347 Pido Road, Unit 29
Peterborough, Ontario K9J 6X7
Canada
www.ghd.com

Our ref: 12575911

August 03, 2023

Mahmoud Salman
American Iron and Metal
9100, boul. Henri-Bourassa E
Montreal, Quebec
H1E 2S4

Septic Design – 1533 McAdoo's Lane, Kingston, ON

Dear Me. Salman,

1. Introduction and Background

The following letter was prepared by GHD Limited (GHD) and presents the results of a septic design that was completed for the above noted location (herein referred to as "the Site"). The municipal address of the Site is 1533 McAdoo's Lane, Kingston, Ontario and the general location of the Site is presented in the **Site Location Plan, Figure 1**.

This septic design was completed to support the design of a new a fully raised filter bed system. The proposed sewage treatment system will service a proposed commercial building and scrap metal yard that is assessed to have a daily design sewage flow of 4,700 litres per day (L/day). The layout of the proposed development is presented on the **Concept Plan, Figure 2**. The proposed septic would be constructed in close proximity of the building in the northeast area of the Site near McAdoo Lane.

2. Site Conditions

GHD previously conducted a hydrogeological study for the Site in July 2020. The soils encountered during the subsurface exploration consisted of a surficial layer of topsoil, over sandy gravel fill or native clayey silt underlain by limestone.

The subsurface exploration included eleven (11) test holes and the locations of the test holes are presented on the **Test Hole Plan - Figure 3.** The field logs of the subsurface soils encountered are provided in **Appendix A** along with grain size analyses from the testing performed on the selected soil samples.

Based upon the laboratory soil data for the Site, it was estimated that the sandy gravel fill material has an estimated percolation rate on the order of 4 to 12 min/cm and the native clayey silt was estimated to have a percolation rate on the order of 35 to 50 min/cm.

3. Septic Design and Calculations

3.1 Summary

It is understood by GHD that the proposed building is to consist of office spaces, four (4) washrooms and cafeteria areas. GHD modelled the daily design sanitary sewage flow based upon the warehouse occupancy as per the Ontario Building Code (OBC) Table 8.2.1.3.B Warehouse that includes the following:

- Warehouse – 4 water closets at 950 L per water closet = 3,800 L/day; and
- Warehouse – 6 loading bays at 150 L per loading bay = 900 L/day.

In total, the Site has an approximate daily design sanitary sewage flow of 4,700 L based upon the warehouse scenario. Based upon our correspondence with the Client, the facility will employ 20 staff and expect up to 150 customers per day for scrap metal and parts.

It is the professional opinion of GHD that 4,700 L/day appears to be reasonable for the septic design flow. The design considerations and general outline are presented in the following sections and the proposed septic design drawings are provided in **Appendix B**.

3.2 Design and Calculation Sewage Daily Flow

Based upon the estimated flow rates served by the proposed sewage disposal system previously mentioned in Section 3.1, the maximum sewage flow for the proposed sewage disposal system is calculated as follows:

3.2.1 Sewage Daily Flow

Q = (4 water closets x 950 L/day) + (6 loading bays x 150 L/day) = 4,700 L/day

3.2.2 Septic Tank Sizing

Based on the maximum daily sewage flow, the required capacity of the septic tanks for the sewage disposal system shall be as follows:

V = 3 x Q = 3 x 4,700L /day = 14,100 Litres = 3,101 (IMP)GAL

The proposed septic tank will consist of 18,000 L capacity providing sufficient size for the calculated maximum daily sewage flow.

3.2.3 Pumping Chamber

The proposed pumping chamber will consist of 4,500 L equipped with one (1) ½ HP Liberty or equivalent effluent pump to deliver sewage effluent to two (2) filter beds for the final treatment and disposal. The dosing tank is designed as an “on demand system” with a proposed 240 L on demand.

3.2.4 Proposed Filter Bed

Based on the GHD July 2020 hydrogeological report, a percolation rate on the order of 35 to 50 min/cm was estimated for the Site. The proposed filter bed will be fully raised with the underlying soils to contain an estimated percolation time of:

T = 50 min/cm

The minimum filter bed area shall be as follows:

Surface Loading Area = Q/50 = (4,700 L/day/50) = 94 m^2

or

Filter Bed Contact Area = QT/850 = (4,700 L/day X 50 min/cm) / 850 = 276.5 m^2

The proposed filter beds will have a combined area of 288 m^2 (12 m x 24 m), consisting of 2 beds containing a combined area of 98 m^2 (7 m x 7 m) with each pod consisting of 6 rows that are 5 m long, meeting the minimum requirements.

3.2.5 Contact Area (Mantle)

With the Site containing an estimated percolation rate of 35 to 50 min/cm, a loading rate (LR) of 6 will be used to determine the minimum contact area which is as follows:

Contact Area = Q/LR = 4,700 L/day / 6 = 783.3 m^2

The proposed mantle will have an area of 792 m^2 (24 m x 33 m) and will be at least 250 mm deep, meeting the minimum requirements.

4. Conclusions and Recommendations

The supporting data upon which the recommendations are based, have been presented in the foregoing sections of this report. Based on the results, it is the professional opinion of GHD that the Site is suitable for the proposed system.

4.1 Waste Disposal System

The construction of the proposed waste disposal system should meet the Ontario Regulation 350/06 made under the Building Code Act, 1992. The following design features should be considered during the construction:

1. The organics should be stripped from the area of the proposed leaching beds and the downgradient mantle.
2. The exposed subgrade below the filter bed should be trimmed and scarified and provided with a gentle slope of 0.5% in the direction of the mantle.
3. The filter bed should be constructed as a fully raised leaching type bed to the full height of at least 1 m above the existing grade. The raised bed should consist of clean, granular fill capable of providing an in-place percolation rate (T-time) of 4 to 8 min/cm. The bottom of the leaching bed trench will be not less than 900 mm above the high-water table or bedrock.
4. The mantle should be constructed along the downgradient margin of the raised bed. The mantle should extend along the full width of the bed and for a minimum of 15 m downgradient from the bed. The mantle will consist of similar granular fill raised to a minimum of 250 mm above the surrounding

grade. The surface runoff should be diverted away from the leaching bed by means of proper site drainage.

5. The waste disposal system should be kept clear of surface drainage swales, roof leader drains, and other sources of surface water.
6. The filter bed should be kept away from shade trees and a healthy cover of vegetation should be developed and maintained over the bed to promote evapotranspiration.
7. When sighting the filter bed on sloping ground, it is recommended that procedures outlined in the Building Code be followed closely.
8. The minimum set back distances from septic tank (plus 2 times the height raised):
   - Building – 1.5 m
   - Drilled well – 15 m
   - Property line – 3 m
   - Open water course – 15 m
9. The minimum set back distances from septic filter bed (plus 2 times height raised):
   - Building – 5 m
   - Drilled well, properly sealed – 15 m
   - Open water course – 15 m
   - Property line – 3 m
   - Shallow well – 30 m

The work should be carried out by a licensed installer with GHD conducting the inspections during the construction of the waste disposal system to provide the “as built” confirmation.

The following signatures are provided of the GHD staff that prepared and conducted the hydrogeological assessment. We trust this addendum letter report meets your immediate requirements. Should questions arise regarding any aspect of this letter, please contact the undersigned or our office.

