



MUNICIPALITY OF  
**West Elgin**

**Site Plan Agreement – FALKINS PROPERTIES INC. (FORMER RODNEY LEGION)**

**This Agreement** made in triplicate this 11<sup>th</sup> day of August, 2022

-BETWEEN-

**Falkins Properties Inc.**

hereinafter called the “**Owner**”

-AND-

**The Corporation of the Municipality Of West Elgin**

hereinafter called the “**Municipality**”

**Whereas** the Owner represents that they are the registered owner of those lands and premises in the former Township of Aldborough, now in the Municipality of West Elgin, in the County of Elgin and outlined in heavy solid lines on Schedule “A” attached hereto and forming part of this Agreement (hereinafter called the “parcel”);

**And Whereas** the Owner proposes to construct a multi-unit residential development in accordance with the Site Plan prepared by Y.C. Liu Engineering, Chatham, Ontario dated May 24, 2022 in the Revisions Chart including SP-1 to 4, inclusive (hereinafter called the “plans”) attached hereto as Schedule “B”;

**And Whereas** the Municipality is agreeable to the use and development of the parcel as shown on the site plan on the condition that the Owner enters into an agreement with the Municipality on certain specified terms;

**And Whereas** the parcel is zoned for the purposes proposed by the Owner;

**And Whereas** the parcel lies within an area of site plan control;

**And Whereas** within an area of site plan control, the Municipality, pursuant to Section 41 of the Planning Act, R.S.O. 1990, as amended, has the authority to approve plans and drawings respecting development, to require certain dedications or improvements to the satisfaction of, and at no expense to, the Municipality, and further to enter into this Agreement with the Owner;

**Now Therefore This Agreement Witnesseth** that in consideration of the sum of ONE DOLLAR (\$1.00) of lawful money of Canada now paid by the Municipality to the Owner, the Owner covenants and agrees with the Municipality to do and perform at their own expense the following:

The following Schedules, acting as a legal description of the Land affected by this Agreement, the plans required by the Municipality pursuant to Section 41 of the Planning Act, R.S.O. 1990, as amended, and specifics of the services being provided are hereby declared to form part of this Agreement, comprise the Development, and are attached to this Agreement:

Schedule	Description
Schedule A	Location Map
Schedule B	Approved Site Plan (May 24, 2022)
Schedule C	Landscape Plan
Schedule D	Photometric Plan
Schedule E	Functional Servicing & SWM (+ Appendix A)

The attached Schedules are hereby approved by the Municipality subject to the following conditions:

- The following works or matters will be provided by the Owner to the Municipality’s satisfaction and at no expense to the Municipality.
- The Owner agrees that the Development will be completed in accordance with the attached Schedules. Any item not clearly included within the Schedules or included within this Agreement is deemed prohibited and shall only be permitted by means of an amendment to this Agreement.

1. **Entrance:** The Owner agrees to construct a new entrance to the requirements and standards of the road authority and to pave the entrances with asphalt between the front lot line and the traveled portion of Victoria Street and Jane Street as shown on the site plan to the satisfaction and approval of the road authority. Entrance widths shall not exceed 9m. The Owner agrees to provide entrance and exit ramps and any associated culverts within the Municipal Road allowance as shown in Schedule ‘E’.

The Owner agrees to obtain all required permits from the related regulatory and approval authorities prior to installation and shall install the related works in accordance with all specifications provided by the regulatory and approval authorities.

2. **Driveways and Parking Areas:** The Owner agrees that all driveways and parking areas shall be constructed and surfaced with asphalt as shown on Schedule “B” to the satisfaction of the Municipality. The Owner further agrees that the driveways and parking areas shall be maintained in a good and tidy condition, be well drained and level and free of dust, ruts and depressions and cleared of snow during the winter season.

3. **Walkways and Sidewalks:** The Owner agrees that all internal walkways and sidewalks as shown on Schedule 'B' shall be hard surface materials such as concrete, asphalt pavement or interlocking brick and be AODA compliant.
4. **Exterior Lighting:** The Owner agrees that all exterior lighting of the parcel, including lighting affixed to any building, shall be full cut-off, dark sky compliant, oriented and its intensity controlled so as to prevent glare onto adjacent properties and roads to the satisfaction of the Municipality. All exterior lighting shall be directed away from adjacent properties. Acceptable lighting will be provided to ensure the safety and security of the Public and the Development.
5. **Signage:** The Owner agrees that the location, design and installation of free-standing signage shall be to the satisfaction of the Municipality. Signs shall be permitted subject to all Municipal and/or County regulations, permits and conventions.
6. **Fire Services and Routes:** The Owner agrees that all fire routes shall have a minimum width of 6 meters and shall be constructed such that they can accommodate and support firefighting equipment weighing fifteen (15) tonnes during all weather conditions.
7. **Fire Hydrants:** The Owner agrees that the maintenance of all fire hydrants and connections on private property as shown in Schedule 'B' shall be the responsibility of the Owner and maintenance shall be performed to the Municipality's satisfaction. The location and installation of all required fire hydrants shall be approved by the Municipality.

All required fire hydrants will be supplied and installed at the Owner's expense to the satisfaction of the Municipality. The aforementioned fire hydrants shall be maintained by the Owner at the Owner's sole expense.

8. **Site Services and Drainage:** The Owner agrees to the following specific to servicing and drainage:
  - Surface drainage shall be accommodated on site. The rate of post-development surface run-off directed towards adjacent properties and road allowances shall not exceed pre-development run-off rates.
  - The site shall adequately drain to the Municipality's satisfaction and in accordance with the Schedule '?' such that the flow of water resulting from any grading and drainage facilities does not create erosion issues nor does it aggravate existing issues on the site or adjacent lands. The flow of water shall not create a drainage issue on the site or adjacent lands.
  - The site grading shall comply with all elevations noted on the grading plan(s) as included within Schedule 'E'.
  - Sediment and erosion control measures will be implemented, monitored and maintained throughout construction to the Municipality's satisfaction.
  - The Owner shall indemnify and hold the Municipality harmless from any liability

regarding excess run-off during or as a result of the Development and works and matters described within this Agreement.

- Any and all required extensions or expansions to storm, sanitary or water systems on the site shall be installed at the sole expense of the Owner to the Municipality's satisfaction.
- Sanitary sewers shall be constructed with necessary appurtenances and services connected to said sanitary sewers. Sanitary sewers shall be constructed to connect to existing sanitary sewer systems. All works shall be completed in accordance with the approved Schedule and to the Municipality's satisfaction. Inspection manholes will be installed where required by the Municipality and the Owner shall maintain the system in accordance with the Municipality's direction, at the Owner's sole expense.
- The Owner shall provide the Municipality, as required, a stormwater management plan which shall be approved by the Municipality, County and third-party peer reviewer. The owner shall, in accordance with the stormwater management plan, and to the Municipality's satisfaction and approval:
  - Stormwater shall be disposed of in accordance with the terms and conditions of an Environmental Compliance Approval as issued by the Ministry of the Environment, Conservation and Parks, as applicable or in accordance with Conservation Authority requirements.
  - The Owner is responsible for the provision, construction, maintenance and liability associated with the stormwater management facility located on the site.
  - Supply and install storm sewers and appurtenances, catchbasins and leads in accordance with the approved drawings and stormwater management plan with sufficient capacity to drain the site and adjacent lands and to provide connections for future storm infrastructure as required by the Municipality.
  - Provide easements across the site or adjacent lands for drainage infrastructure that may be required to provide an approved stormwater outlet and protect any natural watercourses, as applicable.

