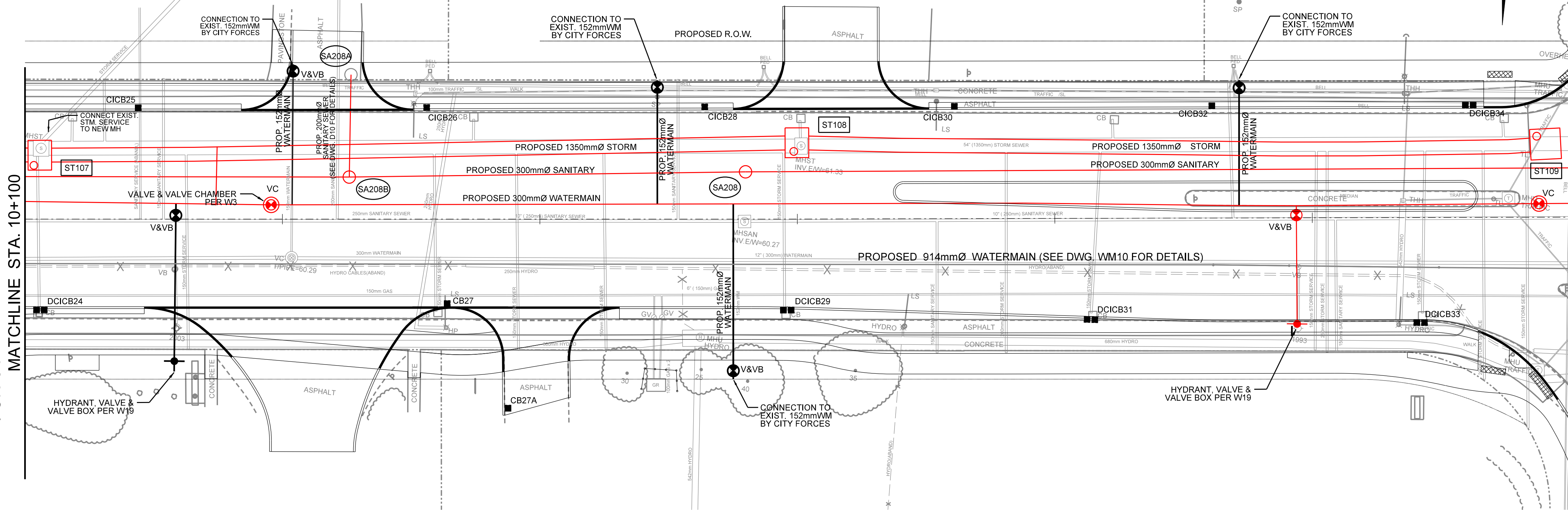
10+150

10+200

10+250

FOR CONTINUATION SEE DWG. PP4
MATCHLINE STA. 10+100

MATCHLINE STA. 10+250
FOR CONTINUATION SEE DWG. PP6



STATION	10+100	10+114.5	10+124.2	10+125	10+126.0	10+150	10+161.4	10+168.8	10+175	10+200	10+217.9	10+223.0	10+225	10+250
PROPOSED C PROFILE	62.232					63.282			63.807		64.252			65.095
PROPOSED TOP OF WATERMAIN	59.797	60.120	60.310	60.331	60.355	60.836	61.063	61.211	61.336	61.838	62.198	62.300	62.334	62.763
PROPOSED STORM SEWER INVERT	59.120	59.260	59.280	59.280	59.280	59.480	59.594	59.594	59.594	59.900	60.244	60.244	60.244	60.660
PROPOSED SANITARY SEWER INVERT	58.480	58.594	58.594	58.594	58.594	58.890	58.994	58.994	58.994	59.290	59.634	59.634	59.634	60.050

ORLEANS WATERMAIN
LINK - WEST

GRADING & DRAINAGE
STA. 10+100 TO STA. 10+250

W. Newell, P.Eng.
General Manager
Infrastructure Services Department

B. Kenny, P.Eng.
Project Manager
Design & Construction - Municipal East

**Robinson
Consultants**

AS-BUILT

RECORD INFORMATION PROVIDED BY CITY OF OTTAWA

ALL NUMERICAL VALUES THAT ARE NOT STROKED OUT
AND REPLACED IN ITALICS ON AS-BUILT DRAWINGS ARE
CONSIDERED TO BE DESIGN VALUES ONLY AND NOT
MEASURED IN THE FIELD.