Regards,

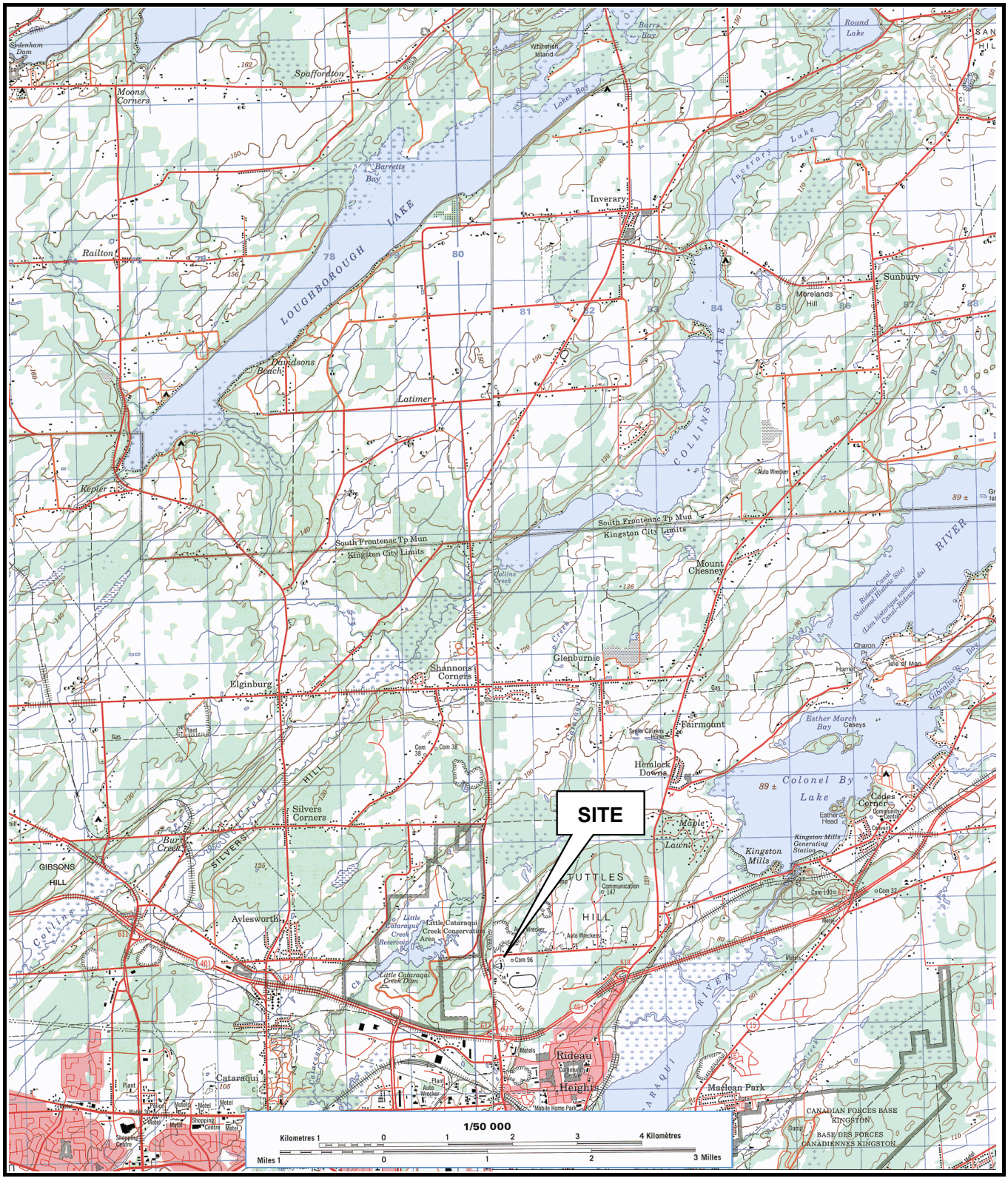
GHD

Steve Gagne, H.S.Bc.

Andy Fawcett, P.Eng

LICENSED PROFESSIONAL ENGINEER
A. F. FAWCETT
PROVINCE OF ONTARIO

Figures



Base map complied from Centre for Topographic Information Maps 31 C/7 published 2001 and 31 C/8 published 2000.

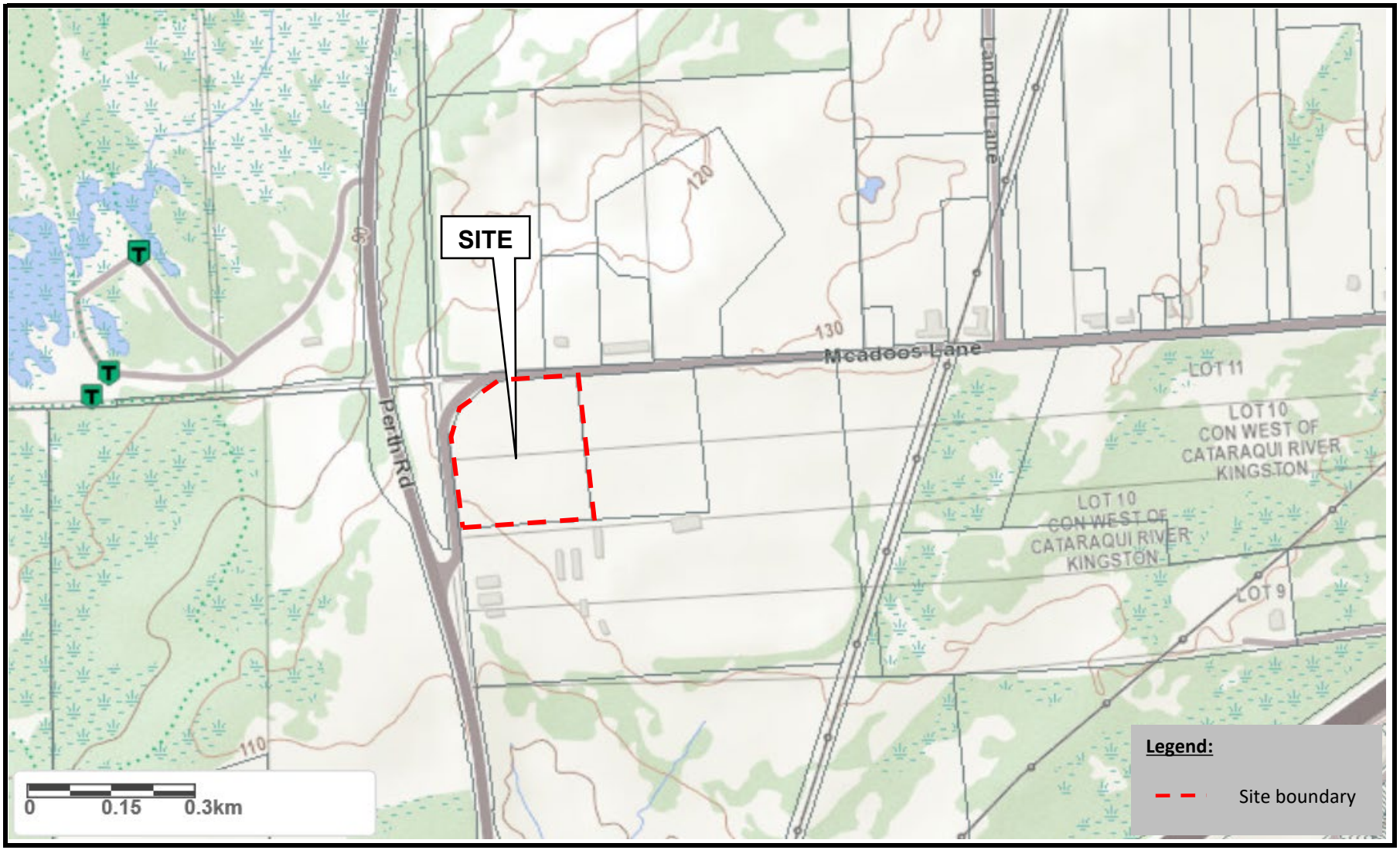
Scale:
Refer to Scale Bar
Coordinate System
NAD 1983 UTM Zone 18

American Iron and Metal
1533 McAdoo's Lane, Kingston, ON
Septic Design

12575911
April 2022

Vicinity Plan

FIGURE 1



Source: Ministry of Natural Resources and Forestry. © Queen's Printer for Ontario, 2020. Note: Property boundary is not a legal survey.