9. **Protect and Restore Streets:** The Owner agrees that the protection of existing streets affected by the construction of this project are the Owner's responsibility and the Owner shall restore such streets to their pre-construction condition to the Municipality's satisfaction.

10. **Site and Road Maintenance:** The Owner agrees to keep the site clean and secure during construction, while ensuring dust is kept to a minimum and all roads adjacent to and within the vicinity of the Development are kept clean of mud and debris.

11. **Landscaping:** The Owner agrees that the Development shall be graded and landscaped in accordance with the grading plan included within the approved Schedules. All trees

and miscellaneous landscaping features will be maintained by the Owner such that interference with vehicular traffic, including through areas designated as fire routes is eliminated at all times.

12. **Building Code:** The Owner agrees that compliance with the most current version of the Ontario Building Code and regulations thereunder is mandatory.
13. **Site Plan and As-Built Drawings:** The Owner agrees to provide the Municipality with as-built drawings of all service installations and connections, meter pits, infrastructure installed within the road allowance to be assumed by the Municipality, as well as as-built site plans, in both electronic (PDF and CAD) and paper formats within sixty (60) days of construction completion.
14. **Solid Waste Storage:** The Owners agree that any outdoor waste materials or recyclable storage containers shall be restricted to rear of the building or as shown on the approved site plan within an enclosed lockable refuse bin or enclosure intended specifically for such purpose as shown on Schedule "B".
15. **Incidental Matters:** All incidental matters, which may or may not be shown on the site plan including the re-location of utilities, pipes, poles, valves and equipment; the re-setting of drains and manholes; and all things required by this Agreement or by the Municipality shall be carried out by the Owner at their sole risk and expense, provided all work is to be done to the satisfaction of the Municipality and/or the permission and satisfaction of the respective utility company or agency as the case may be.
16. **Completion of Works:** Except as may be indicated otherwise by paragraph 19, the facilities and matters required by paragraph 1 to paragraph 18 inclusive shall be completed within a period of two (2) years of the date of the issuance of a building permit and all such work shall be undertaken and completed to the satisfaction of the Municipality.
17. **Maintenance of Works:** The facilities and matters required by paragraph 1 to paragraph 18 inclusive shall be provided and maintained by the Owners from time to time at their sole risk and expense and to the satisfaction of the Municipality and in default thereof, in addition to any other remedies which may be available to the Municipality, the provisions of the Municipal Act shall apply for the purposes of securing rectification of the default. The Owners further covenant and agree that the parcel shall, at all times, be kept tidy and free of weeds, refuse and debris.
18. **Legibility of the Plans:** Where the legibility of the schedules attached hereto or any information or rendering contained thereon is in question or in dispute, the corresponding full-sized plans filed in the office of the Municipality shall be deemed to be the plans for which, in conjunction with this Agreement, use and development of the parcel shall be in

accordance with.

19. **Work According to Plans**: The Owner agrees not to change or revise the site plan or deviate from construction in accordance therewith without the prior written approval of the Municipality.
20. **Right of Entry**: The Municipality or any of its officers, employees or agents may, from time to time and upon producing proper identification, enter upon the parcel and any building(s) erected thereon for the purpose of inspecting the facilities, services, works and matters to be provided, constructed or installed, and maintained by the Owner under this Agreement. The Municipality, its officers, employees and agents shall not be liable to the Owner or any occupant of the parcel and premises for any losses or damages of any kind whatsoever arising, in any way, from entry for such purposes.
21. **Remedy**: The Owners agree that if they do not complete the construction within two (2) years of the date of the issuance of a building permit, this Agreement may be reviewed by the Municipality and amended as necessary in light of the policies, procedures, regulations and guidelines existing at that time including the right of the Municipality to enter upon and to restore the parcel to its original condition and recover the costs thereof by action or in like manner as taxes.
22. **Indemnity**: The Owners shall, at all times, indemnify and save harmless the Municipality of and from all losses, costs and damages which the Municipality may suffer, be at or be put to, for or by reason of, or on account of construction, servicing, plantings and any other improvements required or permitted by this Agreement and such indemnity shall constitute a first lien and charge upon the parcel.
23. **Application of Municipal By-laws**: Notwithstanding any of the provisions of this Agreement, the Owners shall be subject to all by-laws of the Municipality.
24. **Registration**: The Owners shall register, or cause to be registered, this Agreement against the title to the parcel in the Land Titles Division of Elgin (No. 11) immediately after execution to the extent and purpose that this Agreement and all of the Owners covenants herein shall run with the land, and the Owners shall forthwith advise the Municipality of the particulars of registration thereof.
25. **Agreement Binding**: The covenants, agreements, conditions and understandings herein contained on the part of the Owners shall run with the parcel and shall be binding upon them and upon their successors and assigns as Owners and occupiers of the said parcel from time to time.

26. **Severability**: If any of the terms of this Agreement shall be found to be “ultra vires” the Municipality, or otherwise unlawful, such terms shall inclusively be deemed to be severable, and the remainder of this Agreement shall, with the necessary changes, be and remain in full force and effect.

27. **Owner’s Title**: The Owners represent and warrant to the Municipality that at the date of this Agreement and at the date of the registration of this Agreement upon title, the Owners are the owner in fee simple of the parcel free from all liens and encumbrances; and the Owners shall cause to be delivered to the Municipality an opinion by a solicitor authorized to practice in Ontario to this effect after and as of the registration of this Agreement upon the title to the parcel.

The said opinion shall be addressed to the Municipality in consideration of a fee of One Dollar (\$1.00) payable to the solicitor rendering same. If there are any outstanding encumbrances, liens or mortgages, the Owners shall obtain and register a discharge of same or, in the alternative; the Owners shall obtain and register agreements postponing the interest of the lienholder, encumbrancer or mortgagee to the interests of the Municipality. Such postponement agreements to confirm that the lienholder, encumbrancer or mortgagee agrees that in the event the parcel becomes vested in him, the lienholder, encumbrancer or mortgagee shall be required to comply with the terms of this Agreement to the same extent as if he had joined herein as Owner.

28. **Recovery of Municipality’s Costs**: The Owner agrees to the use of the deposit currently with the Municipality, of Ten Thousand Dollars (\$10,000.00) to reimburse the Municipality for its costs incurred for engineering, planning, legal and surveying services and for the cost of administration, supervision and all other work required by the Municipality in connection with this Agreement, including the negotiations leading to and the preparation of this Agreement and costs arising out of the realization upon any security given hereunder. If the total monies deposited are insufficient, the Owner shall reimburse the Municipality for such actual costs, from time to time, as and when requested by the Municipality; and if these monies exceed the actual costs, the Municipality shall refund to the Owner such excess, without interest, upon completion of the works.

29. **Professional Engineer:** The Owner agrees that their Engineer licensed in the Province of Ontario, shall inspect and certify to the Municipality that all internal and external services, grading, and stormwater management infrastructure have been constructed in accordance with the approved engineering drawings as included within the Schedules of this agreement, prior to the reduction of any site plan deposit or security filed with the Municipality. The deposit or certificate(s) shall be in a form acceptable to the Municipality. The Municipality may, upon pre-qualification of such, accept the use of other qualified professionals for certain components of the design, inspection and certification process.
30. **Notice:** Any notice by the Municipality to the Owners shall be effectually given by personal service upon or by first class registered mail to the Owners of the land at the address shown on the last returned assessment roll as updated from time to time as to any change in Ownership received in writing by the Municipality, and every such notice shall be deemed to be given upon the day it was personally served and so mailed.

