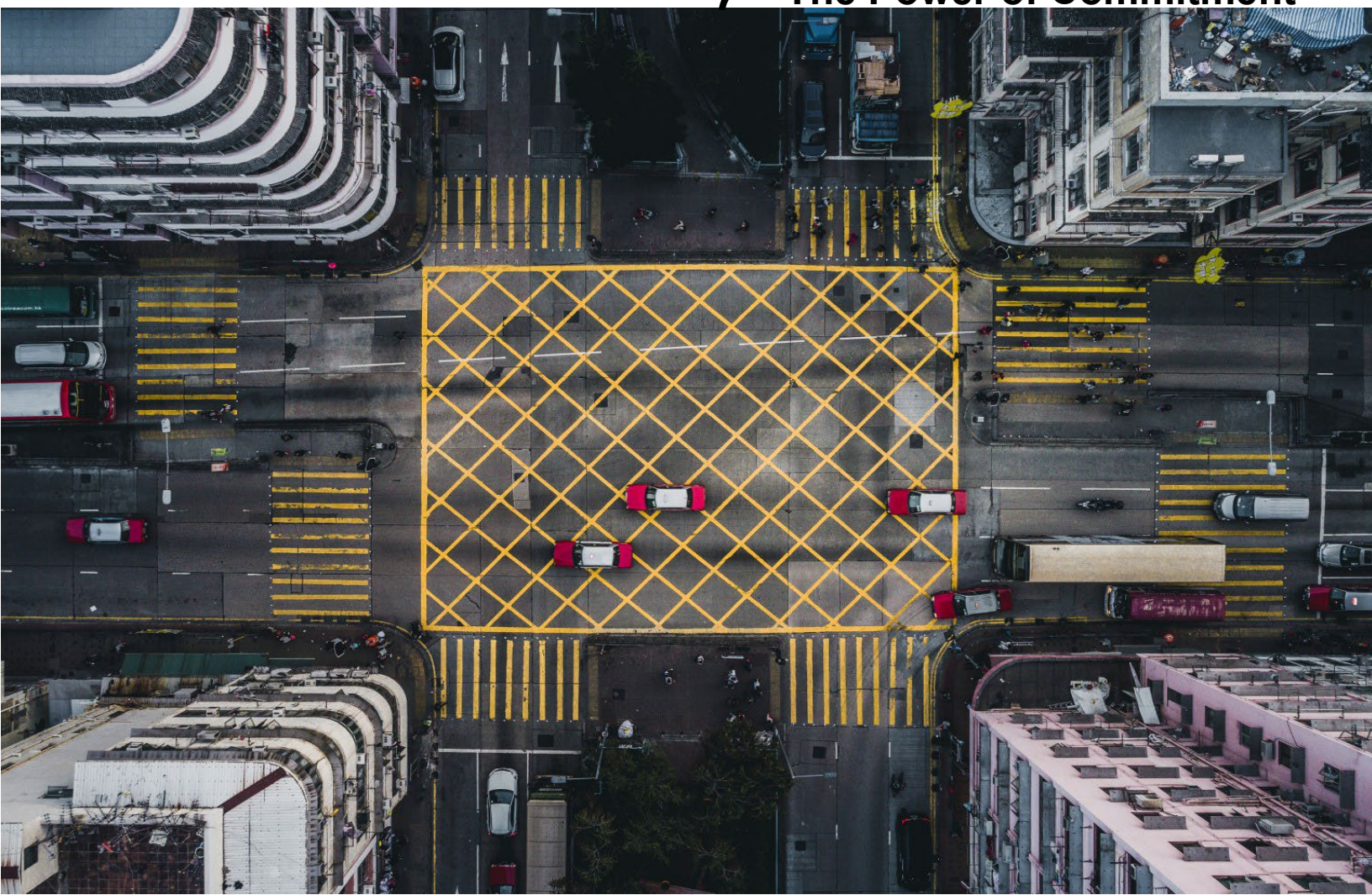
Functional Servicing Report

4631 Sideroad 20 North, Township of Puslinch, Ontario

Puslinch Development GP Inc.

7 February 2025

→ The Power of Commitment



Project name		4631 Sideroad 20 North, Township of Puslinch					
Document title		Functional Servicing Report | 4631 Sideroad 20 North, Township of Puslinch, Ontario					
Project number		12618927					
File name		12618927-GHD-00-00-RPT-EN-0001-4631 Sideroad 20 N_FSR.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
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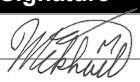
S0	1	C.R	M.M		M.M		
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Executive Summary

This report supports an Official Plan and Zoning By-law Amendment for a proposed industrial development at 4631 Sideroad 20 North, Township of Puslinch, Ontario. The site is located in the rural area of the Township of Puslinch, Wellington County, adjacent to Guelph, and spans approximately 25.47 hectares. The site also contains a Provincially Significant Wetland (PSW). There is also a small vegetated/wetland area north of Concession Road 4.

