

June 28, 2021

To: City of Ottawa, Community Planning
Planning, Infrastructure, and Economic
Development Department
110 Laurier Avenue West
Ottawa, Ontario, K1P 1J1

From: Jamie Kennedy, Hatch
Andrew Middleton, Hatch

cc: Alan Roberts
Laurie Roberts

Subject: Rail Safety Study – VIA Rail Corridor Proximity
5969 Ottawa Street – Proposed Mixed Use Dog Training Facility

Introduction:

As part of a development application submission, the City of Ottawa has requested the Landowner (or “the Applicant”) retain a rail safety consultant to conduct a rail safety study as it relates to the single main line rail track adjacent to the property at 5969 Ottawa Street (the “Project” or “Site”).

The Site is a triangular shaped lot which, in its current condition, is an undeveloped natural area with significant tree coverage. A watercourse is also observed running through the centre of property.

The Site is bound by Ottawa Street to the southeast, the VIA Rail Smith's Falls Subdivision rail corridor to the northwest, and an existing commercial industrial automotive building to the northeast. An aerial photograph of the site and surrounding land uses is illustrated in Figure 1 below.



Figure 1: Site Context

The Smiths Falls Subdivision rail corridor immediately northwest of the site is currently comprised of a single track which is classified as a Principal Main Line.

Proposed Development

The proposed development is a 2-storey mixed use building that will primarily serve as a dog training facility and kennel on the ground floor. The second storey of the new development will serve as a single caretaker's residence. The dog training facility is considered to be a non-sensitive, low occupancy use. The caretaker's residence is classified as a sensitive, low occupancy use.

The new building is proposed along the eastern boundary of the Site, adjacent to the existing commercial automotive building, setback approximately 22 metres from Ottawa Street and 9 metres from the northeastern property line.

The horizontal setback from the rail corridor property line to the back of the new building is proposed to be a minimum of 75 metres. The location of the new development and setback is illustrated in Figure 2 below.