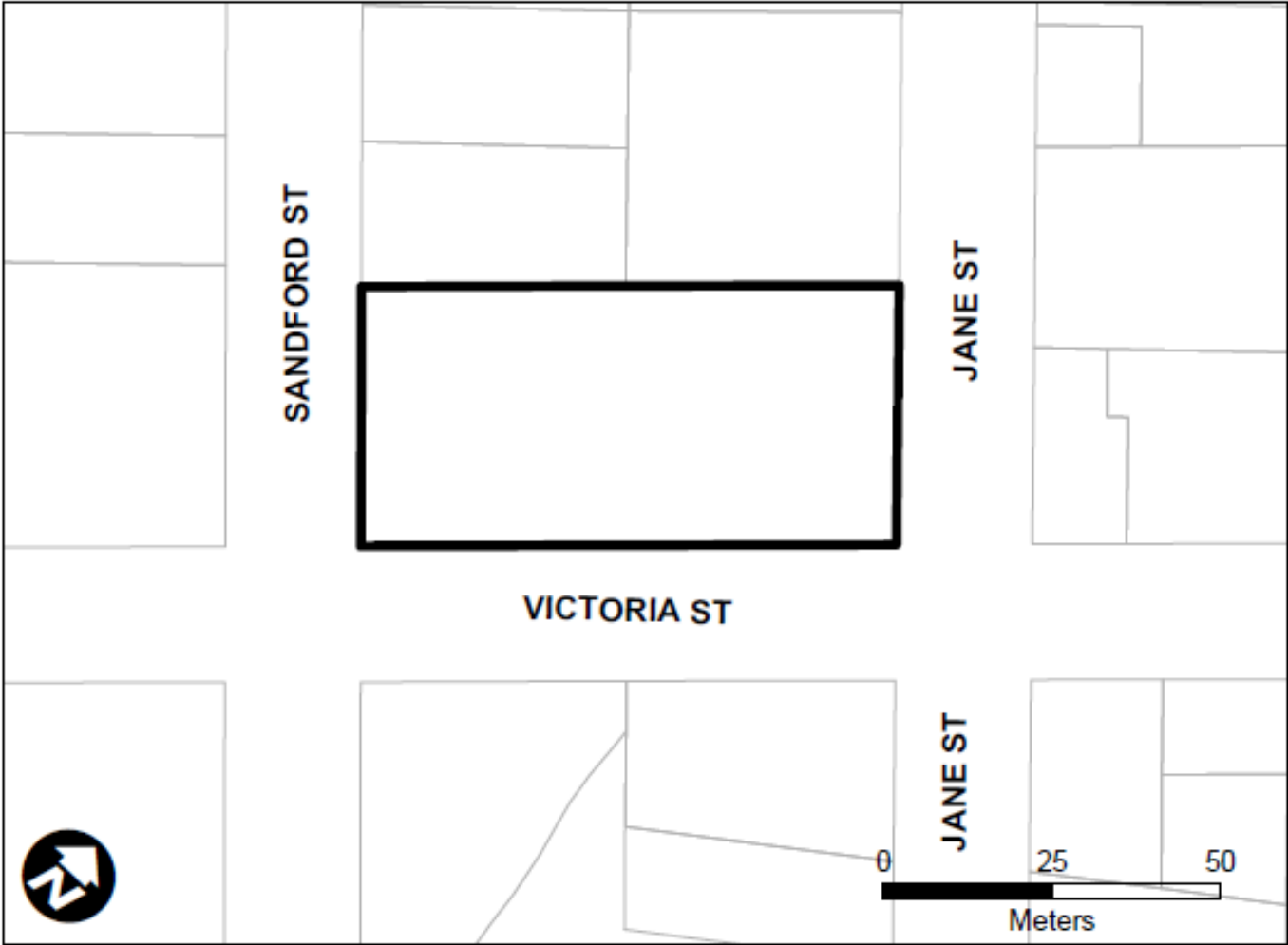
**In Witness Whereof** the parties hereto have hereunto affixed their respective corporate seals under the hands of their proper signing officers duly authorized in that behalf.

<b>Signed, sealed and delivered in the presence of:</b>	)	<b>Falkins Properties Inc.</b>
	)	
	)	
	)	
	)	<b>per:   Dean Falkins</b>
	)	
	)	
	)	
	)	<b>The Corporation of the Municipality of West Elgin</b>

<b>As authorized by By-law No.XXXX</b>	_____
<b>passed this 11<sup>th</sup> day of August, 2022</b>	<b>per:   Duncan McPhail, Mayor</b>
	_____
	<b>per:   Jana Nethercott, Clerk</b>

Schedule "A"

**SCHEDULE "A"**  
**LEGAL DESCRIPTION OF THE PARCEL**  
**Lots 7 to 10, Blk G, Plan 154 (177 Victoria Street)**  
**Municipality of West Elgin**