The proposed development consists of three industrial buildings, a daycare, and a gym, with access provided by three driveway entrances along Concession Road 4. The facilities will include 66 loading bays and spaces for office, warehouse, manufacturing, retail, conference, food service, gym, and daycare occupancies.

Sanitary servicing for the site will consider only domestic flows. The total sanitary design flow is of 90,000 L/d. The soil, predominantly silty sand, has an estimated percolation rate of 15 min/cm. The proposed septic system features a Class 4 Sewage System, with balancing tanks, a tertiary treatment unit, and Type A dispersal bed. The Type A dispersal bed's minimum footprint is of 1,800 m^2.

Water supply will be provided by private wells for each building. The total estimated average demand for the site is 46.62 L/min. The total estimated maximum day demand for the site is 62.47 L/min. Each building will have its own private well to meet domestic water demand.

Fire demand will be met by cisterns sized according to the Fire Underwriters Survey method. Industrial Buildings #2 and #3, the daycare, and the gym will be serviced by pre-cast concrete tanks or approved equivalents that are 7,920 m^3, 5,130 m^3, 720 m^3, and 525 m^3, respectively. The tanks will be located underneath the proposed parking lot. These tanks will be rated for truck loading and installed on granular bedding. The stormwater management pond's permanent pool volume paired with a 4,760 m^3 tank will provide the required firefighting volume for Industrial Building #1.

Erosion and sediment control measures will include a heavy-duty silt fence, rock mud mat, and siltation control devices, with weekly inspections and maintenance after significant rainfall events.

This report demonstrates that the proposed site can be developed in accordance with local guidelines from a functional servicing perspective. Further details and design refinements will be addressed at the detailed design stage.

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1. Introduction

GHD Limited (GHD) has been retained by Puslinch Development GP Inc. (the “Owner”) to provide professional engineering services related to the preparation of the Functional Servicing Report in support of a proposed industrial development at 4631 Sideroad 20 North, Township of Puslinch, Ontario (hereafter referred to as the ‘Site’). This report will demonstrate that the Site can be developed in accordance with the Township of Puslinch and the County of Wellington guidelines from a functional servicing perspective.

This report has been prepared to support an Official Plan and Zoning By-law Amendment for the proposed facilities.

The following materials were referenced in the preparation of this report:

- The Ontario Building Code, 2024.
- Municipal Development Standard, prepared by the Township of Puslinch, September 2019.
- Stormwater Management Planning and Design Manual, prepared by Ministry of Environment, March 2003.
- Water Supply for Public Fire Protection, Fire Underwriters Survey, 2020.
- City of Guelph Water and Wastewater Servicing Master Plan, 2023
- Design Guidelines for Sewage Works, Ministry of the Environment, 2008.

1.1 Scope and limitations

This report: has been prepared by GHD for Puslinch Development GP Inc. and may only be used and relied on by Puslinch Development GP Inc. for the purpose agreed between GHD and Puslinch Development GP Inc. as set out in section 1.0 of this report.

GHD otherwise disclaims responsibility to any person other than Puslinch Development GP Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Puslinch Development GP Inc. and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.2 Assumptions

The assumptions inherent in this report are as follows:

- **Sewage Quality Assumptions:** The sanitary flows noted in this report account solely for domestic sewage flows generated from the day-to-day activities of the site. It is assumed that no industrial wastewater is generated from the manufacturing or processing operations completed on site. If any industrial grade wastewater is generated it is to be hauled offsite. All sanitary flows are assumed to meet the effluent quality standards described in Chapter 22, Section 22.5.10, of the MOE Design Guidelines for Sewage Works with an estimated nitrate-nitrogen concentration of 40 mg/L.
- **Sanitary and Water Demand Assumptions:** As the site plan is in the preliminary stage, key site features needed to calculate the sewage peak flow, domestic water demand and fire flow demand are yet to be determined. As this information is currently unavailable, GHD was required to make assumptions such as the number of employees, and the number of water fixtures present in each building. These assumptions were made based on site limitations such as the number of parking spaces as well as gross floor area.
- **Soil**: Based on the geotechnical report by GHD, dated December 10, 2024, it was assumed that the soil beneath the proposed septic bed consists of silty sand. Consequently, the percolation time of the underlying soil was estimated to be 15 min/cm. In the event that the soils underlying the leaching bed do not have a T-time of 15 min/cm or lower, the leaching bed may be redesigned or moved. Additionally, any soils moved to the vicinity of the leaching bed during earthworks should comprised of the native sandy silt.