Scale:
Refer to Scale Bar
Coordinate System:
NAD 1983 UTM Zone 18

American Iron and Metal
1533 McAdoo's Lane, Kingston, ON
Septic Design

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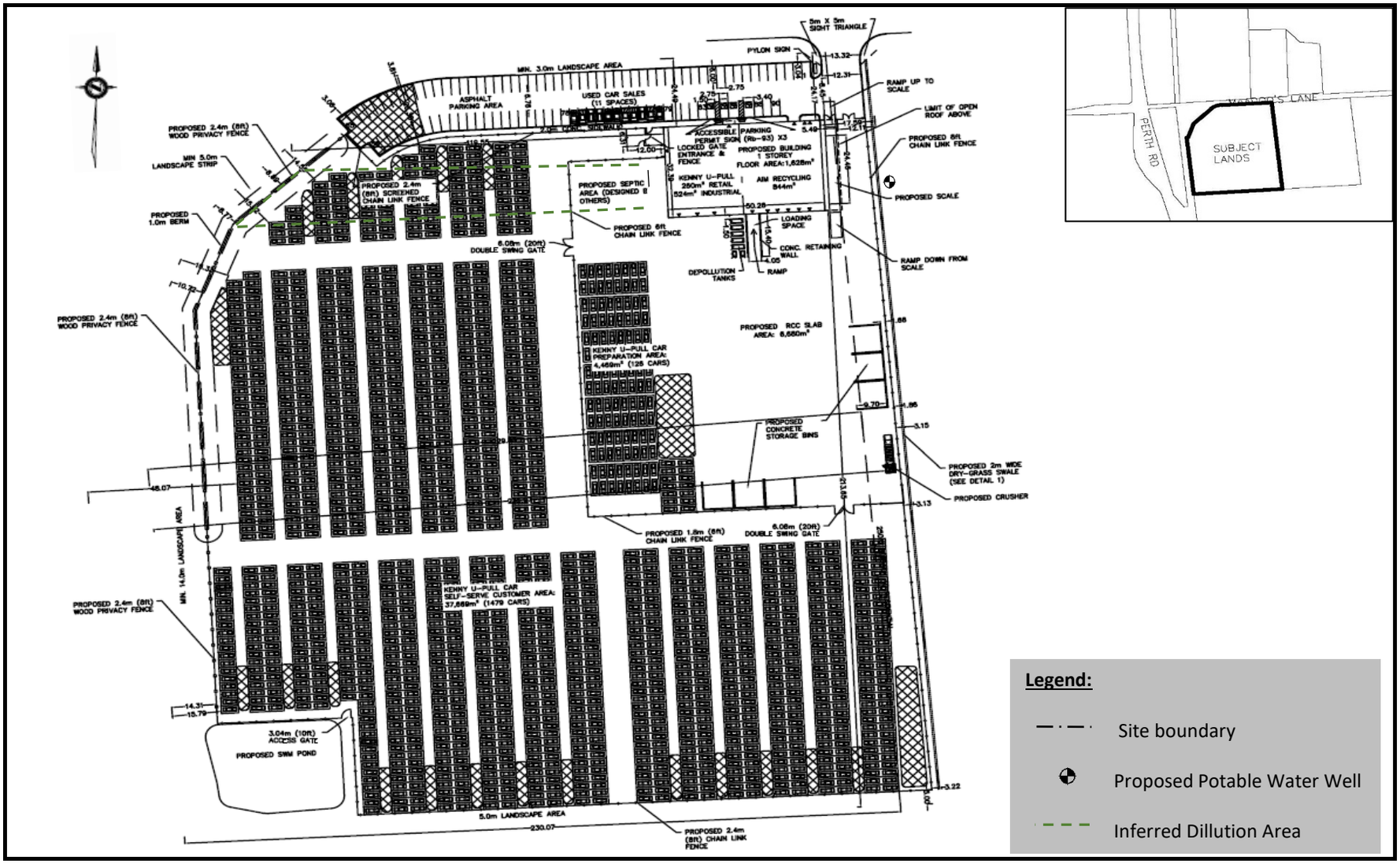
April 2022

Site Plan

FIGURE 2



Source: 124600P.dwg

Scale:
Not to Scale
Coordinate System
NAD 1983 UTM
Zone 18

American Iron and Metal
1533 McAdoo's Lane, Kingston, ON
Septic Design

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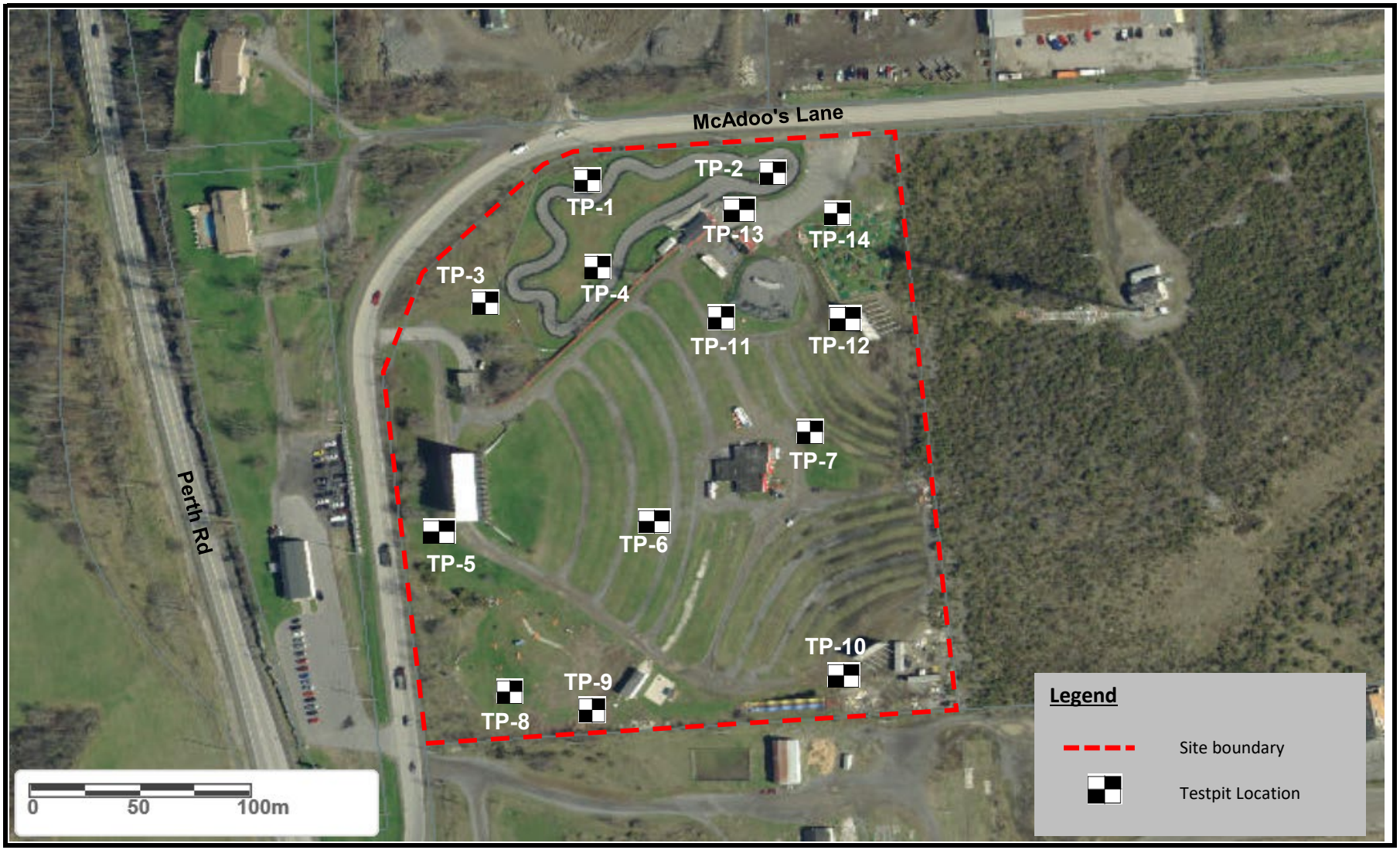
March 2022