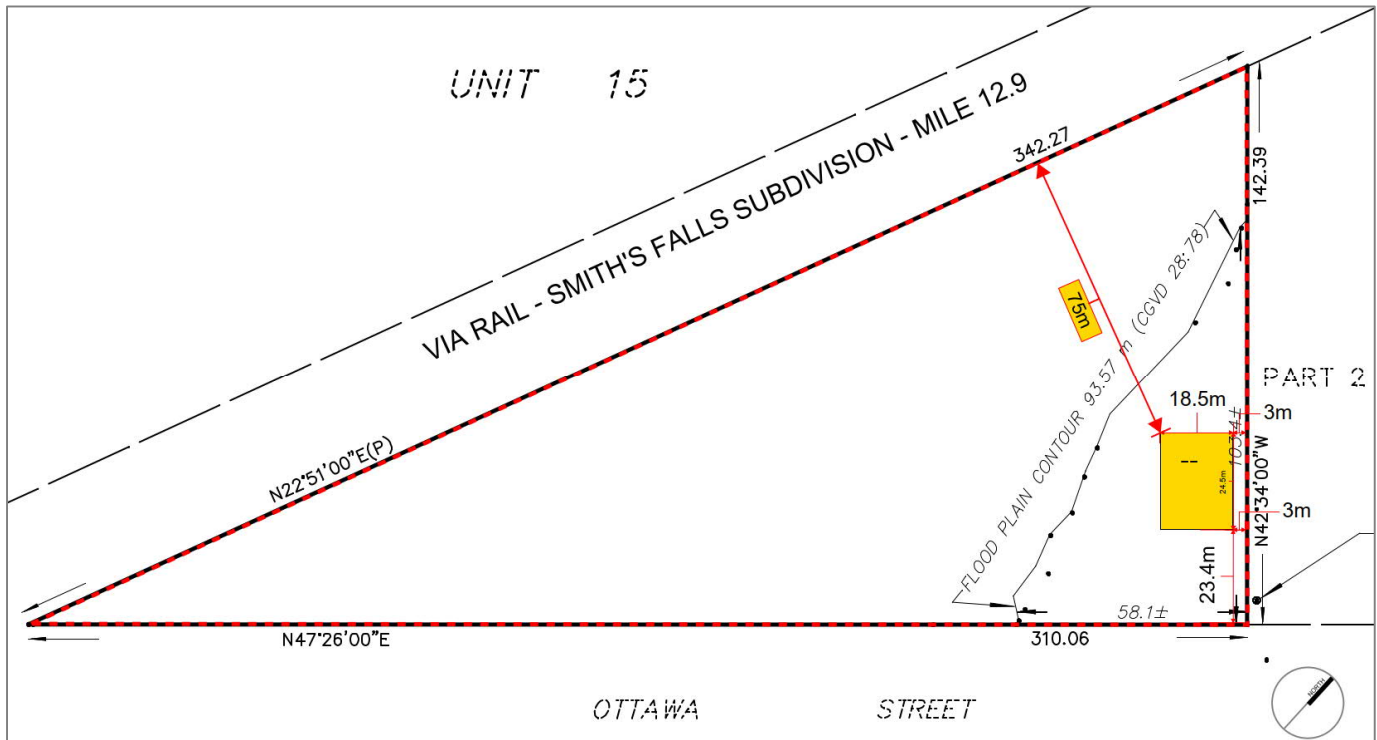


Figure 2: Proposed location of new development

Smiths Falls Subdivision

The Smiths Falls Subdivision is owned by VIA Rail. It is single main line track between Mile 0.0 at Federal (Ottawa) and Mile 34.5 at Smith Falls East. The Railway Atlas of Canada¹ indicates the Site is located immediately south of Mile Post 12 and both passenger and freight traffic can be accommodated on the main line track.

The Transportation Safety Board investigation report R09H0010² provides the following information about the Smith's Falls Subdivision rail corridor operations:

- The authorized timetable speed is 95 mph for passenger trains;
- Approximately 8 to 10 passenger trains traverse the subdivision on a daily basis; and
- Train movements are governed by the Occupancy Control System (OCS) method of train control, as authorized by the *Canadian Rail Operating Rules* (CROR).

A review of VIA Rail's passenger train schedules confirms that there are between 8 to 10 passenger trains per day. The VIA Rail schedule is included in Appendix B – Rail Corridor Details.

¹ Railway Association of Canada. Canadian Rail Atlas. June 1, 2021 online: <https://rac.jmaponline.net/canadianrailatlas/>

² Transportation Safety Board of Canada. 2009. *Railway Investigation Report R09H0010*. June 10, 2021 online: <https://bst.gc.ca/eng/rappports-reports/rail/2009/r09h0010/r09h0010.html?wbdisable=true>

Requirements for New Developments

The Federation of Canadian Municipalities (FCM) and the Railway Association of Canada (RAC) *Guidelines for New Development in Proximity to Railway Operations* (2013) recommend the following mitigation measures for new developments adjacent to principal main line tracks:

1. **Setbacks:** The recommended building setback for new residential redevelopment is 30 metres.
2. **Safety Barrier:** The standard safety barrier is a 2.5 metre high earthen berm.
3. **Noise Mitigation:** The recommended minimum noise influence area when undertaking noise studies along a principal main line track is 300 metres.

The FCM/RAC Guidelines also state:

“If applicable to the site conditions, in lieu of the recommended berm, a ditch or valley between the railway and subject new development property that is generally equivalent to or greater than the inverse of the berm could be considered.” (p. 38)

This concept is illustrated in Figure 3 below.