1.3 Background

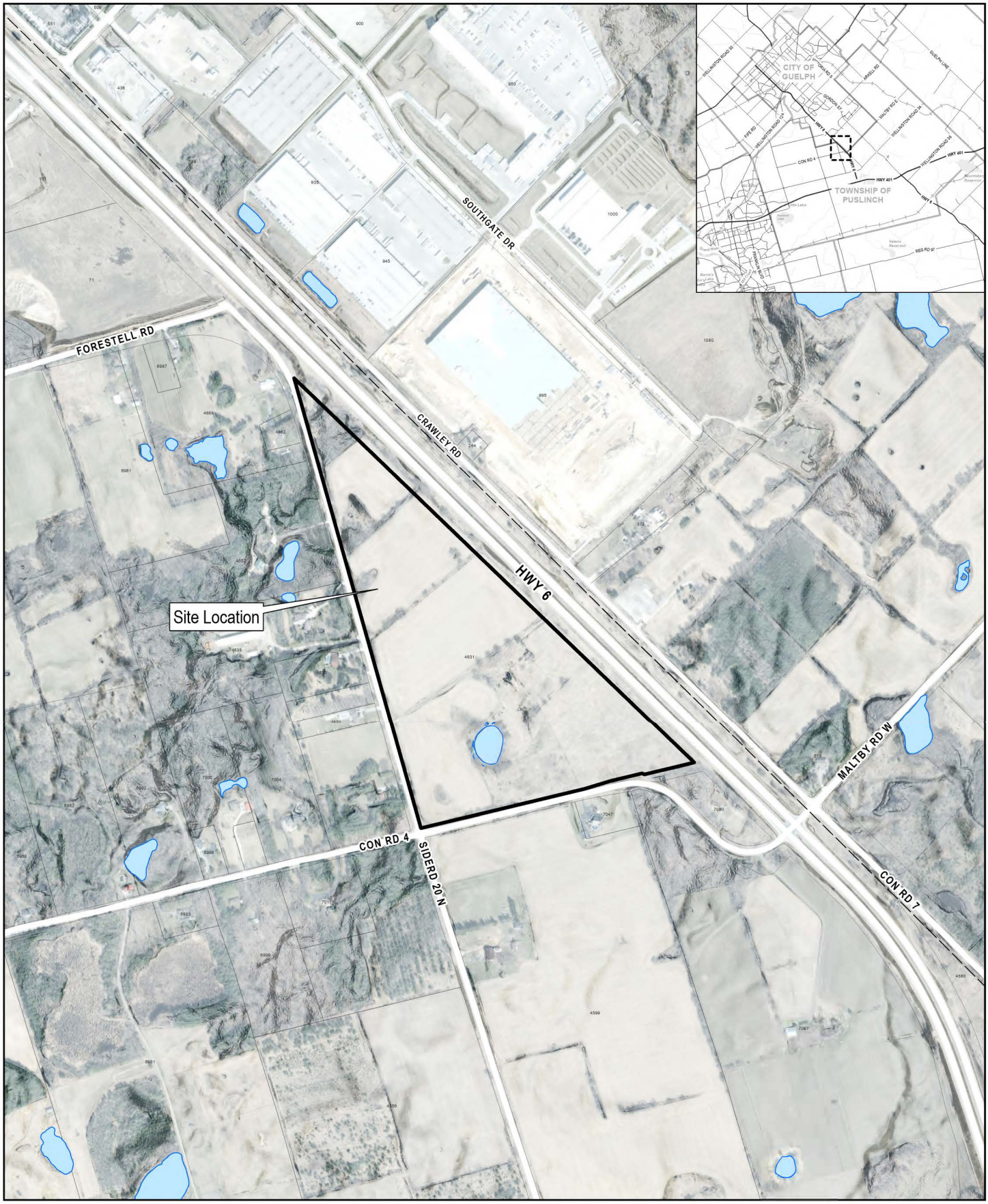
The site is located at 4631 Sideroad 20 North in the Township of Puslinch, Wellington County and covers approximately 25.47 hectares. The Site is in a rural residential and agricultural neighbourhood and is bounded by Provincial Highway 6 (Hanlon Parkway) to the east, Concession Road 4 to the south and Side Road 20 N to the west. The subject property has a triangular shape is currently used for agricultural purposes and contains a small vegetated/wetland area that is regulated by the Grand River Conservation Authority.

In reviewing the site plan by Sweeny and Co, dated January 27, 2025, it is understood that the elements envisioned for this development consists of three (3) industrial buildings, a daycare, a gym and above ground parking. Access to the site will be provided via three entrances from Concession Road 4 and one (1) from Sideroad 20 N. See **Figure 1** for details on the location of the site.

The subject property will be privately serviced with an onsite sewage system, wells and stormwater management feature.