Concept Plan

FIGURE 3



Source: Ministry of Natural Resources and Forestry. © Queen's Printer for Ontario, 2020. Note: Property boundary is not a legal survey.

Scale:
Refer to Scale Bar
Coordinate System:
NAD 1983 UTM Zone 18

American Iron and Metal
1533 McAdoo's Lane, Kingston, ON
Septic Design

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April 2022

Test Hole Plan

FIGURE 4

Appendices

Appendix A

Test Hole Logs

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-1

TEST PIT No.: TP-01

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (Field / Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (305 mm)	GS-1	2		
1		0.3		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.3 m.
	0.5							
2								
3								
	1.0							
4								
	1.5							
5								

TEST PIT LOG GEOTECH 11212206-01-FLD-20-04-29, BH LOGS, JG.GPJ GEOLOGIC.GDT 27/5/20

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-2

TEST PIT No.: TP-02

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft / m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	COMMENTS
ft / m	0.0		GROUND SURFACE			
			TOPSOIL (405 mm)			
	0.4		**FILL** - sandy gravel, with silt, trace clay, brown, moist			
0.5				GS-1	18	
			wet (water seepage)			
1.0				GS-2	14	
1.5	1.5		**BEDROCK** END OF TEST PIT			Testhole was open and wet upon completion at bedrock refusal at 1.5 m.

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
w_p w_l Atterberg limits (%)

10 20 30 40 50 60 70 80 90

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-3

TEST PIT No.: TP-03

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (Field / Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (305 mm)				
1		0.3		**FILL** - sandy gravel, with silt, trace clay, brown, moist	GS-1	29		
		0.4		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.4 m.
	0.5							
2								
3	1.0							
4								
5	1.5							

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-4

TEST PIT No.: TP-04

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (Field / Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (610 mm)				
1								
	0.5							
2		0.6		**FILL** - sandy gravel, with silt, trace clay, brown, moist	GS-1	18	○	
		0.8		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.8 m.
3								
	1.0							
4								
	1.5							
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-5

TEST PIT No.: TP-05

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	COMMENTS
		0.0		GROUND SURFACE			
				TOPSOIL (610 mm)			
		0.6		**CLAYEY SILT** - clayey silt, with sand, brown, moist			
				wet (minor water seepage at bedrock interface)	GS-1	29	GS-1: 21% Sand 42% Silt 37% Clay (<0.002 mm)
		1.5		**BEDROCK** END OF TEST PIT			Testhole was open and wet upon completion at bedrock refusal at 1.5 m.

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
W_p W_l Atterberg limits (%)

10 20 30 40 50 60 70 80 90

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-6

TEST PIT No.: TP-06

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (△ Field, □ Lab)	COMMENTS
		0.0		GROUND SURFACE				
				FILL - gravelly sand, with silt, brown, moist	GS-1	10		
		0.2		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.2 m.
1								
	0.5							
2								
3								
	1.0							
4								
	1.5							
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-7

TEST PIT No.: TP-07

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content %	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (%) (10 20 30 40 50 60 70 80 90)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (150 mm)				
		0.2		**FILL** - gravelly sand, with silt, brown, moist				
1					GS-1	9		GS-1: 35% Gravel 50% Sand 15% Silt and Clay
	0.5	0.5		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.5 m.
2								
3	1.0							
4								
5	1.5							

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-8

TEST PIT No.: TP-08

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (Field / Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (760 mm) - with gravel				
1								
	0.5							
2					GS-1	9		
		0.8		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.8 m.
3								
	1.0							
4								
	1.5							
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-9

TEST PIT No.: TP-09

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (△ Field, □ Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (510 mm) - with gravel				
					GS-1	7	○	
	0.5	0.5		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.5 m.
	1.0							
	1.5							

TEST PIT LOG GEOTECH 11212206-01-FLD-20-04-29, BH LOGS, JG.GPJ GEOLOGIC.GDT 27/5/20

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-10

TEST PIT No.: TP-10

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi

DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling

METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (△ Field, □ Lab) 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE				
				BEDROCK at surface END OF TEST PIT				
1								
	0.5							
2								
3								
	1.0							
4								
	1.5							
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-11

TEST PIT No.: TP-11

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (Field / Lab)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (350 mm)				
		0.2		with gravel				
1					GS-1	7	○	
		0.4		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.4 m.
	0.5							
2								
3								
	1.0							
4								
	1.5							
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-12

TEST PIT No.: TP-12

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	COMMENTS
		0.0		GROUND SURFACE			
				TOPSOIL (230 mm) - with gravel	GS-1	22	
		0.2		**BEDROCK** END OF TEST PIT			Testhole was open and dry upon completion at bedrock refusal at 0.2 m.
1							
	0.5						
2							
3							
	1.0						
4							
	1.5						
5							

Shear test (Cu) △ Field
Sensitivity (S) □ Lab
○ Water content (%)
w_p w_l Atterberg limits (%)

10 20 30 40 50 60 70 80 90

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-13

TEST PIT No.: TP-13

ELEVATION: Existing Grade

TEST PIT REPORT

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

- WATER LEVEL

Depth ft	Depth m	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content %	Shear test (Cu) △ Field; Sensitivity (S) □ Lab; ○ Water content (%); W_p W_l Atterberg limits (%) 10 20 30 40 50 60 70 80 90	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (150 mm)				
		0.2		**FILL** - sandy gravel, with silt, trace clay, brown, moist				
1					GS-1	9	○	GS-1: 63% Gravel 24% Sand 13% Silt and Clay
	0.5							
2								
3					GS-2	12	○	GS-2: 58% Gravel 27% Sand 11% Silt 4% Clay (<0.002 mm)
	1.0							
4		1.2		grey, wet (water seepage)				
	1.5	1.5		**BEDROCK** END OF TEST PIT				Testhole was open and wet upon completion at bedrock refusal at 1.5 m.
5								

