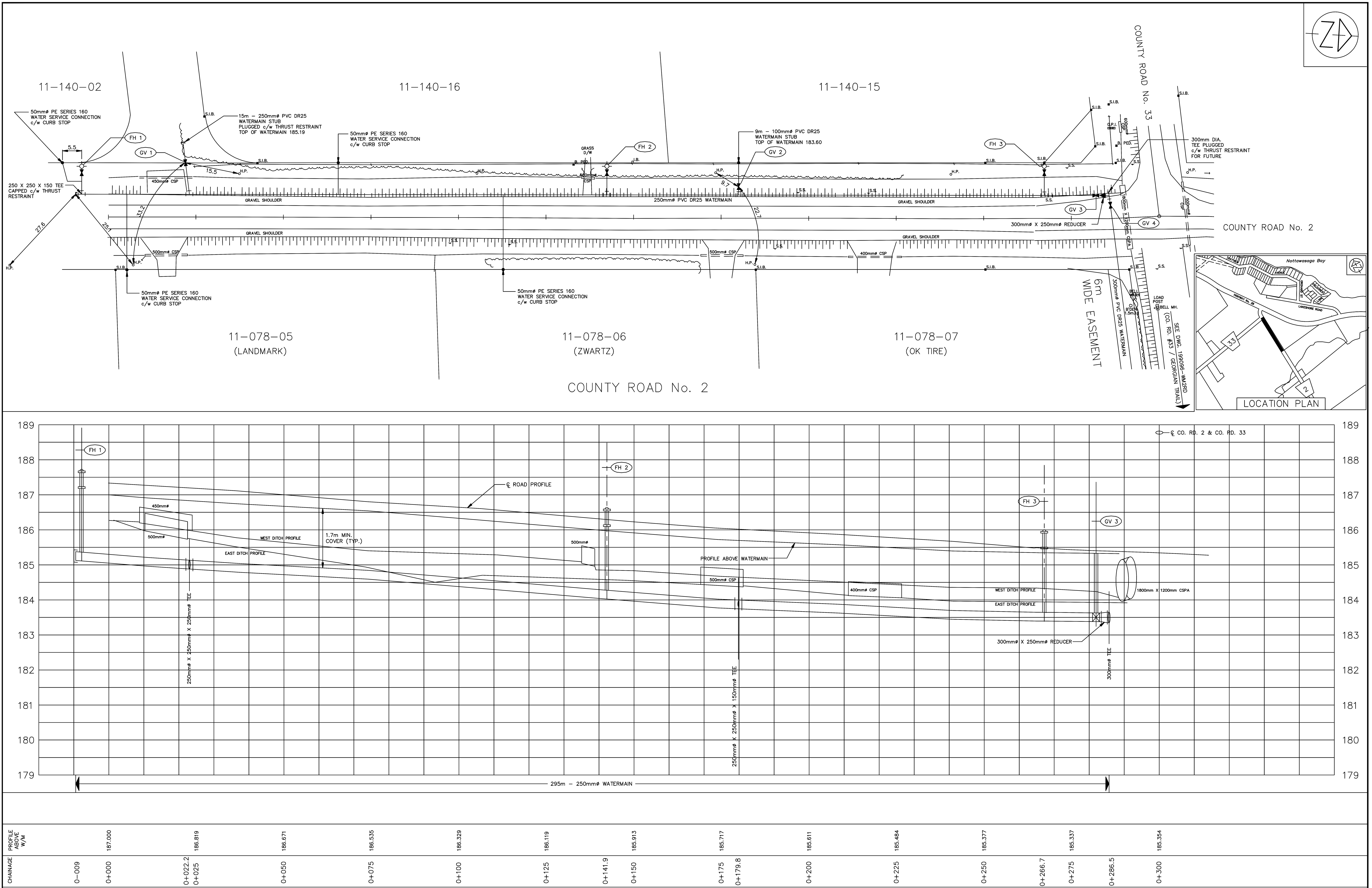


LEGEND

- PROPERTY LINE
- B — BURIED BELL CABLE
- G — BURIED GAS MAIN
- EXISTING WATERMAIN AND VALVE
- WATERMAIN AND VALVE
- GV. GATE VALVE
- FH. FIRE HYDRANT, VALVE & HYDRANT LEAD

NOTE : 1) LOCATION OF UTILITIES ARE APPROXIMATE.

B.M.ELEV. 179.116
TABLET IN CONCRETE CULVERT UNDER HWY. No. 26 APPROX. 150m SOUTH OF INTERSECTION OF ORCHARD ST. & BAYVIEW AVE

PLOT: 1=5

RECORD DRAWING

COMPILED BY: J.S.	DATE: JULY 2001
CHECKED BY: D.B.E.	DATE: JULY 2001
DRAWN BY: R.F.N.	DATE: JULY 2001
CHECKED BY: D.B.E.	DATE: JULY 2001

NO.	REVISIONS	DATE	INITIAL
	REVISED RECORD DRAWING	JULY 2001	D.B.E.

RECORD DRAWING
NOTICE TO USERS

This Record Drawing may include information provided by others. **Ainley & Associates Limited** believes this information to be reliable but has not verified its accuracy and/or completeness and, accordingly, shall not be responsible for any errors or omissions which may result from its incorporation herein.

SCALE: HORIZ. 1:500 VERT. 1:50
DESIGN: D.B.E.
DRAWN: D.H.
CHECKED: I.N.
DATE: APRIL 2000

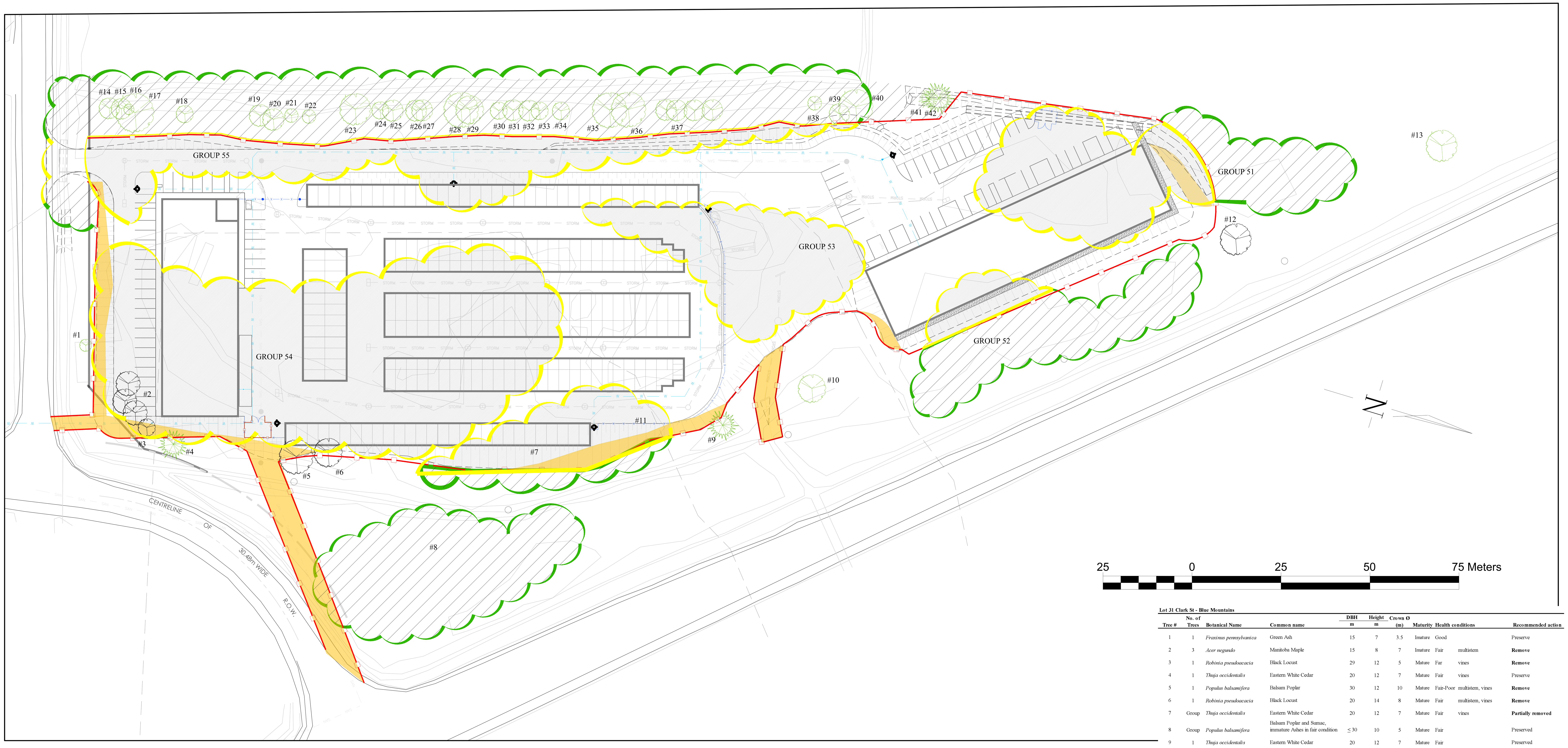
TOWN OF THE BLUE MOUNTAINS
BEAVER VALLEY INDUSTRIAL PARK WATERMAIN

PLAN & PROFILE
COUNTY ROAD No. 2
STA. 0+000 TO STA. 0+300

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

CONTRACT No. 199096 | DWG. 199096-WM1RD

Appendix C – Tree Preservation Plan



TREE INVENTORY/ PRESERVATION PLAN

1 : 600

SUBJECT LANDS.

EXISTING TREES ON SUBJECT SITE TO BE REMOVED. REFER TO TREE INVENTORY LIST.

EXISTING TREES ON SUBJECT SITE TO BE PRESERVED. REFER TO TREE INVENTORY LIST.

SILTATION FENCE. REFER TO ENGINEERING DRAWINGS.

10m SETBACK FROM EX. WATERCOURSE (REFER TO E.I.S. STUDY BY ROOTS ENVIRONMENTAL, AUG. 2022)

TREE REMOVAL AREA.