The pertinent background information for the Site have been reviewed, including:

- Topography Survey, prepared by Annis, O'Sullivan, Vollebekk Ltd., completed on July 21, 2023
- Site Plan prepared by Sweeny&Co Architects, January 27, 2025
- Geotechnical Investigation, prepared by GHD, completed on January 31,2025
- Hydrogeological Assessment Report, prepared by GHD, completed on January 31, 2025
- Stormwater Management Report, prepared by GHD, completed on January 31, 2025
- Water Resources Impact Assessment, prepared by GHD, completed January 31, 2025
- Water Supply Analysis, prepared by GHD, completed January 29, 2025



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0 100 200 300

Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

Puslinch Development Limited Partnership
4631 Sideroad 20 North, Puslinch Township, Ontario

Water Resources Impact Assessment

Site Location Plan

Project No. 12618927
Revision No.
Date Jan 14, 2025

Figure 1

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2. Sanitary Servicing

2.1 Existing Sanitary Servicing

The subject property is in a rural area and does not have municipal sanitary services available. Currently the Township of Puslinch does not have plans to provide sanitary servicing in this area.

2.2 Soil Conditions

GHD was retained by the client to complete a geotechnical investigation for the proposed development at 4631 Sideroad 20 North. The geotechnical investigation advanced five (5) boreholes and eight (8) monitoring wells across the subject property. The subsurface soil conditions across the site generally consisted of topsoil and disturbed native material, underlain by interlayered native granular deposits generally comprised of mixtures of silt, sand and gravel. The geotechnical report was utilized to establish a percolation rate for this sewage system design. The borehole/monitoring well relevant to this design MW6-23 and BH9-23 along with a borehole location plan can be found in **Appendix D** to this report.

Borehole MW6-23 comprised of a 0.4 m thick layer of topsoil, overlying a 0.2 m thick layer of fill, followed by a 1.6 m thick layer of native silt overlying a 2.3 m thick layer of Sandy Gravel that extended to a depth of 4.6m below grade. BH9-23 comprised of a 0.1 m layer of topsoil overlying a 0.5m thick layer of fill, followed by a native deposit of silty sand that extended to a depth of 3.0 m below grade. Groundwater was not observed in either test pits.

The development will require significant amount of earthmoving. Any soils moved to the vicinity of the leaching bed, must comprise of the native silty sand that is prevalent throughout the site.

The percolation time of the predominant native silty sand deposit encountered by GHD throughout the property and in the proposed leaching bed location is classified as ‘SM’ under the Unified Soil Classification System (USCS) with a percolation rate of T = 8 to 20 min/cm. A percolation rate of T = 15 min/cm is chosen for design purposes.

2.3 Design Domestic Sewage Flow

The proposed industrial development will produce domestic flows, which relates to all the flows that are not generated by the industrial or manufacturing processes.

Peak daily sewage flows for non-residential uses are calculated using Table 8.2.1.3.B of the OBC. A review of the received architectural plans indicate that the proposed building will have multiple uses, resulting in different occupancy rates used when determining the peak sewage flow. As detailed information regarding each buildings number of employees, water fixture counts and internal configuration are not yet available, GHD was required to make the general assumptions to calculate the peak flow.

- As the site is located in a rural area with no bus route in the direct vicinity of the development it is assumed that the number of people frequenting the property is limited to the number of parking spaces. The site plan indicates a total of 894 vehicular parking spaces and 26 accessible parking spaces, resulting in approximately 1,000 people visiting the site every day.
- It is assumed that the employees working in the designated warehouse area of Industrial Building 1 will also be working within the designated manufacturing area. As such the greater of the peak flow calculated from the warehouse and manufacturing area will be used.
- The people attending the conference room will also frequent the food services, therefore, their domestic flows are already accounted for.

- Based on the amount of the parking area designated for the day-care it assumed that 50 persons will visit the daycare per day.
- It is assumed that 250 people will visit the gym every day.
- It is assumed that Industrial Buildings 2 and 3 will each have 120 employees. 20 of the employees are estimated to be office workers with the remainder being factory workers.

Table 1 summarizes the peak sewage flows for the proposed buildings based on the assumed occupancies. Detailed calculations are provided in **Appendix C**.

Table 1: Summarized Peak Sewage Flows

Occupancy (Per Site Plan Description)	Associated Occupancy (OBC Table 8.2.1.3.B of OBC)	Design Flow Parameter (OBC Table 8.2.1.3.-B)	Design Parameter	Peak Flow, L/d
Office	**Office Building**	75 L/d per employee space	100	7,500
Warehouse	**Warehouse**	950 L/d per water closet and150 L/d per loading bays	14 water closets and 66 loading bays	23,200
Manufacturing	**Factory**	125 L/d per employee with showers	200 employees	25,000
Retail	**Store**	5 L/d per 1.0 m^2 of store space	2,323 m^2	11,500
Conference and Food Services	**Assembly Hall and Food Service**	36 per seat with food service	250 seats	9,000
Gym	**Swimming and Bathing Facilities**	40 L/d per person	250 persons	10,000
Daycare	**Day Care Facilities**	75 L/d per person	50 persons	3,750
Total	-	-	-	**89,950**

The total maximum day sewage flow for the proposed building is estimated at 89,950 L/day. A conservative flow of 90, 000 L/day will be used for design purposes. Please note this is a rough estimation and is to be accurately determined during the detailed design process. Additionally, as this flow exceeds 10,000 L/day the property is subject to the Ontario Water Resources Act and will require an Environmental Compliance Approval (ECA) issued by the Ministry of Environment, Conservation and Parks (MECP).