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting
the municipal authorities and utility companies concerned. The contractor shall prove the location
of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY CIRCULATION	G.B.	28.02.13
2	ISSUED FOR TENDER	G.B.	30.05.13
3	ISSUED FOR ADDENDUM	G.B.	12.07.13
4	ISSUED FOR CONSTRUCTION	P.C.	20.05.14
5	ISSUED FOR CHANGE ORDER	P.L.	09.07.14
6	AS-BUILT	P.L.	28.04.16

SEWER SCHEDULES NOT AS-BUILT

No.	Station	Offset (m)	Type	Structure	Cover	Grate	Elevations	Grate to Invert
ST107	10+101.88	6.88 L	2440X2440	S24/S25	62.14	59.26	2.88	
ST108	10+175.43	7.07 L	2440X2440	S24/S25	63.72	60.59	3.13	

No.	Station	Offset (m)	Type	Structure	Cover	Grate	Elevations	Grate to Invert
SA208A	10+130.42	14.54 L	701.010	S24/S25	63.73	58.78	4.95	
SA208	10+169.87	3.23 L	701.010	S24/S25	63.64	59.24	4.40	
SA208B	10+130.44	3.15 L	701.010	S24/S25	62.81	58.54	4.27	

No.	Station	Offset (m)	Type	Structure	Grate	Elevations	Grate to Invert
DCICB24	10+101.50	8.50 R	705.020	S22 / S23 (2)	62.24	60.34	1.90
CICB25	10+111.00	10.50 L	705.010	S22 / S23	62.40	60.55	1.85
CICB26	10+139.00	10.53 L	705.010	S22 / S23	63.00	61.15	1.85
CB27	10+141.00	8.50 R	705.010	S19	62.92	61.22	1.70
CB27A	10+146.90	18.35 R	705.010	S19	63.10	61.40	1.70
CICB28	10+166.00	10.50 L	705.010	S22 / S23	63.56	61.71	1.85
DCICB29	10+174.00	8.54 R	705.020	S22 / S23 (2)	63.77	61.87	1.90
CICB30	10+190.28	10.60 L	705.010	S22 / S23	64.17	62.32	1.85
DCICB31	10+203.50	9.52 R	705.020	S22 / S23 (2)	64.37	62.47	1.90
CICB32	10+215.28	10.60 L	705.010	S22 / S23	64.68	62.83	1.85
DCICB33	10+235.50	9.90 R	705.020	S22 / S23 (2)	65.02	63.12	1.90
DCICB34	10+240.28	10.60 L	705.020	S22 / S23 (2)	65.16	63.26	1.90

Structure to Structure	Dia.	Type	Length	Invert	Elevations	ICD Ctrl.
DCICB24 TO MAIN	250mm	PVC	14.5	60.34	60.20	2
CICB25 TO MAIN	200mm	PVC	5.2	60.51	60.46	1
CICB26 TO MAIN	200mm	PVC	5.2	61.10	61.05	1
CB27 TO MAIN	200mm	PVC	14.5	61.22	61.08	1
CB27A TO MAIN	200mm	PVC	24.7	61.70	61.56	1
CICB28 TO MAIN	200mm	PVC	5.2	61.67	61.62	1
DCICB29 TO MAIN	250mm	PVC	15.2	61.87	61.72	2
CICB30 TO MAIN	200mm	PVC	5.2	62.28	62.23	1
DCICB31 TO MAIN	250mm	PVC	15.9	62.47	62.31	2
CICB32 TO MAIN	200mm	PVC	5.2	62.79	62.74	1
DCICB33 TO MAIN	250mm	PVC	16.3	63.12	62.96	2
DCICB34 TO MAIN	250mm	PVC	5.2	63.22	63.17	2

APPENDIX C

Water Demand Calculations





Water Supply Calculations

LRL File No. 220200
 Project 400 Coventry Road
 Date February 14, 2025
 Prepared by Sarthak Vora

OVERALL DEVELOPMENT (Phase 1 &2)

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Domestic Demand			
Unit Type	Persons Per Unit	Number of Units	Population
Bachelor	1.4	271	379.4
1 Bedroom	1.4	846	1184.4
2 Bedroom	2.1	513	1077.3
3 Bedroom	3.1	138	427.8
Total		1768	3068.9

Average Water Consumption Rate 280 L/c/d
Average Day Demand 859,292 L/d 9.95 L/s
 Maximum Day Factor 2.5 (Design Guidelines-Water Distribution Table 4.2)
Maximum Daily Demand 2,148,230 L/d 24.86 L/s
 Peak Hour Factor 2.2 (Design Guidelines-Water Distribution Table 4.2)
Maximum Hour Demand 1,890,442 L/d 21.88 L/s

Institutional / Commercial / Industrial Demand			
Property Type	Unit Rate	Units (m ²)	Demand (L/d)
Commercial - Retail	2.8 L/m ² /d	1208.0	3382.4

Average Day Demand 3,382 L/d 0.04 L/s
 Maximum Day Factor 1.5 (Design Guidelines-Water Distribution Table 4.2)
Maximum Daily Demand 5,074 L/d 0.06 L/s
 Peak Hour Factor 1.8 (Design Guidelines-Water Distribution Table 4.2)
Maximum Hour Demand 6,088 L/d 0.07 L/s

TOTAL DEMAND			
Average Day Demand	862,674 L/d	9.98 L/s	
Maximum Daily Demand	2,153,304 L/d	24.92 L/s	
Maximum Hour Demand	1,896,531 L/d	21.95 L/s	

Water Service Pipe Sizing

$$Q = VA$$

Where: V = velocity
 A = area of pipe
 Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