THIS IS SCHEDULE "A" TO THE AGREEMENT DATED THIS \_\_\_\_ DAY OF \_\_\_\_\_, 2022

**BETWEEN FALKINS PROPERTIES INC.**  
**AND**  
**THE MUNICIPALITY OF WEST ELGIN**  
**FALKINS PROPERTIES INC.**

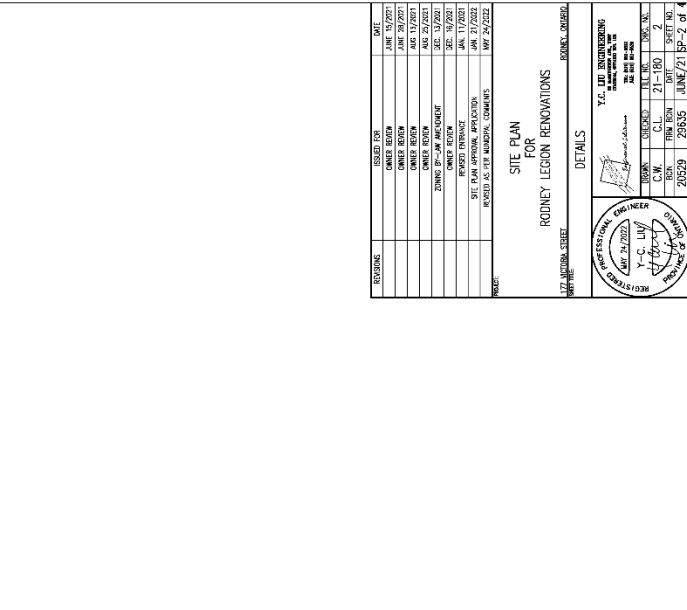
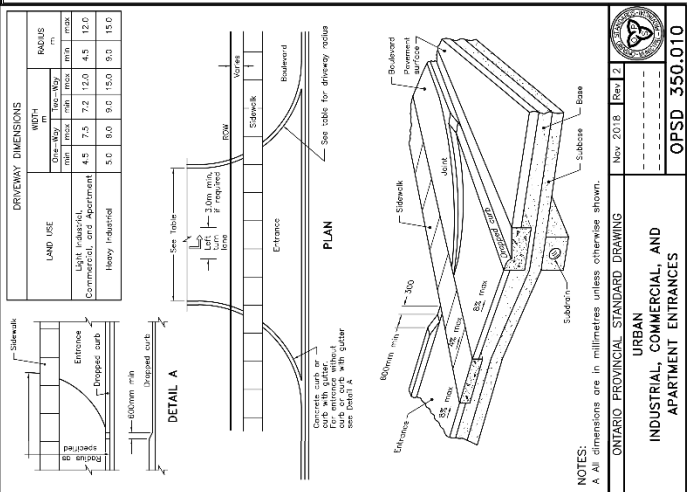
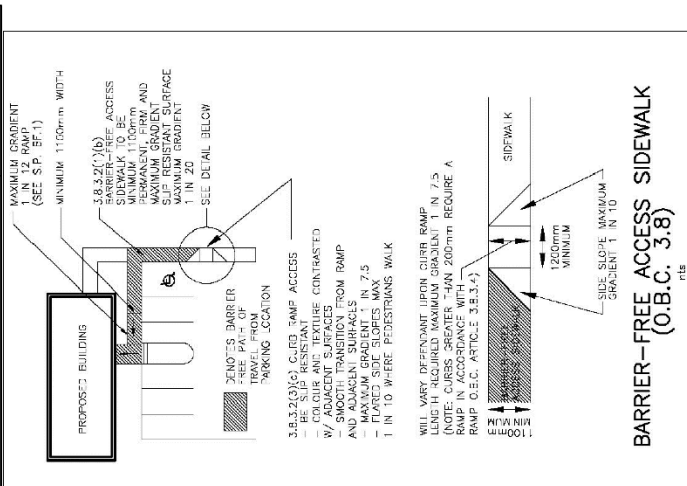
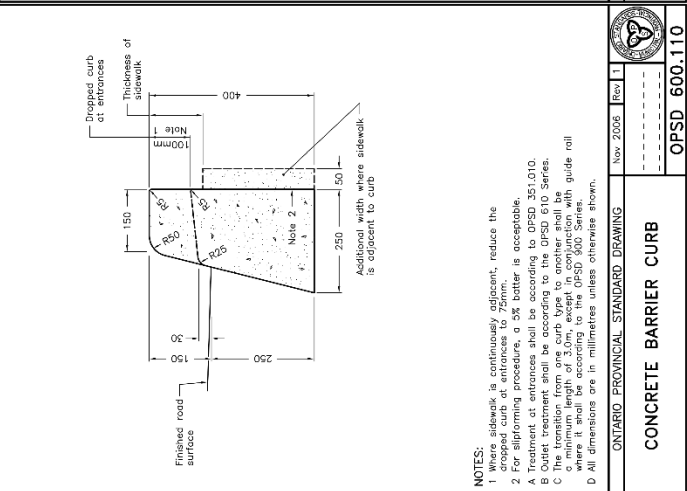
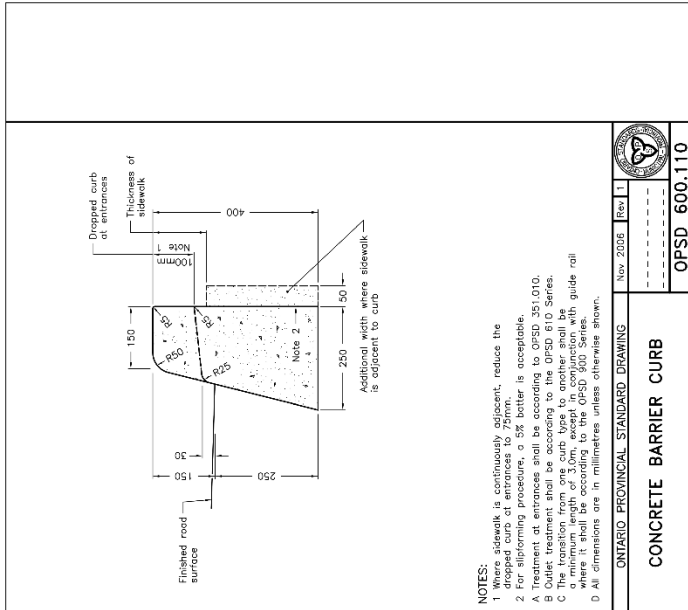
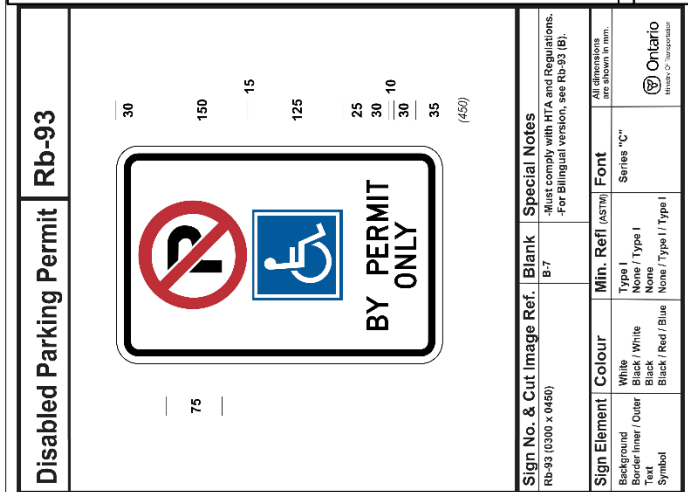
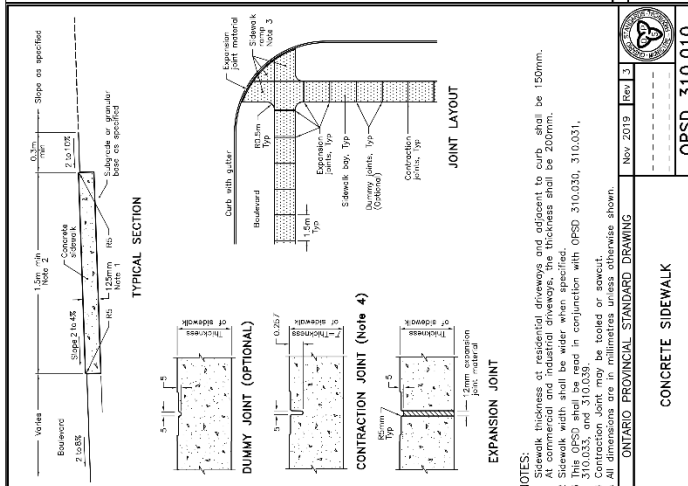
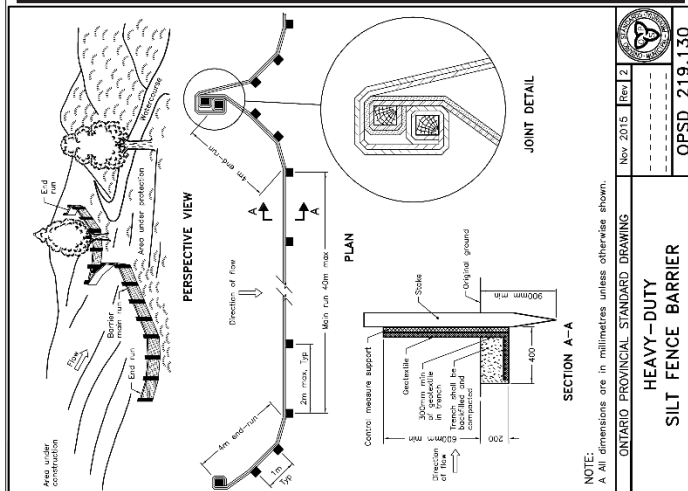
Per: \_\_\_\_\_  
Dean Falkins - President