2.4 Proposed Sanitary Servicing

The sewage from the buildings will be collected and conveyed to one (1) treatment system. The system will include balancing tank to attenuate the flows during high peak periods. The effluent will exit the balancing tank and then be treated by a treatment unit capable of meeting the effluent characteristics as specified in the Water Resources Impact assessment, by GHD, dated January 31, 2025. The treated effluent discharged from the treatment system will be directed to a Type A dispersal bed designed in accordance with Section 8.7.7 of the 2024 OBC.

The leaching bed will require a minimum stone area of 1,800 m^2 which will lay on top of an imported sand layer. The stone shall be washed septic stone meeting the graduation requirements of Table 8.7.3.3 and the sand shall be poorly

graded material with less than 5% silt content as per 8.7.7.1 (4) (a). The Site Grading Plan and the Site Servicing Plan illustrate the location of the proposed septic system for sanitary servicing of the development.

More details of the septic system will be provided at the detailed design stage. The internal sanitary plumbing within the building will be designed by the mechanical engineer in accordance with the Ontario Building Code (OBC). The need for a pump chamber will be evaluated at a later design stage.

Based on the site plan, there is sufficient area to accommodate the sewage system. The proposed sewage system described in this report and on the accompanying drawings is a functional level design. As noted above an ECA will be required from the MECP. Therefore, the detailed design of the sewage system will be completed in the future to apply for the ECA.

2.5 Proposed Sewage System Operation and Maintenance

The sewage system must be operated within the parameters for which it was designed and must be maintained according to Section 8.9 of the OBC. Proper use and maintenance of the system is necessary to minimize the potential of failure and to maximize the life of the system.

The owner of the property will be required to operate and maintain the sewage systems in accordance with the conditions detailed in the approved ECA, this design brief and the requirements of sewage treatment provider. At minimum it is expected that the following will be required:

- Daily recording of effluent flows to the leaching bed
- Monthly sampling of the effluent as described above. Grab samples are recommended.
- Bi-yearly sampling of the influent. Grab samples are recommended.
- Preparation of an annual performance report detailing the results of the above.
- Preparation of an Operation and Maintenance Manual, which is expected to be kept on site at all times.

In addition, the Owner will be required to enter into an annual maintenance contract with an authorized representative of the sewage treatment provider to ensure the system is maintained according to the installation manual.

3. Water Servicing

3.1 Existing Water Servicing

There is no watermain infrastructure available to service the Site and there is no existing drinking water well on the property. The information regarding the groundwater characteristics of the immediate area was obtained from an inventory of the well records on file with the MECP. Based on the Water Supply Analysis, each well can provide 37.8 to 75.6 L/min (54,432-108,864 L/d). Please see the Water Supply Analysis, by GHD, dated January 29, 2025, for more details.

3.2 Design Water Demand

The water demand for the proposed development was calculated, referencing the maximum daily sewage flows as noted in section 2.3 above and the City of Guelph Maximum day demand peaking factors. **Table 2** summarizes the anticipated water demand and **Appendix C** contains the detailed water demand calculations.

Table 2: Domestic Water Demand

Building	Average Daily Demand, L/min	Maximum Daily Demand, L/min
Industrial Building #1	24.98	33.47
Industrial Building #2	7.26	9.72
Industrial Building #3	7.26	9.72
Gym	5.18	6.94
Daycare	1.94	2.60
Total Site	46.64	62.47

With reference to the maximum daily sewage flows from the site of 90,000 L/day and a maximum day peaking factors of 1.34 for the max day, the average and max day demand are calculated to be 46.24 L/min and 62.47 L/min respectively.

It is proposed that each building be serviced by its own individual drilled wells. The well must have a watertight casing to a minimum depth of 6.0 m and located a minimum distance of 15 m to the septic tank and nearest distribution pipe, as indicated on the Servicing Plan. The proposed supply well will need to be tested to determine if it can meet the anticipated water demand for the Site. The proposed location of the drilled well is shown on the Servicing Plan in **Appendix B**.

3.3 Proposed Fire Demand

The Fire Underwriters Survey was used to determine the appropriate sizing of the cisterns. This method was chosen because it is more conservative than the OBC method and requires less detailed information. The OBC method will be used at the detailed design stage to refine the cistern sizing. **Table 3** summarizes the estimated fire flow demand and duration necessary to meet fire protection for the proposed development. Please refer to **Appendix C** for fire flow calculations.