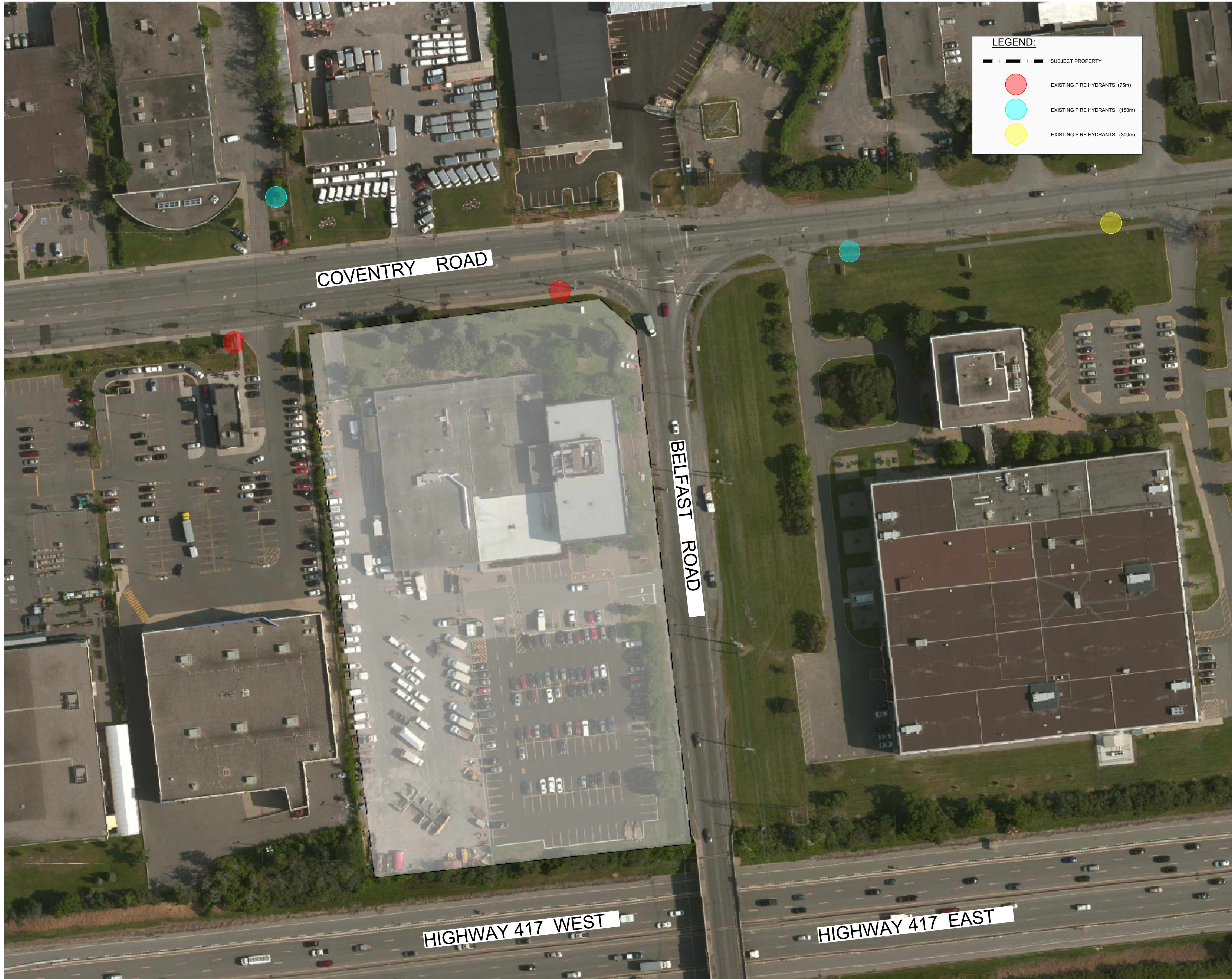
$$\begin{aligned} \text{Minimum pipe diameter (d)} &= (4Q/\pi V)^{1/2} \\ &= 0.133 \text{ m} \\ &= 133 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{Proposed pipe diameter (d)} &= 150 \text{ mm} \\ &= 6 \text{ Inches} \end{aligned}$$