TREE GROUP TO BE REMOVED.

TREE GROUP TO BE PRESERVED.

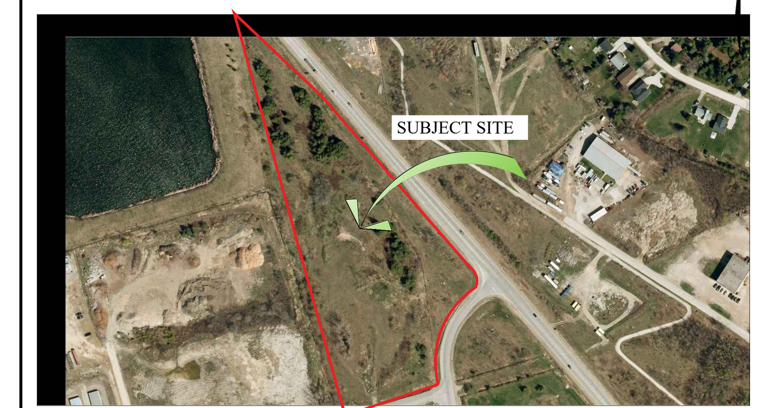
TREE REMOVAL IN THE BUFFER ZONE SUBJECT TO RESTORATION AREA.

LEGEND

Tree group #	Canopy cover. %	Species	Common Name	Freq. %	Maturity	Recommended action
Group 51	85	*Thuja occidentalis*	Eastern White Cedar	40	Mature	**Partially removed**
		Populus balsamifera	Balsam Poplar	30	Immature	
		Fraxinus pennsylvanica	Green Ash	10	Mature	
		Prunus vulgaris	Chokecherry	5	Immature	
Group 52	90	*Thuja occidentalis*	Eastern White Cedar	80	Mature	**Partially removed**
		Fraxinus pennsylvanica	Green Ash	10	Mature	
Group 53	30	*Thuja occidentalis*	Eastern White Cedar	45	Mature	**Removed**
		Fraxinus pennsylvanica	Green Ash	10	Mature	
		Populus balsamifera	Balsam Poplar	5	Immature	
		Rhus typhina	Sumac	dominant in uderstorey		
Group 54 and Group 55	60	*Robinia pseudoacacia*	Black Locust	25	Mature	**54 Removed, 55 Partially removed**
		Fraxinus pennsylvanica	Green Ash	20	Mature	
		Populus balsamifera	Balsam Poplar	10	Mature	
		Salix sp.	Willows sp.	5	Immature	

Lot 31 Clark St - Blue Mountains

Tree #	No. of Trees	Botanical Name	Common name	DBH m	Height m	Crown Ø (m)	Maturity	Health conditions		Recommended action
1	1	*Fraxinus pennsylvanica*	Green Ash	15	7	3.5	Imature	Good		Preserve
2	3	*Acer negundo*	Manitoba Maple	15	8	7	Imature	Fair	multistem	**Remove**
3	1	*Robinia pseudoacacia*	Black Locust	29	12	5	Mature	Far	vines	**Remove**
4	1	*Thuja occidentalis*	Eastern White Cedar	20	12	7	Mature	Fair	vines	Preserve
5	1	*Populus balsamifera*	Balsam Poplar	30	12	10	Mature	Fair-Poor	multistem, vines	**Remove**
6	1	*Robinia pseudoacacia*	Black Locust	20	14	8	Mature	Fair	multistem, vines	**Remove**
7	Group	*Thuja occidentalis*	Eastern White Cedar	20	12	7	Mature	Fair	vines	**Partially removed**
8	Group	*Populus balsamifera*	Balsam Poplar and Sumac, immature Ashes in fair condition	≤ 30	10	5	Mature	Fair		Preserved
9	1	*Thuja occidentalis*	Eastern White Cedar	20	12	7	Mature	Fair		Preserved
10	1	*Fraxinus pennsylvanica*	Green Ash	50	14	8	Mature	Good		Preserved
11	Group	*Thuja occidentalis*	Eastern White Cedar	20	12	7	Mature	Fair		**Partially removed**
12	1	*Fraxinus pennsylvanica*	Green Ash	35	14	9	Mature	Fair	Forked at base	**Remove**
13	1	*Acer negundo*	Manitoba Maple	40	8	6	Mature	Dying		Preserved
14	1	*Populus balsamifera*	Balsam Poplar	26	12	6	Mature	Fair		Preserved
15	1	*Fraxinus pennsylvanica*	Green Ash	26	12	6	Mature	Fair		Preserved
16	1	*Fraxinus pennsylvanica*	Green Ash	14	12	3	Imature	Fair	Top Canopy	Preserved
17	1	*Fraxinus pennsylvanica*	Green Ash	32	16	11	Mature	Fair		Preserved
18	1	*Populus balsamifera*	Balsam Poplar	32	12	5	Mature	Fair	Top Canopy, Vines	Preserved
19	1	*Fraxinus pennsylvanica*	Green Ash with Immature Aspens	16	10	6	Imature	Fair		Preserved
20	1	*Fraxinus pennsylvanica*	Green Ash	19	10	6	Imature	Fair		Preserved
21	1	*Fraxinus pennsylvanica*	Green Ash	33	12	4	Mature	Fair -Poor	Ash borer	Preserved
22	1	*Fraxinus pennsylvanica*	Green Ash	33	12	4	Mature	Fair-Poor	Ash borer	Preserved
23	1	*Fraxinus pennsylvanica*	Green Ash	28	16	9	Mature	Fair	Vines	Preserved
24	1	*Fraxinus pennsylvanica*	Green Ash	22	12	5	Mature	Fair	Vines	Preserved
25	1	*Fraxinus pennsylvanica*	Green Ash	2x15	12	6	Mature	Fair vines	Forked at base	Preserved
26	2	*Fraxinus pennsylvanica*	Green Ash	14	12	6	Imature	Fair vines	Vines	Preserved
27	2	*Fraxinus pennsylvanica*	Green Ash	10	12	6	Imature	Fair	1 forked a base, vines	Preserved
28	1	*Fraxinus pennsylvanica*	Green Ash	33	16	10	Mature	Fair poor	Ash borer, vines, forked at 1.6m	Preserved
29	1	*Fraxinus pennsylvanica*	Green Ash	23	14	8	Mature	Fair poor	Ash borer, vines, forked at base	Preserved
30	1	*Fraxinus pennsylvanica*	Green Ash	17	11	5	Imature	Fair		Preserved
31	1	*Fraxinus pennsylvanica*	Green Ash	14	12	6	Imature	Fair		Preserved
32	1	*Fraxinus pennsylvanica*	Green Ash	14	12	6	Imature	Fair		Preserved
33	1	*Fraxinus pennsylvanica*	Green Ash	16	12	5	Imature	Fair	Vines	Preserved
34	1	*Fraxinus pennsylvanica*	Green Ash	16	10	5	Imature	Poor		Preserved
35	1	*Fraxinus pennsylvanica*	Green Ash	2x20	14	10	Mature	Poor-Fair	Forked at base	Preserved
36	1	*Fraxinus pennsylvanica*	Green Ash	20	12	6	Mature			Preserved
37	4	*Fraxinus pennsylvanica*	Green Ash	20	12	6	Mature	Fair		Preserved
38	1	*Fraxinus pennsylvanica*	Green Ash	19	10	4	Imature	Fair		Preserved
39	1	*Fraxinus pennsylvanica*	Green Ash	28	10	6	Mature	Poor		Preserved
40	1	*Fraxinus pennsylvanica*	Green Ash	27	14	10	Mature	Fair-Poor	Forked at 0.8m	Preserved
41	3	*Thuja occidentalis*	Eastern White Cedar	20	10	5	Mature	Fair-Poor		Preserved
42	1	*Thuja occidentalis*	Eastern White Cedar	43	14	9	Mature	Fair		Preserved



KEY MAP

N.T.S.

GENERAL NOTES

CONTRACTOR IS RESPONSIBLE FOR ALL LOCATES INCLUDING ALL UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION OR INSTALLATIONS. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

ANY ACCOMPANYING DOCUMENTATION RELATING TO THE LANDSCAPE PLAN AND/OR PRESERVATION PLAN SUCH AS TENDER DOCUMENTS AND CHANGE NOTICES ARE TO BE ENDORSED BY J.D.B. ASSOCIATES LIMITED PRIOR TO THE BEGINNING OF ANY SITE WORKS. IN THE EVENT THAT OF A DISCREPANCY THE DRAWING SHALL BE ASSUMED CORRECT.

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SCHEDULED MEETINGS SHALL TAKE PLACE AT THE CLOSEST MUTUALLY CONVENIENT TIME.

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2.	AS PER TOWN COMMENTS	December 27th, 2023	StT
3.	AS PER TOWN COMMENTS	May 28th, 2024	StT
4.	AS PER TOWN COMMENTS	August 1st, 2024	StT
5.	AS PER UPDATED SITE PLAN	November 14th, 2024	StT

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THIS DRAWING IS NOT TO BE SCALED.