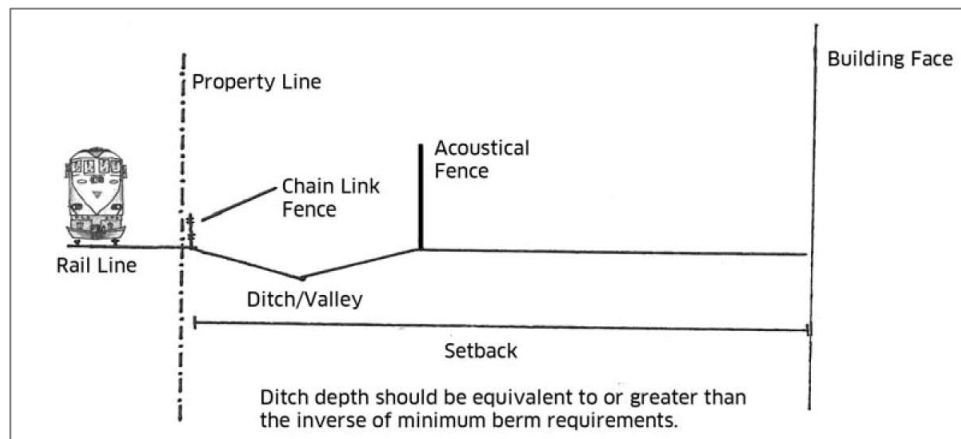


Figure 3: Application of a Ditch or Valley of Equivalent Depth to a Standard Berm³

The existing watercourse / river on site is considered to meet the condition of the inverse berm as described above.

The watercourse/river is shown below in Figure 4, looking northwest from Ottawa Street.



Figure 4: Existing watercourse, view looking northwest from Ottawa Street

³ Federation of Canadian Municipalities and the Railway Association of Canada. 2013. *Guidelines for New Development in Proximity to Railway Operations*.

The extent of the river is shown below, as well as the location of the proposed building.

Where the future development is planned, the elevation observed on the survey in Figure 5 below, is +94.0. The water level is noted at +91.5, a difference of approximately 2.5 metres, which corresponds with the recommended height for an earthen berm.

The embankment along the east side of the waterway varies in width from approximately 20 to 50 metres, which is also wider than a standard earthen berm.