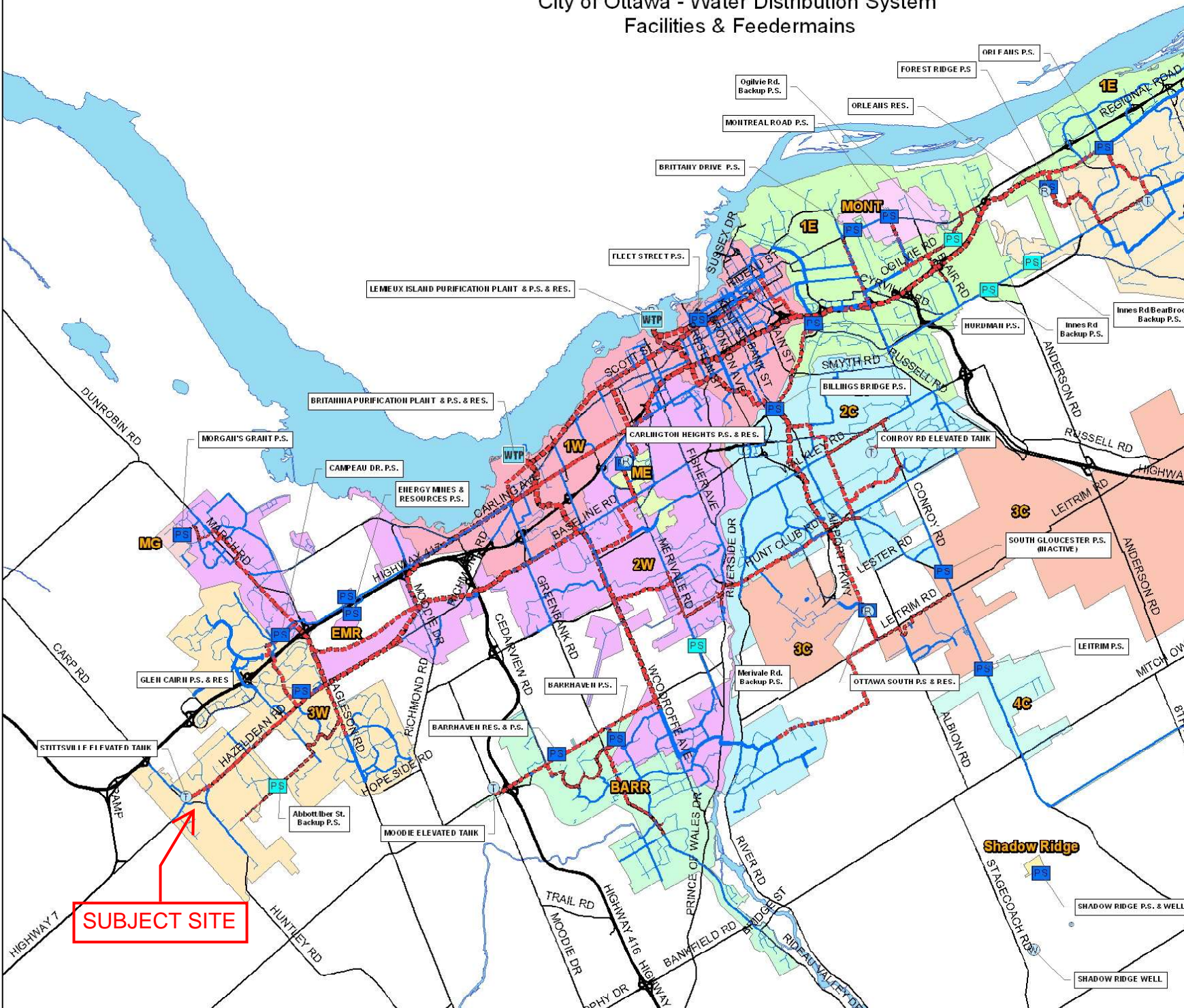
APPENDIX D

Fire Hydrant Coverage and Pressure Map






City of Ottawa - Water Distribution System Facilities & Feeder mains



APPENDIX E

Sanitary Flow Calculations



<div></div> <div>LRL File No. 220200 Project: Mixed-Use Development/High Density Residential Location: 400 Coventry Road Date: February 14, 2025</div>			<div>Sanitary Design Parameters</div> <div>Average Daily Flow = 280 L/p/day Commercial & Institutional Flow = 28000 L/ha/day Light Industrial Flow = 35000 L/ha/day Heavy Industrial Flow = 55000 L/ha/day Maximum Residential Peak Factor = 4.0 Commercial & Institutional Peak Factor = 1.00</div> <div>Industrial Peak Factor = as per Appendix 4-B = 7 Extraneous Flow = 0.33L/s/gross ha</div>										Pipe Design Parameters Minimum Velocity = 0.60 m/s Manning's n = 0.013				
---	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--

LOCATION			RESIDENTIAL AREA AND POPULATION						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE					
STREET	FROM	TO	AREA (Ha)	POP.	CUMMULATIVE		PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)
					AREA (Ha)	POP.																				
Coventry Road	Bldg	EX. 300mm PVC SAN SEWER	1.990	3069.0	1.99	3069.0	2.9	29.31	0.120	0.120	0.00	0.00	7.0	0.0	0.0	0.06	1.990	1.990	0.66	30.03	17.1	250	1.00%	PVC	59.47	1.21

NOTES	Populations have been estimated based on concept plan
	Areas of commercial space have been estimated based on concept plan

Designed: SV	PROJECT: Mixed-Use Development/High Density Residential		
Checked: V.J.	LOCATION: 400 Coventry Road		
Dwg. Reference: C.401	File Ref.: 220200		Sheet No. 1 of 1

APPENDIX F

Stormwater Management Design Calculations



LRL Associates Ltd.