BASE PLAN REVISED: MARCH, 2022

Client info:
IPS- INNOVATIVE PLANNING SOLUTIONS

647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

ACCEPTED BY:

DATE

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
OALA
MEMBER

LANDSCAPE ARCHITECTS STAMP
STAMP AND SIGNATURE VOID IF REPRODUCED

JDB ASSOCIATES LTD.
Urban Designers
Landscape Architects
Arborists

274 Burton Ave., Suite 1201
Barrie, Ontario
L4N 5W4

Fax: 705-722-5660
Tel: 705-722-6278

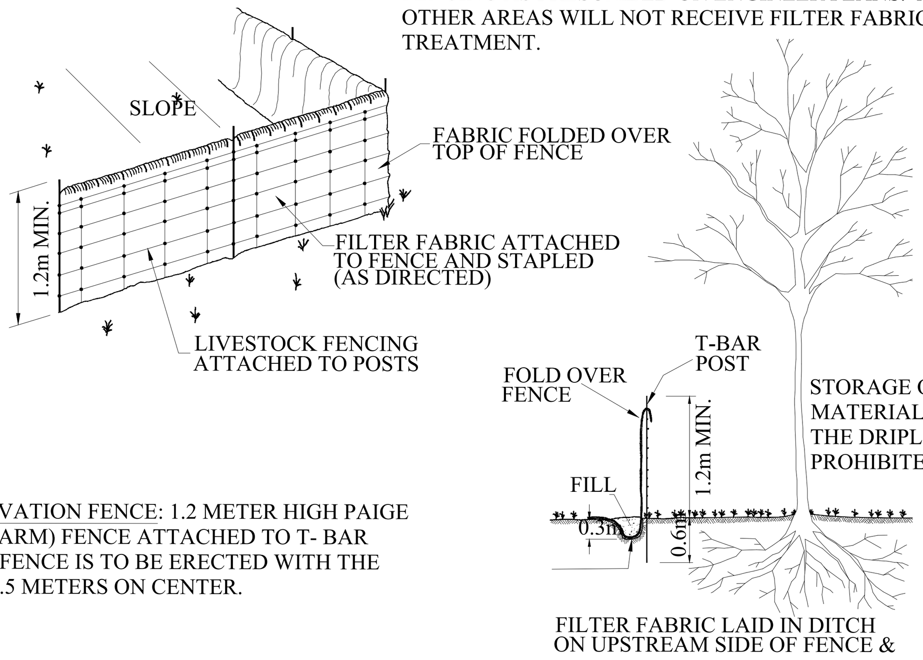
LOT 31 CLARK ST

Town of the Blue Mountains, ON

TREE INVENTORY/ PRESERVATION PLAN

SCALE: 1 : 600	DESIGNED BY: IT	REVIEWED BY: NB
TOWN FILE No.	OUR FILE REF. # 14-22	TP-1

NOTE: FILTER FABRIC TO BE USED ONLY IN COORDINATION WITH THE SILT AND SEDIMENT CONTROL FENCING AS PRESCRIBED ON ENGINEER PLANS. ALL OTHER AREAS WILL NOT RECEIVE FILTER FABRIC TREATMENT.



PRESERVATION FENCE: 1.2 METER HIGH PAIGE WIRE (FARM) FENCE ATTACHED TO T- BAR POSTS. FENCE IS TO BE ERECTED WITH THE POSTS 2.5 METERS ON CENTER.

D1 - TREE PRESERVATION / SNAKE FENCE (REFER TO SNAKE FENCE NOTES)

THE INTENT OF TREE PRESERVATION AND PROTECTION IS TO PROVIDE AN INVENTORY OF EXISTING TREES ON SITE. IT IS NOT A SURVEY AND THEREFORE THE EXACT LOCATION OF EXISTING TREES MUST BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS.

ALL TREES TO BE PRESERVED SHALL BE INDICATED AND MARKED AS SUCH ON SITE BY THE LANDSCAPE ARCHITECT PRIOR TO THE SITE DEVELOPMENT.

AS PART OF THE CLEARING AND GRUBBING, TREES LOCATED AT THE EDGES OF STANDS ABUTTING RESIDENTIAL ARE ARE TO BE PRUNED OF DEAD AND DISEASED LIMBS. PRUNING TO BE COMPLETED IN ACCORDANCE TO ACCEPTED HORTICULTURAL PRACTICES AND TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.

IN THE EVENT THAT A TREE THAT HAS BEEN DESIGNATED FOR PRESERVATION IS DAMAGED OR REMOVED WITHOUT PRIOR WRITTEN PERMISSION FROM THE TOWN, THE LAND OWNER SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF SAID TREE WITH TREES OF EQUAL CALIPER VALUE AND COMPARABLE SPECIES, TO THE SATISFACTION OF THE THE TOWN AND THE LANDSCAPE ARCHITECT.

SPECIFICATIONS FOR PRESERVATION & PROTECTION

PRIOR THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, ALL TREES OR BLOCKS OF TREES THAT HAVE BEEN DESIGNATED FOR PRESERVATION, AS INDICATED ON THE ACCOMPANYING PLAN SHALL BE FULLY PROTECTED BY THE ERECTION OF HOARDING OUTSIDE OF OR AT THE DRIP LINE (SEE DETAIL). AREAS WITHIN THE HOARDING SHALL BE CLEARED AND GRUBBED ONLY UNDER THE WRITTEN DIRECTION AND SUPERVISION OF THE LANDSCAPE ARCHITECT.

EQUIPMENT OR VEHICLES SHALL NOT BE PARKED, REPAIRED OR REFUELED WITHIN TREE PROTECTION ZONE, CONSTRUCTION MATERIALS SHALL NOT BE STORED AND EARTH MATERIALS SHALL NOT BE STOCKPILED WITHIN THE DRIP LINE AREA OF ANY TREE NOT DESIGNATED FOR REMOVAL.

ANY TREES NOT DESIGNATED FOR REMOVAL SHALL NOT HAVE RIGGING CABLES ATTACHED OR WRAPPED AROUND THEM NOR SHALL ANY CONTAMINANTS BE DUMPED WITHIN THE PROTECTIVE AREAS. FURTHER, NO CONTAMINANTS SHALL BE DUMPED OR FLUSHED WHERE THEY MAY COME INTO CONTACT WITH THE FEEDER ROOTS OF THE TREES TO BE PRESERVED.

THE CONTRACTOR OR LAND OWNER SHALL TAKE EVERY PRECAUTION TO PREVENT DAMAGE TO TREES OR SHRUBS THAT ARE NOT DESIGNATED FOR REMOVAL AS PER THE ACCOMPANYING PLAN.

UNLESS THE CONTRACT WORK SPECIFICALLY REQUIRES WORK WITHIN THE DRIP LINE OF TREES NOT DESIGNATED FOR REMOVAL, EQUIPMENT SHALL NOT BE OPERATED WITHIN THAT DRIP LINE AREA. WHEN CONTRACT WORK MUST BE COMPLETED WITHIN THE DRIP LINE OF TREES NOT DESIGNATED FOR REMOVAL, OPERATION OF EQUIPMENT WITHIN THAT DRIP LINE SHALL BE KEPT TO THE MINIMUM AMOUNT REQUIRED TO COMPLETE THE WORKS. PRIOR TO THE COMMENCEMENT OF SUCH WORKS THE LANDSCAPE ARCHITECT MUST BE GIVEN WRITTEN NOTIFICATION AND WILL SUBSEQUENTLY BE REQUIRED TO INSPECT SAID WORKS.

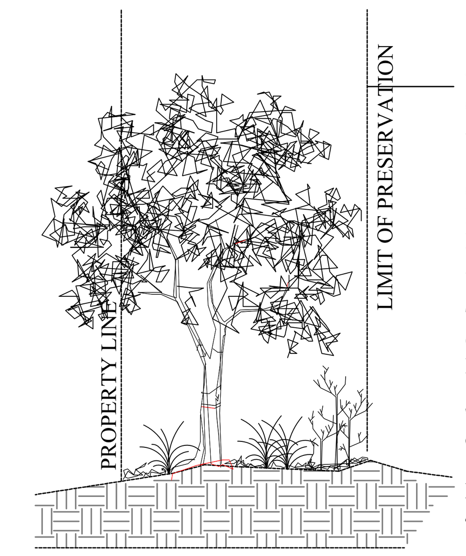
THE CONTRACTOR'S OPERATION SHALL IN NO WAY CAUSE DAMAGE TO THE TRUNK OR BRANCHES OF TREES NOT DESIGNATED FOR REMOVAL.

THE CONTRACTOR'S OPERATION SHALL NOT CAUSE FLOODING OR SEDIMENT DEPOSITS IN AREAS WHERE TREES ARE NOT DESIGNATED FOR REMOVAL.

IN THE EVENT THAT IT IS NECESSARY TO REMOVE LIMBS OR PORTIONS OF TREES NOT DESIGNATED FOR REMOVAL, WRITTEN APPROVAL AND DIRECTION MUST BE GIVEN BY THE LANDSCAPE ARCHITECT PRIOR TO ANY WORKS. THE REMOVALS MUST BE EXECUTED CAREFULLY AND IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES AND TECHNIQUES.

NO GRADING SHALL TAKE PLACE WITHIN THE PRESERVATION ZONE.

D3 - NOTES FOR PRESERVATION AND PROTECTION



THE DRIP LINE OF VEGETATION IS CONSIDERED THE LIMIT OF PRESERVATION.

NOTES

CHANGES OR MODIFICATIONS TO THE LIMIT OF PRESERVATION MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT AND MUST BE PROVIDED PRIOR TO ANY WORK TO OR WITHIN THE PRESERVATION ZONE.

TREE LIMBS THAT WILL INTERFERE WITH CONSTRUCTION OR SITE ACCESS MUST BE REMOVED USING STANDARD HORTICULTURAL PRACTICES.

"DRIP LINE" IS DEFINED AS THE PERIMETER EXTENT OF THE CROWN OR CANOPY.

FOR FURTHER INFORMATION REFER TO TREE PROTECTION & PRESERVATION NOTES AND SPECIFICATIONS.

CLEARING AND GRUBBING WITHIN THE PRESERVATION ZONE MAY ONLY BE DONE UNDER THE SUPERVISION OF THE LANDSCAPE ARCHITECT.

NO CLEARING OR GRUBBING IS PERMITTED WITHIN THE ENVIRONMENTAL PROTECTION AREA.

D2 - LIMIT OF TREE PRESERVATION DETAIL

1. PROTECTION AREA IS INITIALLY IDENTIFIED IN THE FIELD BY A LICENSED ONTARIO SURVEYOR. THIS LINE APPROXIMATELY ESTABLISHES THE LIMITS OF TREE PRESERVATION SUBJECT TO AN ON-SITE MEETING WITH TOWN OF BLUE MOUNTAINS PARKS PLANNING STAFF AND THE LANDSCAPE ARCHITECT/ARBORIST.