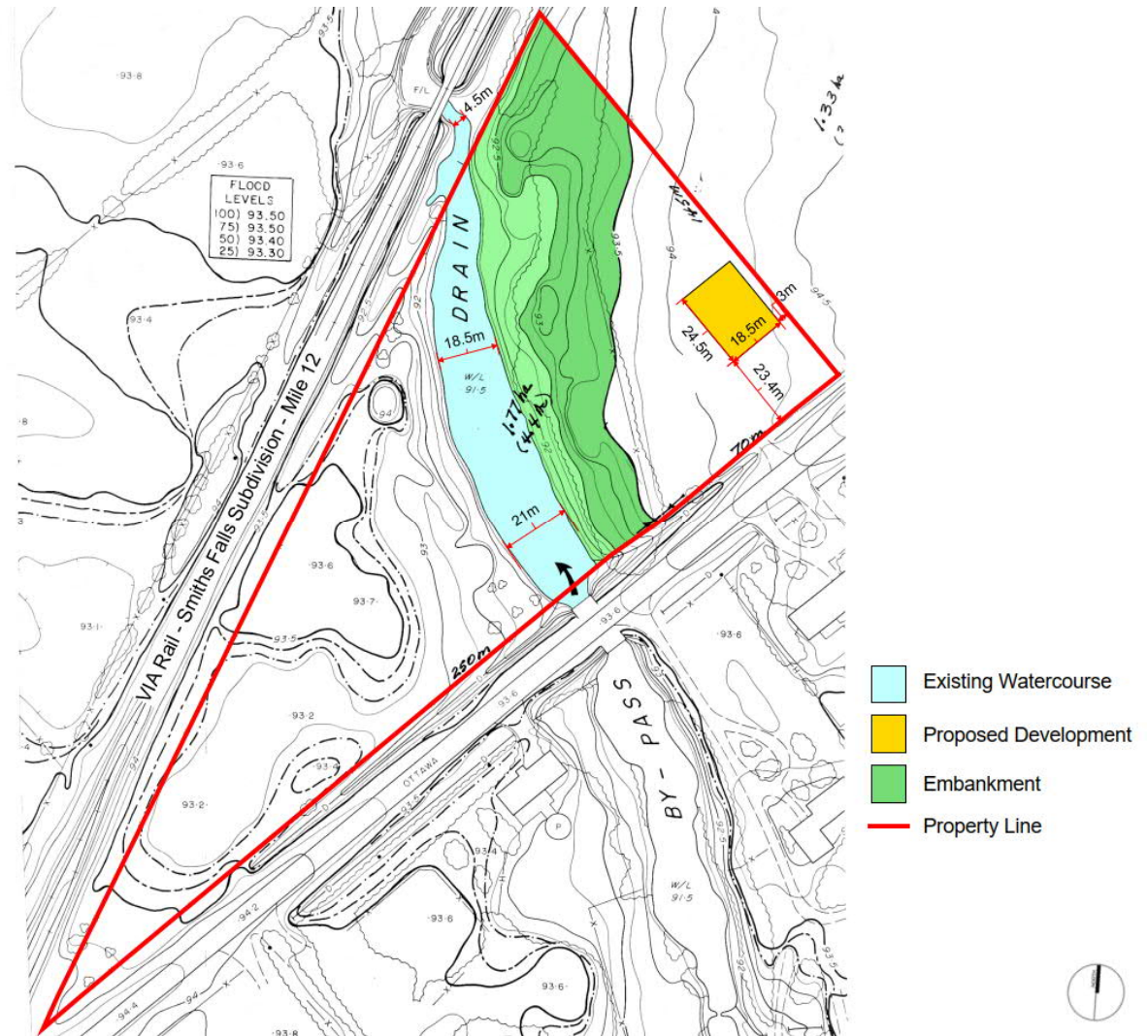


Figure 5: Existing grading / site conditions relative to the proposed building location

The existing watercourse creates a ditch condition which is considered to provide an equivalent level of protection as the standard earthen berm. The existing forest/treed area of the property will remain in its current condition, which is also considered to provide some mitigation for both noise as well as a train derailment.

Furthermore, the FCM/RAC Guidelines also recommends where, "larger building setbacks are proposed (or are more practicable, such as in rural situations) reduced berm heights should be considered" (p. 27). In the case of 5969 Ottawa Street, the proposed building setback of approximately 75 metres significantly exceeds the recommended 30 metre setback.

Under typical circumstances where properties do not benefit from natural depressions in the landscape forming an inverse berm and providing derailment protection, a reduced berm height could be contemplated due to the provision of a 75m setback. However, as the existing ditch condition created by the watercourse already exists, no changes to the existing grades or site are required.

Mitigation Measures at 5969 Ottawa Street:

The new development at 5969 Ottawa Street meets the standard recommended mitigation measures as identified by the FCM/RAC Guidelines for New Development in Proximity to Railway Operations.

Natural derailment protection is provided in the form of an approximately 2.5-metre-deep watercourse that runs through the property, which results in a condition that is similar to an inverse berm to protect the proposed development in the event of a train derailment. The existing stock of mature trees on the property is also thought to contribute to a lower risk profile as it relates to rail corridor proximity.

A setback of 75 metres, measured from the rail corridor property line to the face of the building is proposed. This setback exceeds the recommended 30 metre setback and is considered sufficient in mitigating against noise, vibration and a train derailment.

A noise study, prepared by a qualified acoustic engineer, has been prepared and submitted under a separate cover, to identify and mitigate any adverse impacts that may be experienced due to the proximity to the railway. The findings of this study will be presented to the municipality for review and approval.

No changes are proposed to the existing land uses within the setback area, which provide a physical and visual buffer to the railway for future occupants at the site.

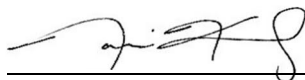
Conclusion:

The results of the rail safety study indicate the new development plans proposed at 5969 Ottawa Street aligns with the most recent guidelines and requirements for new development in proximity of active railways.

As the proposed building will be setback 75 metres from the VIA Rail Smith's Falls Subdivision rail corridor, and the existing watercourse grading (inverse berm) and surrounding mature tree-growth/canopy will remain in the future developed condition, no additional rail safety mitigation measures are required.

We hope this letter adequately responds to the City of Ottawa's request for an assessment of the proximate track and operating conditions. Should you have any further questions or comments, please contact the undersigned.