REFERENCE No.: 11212206-01

ENCLOSURE No.: A-14

TEST PIT No.: TP-14

ELEVATION: Existing Grade

TEST PIT REPORT

Page: 1 of 1

CLIENT: American Iron and Metal

PROJECT: 1533 McAdoo's Lane, Kingston, ON

LOGGED BY: J. Geraldi DATE: 29 April 2020

EXCAVATION COMPANY: GET Drilling METHOD: Mini-excavator

NOTES:

LEGEND

GS - GRAB SAMPLE

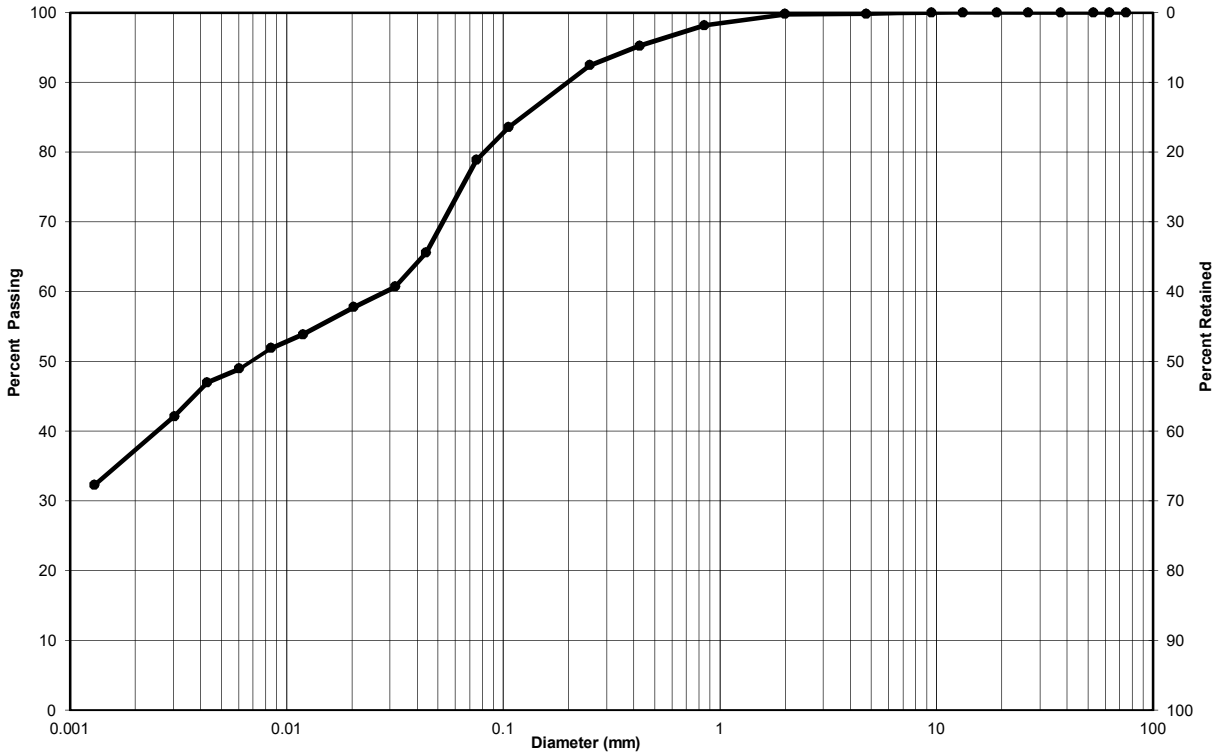
- WATER LEVEL

Depth (ft)	Depth (m)	m Below Existing Grade	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	Type and Number	Moisture Content (%)	Shear test (Cu) / Sensitivity (S) / Water content (%) / Atterberg limits (w_p w_l) (10 20 30 40 50 60 70 80 90)	COMMENTS
		0.0		GROUND SURFACE				
				TOPSOIL (230 mm) - with gravel	GS-1	13	○	
		0.2		**BEDROCK** END OF TEST PIT				Testhole was open and dry upon completion at bedrock refusal at 0.2 m.
1								
	0.5							
2								
3								
	1.0							
4								
	1.5							
5								

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	American Iron and Metal	**Lab no.:**	SS-20-27
Project/Site:	1533 McAdoos Lane, Kingston	**Project no.:**	11212206-01

Borehole no.:	TP-5	Sample no.:	GS-1
Depth:	4'	Enclosure:	A-15



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

Soil Description	Gravel	Sand	Clay & Silt
	0	21	79

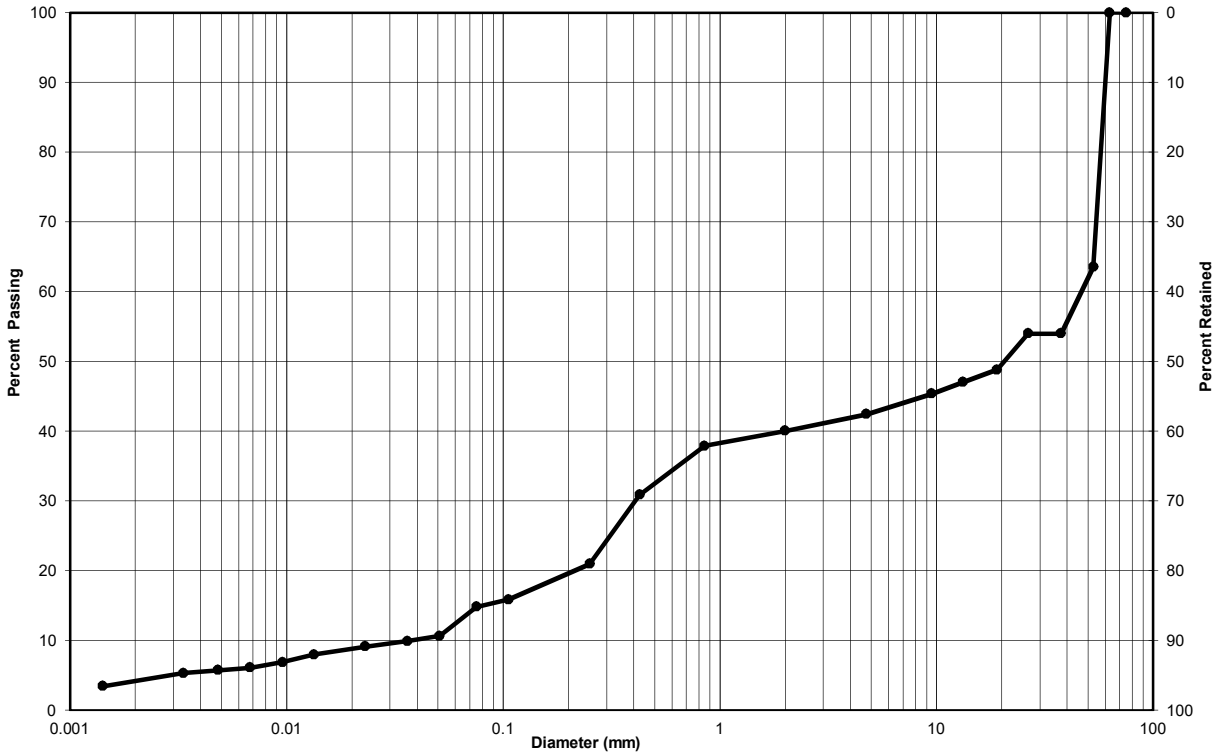
Remarks:

Performed by:	Josh Sullivan	**Date:**	May 14, 2020
Verified by:	Joe Sullivan	**Date:**	May 14, 2020

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	American Iron and Metal	**Lab no.:**	SS-20-27
Project/Site:	1533 McAdoos Lane, Kingston	**Project no.:**	11212206-01

Borehole no.:	TP-13	Sample no.:	GS-2
Depth:	3'	Enclosure:	A-16



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

Soil Description	Gravel	Sand	Clay & Silt
	58	27	15

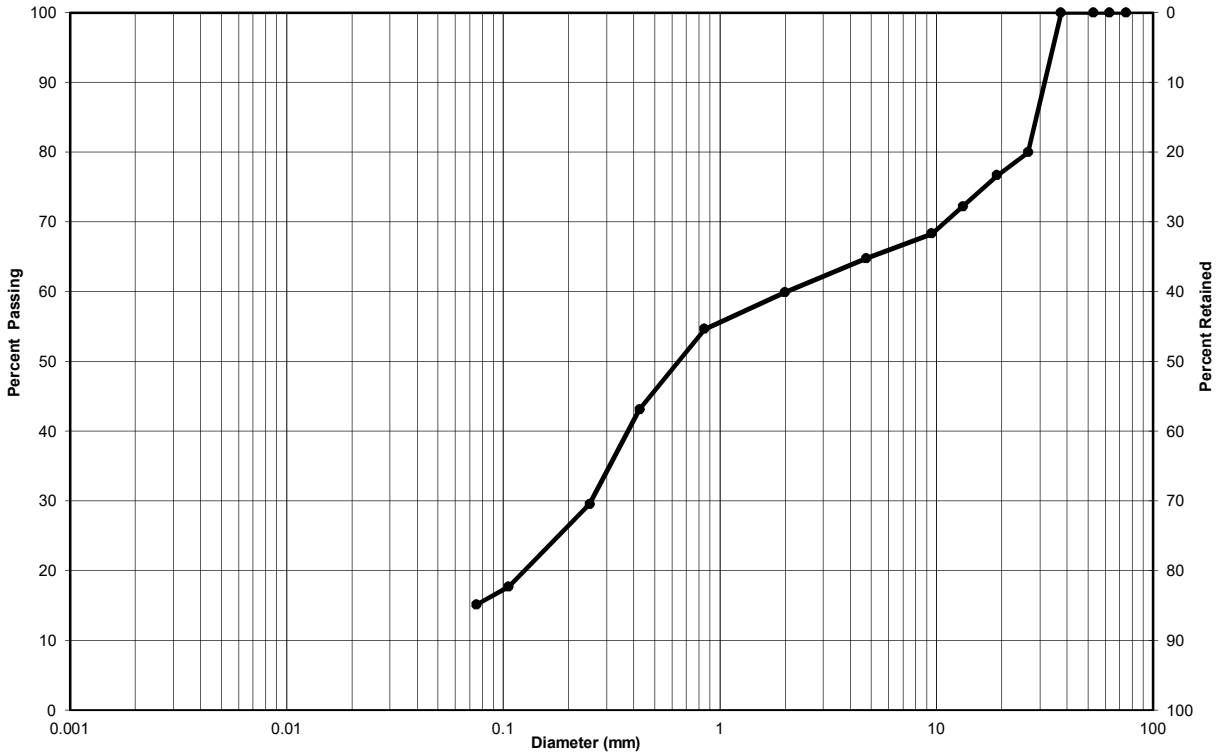
Remarks:

Performed by:	Josh Sullivan	**Date:**	May 14, 2020
Verified by:	Joe Sullivan	**Date:**	May 14, 2020

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	American Iron and Metal	**Lab no.:**	SS-20-27
Project/Site:	1533 McAdoos Lane, Kingston	**Project no.:**	11212206-01

Borehole no.:	TP-7	Sample no.:	GS-1
Depth:	1'	Enclosure:	A-17



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

Soil Description	Gravel	Sand	Clay & Silt
	35	50	15

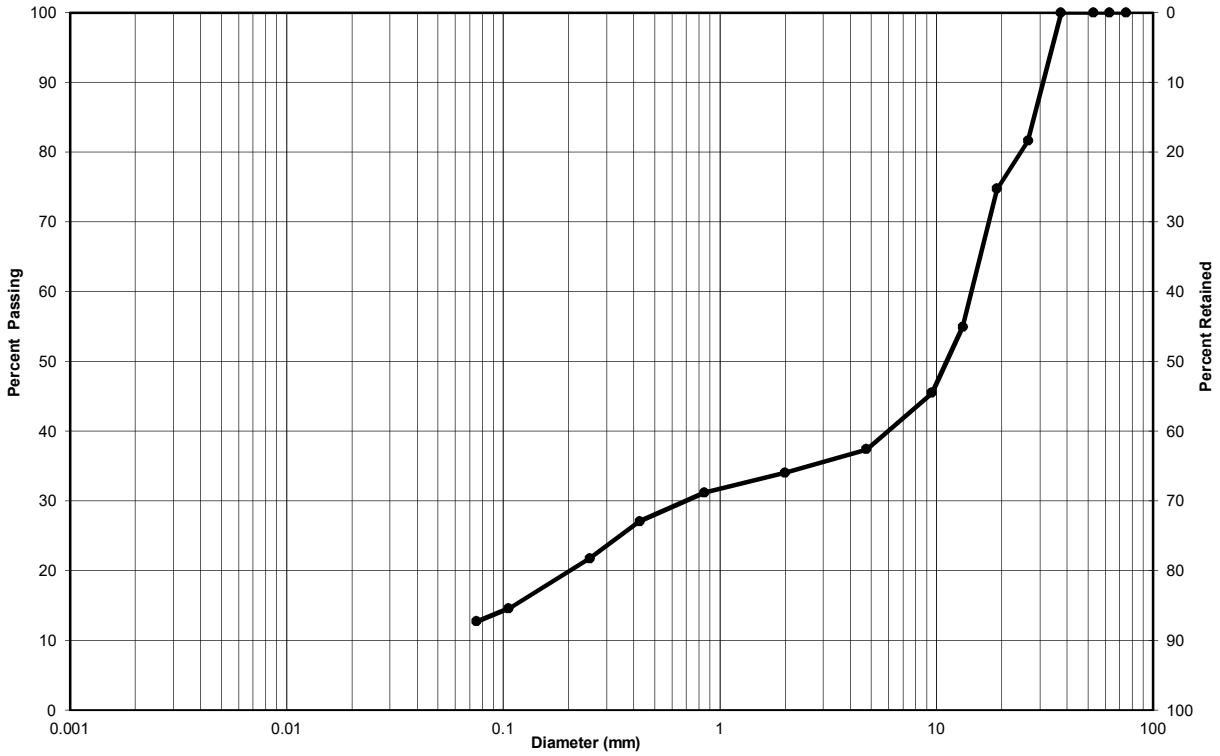
Remarks:

Performed by:	Josh Sullivan	**Date:**	May 14, 2020
Verified by:	Joe Sullivan	**Date:**	May 14, 2020

Particle-Size Analysis of Soils (Geotechnical) (USCS) (ASTM D422)

Client:	American Iron and Metal	**Lab no.:**	SS-20-27
Project/Site:	1533 McAdoos Lane, Kingston	**Project no.:**	11212206-01