Table 3: Estimated Fire Flow and Cistern Storage Requirements

Building	Suggested Fire Flow (L/min)	Duration (hr)	Minimum Required Storage (m^3)	# of Hydrants Required	Max Recommended Spacing Between Hydrants (m)
Industrial Building #1	26,000	6.00	9,360	7	75.00
Industrial Building #2	24,000	5.50	7,920	6	75.00
Industrial Building #3	19,000	4.50	5,130	5	90.00
Gym	6,000	2.00	720	1	150.00
Daycare	5,000	1.75	525	1	180.00

3.4 Proposed Fire Servicing

The industrial development will be serviced with a total of 14 pre-cast concrete tanks (or approved equivalent), as well as utilizing the permanent pool of the proposed stormwater management pond (see Stormwater Management report by GHD, dated February 7, 2025, for details).

The stormwater management permanent pool volume of approximately 4,600 m^3 as well as a series of six (6) of the closest cisterns totalling 6,287 m^3 in fire capacity will provide the required firefighting volume for Industrial Building #1. Industrial Building #2 will be serviced with six (6) of the closest cisterns totalling 8.283 m^3 in fire capacity. Industrial Building #3 will be serviced with four (4) of the closest cisterns totalling 5,590 m^3 in fire capacity. The gym will be serviced with one (1) of the closest cisterns totalling 924 m^3 in fire capacity. The daycare will be serviced with one (1) of the closest cisterns totalling 525 m^3 in fire capacity.

The fire system is looped around Industrial Buildings #1 and #2, with a series of hydrants spaced around each facility in accordance with Table 3 outlined above. It is also presumed that only one (1) building will require fire demand at one time. The water supply for the fire hydrants will be provided by water cisterns. The dry hydrants are located along the fire route of the site. The water cistern design will be further progressed in the detailed design. All tanks will be rated for truck loading and will be installed on 300mm of granular bedding. All the cisterns will be filled by the proposed domestic wells prior to occupancy. A slow feed of water to the cistern will be provided to account for evaporation and infiltration.

Refer to the site servicing drawing in **Appendix B** for details.

4. Erosion and Sediment Control

Erosion and sediment controls will be installed prior to the beginning of any construction activities. They will be maintained until the Site is stabilized or as directed by the site engineer and/or Township of Puslinch. The Erosion & Sediment Control locations and details will be provided at detailed design stage. However, listed below are some typical erosion and sediment controls that could be included during construction on the Site:

- ➔ Silt fencing will be installed on the perimeter of the Site to intercept sheet flow. Additional silt fence may be added based on field decisions by the site engineer and Owner, prior to, during and following construction.
- ➔ A rock mud mat will be installed at the entrance to the construction zone to prevent mud tracking from the Site onto surrounding lands & municipal Right of Way. All construction traffic will be restricted to this access only.

5. Conclusions and Recommendations

This Functional Servicing Report has been prepared in support of obtaining OPA and ZBA approvals for the Site known as 4631 Sideroad 20 North, in the Township of Puslinch. The findings of the report are as follows:

- ➔ The soils encountered at the proposed septic bed location are predicted to consist of sandy silt, which has a design T time of 15 min/cm. The total non-industrial sanitary flows for the Site are calculated to be 90,000 L/d. A Class 4 Sewage system, including balancing tanks, a tertiary Level IV treatment discharging to a minimum 1,800 m^2 Type A dispersal bed is proposed. It is recommended that the sewage system be maintained according to Section 8.9 of the O.B.C.
- ➔ The total non-industrial maximum day water demand for the entire site is 62.47 L/min. The average day demand for the site is 46.62 L/min. Each building will be serviced by a well of a minimum depth of 6.0 m and will be at least 15 m away from the septic beds.
- ➔ Using the Fire Underwriters Survey method, the fire flow for Industrial Building #1, #2, and #3, the daycare and the gym are 26,000 L/min, 24,000 L/min, 19,000 L/min, 6,000 L/min, and 5,000 L/min, respectively. The stormwater management permanent pool of 4,600 m^3 and six cisterns (6,287 m^3) will provide the firefighting volume for Industrial Building #1. Industrial Building #2 will have six cisterns with 8,283 m^3, while Industrial Building #3 will have four cisterns with 5,590 m^3. The gym will rely on one cistern with 924 m^3, and the daycare on one cistern with 525 m^3.
- ➔ The recommended erosion and sediment control measures include a temporary heavy-duty silt fence, and a rock mud mat to minimize sediment runoff and protect surrounding areas, with regular inspections especially following significant rainfall events.

The report confirms that the site can be developed following the Township of Puslinch and the County of Wellington guidelines, addressing all critical aspects of sanitary, water, fire servicing, site drainage, and erosion control.