Sincerely,



Jamie Kennedy
Consultant, Planner



Andrew Middleton
Senior Rail Engineer

Attachment(s) / Enclosures:

- *Appendix A: Existing Site Conditions*
- *Appendix B: Rail Corridor Details*

Appendix A: Existing Site Conditions



Figure A1. Location of future building, view looking west from Ottawa Street (automotive building on the adjacent property is visible)



Figure A2. View looking north from the at-grade crossing at the south end of the property – VIA Rail right of way on the left, Ottawa Street on the right

SKETCH SHOWING FLOOD PLAIN CONTOUR OF
 PART OF UNIT 10
 INDEX PLAN D-26
 CITY OF OTTAWA
 JANUARY, 2021
 SCALE 1:1500

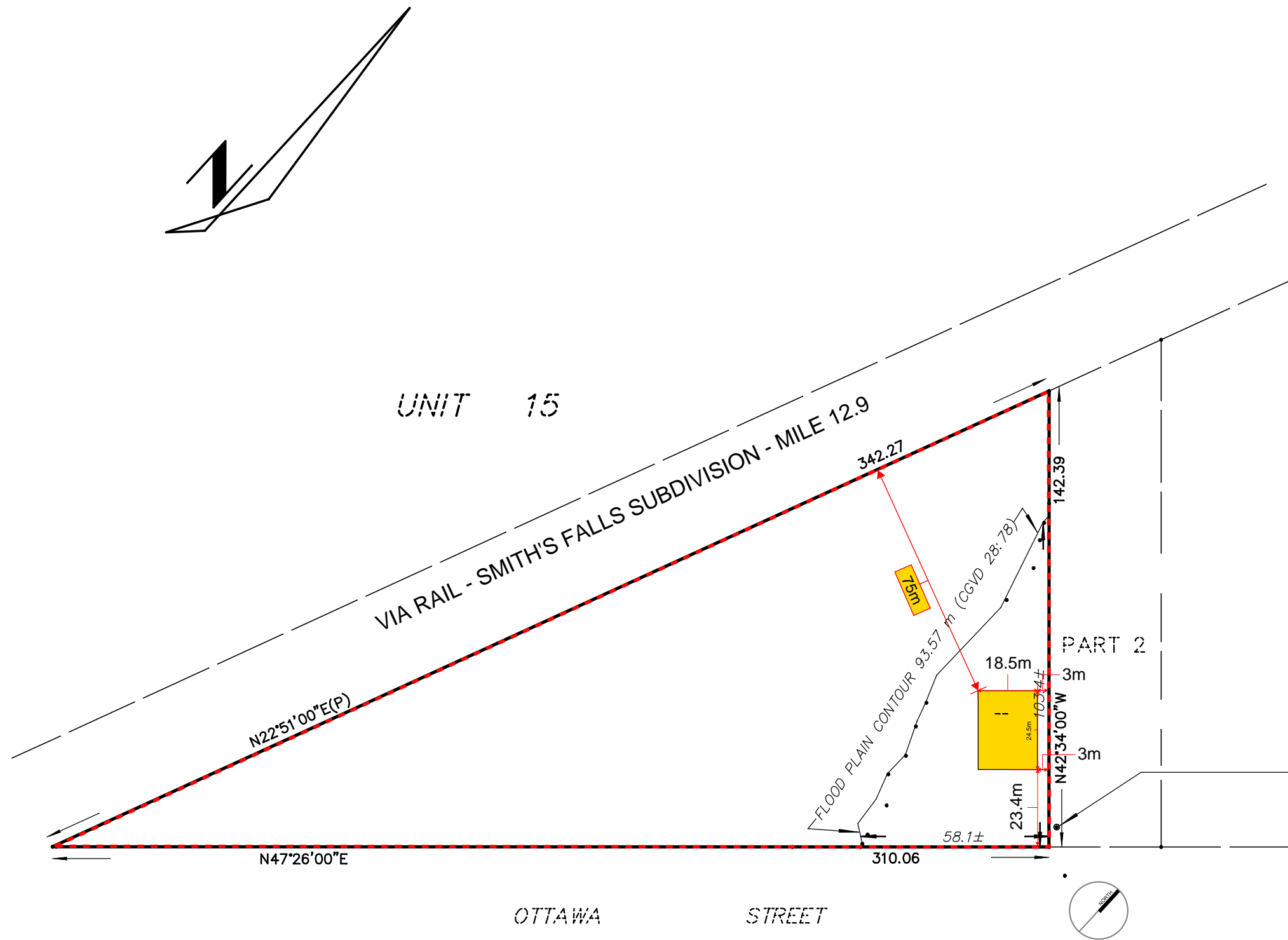


CAUTION
 THIS IS NOT A PLAN OF SURVEY

METRIC
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND
 CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

ELEVATIONS
 ELEVATIONS ARE GEODETIC, DERIVED FROM G.S.C. BENCH MARK 68-U-124
 HAVING A PUBLISHED ELEVATION OF 95.186m. (CGVD 28:78)

SITE BENCH MARK
 NAIL IN UTILITIES POLE
 0.3 ABOVE GRADE
 ELEVATION - 94.90m.