Borehole no.:	TP-13	Sample no.:	GS-1
Depth:	1'	Enclosure:	A-18



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Unified Soil Classification System					

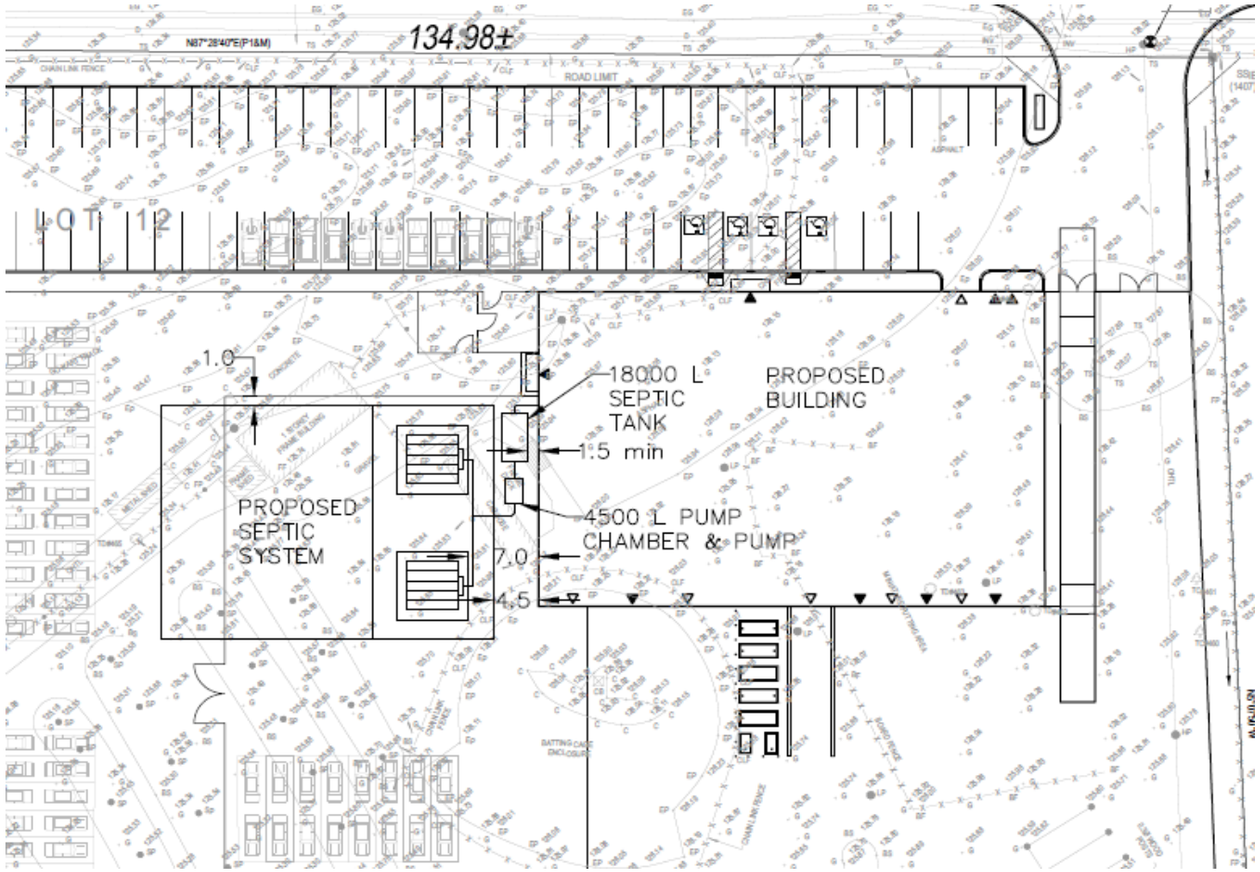
Soil Description	Gravel	Sand	Clay & Silt
	63	24	13

Remarks:

Performed by:	Josh Sullivan	**Date:**	May 14, 2020
Verified by:	Joe Sullivan	**Date:**	May 14, 2020

Appendix B

Septic Design



CONCEPT PLAN

Notes:

- ACTUAL LENGTH OF PIPES AND NUMBER OF FITTINGS HAS TO BE VERIFIED ON SITE
- ALL DIMENSIONS ARE SHOWN IN METRES UNLESS OTHERWISE SPECIFIED
- ALL SEWAGE FORCEMAINS SHALL BE HIGH DENSITY POLYETHLENE
- ALL P.V.C. FITTINGS AND PIPES ARE OF SCH.80 FOR PRESSURIZED LINES OR SCH.40 FOR NON PRESSURIZED LINES
- PRIOR TO COMMENCING EXCAVATION, CHECK LOCATIONS OF ALL UNDERGROUND SERVICES SUCH AS HYDRO, GAS, TELEPHONE, WATER AND SEWAGE LINES WITH THE LOCAL AUTHORITY
- ALL WORK SHALL BE IN ACCORDANCE WITH THE RELEVANT CODES AND GUIDELINES
- ALL EQUIPMENT SHALL BE INSTALLED AS SPECIFIED OR APPROVED EQUIVALENT
- CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH WORK AND BE RESPONSBILE FOR SAME
- CONTRACTOR MUST REPORT ANY DISCREPANCIES TO ENGINEER BEFORE COMMENCING THE WORK
- DO NOT SCALE DRAWING
- ANY CHANGES MUST BE APPROVED BY THE ENGINEER