2. THE LANDSCAPE ARCHITECT/ARBORIST AND THE TOWN OF BLUE MOUNTAINS PARKS PLANNING STAFF MEET TO REVIEW THE SURVEYED LINE PRIOR TO ANY TREE REMOVAL OCCURRING, AND TO ADJUST THE LINE WHERE APPROPRIATE TO REFLECT THE ACTUAL NATURE OF A TREED AREA AS OPPOSED TO A STRAIGHT CUT LINE.

3. TREES THAT ARE SUSCEPTIBLE TO FALLING ONTO PRIVATE PROPERTY OR MUNICIPAL PROPERTY FROM WITHIN THE TREE PRESERVATION ZONE WILL BE IDENTIFIED FOR REMOVAL. REMOVAL WILL TAKE PLACE AS PRESCRIBED IN ITEM #6 BELOW.

4. ONCE THE SITE VISIT HAS CONCLUDED, THEN TREE PRESERVATION FENCING WILL BE ERECTED ALONG THE AGREED TREE PRESERVATION LINE.

5. FULL TREE REMOVAL OUTSIDE OF THE TREED AREAS MAY OCCUR ONCE THE PRESERVATION FENCING HAS BEEN ERECTED AND ALL REQUIRED TREE REMOVAL PERMITTING IS ISSUED.

6. TREES ARE TO BE FELLED IN SUCH A MANNER AS TO NOT DISTURB VEGETATION TO REMAIN. NO MACHINERY OR EQUIPMENT SHALL BE OPERATED OR STORED WITHIN THE DRIPLINE OF PROTECTED TREES.

7. STUMP REMOVALS ARE TO BE IMPLEMENTED AS TO NOT TO DISTURB THE GROUND WITHIN THE TREE PRESERVATION ZONE.

8. ONCE TREE REMOVAL HAS OCCURRED, AND PRIOR TO THE ISSUANCE OF THE UNDERGROUND CERTIFICATE, A RE-INSPECTION OF THE TREE PRESERVATION AREAS MUST OCCUR WITH TOWN OF BLUE MOUNTAINS STAFF AND THE LANDSCAPE ARCHITECT/ARBORIST. ANY ADDITIONAL TREES TO BE REMOVED WILL BE NOTED BY THE TOWN OF BLUE MOUNTAINS PARKS PLANNING STAFF AND LANDSCAPE ARCHITECT/ ARBORIST.

9. ALL TREES ON ADJACENT PRIVATE LAND SHALL RECEIVE DRIPLINE PROTECTION.

TREE PRESERVATION PROCESS

NOTE:
NO TREE CUTTING SHALL OCCUR BETWEEN APRIL 1st AND OCTOBER 31st UNLESS CLEARANCE FROM M.N.R. AND M.E.C.P. IS PROVIDED.

KEY MAP N.T.S.

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THIS DRAWING IS NOT TO BE SCALED.

BASE PLAN REVISED: MARCH, 2022

Client info:
IPS- INNOVATIVE PLANNING SOLUTIONS

647 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

ACCEPTED BY:

DATE

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Urban Designers
Landscape Architects
Arborists

274 Burton Ave., Suite 1201
Barrie, Ontario
L4N 5W4
Fax: 705-722-5660
Tel: 705-722-6278

LOT 31 CLARK ST

Town of the Blue Mountains, ON

TREE PRESERVATION DETAILS

SCALE: NTS	DESIGNED BY: IT	REVIEWED BY: NB
TOWN FILE No.	OUR FILE REF. # 14-22	TP-2

Appendix D – Geotechnical Information

GEI Consultants

April 29, 2022

Pantone Capital Inc.
25 Price Street
Toronto, Ontario
M4W 1Z1

Attn: Greg Peacock, Director

RE: Proposed Commercial/Industrial Development
Lot 31 Clark Street, Town of Blue Mountains
Project No. 2200901

1. INTRODUCTION & SCOPE OF WORK

GEI Consultants was retained to carry out in-situ soil infiltration testing at Lot 31 Clark Street, in the Town of the Blue Mountains. A site location plan is provided as Figure 1 in Enclosure 1. The property is irregular in shape approximately 160 metres wide (east to west) and 400 metres long (north to south). The property is bounded by Clark Street and Grey Road 2 to the south and southeast, undeveloped properties to the west, and Highway 26 to the northeast. The property is vacant with some grass/trees throughout the property and a dirt road for access to the south. The property is currently used for storage of construction equipment and vehicles.

GEI was provided with the following drawing from Innovative Planning Solutions:

- "*Conceptual Site Plan – Lot 31 Clark St., Town of Blue Mountains*", File No. 21-1137, dated December 3, 2021, by Innovative Planning Solutions.

It is the proposed to construct a commercial/industrial development with a 539.9 m^2 stormwater management pond near the centre of the property. Although not specifically noted on the drawing, Low Impact Development (LID) features may also be constructed in the northern and/or southern ends of the site based on discussion with the civil engineer (CAPES Engineering). On March 28, 2022, a representative of our technical staff visited the site to observe the existing soil and groundwater conditions within four test pit excavations, advanced using an excavator retained by GEI, and also to carry out Guelph Permeameter testing to determine in-situ infiltration rates.

Out of the four test pits, two were advanced within the proposed SWM Pond (Test Pit 2 & Test Pit 4), one was positioned outside the proposed one-storey industrial building footprint (Test Pit 3) located in the northern portion of the property, and one was advanced outside the proposed two-storey commercial building (Test Pit 1) located in the southern portion of the property. The approximate locations of the test pits on an aerial photograph of the site are provided on Figure 2 within Enclosure 1.

As part of the test pit investigation GEI noted the competency of the soils as well as observations pertaining to existing groundwater conditions. This information enabled GEI to provide preliminary geotechnical recommendations including geotechnical design parameters for foundations and slabs-on-grade.

2. TEST PIT OBSERVATIONS

A detailed breakdown of the results of each test pit is provided in the table below. Photographs of each test pit are also provided in Enclosure 2.

<table>
<tr><th colspan="2"></th><th>Test Pit #1</th><th>Test Pit #2</th><th>Test Pit #3</th><th>Test Pit #4</th></tr>
<tr><td colspan="2">GPS Coordinates</td><td>N: 4933281
E: 0544691</td><td>N: 4933394
E: 0544715</td><td>N: 4933544
E: 0544639</td><td>N: 4933419
E: 0544752</td></tr>
<tr><td colspan="2">Geodetic Elevation*</td><td>186.48 m</td><td>186.02 m</td><td>185.34 m</td><td>184.39 m</td></tr>
<tr><td colspan="2">Relative Location on the Property</td><td>Southwestern Corner of Proposed 2-Storey Building</td><td>Western Side of Proposed SWM Pond</td><td>Northeast Corner of Proposed 1-Storey Building</td><td>Eastern Side of Proposed SWM Pond</td></tr>
<tr><td rowspan="5">Stratigraphy Encountered</td><td>Topsoil/Disturbed Soil</td><td>0.0 to 0.2 m</td><td rowspan="2">Not encountered</td><td>0.0 to 0.05 m</td><td>0 to 0.3 m</td></tr>
<tr><td>Pea Gravel, Trace Sand & Boulders</td><td>Not encountered</td><td>0 to 0.8 m</td><td>0.3 to 1.2 m</td></tr>
<tr><td>Earth Fill: Sand, Some Silt, Some Gravel, Brown, Moist</td><td>0.2 to 1.1 m</td><td>0 to 1.2 m</td><td rowspan="2">Not encountered</td><td rowspan="2">Not encountered</td></tr>
<tr><td>Buried Topsoil</td><td>1.1 to 1.3 m</td><td>1.2 to 1.6 m</td></tr>
<tr><td>Sandy Silt Glacial Till, Trace Gravel, Brown, Moist</td><td>1.3 to 2.0 m</td><td>1.6 to 2.0 m</td><td>0.8 to 1.5 m (Bucket Refusal)</td><td>1.2 to 2.2 m</td></tr>
<tr><td colspan="2">Ground Water and Caving Conditions</td><td>Moderate Seepage below 1.0m, Moderate to Severe Caving below 1.0m.</td><td>Moderate Seepage below 1.2m, Moderate to Severe Caving below 1.2m.</td><td>Moderate to Significant Seepage below 0.8m. No Caving Observed.</td><td>No Seepage Observed. No Caving Observed.</td></tr>
</table>

* Surveyed relative to the top of culvert on the west side of Highway 26, with approximate location shown on Figure 2, based on a benchmark Elev. of 183.90 metres.

Representative soil samples were taken and analyzed for particle size distribution as per applicable Ontario Laboratory standards in reference to ASTM D6913 and D7928 to ensure proper identification of the soil. The soil samples were taken to corroborate the results of the infiltration testing and the lab results are provided in Enclosure 3. The soil samples from Test Pits 1 and 2 were taken from the earth fill (sand, some silt to silty) at depths of 0.8 to 1.0 metres below grade, the soil sample from Test Pit 3 was taken from sandy gravel earth fill at a depth of 0.5 metres, and the soil sample from Test Pit 4 was taken at a depth of 2.0 metres from the sandy silt glacial till deposit.

Each test pit was instrumented with a piezometer upon completion of excavation to monitor the groundwater conditions of the site. Water levels within the piezometers were measured at the end of excavation on March 28, 2022, and then on April 4, 2022. A summary of the water level readings including the piezometer depths are provided below:

Test Pit	Piezometer Depth Below Grade	Water Level Reading on March 28, 2022 (Depth/Elev.)	Water Level Reading on April 4, 2022 (Depth/Elev.)
TP1	1.80 m	1.01 m / 185.47 m	0.18 m / 186.30 m
TP2	1.95 m	1.40 m / 184.62 m	1.42 m / 184.60 m
TP3	1.27 m	0.90 m / 184.44 m	0.90 m / 184.44 m
TP4	2.00 m	Dry	1.38 m / 183.01 m

Based on the results of the water levels, it is expected that the groundwater table is about 1.4 metres below grade at the proposed SWM Pond, is about 0.9 metres below grade in the northern part of the site and is about 0.2 metres below grade in the southern part of the site. Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions.