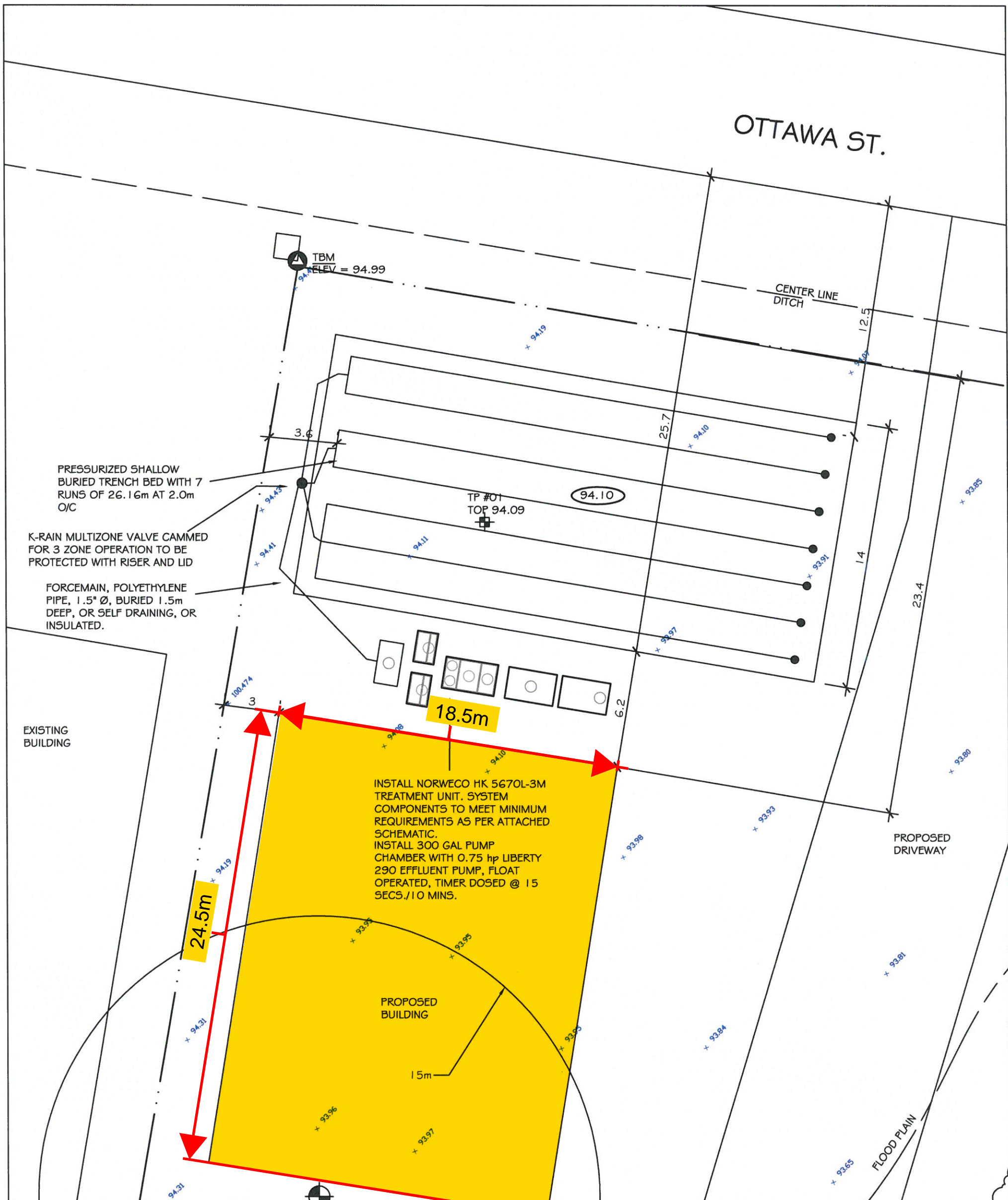


FILE No.: 20-12471



H.A. KEN SHIPMAN SURVEYING LTD.
 P.O. BOX 53, NORTH GOWER, ONT. KOA 2T0 TEL: 489-3910

OTTAWA ST.



PRESSURIZED SHALLOW BURIED TRENCH BED WITH 7 RUNS OF 26.16m AT 2.0m O/C

K-RAIN MULTIZONE VALVE CAMMED FOR 3 ZONE OPERATION TO BE PROTECTED WITH RISER AND LID

FORCEMAIN, POLYETHYLENE PIPE, 1.5" Ø, BURIED 1.5m DEEP, OR SELF DRAINING, OR INSULATED.

EXISTING BUILDING

INSTALL NORWECO HK 5670L-3M TREATMENT UNIT. SYSTEM COMPONENTS TO MEET MINIMUM REQUIREMENTS AS PER ATTACHED SCHEMATIC. INSTALL 300 GAL PUMP CHAMBER WITH 0.75 hp LIBERTY 290 EFFLUENT PUMP, FLOAT OPERATED, TIMER DOSED @ 15 SECS./10 MINS.

PROPOSED BUILDING

PROPOSED DRIVEWAY

FLOOD PLAIN

NOTES:

1. ALL TREATMENT UNITS AND LEACHING BED ARE TO BE INSTALLED IN ACCORDANCE WITH MINIMUM OBC CLEARANCE DISTANCES. ANY OMISSIONS OR INACCURACIES SHALL BE BROUGHT TO THE ATTENTION OF GVE AND OSSO.
2. CARE IS TO BE EXERCISED DURING CONSTRUCTION ACTIVITIES NEAR OVERHEAD HYDRO WIRES.
3. EXISTING ELEVATIONS ARE APPROXIMATE. CONTRACTOR MUST VERIFY ALL ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