Storm Watershed Summary



LRL File No. 210682
Project: Site Plan Control Design
Location: 400 Coventry Road
Date: June 8, 2023
Designed: Tamara Harb
Drawing Reference: C701/C702

Pre-Development Catchments

WATERSHED	C = 0.2	C=0.7	C = 0.90	Total Area (m ²)	Total Area (ha)	Combined C
EWS-01	0.0	0.0	19918.0	19918.0	1.992	0.90
TOTAL	0.0	0.0	19918.0	19918.0	1.992	0.90

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.70	C = 0.90	Total Area (m ²)	Total Area (ha)	Combined C
WS-01 CONTROLLED	2763.05	0.00	4304.18	7067.23	0.707	0.63
WS-02 CONTROLLED	3858.08	0.00	5420.90	9278.98	0.928	0.61
WS-03 UN-CONTROLLED COVENTRY	172.82	0.00	516.49	689.31	0.069	0.72
WS-04 UNCONTROLLED - BELFAST ROAD	146.43	0.00	99.14	245.57	0.025	0.48
WS-05 UNCONTROLLED	536.60	0.00	10.86	547.46	0.055	0.21
WS-06 UNCONTROLLED ROAD TO STM MH	142.77	0.00	1511.02	1653.79	0.165	0.84
WS-07 UNCONTROLLED	26.12	0.00	409.49	435.61	0.044	0.86
TOTAL	7645.9	0.0	12272.1	19918.0	1.992	0.63



LRL File No. 210682
Project: Site Plan Control Design
Location: 400 Coventry Road
Date: June 8, 2023
Designed: Tamara Harb
Drawing Ref.: C601

**Stormwater Management
Design Sheet**

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 Stormwater Management - 2 Year Storm

2 year storm

$$I2 = 732.95 / (Td + 6.199)^{0.81}$$

a = 732.951

b = 0.810

C = 6.199

$C = 0.50$ max of 0.5 as per City of Ottawa
 $I = 76.8$ mm/hr
 $T_c = 10$ min
 Total Area = 1.992 ha

Allowable Release Rate= **212.64** L/s

Post-development Stormwater Management

					$\sum R_{255}$	$\sum R_{190}$
Controlled	WS-01 CONTROLLED	0.707	ha	$\sum R =$	0.63	0.78
	WS-02 CONTROLLED	0.928	ha	$R =$	0.61	0.76
	Total Controlled	1.635	ha	$\sum R =$	0.62	0.77
	WS-03 UNCONTROLLED COVENTRY	0.069	ha	$R =$	0.72	0.91
UnControlled	WS-04 UNCONTROLLED - BELFAST ROAD	0.025	ha	$R =$	0.48	0.60
	WS-05 UNCONTROLLED	0.055	ha	$R =$	0.21	0.27
	WS-06 UNCONTROLLED ROAD TO STM MH	0.165	ha	$R =$	0.84	1.00
	WS-07 UNCONTROLLED	0.044	ha	$R =$	0.86	1.00
	Total UnControlled	0.357	ha	$\sum R =$	0.70	0.87



LRL File No. 210682
Project: Site Plan Control Design
Location: 400 Coventry Road
Date: June 8, 2023
Designed: Tamara Harb
Drawing Ref.: C601

Stormwater Management
Design Sheet

Total	1.99	ha	$\Sigma R =$	0.631	0.79
-------	------	----	--------------	-------	------

Post-development Stormwater Management (Uncontrolled Catchments)

100 Year Storm Event:

$$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$$

a = 1735.688

b = 0.820

C = 6.014

Time (min)	Intensity (mm/hr)	Uncontrolled Runoff (L/s)	Controlled Release Rate Constant (L/s)	Total Release Rate (L/s)
10	178.6	154.99	0.00	154.99

Post-development Stormwater Management (WS-01)

100 Year Storm Event:

$$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$$

a = 1735.688

b = 0.820

C = 6.014

Time (min)	Intensity (mm/hr)	Storage Required		Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
		Controlled Runoff (L/s)	Storage Volume (m ³)			
10	178.6	274.65	147.50	28.83	0.00	28.83
15	142.9	219.79	171.87	28.83	0.00	28.83
20	120.0	184.50	186.81	28.83	0.00	28.83
25	103.8	159.73	196.36	28.83	0.00	28.83
30	91.9	141.31	202.47	28.83	0.00	28.83
35	82.6	127.02	206.20	28.83	0.00	28.83
40	75.1	115.59	208.22	28.83	0.00	28.83
45	69.1	106.21	208.94	28.83	0.00	28.83
50	64.0	98.37	208.63	28.83	0.00	28.83
60	55.9	85.98	205.73	28.83	0.00	28.83
70	49.8	76.58	200.58	28.83	0.00	28.83
80	45.0	69.20	193.81	28.83	0.00	28.83
90	41.1	63.24	185.80	28.83	0.00	28.83
100	37.9	58.30	176.84	28.83	0.00	28.83
110	35.2	54.15	167.11	28.83	0.00	28.83
120	32.9	50.60	156.75	28.83	0.00	28.83

Total Storage Required = 208.94
Available Cistern Storage = 210.00

m³
m³

All controlled areas will be directed to the underground cistern either through roof drains, area drains or landscape CB's. Where the cistern will control the flows to 28.83L/s

Post-development Stormwater Management (WS-03, WS-04 AND WS-05 CISTERN)