T.B	No.1	DESIGN DRAWING	S.G.	28/03/22
REVISED BY	REV No.	DESCRIPTION OF REVISION	APPROVED BY	DATE

LICENSED PROFESSIONAL ENGINEER
A. F. FAWCETT
PROVINCE OF ONTARIO

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GHD

DRAWN BY:	T. DEBOER		DATE: Aug. 3, 2023
DESIGNED BY:	A. FAWCETT, P.ENG		SCALE: AS NOTED
CHECKED BY:	A. FAWCETT, P.ENG		

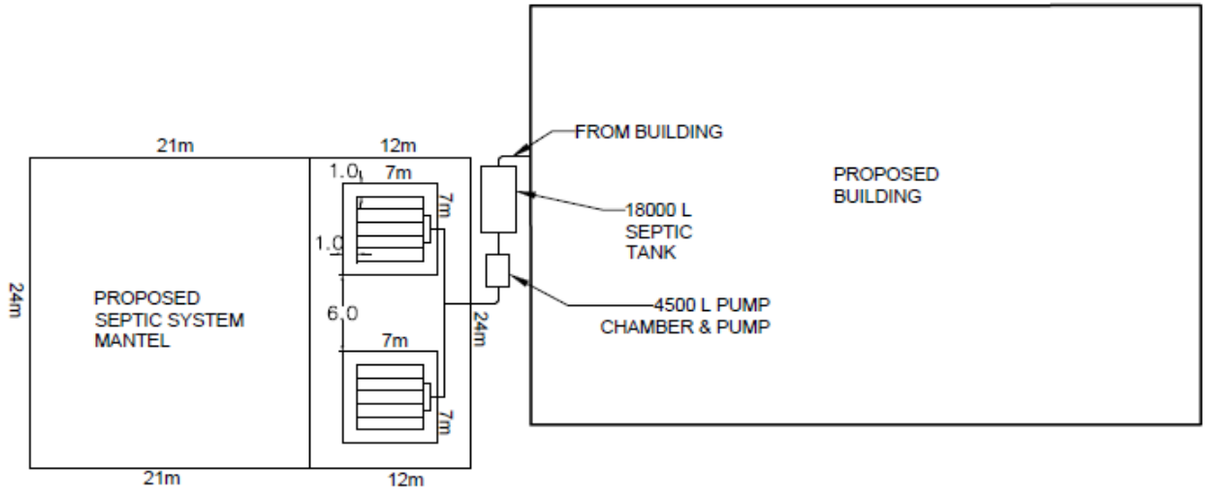
PROJECT AMERICAN IRON & METAL
1533 McADOO'S LANE, KINGSTON, ON

TITLE SEWAGE DISPOSAL SYSTEM FOR AIM

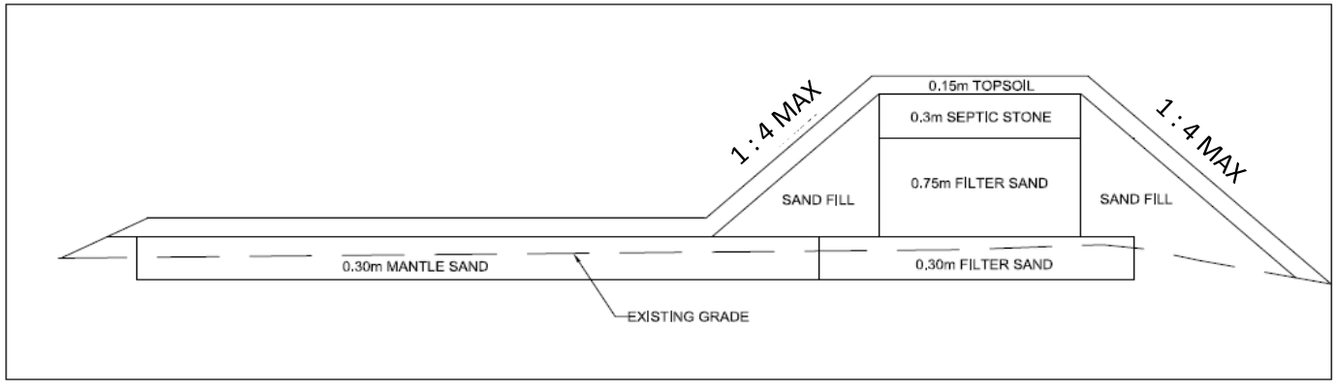
DRAWING DESCRIPTION
NEW SEPTIC CONCEPT PLAN

DWG FILE
022-617-SP-1.DWG

SHEET 1 of 3 | PROJECT NO. 12575911



SEPTIC DESIGN - PLAN



SEPTIC CROSS SECTION - PLAN

Notes:

- ACTUAL LENGTH OF PIPES AND NUMBER OF FITTINGS HAS TO BE VERIFIED ON SITE
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- CONTRACTOR MUST REPORT ANY DISCREPANCIES TO ENGINEER BEFORE COMMENCING THE WORK
- DO NOT SCALE DRAWING
- ANY CHANGES MUST BE APPROVED BY THE ENGINEER

T.B	No.1	DESIGN DRAWING	S.G.	03/08/22
REVISED BY	REV No.	DESCRIPTION OF REVISION	APPROVED BY	DATE

LICENSED PROFESSIONAL ENGINEER
A. F. FAWCETT
PROVINCE OF ONTARIO

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GHD

DRAWN BY:	T. DEBOER		DATE: August 3, 2023
DESIGNED BY:	A. FAWCETT, P.ENG		SCALE: AS NOTED
CHECKED BY:	A. FAWCETT, P.ENG		

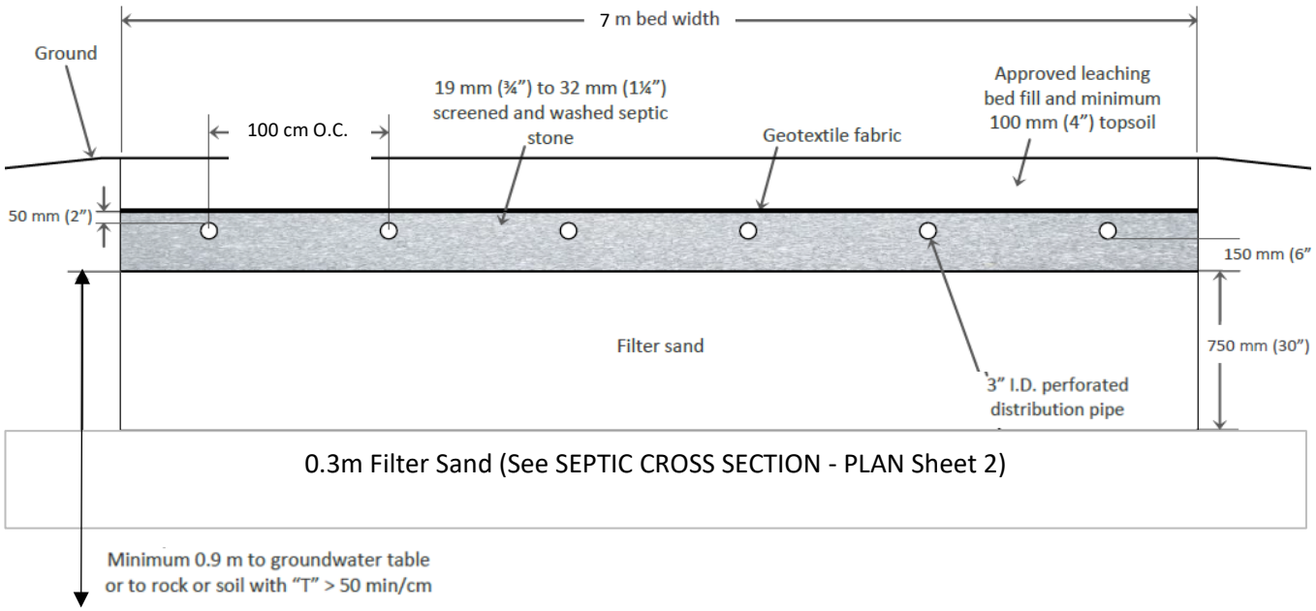
PROJECT AMERICAN IRON & METAL
1533 McADOO'S LANE, KINGSTON, ON

TITLE SEWAGE DISPOSAL SYSTEM FOR AIM

DRAWING DESCRIPTION
NEW SEPTIC DESIGN PLAN, CROSS SECTION DETAIL

DWG FILE
022-617-SP-1.DWG

SHEET 2 of 3 | PROJECT NO. 12575911



Filter Bed Cross Section and Bed Details

Notes:

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T.B	No.1	DESIGN DRAWING	S.G.	03/08/22
REVISED BY	REV No.	DESCRIPTION OF REVISION	APPROVED BY	DATE

LICENSED PROFESSIONAL ENGINEER A. F. FAWCETT PROVINCE OF ONTARIO

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GHD

DRAWN BY:	T. DEBOER		DATE: August 3, 2023
DESIGNED BY:	A. FAWCETT, P.ENG		SCALE: AS NOTED
CHECKED BY:	A. FAWCETT, P.ENG		

PROJECT AMERICAN IRON & METAL

1533 McADOO'S LANE, KINGSTON, ON

TITLE SEWAGE DISPOSAL SYSTEM FOR AIM

DRAWING DESCRIPTION

NEW SEPTIC DESIGN PLAN, CROSS SECTION DETAIL

DWG FILE 022-617-SP-1.DWG

SHEET 3 of 3 | PROJECT NO. 12575911