4. SOIL CONDITIONS ARE ACCURATE FOR THE LOCATIONS SHOWN. CONTRACTOR MUST CONTACT THE DESIGN ENGINEER OR REGULATORY AUTHORITY SHOULD SOIL CONDITIONS DIFFER.
5. ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED ON SITE, FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE.
6. UTILITY LOCATES SHALL BE COMPLETED PRIOR TO ANY EXCAVATION.
7. THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

8. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GVE GROUP. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.

9. EXISTING LOT SERVICED WITH A DRILLED WELL.

METRIC:

DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METERS AND MAY BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND:

- PROPOSED ELEVATION
- EXISTING ELEVATION
- EXISTING WORKS
- PROPOSED SEWAGE WORKS
- FENCE LINE
- PROPERTY LINE
- TBM TEMPORARY BENCH MARK (DESCRIPTION: TOP OF CONCRETE PAD)
- TEST PIT LOCATION

SEPARATION DISTANCES:

1. MINIMUM CLEARANCE FROM SEPTIC PIPE TO:
 - LOT LINE = 3.0m
 - HOUSE = 5.0m
 - DRILLED WELL = 15.0m
2. MINIMUM CLEARANCE FROM TREATMENT UNITS TO:
 - LOT LINE = 3.0m
 - HOUSE = 1.5m
 - DRILLED WELL = 15.0m