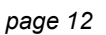
**THE MUNICIPALITY OF WEST ELGIN**  
Per: \_\_\_\_\_  
Mayor - Duncan McPhail

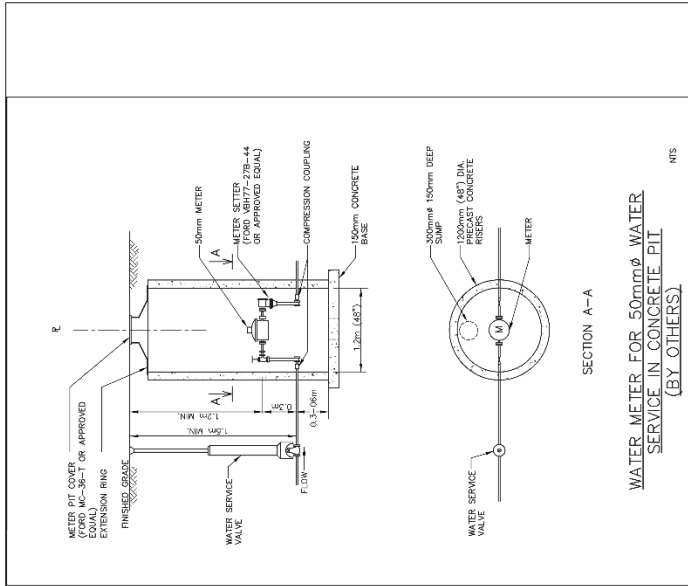
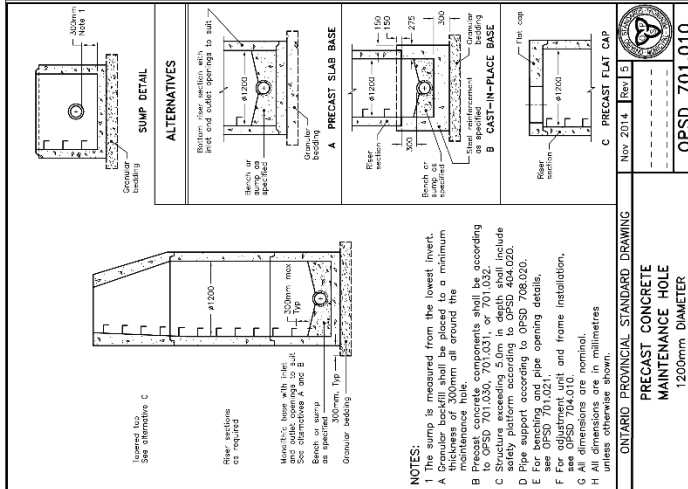
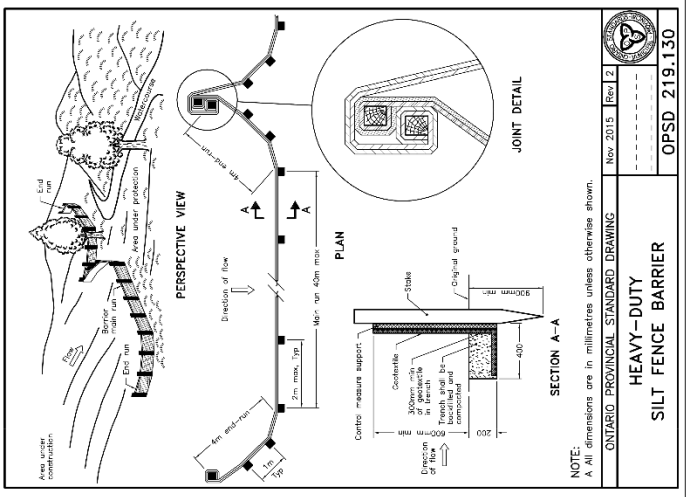
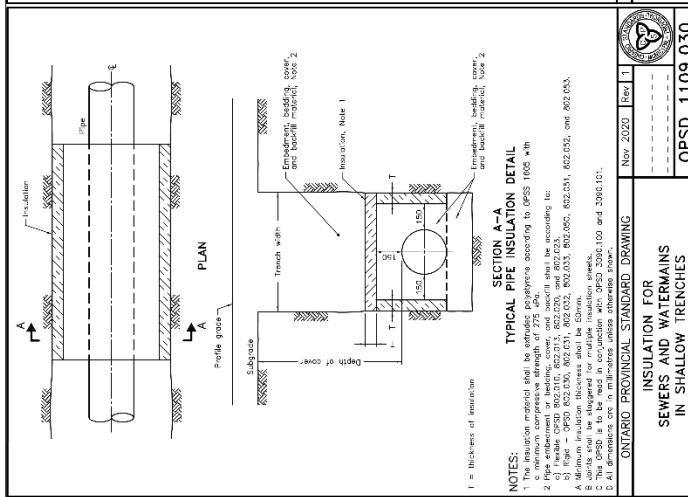
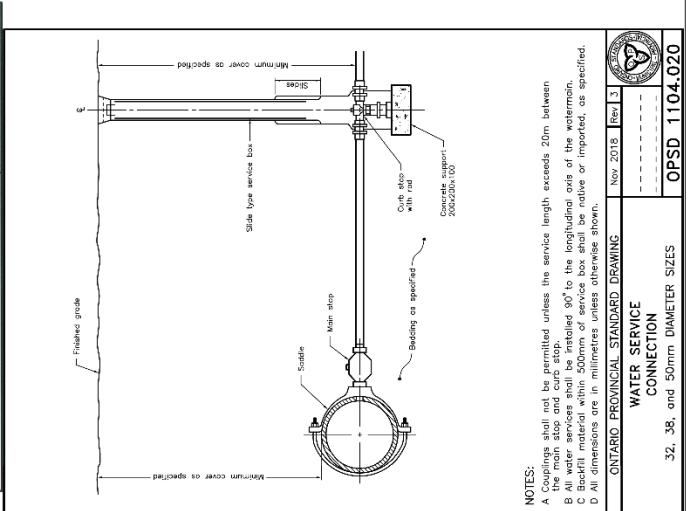
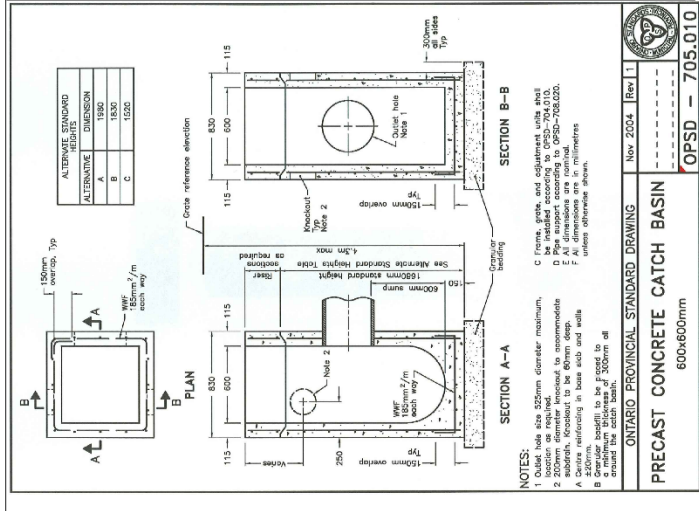
Per: \_\_\_\_\_  
Clerk - Jana Nethercott