3. INFILTRATING TESTING

3.1 Field Methodology

The infiltration testing conducted to support civil engineering design at this site. The method used on site is summarized below:

- GEI conducted infiltration testing using a Guelph Permeameter to determine the saturated hydraulic conductivity in the vertical direction.
- The testing was completed in Test Pit 1 at a depth of 0.8 metres below grade and in Test Pit 4 at 1.5 metres below grade. Testing could not be carried out in Test Pits 2 and 3 due to groundwater seepage.
- The saturated hydraulic conductivity was converted to infiltration rate using the approximate relationships provided within Table 7.1 of Appendix C of *"Low Impact Development Stormwater Management Planning and Design Guide,"* (Dated 2010, by

CVC and TRCA) and applying the appropriate factor of safety based on Table 7.2 in Appendix C of the design guide.

Measurement of the field-saturated hydraulic conductivity (K_{fs}) was carried out in Test Pits 1 and 4 using a Guelph Permeameter apparatus (Model 2800K1) on March 28, 2022. The test locations are shown on Figure 2. The test pits were excavated by a contractor retained by GEI. In discussion with the civil engineer, potential LID infiltration elevations were unknown, so depths of 1.5 metres below grade were assumed for the purposes of the Guelph Permeameter testing. Sandy silt glacial till was encountered at depths of 0.8 to 1.6 metres below grade, and groundwater seepage was encountered at 0.8 to 1.2 metres below grade in Test Pits 1 to 3. The stratigraphy is summarized in Section 2 above.

3.2 Analysis Methods

The field-saturated hydraulic conductivity of the soil was calculated using the one-head method which is calculated as follows:

$$K_{fs} = \frac{C_1 Q_1}{2H_1^2 + \pi a^2 C_1 + 2\pi \frac{H_1}{\alpha^*}}$$

Where:
- C_1 = shape factor
- Q = flow rate (cm^3/s)
- H_1 = water column height (cm)
- a = well radius (cm)
- α^* = alpha factor (0.01 to 0.36 cm^{-1})

Hydraulic conductivity and infiltration rate are two different concepts and conversion from one parameter to another must account for the hydraulic gradient and consequently cannot be done through unit conversion. In accordance with the CVC guidelines, the infiltration rate was determined as per the relationship with the field-saturated hydraulic conductivity provided within the document, "*Ministry of Municipal Affairs and Housing (MMAH) Supplementary Guidelines SG-6, Percolation Time and Soil Descriptions, September 14, 2012*", which is summarized below.

Hydraulic Conductivity, K_{fs} (cm/s)	Percolation Time, T (min/cm)	Infiltration Rate, I (mm/hr)
0.1	2	300
0.01	4	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Infiltration rate is the inverse of percolation time. The approximate relationship (as provided in Figure C1 of the CVC guideline) in which the infiltration rate can be directly calculated from saturated hydraulic conductivity is as follows:

$$K_{fs} = 6 * 10^{-11}(I)^{3.7363}$$

A factor of safety is then applied to the calculated infiltration rate to account for soil variability, gradual accumulation of fine soil sediments during the lifespan of the facility, and compaction during construction. A higher factor of safety is applied if a soil with a lower infiltration rate is encountered within 1.5 metres of the base of the infiltration measure.

3.3 Results of Infiltration Testing

The field-saturated hydraulic conductivity and infiltration rates of the soil was calculated using the one-head method which is calculated as follows:

Test Pit	Test Depth (m)	Tested Soil Type	Field-Saturated Hydraulic Conductivity (cm/sec)	Unfactored Infiltration Rate (mm/hr)	Factor of Safety	Factored Infiltration Rate for Design (mm/hr)
1	0.8	Earth Fill: Silty Sand, Trace Clay, Trace Gravel	1.9×10^{-5}	29.9	2.5	12.0
4	1.5	Sandy Silt Glacial Till	2.4×10^{-5}	31.4	2.5	12.6

Infiltration testing was not carried out in Test Pits 2 and 3 because groundwater seepage was encountered above the proposed test depth of 1.5 metres. The recommended factor of safety for the glacial till is 2.5 as it is assumed that the glacial till extends an additional 1.5 metres below the infiltration elevation and will have the same infiltration rate.

It is not recommended to design LID measures to infiltrate into the earth fill zones due to variable soil consistency and the possibility for lower-permeability zones such as the buried topsoil layers. Infiltration cannot occur below the groundwater table. It is typical for infiltration elevations to be kept at least 1 metre above the seasonally high groundwater level.

The factored infiltration rate of the sandy silt glacial till for design is 12 mm/hr. It is noted that Test Pit 4 was dry during the Guelph Permeameter testing, but the groundwater table was measured to be at a depth of about 1.4 metres below grade on April 4, 2022, during subsequent groundwater monitoring.

4. PRELIMINARY GEOTECHNICAL ENGINEERING RECOMMENDATIONS

4.1. Preliminary Foundation Design Parameters

The upper topsoil, all earth fill material, and buried topsoil layers are not suitable for supporting conventional strip and spread footing foundations. The native sandy silt glacial till deposit encountered at 0.8 to 1.6 metres below grade is a suitable subgrade for the support of foundations. New spread or strip footing foundations set on the undisturbed sandy silt glacial till can be designed using a geotechnical reaction at SLS of 100 kPa, for an estimated settlement of 25 mm or less. The maximum factored geotechnical resistance at ULS is 150 kPa. These design parameters are preliminary and must be confirmed through additional geotechnical investigations such as boreholes or test pits or confirmed by a geotechnical engineer on site during construction. Higher values may be available but must be confirmed by advancing additional boreholes and/or test pits in the proposed building locations.

Foundations exposed to ambient air temperature throughout the year must be provided with a minimum of 1.5 metres of earth cover for frost protection. The minimum strip footing widths to be used shall be dictated as per the Ontario Building Code. Footings stepped from one level to another must be at a slope not exceeding 7 vertical to 10 horizontal. The excavations must be caried out in a way to prevent groundwater seepage and disturbance to the soil at the proposed foundation elevations.

Prior to pouring concrete for the footings, the footing subgrade must be cleaned of deleterious materials, softened, disturbed, or caved materials, and any standing water. During the excavation and construction of the footings, GEI should be retained to inspect the founding base to ensure the subgrade has been properly prepared and that the integrity of the founding soil has been maintained.

Soils tend to weather and deteriorate on exposure to the atmosphere or to surface water, therefore foundation bases that will remain open and exposed to the atmosphere for an extended period shall be protected by applying a skim coat of lean concrete. If construction is to proceed in freezing conditions, temporary frost protection for the footing bases and concrete must be provided. Construction traffic should be prohibited from travelling over the exposed subgrade.

4.2. Building Slab-on-Grade

The existing topsoil layer is not suitable for the support of a slab-on-grade, and the pea gravel, and zones of earth fill should at this time also be preliminarily considered unsuitable for the support of a slab-on-grade. It is possible that the earth fill subgrade will be capable of supporting the slab-on-grade, but this can only be determined at the time of construction and based on an on-site recommendation by a geotechnical engineer. The test pits advanced do not provide enough information at this time to definitively confirm this until more information can be gleaned from the exposed subgrade.

A lightly loaded unreinforced concrete slab can be constructed at this site provided the subgrade soil is proof-rolled, inspected and approved by the geotechnical engineer, and all organics, topsoil, deleterious materials, or wet/weak zones are subexcavated and replaced with approved clean earth fill. New earth fill used to backfill or raise grades should be placed in maximum 200 mm thick loose lifts and compacted to a minimum of 98% Standard Proctor Maximum Dry Density (SPMDD). To achieve adequate compaction, backfill material should be placed within ±2% of optimum moisture content.

It is necessary that the floor slabs be provided with a capillary moisture barrier and drainage layer. This is made by placing the slab on a minimum 200 mm layer of clear stone compacted by vibration to a dense state. The upper 50 mm of clear stone can be replaced with 19 mm crusher run limestone for a working surface.

5. CONCLUSION

We trust this information is sufficient for your present purposes. Should you have any questions concerning the above, or can be of any further assistance, please do not hesitate to contact the undersigned.