Drawn by: JP	Drawn by: JP	Checked by: WS
Rev.	Description	Date
Township	Plan#	Lot Sublot Con
County: Civic Address: 5969 OTTAWA ST.		Draws No.: SP6982-21
		Date: 14/14/21 Scale: 1:200
GREEN VALLEY ENVIRONMENTAL		
On-Site Sewage Treatment Plan for the Residence of: AL ROBERTS		

Appendix B: Rail Corridor Details

OTTAWA → **KINGSTON** → **TORONTO**

TRAIN		41	641	43	51	643	45	53	47	645	55	647	59
DAYS / JOURS		12345 ⁶⁷	123456 ⁷	12345 ⁶⁷	12345 ⁶⁷	123456 ⁷	123456 ⁷	123456 ⁷	123456 ⁷	123456 ⁷	12345 ⁷	12345 ⁷	123456 ⁷
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ottawa, ON	DP	05:30	06:40	07:20	08:35	08:40	10:27	11:40	12:28	14:30	15:30	17:20	18:26
Fallowfield		05:55	06:59	07:40	08:55	09:01	10:46	12:00	12:49	14:55	15:49	17:39	18:52
Smiths Falls		06:22	07:26		09:24	09:29							19:25
Brockville		06:51	07:55		09:53	09:58			13:56		16:54		19:58
Gananoque									14:22				
Kingston	AR	07:31	08:35	09:10	10:33	10:38	12:24	13:35	14:41	16:32	17:34	19:18	20:38
	DP	07:34	08:38	09:13	10:36	10:41	12:26	13:39	14:45	16:35	17:38	19:20	20:41
Napanee						11:02							
Belleville		08:16	09:19			11:25		14:21	15:28	17:16	18:18		21:22
Trenton Jct.						11:37							21:32
Cobourg		08:51	09:54		11:46	12:03					18:52		22:00
Port Hope						12:11							
Oshawa		09:27	10:29			12:43		15:29	16:38	18:23	19:25	21:12	22:33
Guildwood			10:46		12:36	13:01			16:58				22:50
Toronto	AR	10:02	11:02	11:25	12:52	13:16	14:48	16:03	17:15	19:05	19:57	21:45	23:07

OTTAWA
TORONTO

No local service between Ottawa and Fallowfield, or Guildwood and Toronto. / Pas de service local entre Ottawa et Fallowfield, ainsi qu'entre Guildwood et Toronto.

✕ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

Available on most trains.

Offert dans la plupart des trains.

TORONTO → **KINGSTON** → **OTTAWA**

TRAIN	50	52	40	42	644	44	46	646	54	48	
DAYS / JOURS	1234567	1234567	1234567	1234567	1234567	1234567	12345 7	12345 7	12345 67	1234567	
BUSINESS AFFAIRES	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Toronto, ON DP	06:40	08:35	10:40	12:20	13:20	14:20	15:40	16:35	17:40	18:40	
Guildwood	07:00								17:58	18:58	
Oshawa	07:19	09:08		12:52	13:53	14:54	16:17	17:06	18:14	19:16	
Port Hope									18:40	19:43	
Cobourg	07:54	09:40			14:26		16:50		18:48	19:53	
Trenton Jct.									19:15	20:19	
Belleville	08:29				15:03			18:11	19:30	20:36	
Napanee									19:50	20:54	
Kingston AR	09:07	10:49	12:49	14:32	15:39	16:32	17:59		20:09	21:13	
DP	09:11	10:53	12:51	14:34	15:42	16:36	18:02		20:12	21:16	
Gananoque										21:38	
Brockville	10:08	11:48				17:20	18:47			22:03	
Smiths Falls	10:39					17:50				22:33	
Fallowfield	11:12	12:47	14:35	16:17	17:41	18:24	19:47	20:24	21:49	23:00	
Ottawa, ON AR	11:29	13:09	14:57	16:34	17:58	18:46	20:09	20:42	22:07	23:16	

TORONTO
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