## Site Plan







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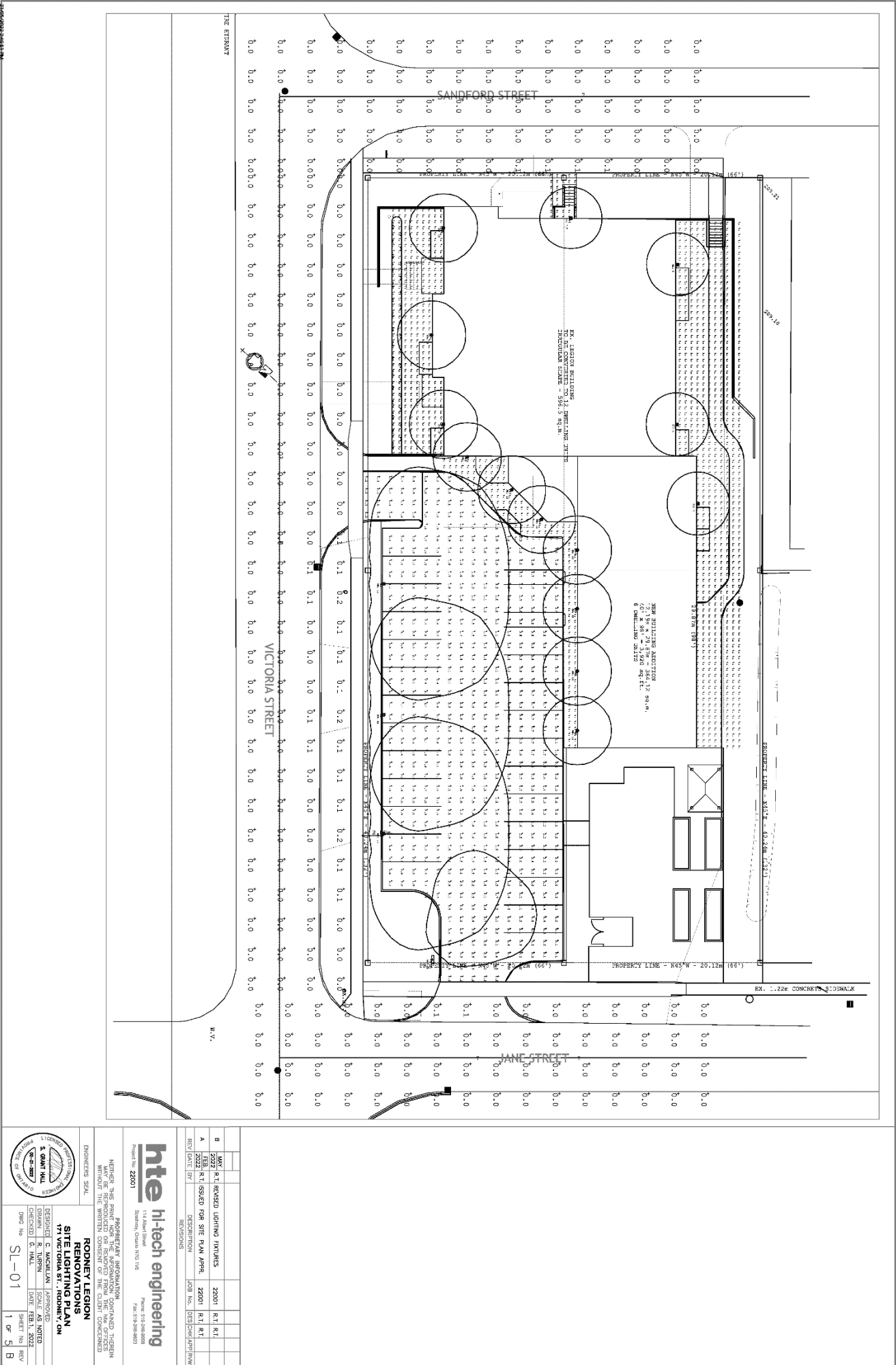
## Landscape Plan



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Schedule "D"

Photometric Plan



## Schedule "E"

### Servicing Plan



39 McNaughton Ave. W., Chatham, Ontario Canada, N7L 1R2

Bus: 519-351-9612 - Fax: 519-351-5526

May 24, 2022

File No:21-180

**Ms. Heather James,**  
**Land Use Planner,**  
**Municipality of West Elgin**  
22413 Hoskins Line,  
Rodney, Ontario  
N0L 2C0

**RE: Site Servicing Review for Redevelopment of 177 Victoria Street, Rodney Ontario.**

Dear Sir,

This is to confirm that an Infrastructure and Servicing review has been completed for the above-mentioned site to compare the water, sanitary and storm servicing requirements of the existing Assembly Hall Use to the proposed redevelopment of the site to Residential Apartment Use.

The subject property is currently fully developed with an existing building which was previously used as the Royal Canadian Legion Branch 525 and an asphalt parking lot. The proposed changes to the property are to convert the existing building into 12 dwelling units and construct a new building addition with an additional 6 dwelling units and a common area.

The site is currently fully serviced with a municipal water service, municipal sanitary service and a municipal stormwater service. Below is a summary of the existing services and proposed changes to the site servicing requirements.

#### **Water Service**

After reviewing the Municipal servicing drawings for the Village of Rodney, there appears to be 3 municipal watermain abutting the subject property available for potable water supply. A 150mm municipal watermain runs along the West side of Jane Street, a 150mm municipal watermain runs along the West side of Sanford Street and a 200mm municipal watermain runs along the South side of Victoria Street.

The existing building is currently serviced with a 25 mm (1") water service connection to the 150mm watermain on Sanford Street. The existing water service is not sufficiently sized for the proposed change of use. It is recommended that the existing 25mm service connection to the Sanford Street watermain be decommissioned. The existing service should be cut and capped at the watermain.

Through discussions with municipal staff, it is recommended that a new 50mm water service be connected to the 200mm watermain on Victoria Street. A new meter pit will be installed at the property line with a curb stop and 1 water meter for the entire building.

**Sanitary Service**

The existing building is serviced with a 125mm (5") sanitary service stubbed from the sanitary sewer on Victoria Street to the property line. An existing 100mm (4") sanitary pipe connects from the building to the service stub. The service stub appears to be at a slope greater than 1.0%. The existing sanitary service was camera inspected and appears to be in good condition. The existing 100mm sanitary pipe will be removed and replaced with a 125mm (5") sanitary pipe at a minimum of 2.0% slope.

The previous use of the existing building was an Assembly Use, with Kitchen/Food Services. The existing building previously had a maximum occupancy of 688. Based on a review of Table 8.2.1.3.B of the Ontario Building Code, the previous use of the existing building accounted for 24,768 Litres of daily design sanitary sewage flow.

The proposed changes to the site would result in 18 new residential dwelling units with a maximum of 3 occupants per unit. Based on Table 8.2.1.3.A of the Ontario Building Code, the proposed new building use would require 14,850 Litres of daily design sanitary sewage flow. Below is a summary of the total daily design sanitary sewage flow as per Table 8.2.1.3.A. of the Ontario Building Code:

Table 8.2.1.3.A – Residential Occupancy		
1. Apartments – Per Person	275L	Max. 3 Occupants = 275L x 3 Occupants x 18 Units = 14,850L

The proposed changes will result in a reduced daily design sanitary sewage flow which outlets to the municipal sanitary sewers. Therefore, the municipal sanitary sewers should have sufficient capacity for the proposed changes to the sanitary sewage flows from the property.