100 Year Storm Event:

$$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$$

a = 1735.688

b = 0.820

C = 6.014

Time (min)	Intensity (mm/hr)	Storage Required		Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
		Controlled Runoff (L/s)	Storage Volume (m ³)			
10	178.6	350.60	193.07	28.83	0.00	28.83
15	142.9	280.58	226.57	28.83	0.00	28.83
20	120.0	235.53	248.04	28.83	0.00	28.83
25	103.8	203.91	262.62	28.83	0.00	28.83
30	91.9	180.39	272.80	28.83	0.00	28.83
35	82.6	162.14	279.97	28.83	0.00	28.83
40	75.1	147.55	284.93	28.83	0.00	28.83
45	69.1	135.58	288.24	28.83	0.00	28.83
50	64.0	125.58	290.24	28.83	0.00	28.83
60	55.9	109.75	291.32	28.83	0.00	28.83
70	49.8	97.76	289.53	28.83	0.00	28.83
80	45.0	88.34	285.66	28.83	0.00	28.83
90	41.1	80.72	280.23	28.83	0.00	28.83
100	37.9	74.42	273.58	28.83	0.00	28.83
110	35.2	69.12	265.94	28.83	0.00	28.83
120	32.9	64.59	257.49	28.83	0.00	28.83

Total Storage Required = 291.32
Available Cistern Storage = 295.00

m³
m³

All controlled areas will be directed to the underground cistern either through roof drains, area drains or landscape CB's. Where the cistern will control the flows to 28.83L/s

SUMMARY OF RELEASE RATES AND STORAGE VOLUMES

CATCHMENT AREAS	DRAINAGE AREAS (ha)	100-YEAR RELEASE RATE	100-YEAR REQUIRED STORAGE (m3)	TOTAL AVAILABLE STORAGE (m3)
CONTROLLED (WS-01 & WS-02)	1.635	212.64	500.26	505.00
UNCONTROLLED (WS-03 TO WS-06)	0.357			
TOTAL	1.992	212.64	500.26	505.00

LRL Associates Ltd.
Storm Design Sheet



LRL File No. 210682
Project: Site Plan Control Design
Location: 400 Coventry Road
Date: April 10, 2023
Designed: Tamara Harb
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 0.70
Asphalt / rooftop 0.90

Ottawa Macdonald-Cartier International Airport IDF curve
equation (10 year event, intensity in mm/hr)
 $I_{100} = 1735.688 / (T_d + 6.014)^{0.820}$
Min. velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
Watershed	From	To	C = 0.20	C = 0.70	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (L/s)	Controlled 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})
WS-03 to WS-05 (Directed to Underground Cistern)	BUIDLING	EX 525mm dia. STM Sewer in Borthwick Ave.	n/a	n/a	n/a	n/a	n/a	10.00	178.6	n/a	28.83	200	PVC	1.50%	5.6	40.2	1.28	0.07	0.72
WS-06	CB	MH	0.071	0.000	0.756	1.930	1.930	10.00	50.6	48.84		250	PVC	1.00%	5.6	59.5	1.21	0.08	0.82
	MH	MH05	0.000	0.000	0.000	0.000	1.930	10.08	50.4	97.21		375	PVC	0.50%	17.7	124.0	1.12	0.26	0.78
	MH05	MH07	0.000	0.000	0.000	0.000	1.930	10.34	49.6	124.48		450	PVC	0.30%	17.7	156.2	0.98	0.30	0.80
	MH07	CONNECTION	0.000	0.000	0.000	0.000	1.930	10.64	48.7	151.58		525	PVC	0.25%	17.7	215.0	0.99	0.30	0.70

APPENDIX G

City Correspondence - Sanitary Capacity Confirmation



Virginia Johnson

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: April 14, 2022 3:05 PM
To: Virginia Johnson
Cc: Renaud, Jean-Charles
Subject: RE: 400 Coventry Road- Engineering Contact

Hello Virginia,

The Sanitary infrastructure in Coventry Road has the required 28.82L/s capacity. Again, this is on a first come first serve basis, so we will only confirm capacity once a site plan application is submitted.

Thanks
Nishant

From: Virginia Johnson <vjohnson@lrl.ca>
Sent: April 13, 2022 12:52 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

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ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hello,

Thank you for sending through the history on this file as well.

For the proposed demands, the client is looking at fairly high density, with a portion of commercial space as well.

I have calculated a total flow equal to:

Residential (based on population of 2920) + 0.28 ha commercial space + 1.99 hs land for infiltration= **28.82 L/s.**

Looking forward to your comments back on the viability of this.

Thank you,

Virginia Johnson, P. Eng.

Partner
Civil Engineering Department Lead



LRL Engineering

5430 Canotek Road
Ottawa, Ontario K1J 9G2

C (613) 915-9503

T (613) 842-3434 or (877) 632-5664 ext 223

F (613) 842-4338

E vjohnson@lrl.ca

W www.lrl.ca

Please note, I will be stepping away from the office at the end of April to welcome a baby into this world! I will continue to offer ongoing support and have contact with our team here at LRL to ensure a smooth transition and continuity for all our ongoing projects and communication.



From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: April 13, 2022 12:03 PM
To: Virginia Johnson <vjohnson@lrl.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

Hello Virginia,

I checked with the Asset management group, we will need to see the proposed sanitary demand to comment if the demands can be met or no.

Also please note that we cannot guarantee the availability unless we receive the Site plan control application. Please refer the attached email that was sent earlier to Fotenn.