Yours truly,
GEI Consultants

LICENSED PROFESSIONAL ENGINEER
A.WINKELMANN
100150146
Apr. 29, 2021
PROVINCE OF ONTARIO

Alexander Winkelmann, P.Eng.
Geotechnical & Earth Sciences Manager

LICENSED PROFESSIONAL ENGINEER
R. M. WIGINTON
100193069
Apr. 29, 2021
PROVINCE OF ONTARIO

Russell Wiginton, P.Eng.
Senior Geotechnical Engineer

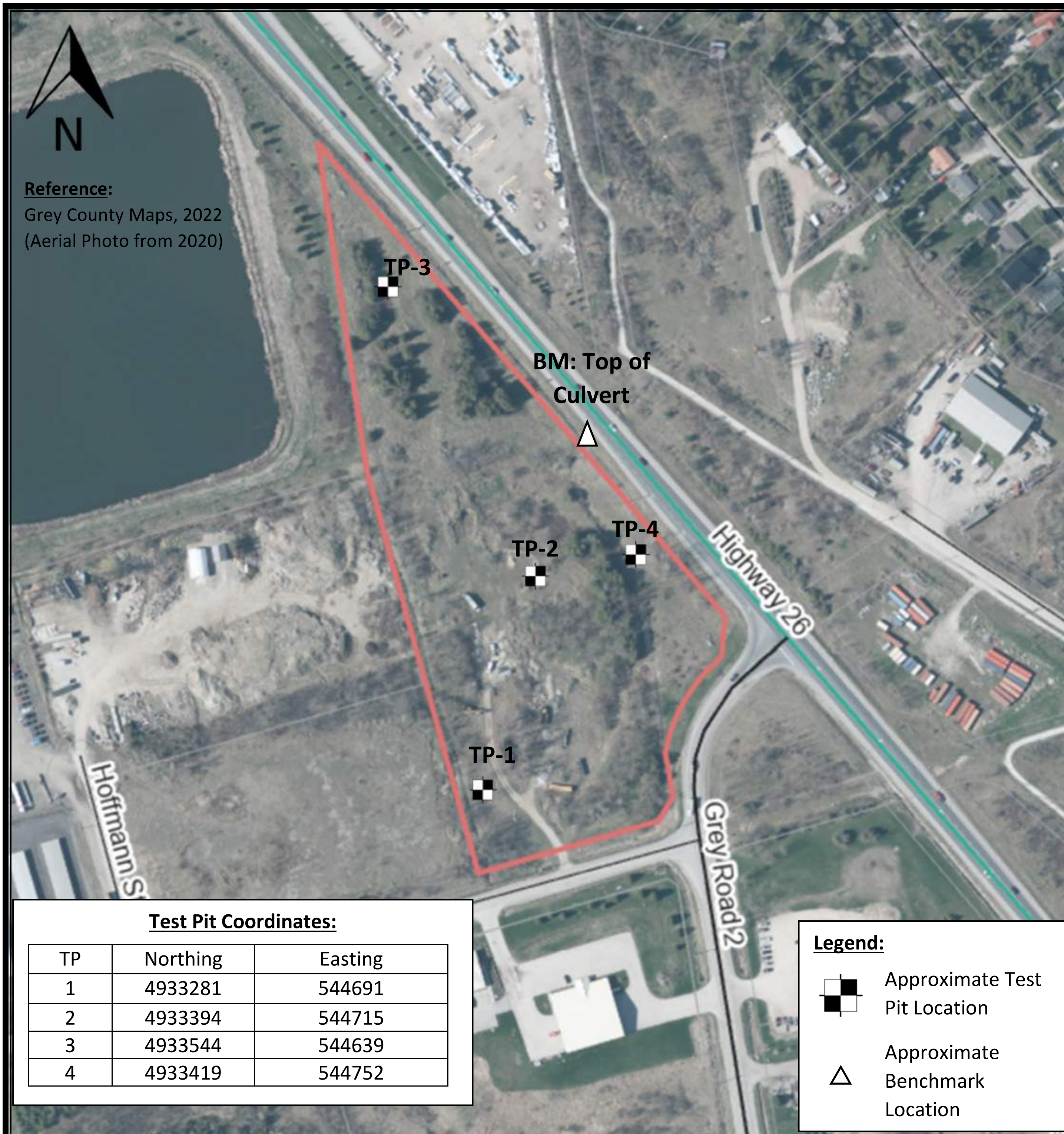
<u>Enclosures (4)</u>

Site Location Plan, Test Pit Location Plan
Test Pit Photographs
Grain Size Distributions
Guelph Permeameter Test Results

ENCLOSURE 1

Site Location Plan, Test Pit Location Plan

GEI Consultants	Client: Innovative Planning Solution	Scale: N.T.S Date: April 2022
	Project: Lot 31 Clark St., Thornbury ON	Drawn By: M.H. Project No: 2200901
647 Welham Rd, Unit 14, Barrie, ON, L4N 0B7 *P: (705) 719-7994*	Title: SITE LOCATION PLAN	FIGURE 1



Test Pit Coordinates:

TP	Northing	Easting
1	4933281	544691
2	4933394	544715
3	4933544	544639
4	4933419	544752

GEI Consultants

647 Welham Rd, Unit 14, Barrie, ON, L4N 0B7
P: (705) 719-7994

Client: Innovative Planning Solution	Scale: N.T.S	Date: April 2022
Project: Lot 31 Clark St., Thornbury ON	Drawn By: M.H.	Project No: 2200901
Title: TEST PIT LOCATION PLAN	FIGURE 2	

ENCLOSURE 2

Test Pit Photographs

PHOTOGRAPH 1

(GEI 2022)

Description:
Detailed View of Test Pit #1.

PHOTOGRAPH 2

(GEI 2022)

Description:
Detailed View of Test Pit #2. Groundwater seepage is visible at the base of the test pit.

PHOTOGRAPH 3

(GEI 2022)

Description:
View of Test Pit #3. Groundwater seepage is visible at the base of the test pit.

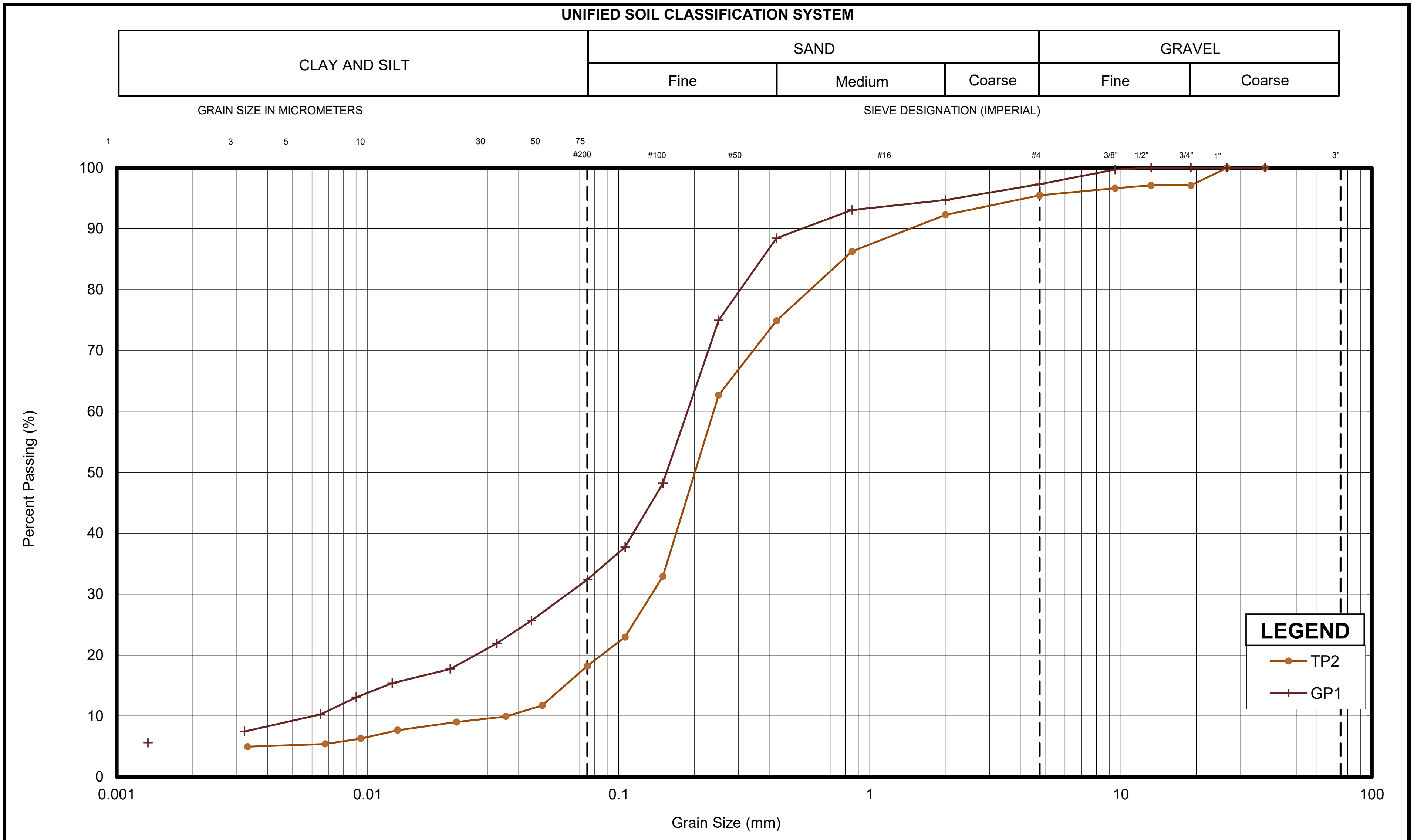
PHOTOGRAPH 4

(GEI 2022)

Description:
Detailed View of Test Pit #4.