Below is a summary of the Hydraulic Loads for fixtures as per Table 7.4.9.3 of the Ontario Building Code:

Table 7.4.9.3		
Fixture	Quantity Per Dwelling	Hydraulic Load (Fixture Units)
Bathroom Group (Lavatory, Water Closter & Bathtub)	1	6 (with flush tank)
Clothes Washer	1	1.5
Floor Drain		2
Sink	1	1.5
Total Dwelling Unit Fixtures		11 Fixture Units Per Dwelling = 11 x 18 Dwellings = 198 Fixture Units
Common Room Fixtures		
Water Closet	3	4 = 12 Fixture Units
Sink	3	1.5 = 4.5 Fixture Units
Floor Drain	3	2 = 6 Fixture Units
		= 22.5 Fixture Units
	TOTAL FIXTURE UNITS	= 198 + 22.5 = 220.5 Fixture Units

Based on a Table 7.4.10.8 of the Ontario Building Code, the existing 125mm sanitary service pipe at 1.1% slope (existing service stub) has capacity to convey 390 Fixture Units of Hydraulic Load. The proposed renovation of the building would result in approximately 220.5 Fixture Units of Hydraulic Load. Horizontal sanitary drainage pipes shall be designed to carry no more than 65% of its full capacity. The proposed sanitary flows from the building would use 57% capacity of the proposed outlet pipe and therefore the existing sanitary service stub is sufficiently sized.

### **Stormwater Quantity**

The subject property is currently entirely developed with a 596.5 sq.m. building and 2,046.5 sq.m. asphalt parking lot facility. The property currently has 82% of impervious surfaces and 18% permeable surfaces. The majority of the property currently drains overland to the municipal boulevard into the municipal roadside catch basins. There are 2 existing private catchbasins which collect stormwater from the asphalt parking lot and outlet stormwater to the municipal storm sewers through a 150mm storm pipe with no restriction. The 2 existing catchbasins and outlet pipes will be removed from the site.

The proposed development will result in 61% of impervious surfaces and 39% of permeable surfaces. This results in a decrease in stormwater run-off from the property. Through conversations with the municipal staff, it was determined that a drainage plan for the development to drain the property and treat storm water quality would be required.

The Wismer Drain, a closed municipal storm drain runs through the property from the North-East corner of the property to the open municipal storm drain on the south side of Victoria Street. A 7.5m maintenance corridor from the centreline of the Wismer Drain is required on each side of the pipe.

The lot will be serviced with 3 new catch basins and which will collect stormwater and direct it to a new outlet pipe connected to the Wismer drain.

### **Stormwater Quality**

The existing development had no water quality control. The proposed stormwater system will increase the quality of the water that exits the site.

All new catchbasins will be equipped with 600mm deep sump pits. These sumps will collect sediment that has been washed off the surface of the surrounding asphalt area on site. It is the responsibility of the owner to maintain all catchbasins and manholes on-site with respect to sediment. The 600mm deep sumps should be maintained on at least a by-annual basis to prevent clogging and blockage of the pipes. These sumps should also be inspected after all major storm events to ensure maintenance is not required. This maintenance is the responsibility of the property owner.

An inverted 'T' will also be installed on the outlet of the last catchbasin. This inverted 'T' will help prevent floating sediment and oils from entering the municipal storm service. A cap shall be installed on top of the invert 'T' to allow for maintenance of the outlet pipe.

The use of the above mentioned inverted 'T' and the 600mm deep sumps would greatly increase the overall quality of the water traveling off the site through the stormwater drains.

If any questions are to arise from this Infrastructure and Servicing Report, please do not hesitate to contact our office at your convenience.

Respectfully Submitted,



**Chet Liu, P.Eng.**  
**Project Engineer**  
**Y.C. LIU ENGINEERING**



Included – Appendix 'A' Stormwater Management Calculations

**APPENDIX ‘A’ – STORMWATER MANAGEMENT CALCUATIONS**

**TABLE 1 - IDF CURVE DATA -MTO AES DATA FOR RODNEY**

**MTO AES DATA (2010)**

Using the equation:  $R=aT^b$

Return Period	Coefficients	
	a	b
2-Yr	23.7	-0.699
5-Yr	31.2	-0.699
10-Yr	36.2	-0.699
25-Yr	42.4	-0.699
50-Yr	47.1	-0.699
100-YR	51.7	-0.699

Time (min)	Time (T) (hrs)	Rainfall Intensity (R ) (mm/hr)					
		2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
5	0.08	134.6	177.2	205.6	240.8	267.5	293.7
10	0.17	82.9	109.2	126.7	148.4	164.8	180.9
15	0.25	62.5	82.2	95.4	111.7	124.1	136.2
20	0.33	51.1	67.2	78.0	91.4	101.5	111.4
30	0.50	38.5	50.6	58.8	68.8	76.5	83.9
35	0.58	34.5	45.5	52.8	61.8	68.7	75.4
40	0.67	31.5	41.4	48.1	56.3	62.5	68.6
45	0.75	29.0	38.1	44.3	51.8	57.6	63.2
50	0.83	26.9	35.4	41.1	48.2	53.5	58.7
55	0.92	25.2	33.2	38.5	45.1	50.1	54.9
60	1	23.7	31.2	36.2	42.4	47.1	51.7

TABLE 2 : C- Factor Weighting and Areas

<b><u>PRE-DEVELOPMENT (Existing Conditions)</u></b>		
Grass Area (A <sub>g1</sub> ):	595	m <sup>2</sup>
Grass Runoff Coefficient (C <sub>g</sub> ):	0.2	unitless
Impervious (ie.Asphalt,Building,Concrete) Area (A <sub>il</sub> ) including half of the open paved section of Church Street:	2643	m <sup>2</sup>
Impervious Runoff Coefficient (C <sub>i</sub> ):	0.90	unitless
Gravel Area (A <sub>gr1</sub> ):	0	m <sup>2</sup>
Gravel Runoff Coefficient (C <sub>gr</sub> ):	0.70	unitless
Weighted Runoff Coefficient (C1):	$C_1=(A_{g1} * C_g + A_{gr1} * C_{gr} + A_{il} * C_i)/(A_{g1} + A_{gr1} + A_{il})$	0.77 unitless
Total Area (m <sup>2</sup> ):	3238	m <sup>2</sup>
Total Area (ha):	0.32	ha
<b><u>POST-DEVELOPMENT</u></b>		
Grass Area (A <sub>g1</sub> ):	1263	m <sup>2</sup>
Grass Runoff Coefficient (C <sub>g</sub> ):	0.2	unitless
Impervious (ie.Asphalt,Building,Concrete) Area (A <sub>il</sub> ):	1975	m <sup>2</sup>
Impervious Runoff Coefficient (C <sub>i</sub> ):	0.90	unitless
Gravel Area (A <sub>gr1</sub> ):	0	m <sup>2</sup>
Gravel Runoff Coefficient (C <sub>gr</sub> ):	0.70	unitless
Weighted Runoff Coefficient (C1):	$C_1=(A_{g1} * C_g + A_{gr1} * C_{gr} + A_{il} * C_i)/(A_{g1} + A_{gr1} + A_{il})$	0.63 unitless
Total Area (m <sup>2</sup> ):	3238	m <sup>2</sup>
Total Area (ha):	0.32	ha