In terms of Water service connection, yes, Service connection will be to the 300mm watermain.
Please let me know if there are any further questions.

Regards

Nishant Jhamb, P.Eng
Project Manager | Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Virginia Johnson <vjohnson@lrl.ca>
Sent: April 12, 2022 3:53 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

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Thank you for getting back to me Nishant.

I am currently completing a high level serviceability review of the property located here to assist a client of ours looking to ultimately redevelop it to high rise residential in the future. This is based off of studies completed by Fotenn to present the highest and best use for the lands based on the current policies and character of the surrounding area including the 2021 Official Plan.

However, can you provide me some insight on the capacity of the existing 300mm (transitioning to a 525mm) sanitary sewer running along Coventry. I will progress with effluent calculations; however, wanted to first get high level feedback on the viability of increasing the demands at this location.

Additionally, based on the profiles we were provided, the Watermain along Coventry (300mm) is also paired with a 900mm. However, I assume the 900mm is a forcemain for supply to the east, and any servicing would come directly from the 300mm in Coventry?

Thank you,

Virginia Johnson, P. Eng.

Partner



Civil Engineering Department Lead

LRL Engineering

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From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>

Sent: April 12, 2022 3:06 PM

To: Virginia Johnson <vjohnson@lrl.ca>

Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>

Subject: RE: 400 Coventry Road- Engineering Contact

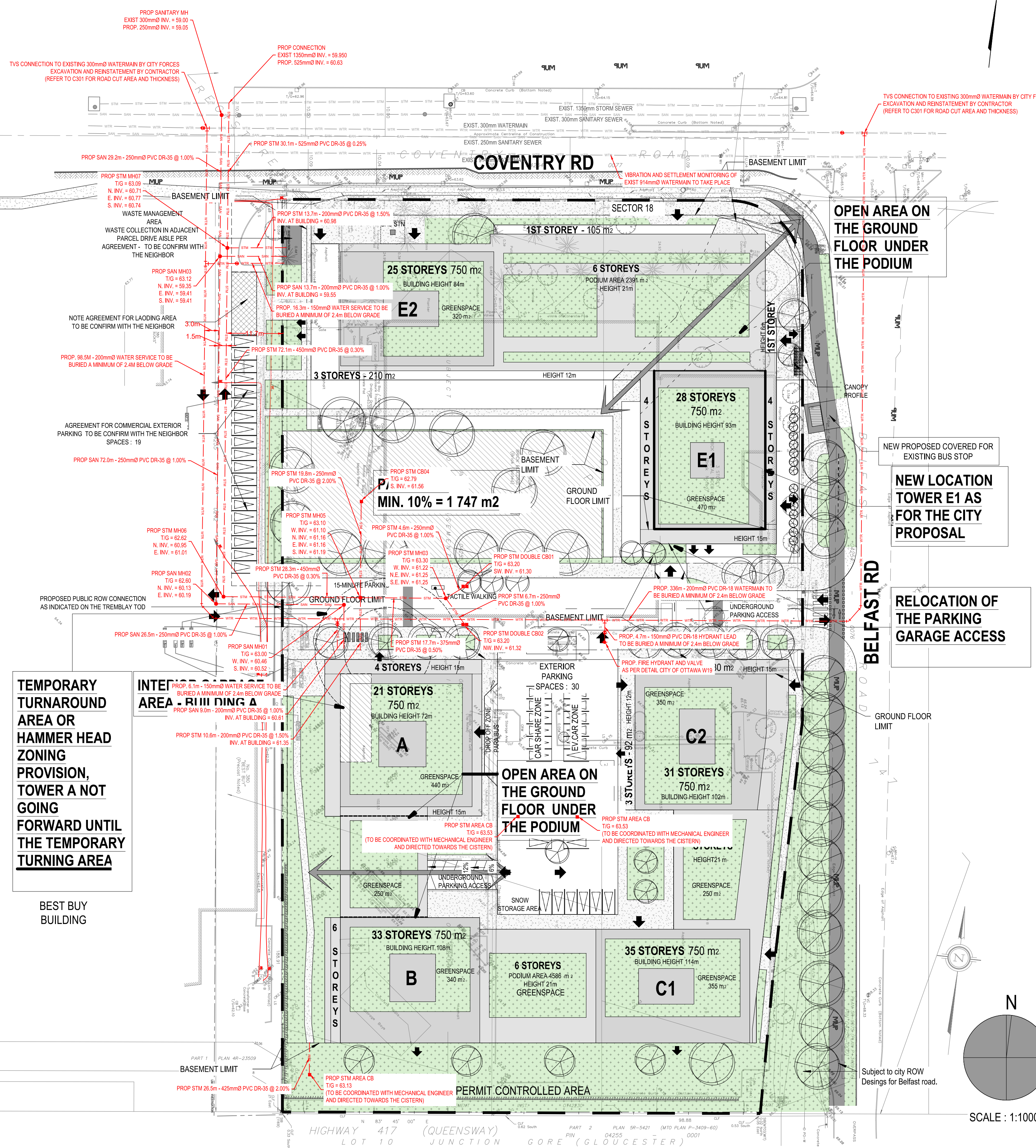
Hello Virginia

I will be the infrastructure project manager on this application. Please feel free to reach out.