ENCLOSURE 3

Grain Size Distributions



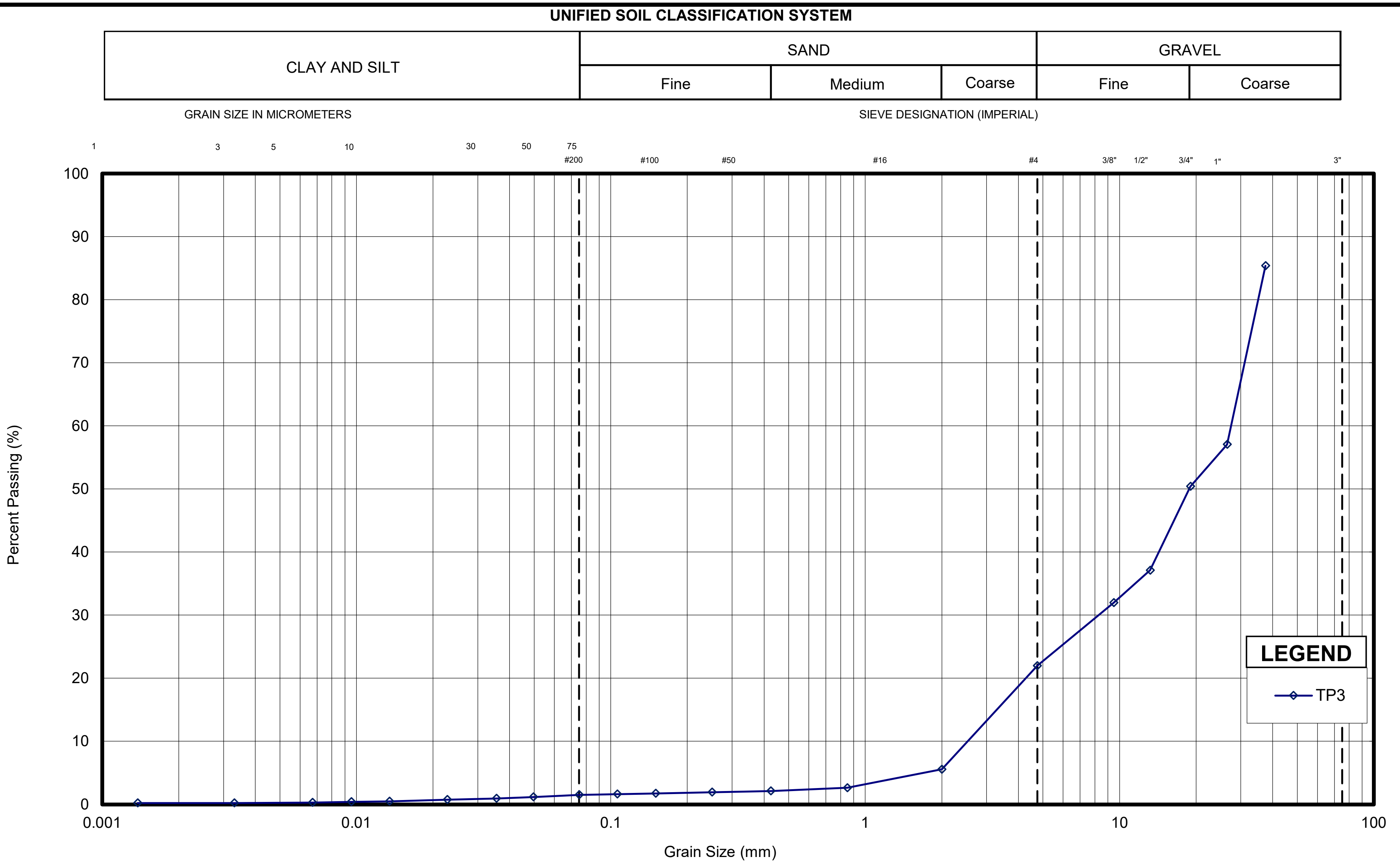
Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
TP2, 1.0m	EARTH FILL: Sand, Some Silt, Trace Gravel, Trace Clay	5	77	14	4	0.036	0.136	0.239	6.639	2.15
GP1, 0.8m	EARTH FILL: Silty Sand, Trace Clay, Trace Gravel	3	65	26	6	0.006	0.062	0.188	31.33	3.408

GEI Consultants

GRAIN SIZE DISTRIBUTION - Lot 31 Clark St., Blue Mountains

EARTH FILL - SAND, SOME SILT TO SILTY

REF. No.	2200901
DATE	April 2022



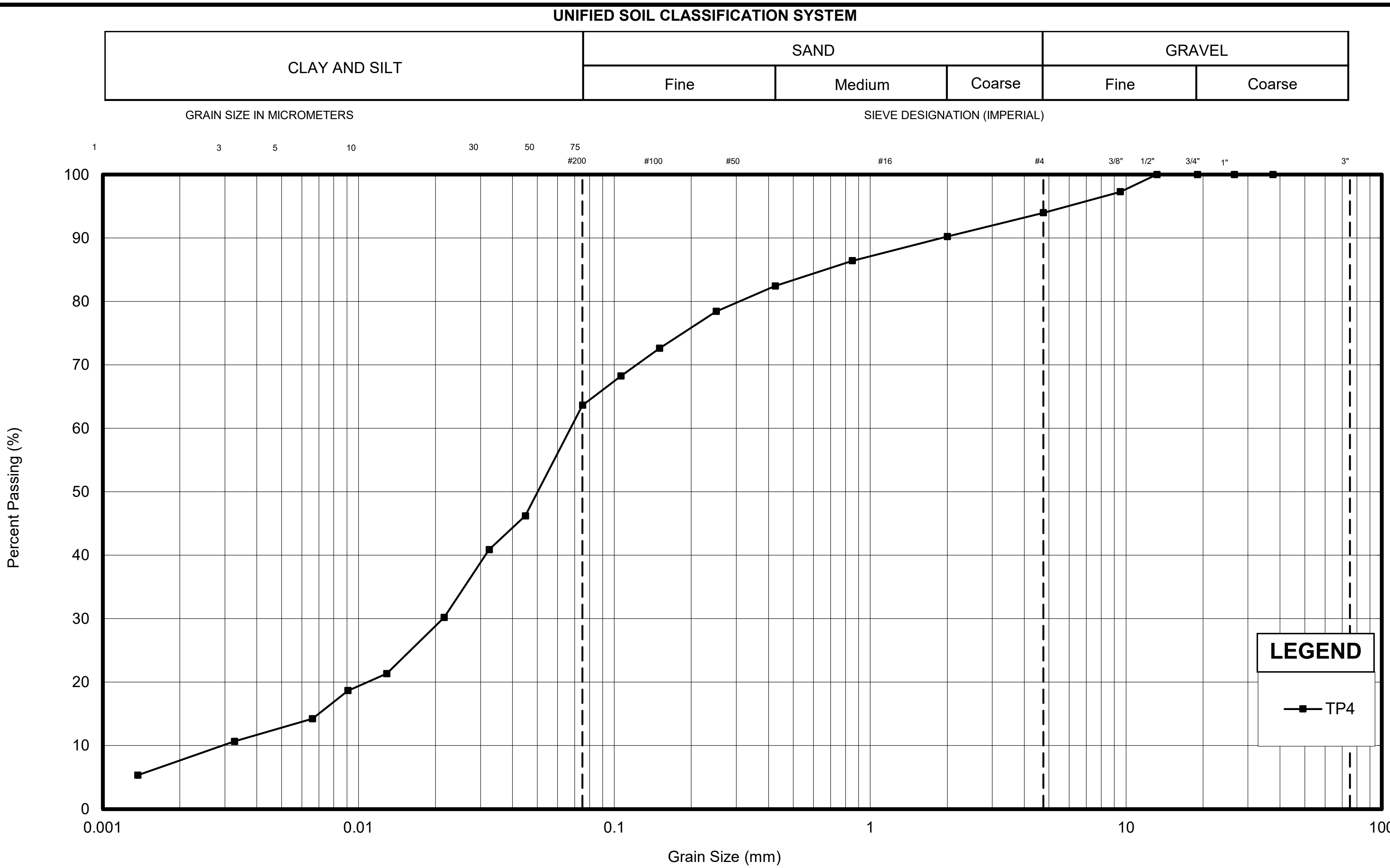
Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
TP3, 0.5m	EARTH FILL: Sandy Gravel, Trace Silt, Trace Clay	78	20	1	1	2.528	8.281	27.48	10.87	0.987

GEI Consultants

GRAIN SIZE DISTRIBUTION - Lot 31 Clark St., Blue Mountains

EARTH FILL - SANDY GRAVEL

REF. No.	2200901
DATE	April 2022



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
TP4, 2.0m	SANDY SILT GLACIAL TILL, Trace Clay, Trace Gravel	6	30	56	8	0.003	0.021	0.067	22.33	2.194

GEI Consultants

GRAIN SIZE DISTRIBUTION - Lot 31 Clark St., Blue Mountains

SANDY SILT GLACIAL TILL

REF. No. 2200901

DATE April 2022

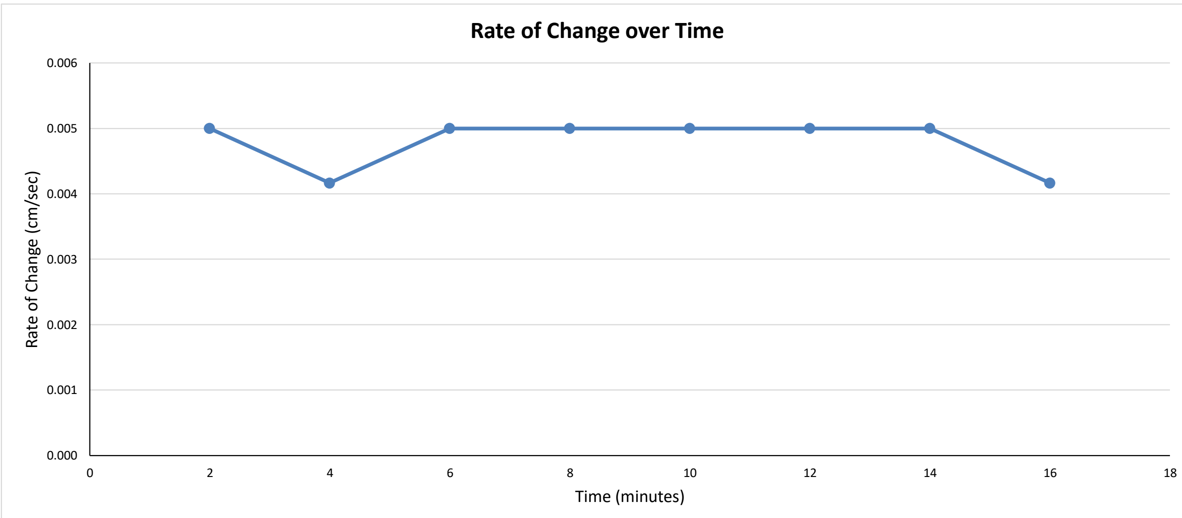
ENCLOSURE 4

Guelph Permeameter Test Results

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: Test Pit 1 at 0.8m



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =	0.005	cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0.0108	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	1.96E-05	cm/sec
Φ_m=	1.64E-04	cm^2/s
Infiltration:	29.93	mm/hr
FOS:	2.50	unitless
Design Infiltration:	11.97	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
2) determined by the reservoir knob at the top of the unit
- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 \text{ or } 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

Table 1. Soil texture-structure categories for site-estimation of α* (adapted from Elrick et al., 1989)

Soil Texture - Structure Category	α* (cm^{-1})
Compacted, structureless, clayey or silty materials such as landfill caps and liners, lacustrine or marine sediments, etc.	0.01
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