TABLE 3 - PREDEVELOPMENT FLOW REQUIREMENTS (2-YR)

Using the 2-year MTO AES Data for Rodney

COMPOSITE AREA - PRE DEVELOPMENT (C =0.77) Runoff Coefficient = 0.77

DURATION (min.)	INTENSITY (mm/hr)	QPRE A x C (COMPOSITE) (ha)	QPRE A x C x I (L/s)
5	135	0.2464	92.21
10	83	0.2464	56.80
15	62	0.2464	42.78
20	51	0.2464	34.99
25	44	0.2464	29.94
30	38	0.2464	26.35
35	35	0.2464	23.66
37	33	0.2464	22.76
40	31	0.2464	21.55
45	29	0.2464	19.85
50	27	0.2464	18.44
55	25	0.2464	17.25
60	24	0.2464	16.23
65	22	0.2464	15.35
70	21	0.2464	14.58
75	20	0.2464	13.89
80	19	0.2464	13.28
85	19	0.2464	12.73

POST-DEVELOPMENT FLOW (2-YR)

Using the 2-year MTO AES Data for Rodney

COMPOSITE AREA - PRE DEVELOPMENT (C =0.63) Runoff Coefficient = 0.63

DURATION (min.)	INTENSITY (mm/hr)	QPRE A x C (COMPOSITE) (ha)	QPRE A x C x I (L/s)
5	135	0.2016	75.45
10	83	0.2016	46.47
15	62	0.2016	35.00
20	51	0.2016	28.63
25	44	0.2016	24.49
30	38	0.2016	21.56
35	35	0.2016	19.36
37	33	0.2016	18.62
40	31	0.2016	17.63
45	29	0.2016	16.24
50	27	0.2016	15.09
55	25	0.2016	14.12
60	24	0.2016	13.28
65	22	0.2016	12.56
70	21	0.2016	11.93
75	20	0.2016	11.36
80	19	0.2016	10.86
85	19	0.2016	10.41

TABLE 4 - PREDEVELOPMENT FLOW REQUIREMENTS (100-YR)

Using the 100-year MTO AES Data for Rodney

COMPOSITE AREA - PRE DEVELOPMENT (C =0.77) Runoff Coefficient = 0.77

DURATION (min.)	INTENSITY (mm/hr)	QPRE A x C (COMPOSITE) (ha)	QPRE A x C x I (L/s)
5	294	0.2464	201.15
10	181	0.2464	123.91
15	136	0.2464	93.33
20	111	0.2464	76.33
25	95	0.2464	65.30
30	84	0.2464	57.49
35	75	0.2464	51.62
37	72	0.2464	49.65
40	69	0.2464	47.02
45	63	0.2464	43.30
50	59	0.2464	40.23
55	55	0.2464	37.63
60	52	0.2464	35.41
65	49	0.2464	33.49
70	46	0.2464	31.80
75	44	0.2464	30.30
80	42	0.2464	28.96
85	41	0.2464	27.76

POST-DEVELOPMENT FLOW (100-YR)

Using the 100-year MTO AES Data for Rodney

COMPOSITE AREA - PRE DEVELOPMENT (C =0.63) Runoff Coefficient = 0.63

DURATION (min.)	INTENSITY (mm/hr)	QPRE A x C (COMPOSITE) (ha)	QPRE A x C x I (L/s)
5	294	0.2016	164.58
10	181	0.2016	101.38
15	136	0.2016	76.36
20	111	0.2016	62.45
25	95	0.2016	53.43
30	84	0.2016	47.04
35	75	0.2016	42.23
37	72	0.2016	40.62
40	69	0.2016	38.47
45	63	0.2016	35.43
50	59	0.2016	32.91
55	55	0.2016	30.79
60	52	0.2016	28.98
65	49	0.2016	27.40
70	46	0.2016	26.02
75	44	0.2016	24.79
80	42	0.2016	23.70
85	41	0.2016	22.71

TABLE 5 : PIPE SIZING AND DESIGN

Manhole/Downspout		Area		"C"	AC		Tc	2-Year	Peak	Dia.	Pipe		Cap.	%	Velocity
From	To	Incr.			Incr.	Cumm.		Intensity	Flow		Slope	Length		Capacity	Full Flow
		m <sup>2</sup>	hectares												
DS NORTH (EX. BLD)	C.O.3a	298.3	0.03	0.9	0.027	0.03	15.00	62.5	4.66	150.00	0.50	24.00	11.7	39.9	0.66
DS NORTH (NEW BLD)	C.O.2a	182.0	0.02	0.9	0.016	0.04	15.00	62.5	7.51	150.00	0.50	30.00	11.7	64.2	0.66
NEW CB3	New MH2	247.0	0.02	0.5	0.012	0.04	15.00	62.5	6.81	200.00	0.50	18.00	11.7	58.2	0.37
New MH2	C.o.2a	0.0	0.00	0	0.000	0.04	15.00	62.5	6.81	200.00	0.50	17.00	11.7	58.2	0.37
C.O.2a	C.O.1a	0.0	0.00	0	0.000	0.08	15.00	62.5	14.32	200.00	0.50	13.00	25.1	57.1	0.80
DS SOUTH (NEW BLD)	C.O.1a	222.0	0.02	0.9	0.020	0.02	15.00	62.5	3.47	150.00	0.50	23.00	11.7	29.7	0.66
C.O.1a	New CB2	0.0	0.00	0	0.000	0.10	15.00	62.5	17.79	200.00	0.50	13.00	25.1	70.9	0.80
								62.5							
DS SOUTH (EX. BLD)	New CB1	298.3	0.03	0.9	0.027	0.03	15.00	62.5	4.66	150.00	0.50	26.00	11.7	39.9	0.66
NEW CB1	New MH1	150.0	0.02	0.2	0.003	0.03	15.00	62.5	5.19	150.00	0.50	3.00	11.7	44.3	0.66
NEW MH1	New CB2	0.0	0.00	0	0.000	0.03	15.00	62.5	5.19	200.00	0.50	24.00	25.1	20.7	0.80
NEW CB2	New MH3	958.0	0.10	0.9	0.086	0.22	15.00	62.5	37.96	200.00	2.00	3.00	50.2	75.6	1.60
NEW MH3	OUTLET	0.0	0.00	0	0.000	0.22	15.00	62.5	37.96	200.00	2.00	2.00	50.2	75.6	1.60

Manning's Formula for Outlet Pipe Size:

Diameter:	0.200 m	0.200 m	0.150 m
Slope:	2.000 %	0.500 %	0.500 %
Mannings "n" (SDR35-PVC):	0.012 unitless	0.012 unitless	0.012 unitless
X-sectional Area (A):	0.031 m <sup>2</sup>	0.031 m <sup>2</sup>	0.018 m <sup>2</sup>
Wetted Perimeter (P):	0.628 m	0.628 m	0.471 m
Hydraulic Radius (R):	0.050 m	0.050 m	0.038 m
Flow Capacity (Q=1/nA(R^0.667)(S^0.5)):	0.050 m <sup>3</sup> /s	0.025 m <sup>3</sup> /s	0.012 m <sup>3</sup> /s
Flow Capacity:	50.2 L/s	25.1 L/s	11.7 L/s