APPENDIX H

Concept Civil Engineering Design Drawings





LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
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- PROPOSED SILT FENCE AS PER OPSD 219.110
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USE AND INTERPRETATION OF DRAWINGS

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No.	REVISIONS	BY	DATE
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01	ISSUED FOR APPROVAL	V.J.	12 JUNE 2023

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
400 COVENTRY INVESTMENTS INC.

DESIGNED BY: T.H. DRAWN BY: T.H. APPROVED BY: V.J.

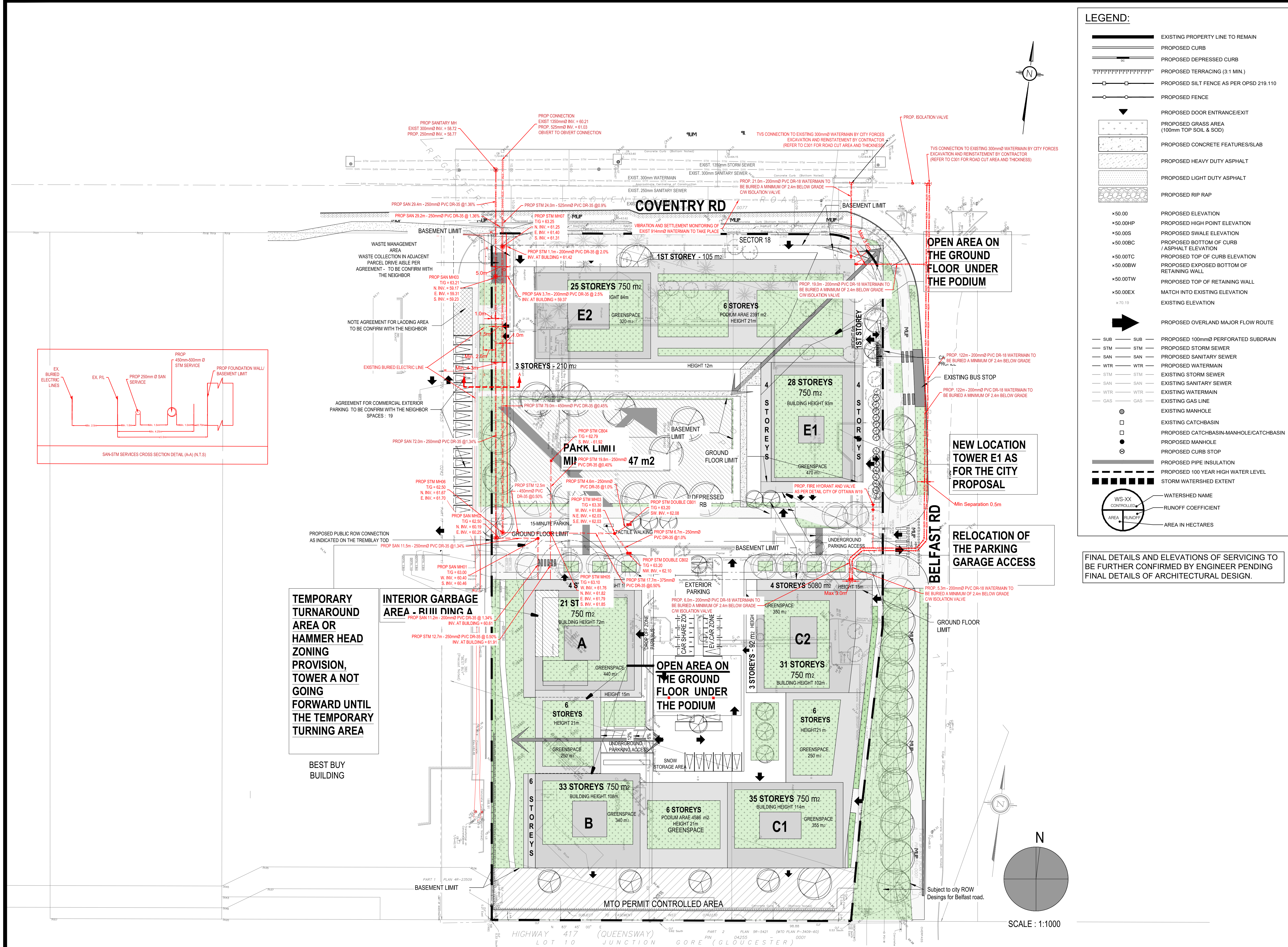
PROJECT
**COVENTRY REDEVELOPMENT
400 COVENTRY RD,
OTTAWA, ON**

DRAWING TITLE
SERVICING PLAN- OPTION 1

PROJECT NO.
220200

DATE
JUNE 2023

C401-1



LEGEND:

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DESIGNED BY: T.H. DRAWN BY: T.H. APPROVED BY: V.J.

PROJECT: COVENTRY REDEVELOPMENT
400 COVENTRY RD,
OTTAWA, ON

DRAWING TITLE: SERVICING PLAN- OPTION 2

PROJECT NO. 220200
DATE: JUNE 2023

C401-2