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Barrie, Ontario
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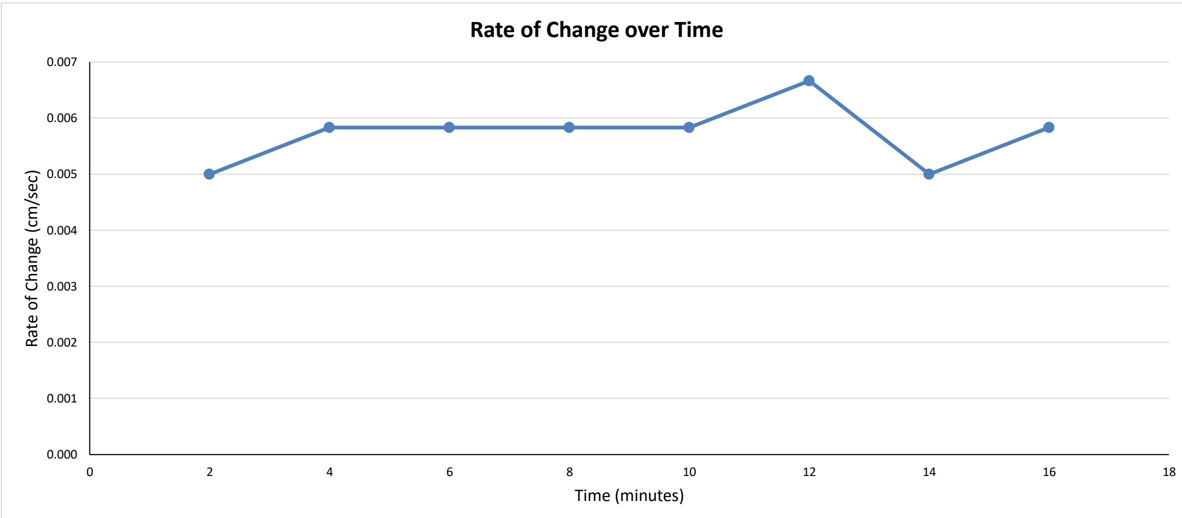
P: (705) 719-7994
E: info@centralearth.ca

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: Test Pit 4 at 1.5m



INPUT PARAMETERS

α^* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =	0.006	cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0.01296	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	2.36E-05	cm/sec
Φ_m=	1.96E-04	cm^2/s
Infiltration:	31.42	mm/hr
FOS:	2.50	unitless
Design Infiltration:	12.57	mm/hr

Variable Glossary

α^* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
2) determined by the reservoir knob at the top of the unit
- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 \text{ or } 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α^* is ≥ 0.12 cm^{-1}
- Select C_2 if α^* = 0.04 cm^{-1}
- Select C_3 if α^* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

Table 1. Soil texture-structure categories for site-estimation of α^* (adapted from Elrick et al., 1989)

Soil Texture - Structure Category	α^* (cm^{-1})
Compacted, structureless, clayey or silty materials such as landfill caps and liners, lacustrine or marine sediments, etc.	0.01
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Appendix E – Pre Development PCSWMM Results

Active c inate

44° 33' 15" N, 80° 26' 15" W (4 .55 167,-80.437500)

Retrieved: Fri, 27 Oct 2023 13:05:24 GMT

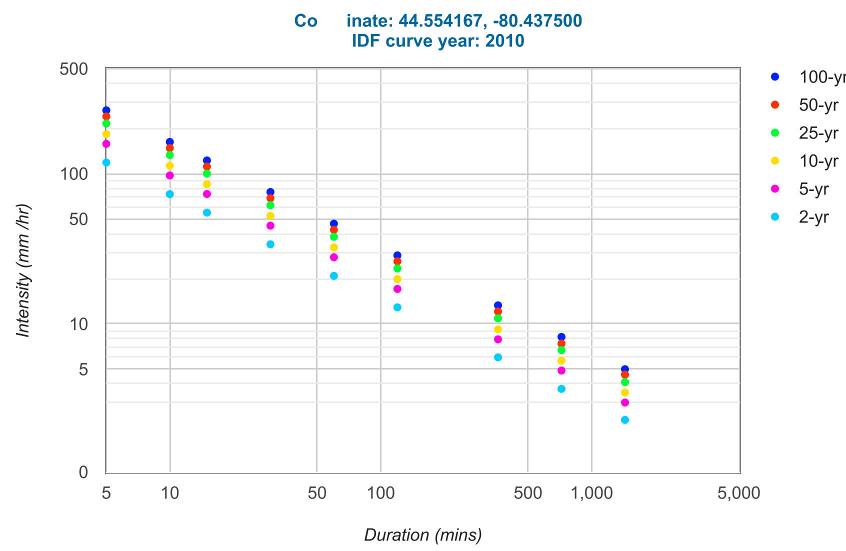
Location summary

These are the locations in the selection.

IDF Cu ve: 44° 33' 15" N, 80° 26' 15" W (44.554167,-80.437500)

Results

An IDF curve was found.



Coefficient summary

IDF Cu ve: 44° 33' 15" N, 80° 26' 15" W (44.554167,-80.437500)

Retrieved: Fri, 27 Oct 2023 13:05:24 GMT

Data year: 2010
IDF curve year: 2010

Return pe iod	2-yr	5-y	10-yr	25-yr	50-yr	100-y
A	20.9	27.8	32.3	38.0	42.3	46.5
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-h	6-hr	12-hr	24-hr
2-yr	118.7	73.1	55.1	33.9	20.9	12.9	6.0	3.7	2.3
5-yr	157.9	97.3	73.3	45.1	27.8	17.1	7.9	4.9	3.0
10-yr	183.5	113.0	85.1	52.4	32.3	19.9	9.2	5.7	3.5
25-yr	215.8	133.0	100.1	61.7	38.0	23.4	10.9	6.7	4.1
50-yr	240.3	148.0	111.5	68.7	42.3	26.1	12.1	7.4	4.6
100-yr	264.1	162.7	122.5	75.5	46.5	28.6	13.3	8.2	5.0

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.9	12.2	13.8	17.0	20.9	25.7	35.8	44.2	54.4
5-yr	13.2	16.2	18.3	22.6	27.8	34.2	47.7	58.7	72.4
10-yr	15.3	18.8	21.3	26.2	32.3	39.8	55.4	68.2	84.1
25-yr	18.0	22.2	25.0	30.8	38.0	46.8	65.2	80.3	98.9
50-yr	20.0	24.7	27.9	34.3	42.3	52.1	72.5	89.4	110.1
100-yr	22.0	27.1	30.6	37.7	46.5	57.3	79.7	98.2	121.0

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Existing Condition Subcatchment Plan & PCSWMM Model View

Existing Condition - 100 yr 24hr SCS Type II Storm - PCSWMM Output

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)
------------------------------------------------------------


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 2
Number of nodes ........... 4
Number of links ........... 2
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                              Data       Recording
Name                 Data Source                              Type       Interval
------------------------------------------------------------------------------------
25mm                 25mm                                     INTENSITY    5 min.
Chicago_4h_100Yr     Chicago_4h_100Yr                         INTENSITY    5 min.
Chicago_4h_10Yr      Chicago_4h_10Yr                          INTENSITY    5 min.
Chicago_4h_25Yr      Chicago_4h_25Yr                          INTENSITY    5 min.
Chicago_4h_2Yr       Chicago_4h_2Yr                           INTENSITY    5 min.
Chicago_4h_50Yr      Chicago_4h_50Yr                          INTENSITY    5 min.
Chicago_4h_5Yr       Chicago_4h_5Yr                           INTENSITY    5 min.
SCS_Type_II_108.79mm_25Yr SCS_Type_II_108.79mm_25Yr      INTENSITY    6 min.
SCS_Type_II_121.11mm_50Yr SCS_Type_II_121.11mm_50Yr      INTENSITY    6 min.
SCS_Type_II_133.1mm_100Yr SCS_Type_II_133.1mm_100Yr      INTENSITY    6 min.
SCS_Type_II_59.84mm_2Yr SCS_Type_II_59.84mm_2Yr        INTENSITY    6 min.
SCS_Type_II_79.64mm_5Yr SCS_Type_II_79.64mm_5Yr        INTENSITY    6 min.
SCS_Type_II_92.51mm_10Yr SCS_Type_II_92.51mm_10Yr       INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)           INTENSITY   60 min.


********************
Subcatchment Summary
********************
```

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
A1	0.65	654.30	0.00	2.0000	SCS_Type_II_133.1mm_100Yr	J1
A2	3.06	305.83	0.00	2.5000	SCS_Type_II_133.1mm_100Yr	J2

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	185.76	0.24	0.0	
J2	JUNCTION	182.50	1.00	0.0	
Clark_Street	OUTFALL	185.75	0.00	0.0	
Hwy26	OUTFALL	182.49	0.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J2	Hwy26	CONDUIT	4.4	0.2250	0.0100
C11	J1	Clark_Street	CONDUIT	5.8	0.2234	0.0100

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C11	DUMMY	0.00	0.00	0.00	0.00	1	0.00

****
Analysis Options
****

Flow Units .... CMS

```
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 05/09/2022 00:00:00
Ending Date .............. 05/11/2022 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001500 m


**************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
**************************     ---------       -------
Total Precipitation ......         0.494       133.100
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.201        54.182
Surface Runoff ...........         0.293        79.053
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -0.101


**************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.294         2.937
Groundwater Inflow .......         0.000         0.000
```

```
RDII Inflow .............         0.000         0.000
External Inflow .........         0.000         0.000
External Outflow ........         0.294         2.937
Flooding Loss ...........         0.000         0.000
Evaporation Loss ........         0.000         0.000
Exfiltration Loss .......         0.000         0.000
Initial Stored Volume ...         0.000         0.000
Final Stored Volume .....         0.000         0.000
Continuity Error (%) ....         0.000


***************************
Time-Step Critical Elements
***************************
None


********************************
Highest Flow Instability Indexes
********************************
All links are stable.


*********************************
Most Frequent Nonconverging Nodes
*********************************
Convergence obtained at all time steps.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     4.50 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
    5.000 -  3.155 sec      :   100.00 %
    3.155 -  1.991 sec      :     0.00 %
```