Prepared by,

[redacted]

Corinne Ruthenberg

Civil Engineering Graduate, P.Eng, M.Eng

Checked by,

[redacted]

Michael Mikhail

Senior Project Manager, P.Eng, M.Eng.,

Appendix A

A-1 Site Plan

Puslinch Industrial Develpoment
21-Jan-25

2421

*** NOTE: SURVEY INFORMATION TAKEN VAN HARTEN SURVEY DATED 2022-06-20**

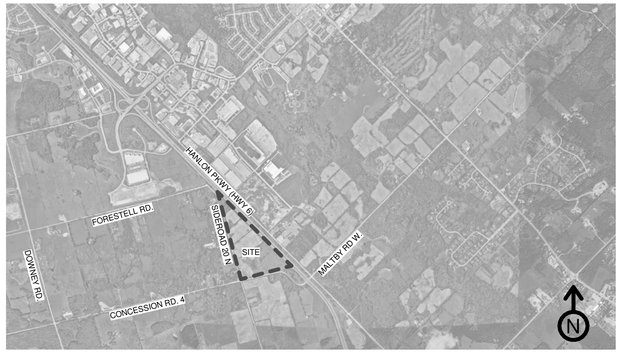
*** NOTE: WETLAND TAKEN FROM GHD TOPOGRAPHIC PLAN CI-101 DATED 2024-01-09**

Gross Constructed Area Summary

		Total GCA	Office	Warehouse	Manufacturing	Retail	Conference	Food Service	Gym	Daycare
Industrial Bldg #1	Tenant 1	245,000 sf *22,761 m2*	30,000 sf *2,787 m2*	150,000 sf *13,935 m2*	50,000 sf *4,645 m2*	15,000 sf *1,394 m2*				
	Tenant 1 Expansion	50,000 sf *4,645 m2*		37,500 sf *3,484 m2*	12,500 s.f *1,161 m2*					
	Tenant 2	230,000 sf *21,368 m2*	20,000 sf *1,858 m2*	200,000 sf *18,580 m2*		10,000 sf *929 m2*				
	Tenant 2 Expansion	100,000 sf *9,290 m2*		100,000 sf *9,290 m2*						
	Retail	15,000 sf *1,394 m2*			15,000 s.f *1,394 m2*					
	Shared Spaces	25,000 sf *2,323 m2*					20,000 sf *1,858 m2*	5,000 sf *465 m2*		
		665,000 sf ***61,780 m2***								
	Industrial Bldg #2	120,000 sf *11,148 m2*	10,000 sf *929 m2*		110,000 sf *10,219 m2*					
	Expansion	75,000 sf *6,968 m2*			75,000 sf *6,968 m2*					
		195,000 sf **18,115.94 m2**								
	Industrial Bldg #3	140,500 sf *13,053 m2*	5,000 sf *465 m2*		135,500 sf *12,588 m2*					
		140,500 ft **13,053 m2**								
	Gym	15,000 sf *1,394 m2*							15,000 sf *1,394 m2*	
		15,000 sf ***1,394 m2***								
	Daycare	10,000 sf *929 m2*								10,000 s.f *929 m2*
		10,000 sf ***929 m2***								
Total GCA		**1,025,500 sf** ***95,271 m2***	65,000 sf *6,039 m2*	487,500 sf *45,290 m2*	398,000 sf *36,975 m2*	25,000 sf *2,323 m2*	20,000 sf *1,858 m2*	5,000 sf *465 m2*	15,000 sf *1,394 m2*	10,000 sf *929 m2*

VEHICULAR PARKING		
TENANT	**REQUIRED**	**PROVIDED**
Industrial Building #1, #2, #3	*Refer to Traffic Impact Study prepared by GHD Limited for details.	801
Gym		70
Daycare		23
TOTAL PARKING		**894**
ACCESSIBLE PARKING		
All Buildings	*Refer to Traffic Impact Study prepared by GHD Limited for details.	**26**

Sweeny and Co Architects Inc.



Context Map
1 : 1

CAR PARKING SPACE:

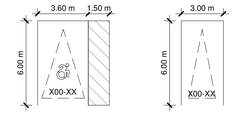
NOTES:

- DRIVE AISLE MINIMUM 6.0m UNLESS OTHERWISE NOTED.

MINIMUM PARKING SPACE DIMENSIONS:

ACCESSIBLE :
WIDTH: 3.6m
LENGTH: 6.0m

STANDARD :
WIDTH: 3.0m
LENGTH: 6.0m



BICYCLE PARKING SPACE:

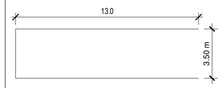
MINIMUM BICYCLE PARKING SPACE DIMENSIONS:

HORIZONTAL:
WIDTH: 0.60m
LENGTH: 1.80m

TYPICAL LOADING SPACE:

MINIMUM TRAILER SPACE DIMENSIONS:

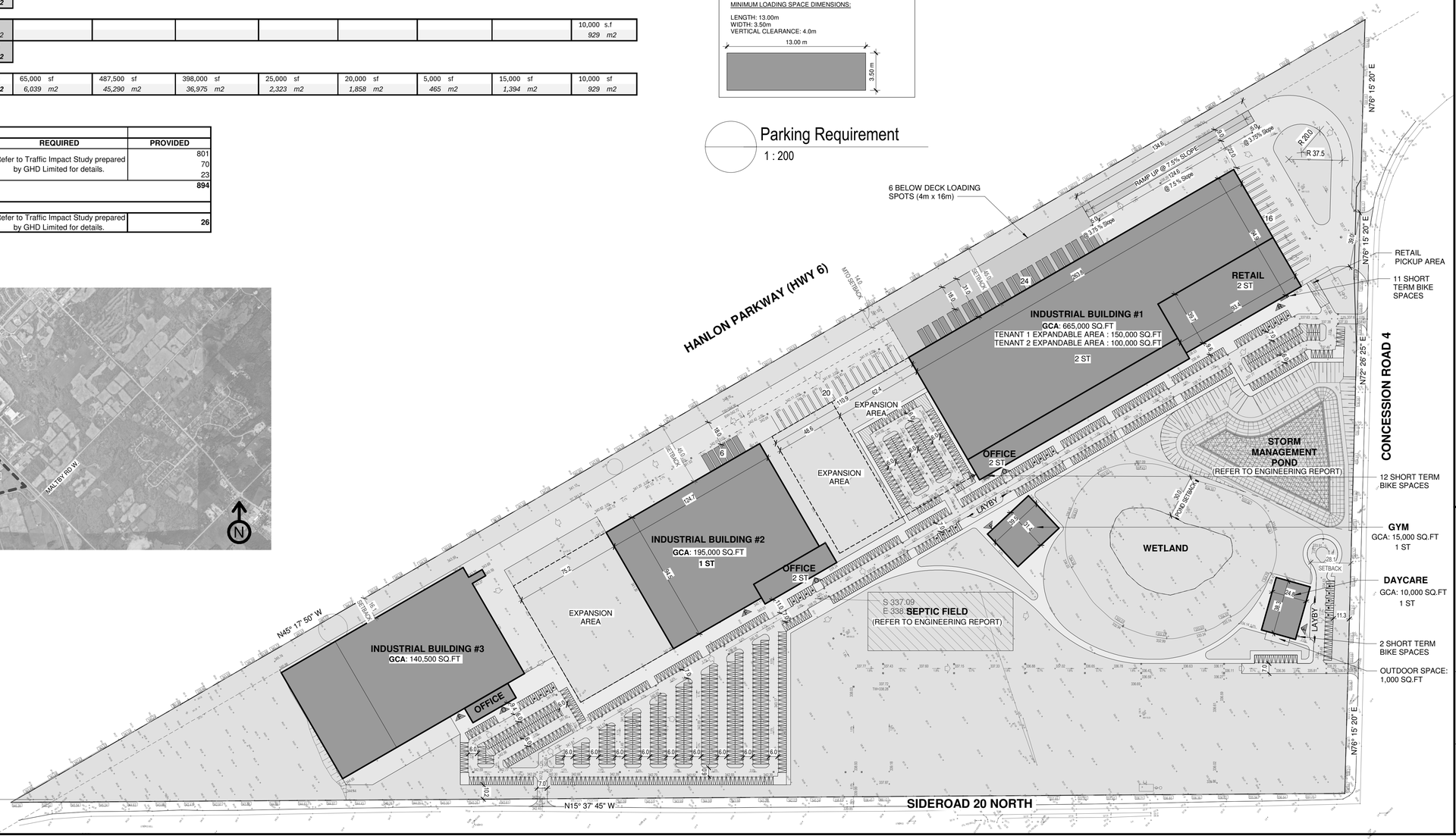
LENGTH: 13.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.0m



MINIMUM LOADING SPACE DIMENSIONS:

LENGTH: 13.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.0m

Parking Requirement
1 : 200



OPA / ZBA Site Plan
1 : 1500

1
AC103

DRAWING NOT TO BE SCALED

Contractor must check and verify all dimensions on the job and report any discrepancies to the architect before proceeding with the work.

This drawing shall not be used for construction purposes until signed by the consultant responsible. This drawing, as an instrument of service, is provided by and is the property of Sweeny & Co. Architects.

ISSUED / REVISED yy-mm-dd

ISSUED FOR OPA / ZBA	2025-02-07

SITE SYMBOL LEGEND:

F FACILITY ENTRANCE
R RETAIL ENTRANCE
O OFFICE ENTRANCE

Sweeny&Co Architects

134 PETER STREET | SUITE 1601
TORONTO, ONTARIO | M5V 2H2 | CANADA
P: 416-971-6252 | F: 416-971-5420
E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
Puslinch Industrial
4631 Sideroad 20 N
Puslinch Township

OWNER
Estill Innovation Hub

DWG TITLE
Site Plan, Contect Plan, Area Statistics

DATE:	2025-01-30
SCALE :	As indicated
DRAWN :	AT
CHECKED :	GD
PROJ. No. :	2421

DWG No.
AC103

C:\Users\margaret\Documents\2421_A_R23_Puslinch Industrial Development_Central 2ST Scheme_margaretRPQC4.rvt

2025-02-05 4:03:55 PM

Appendix B

B-1 Drawings

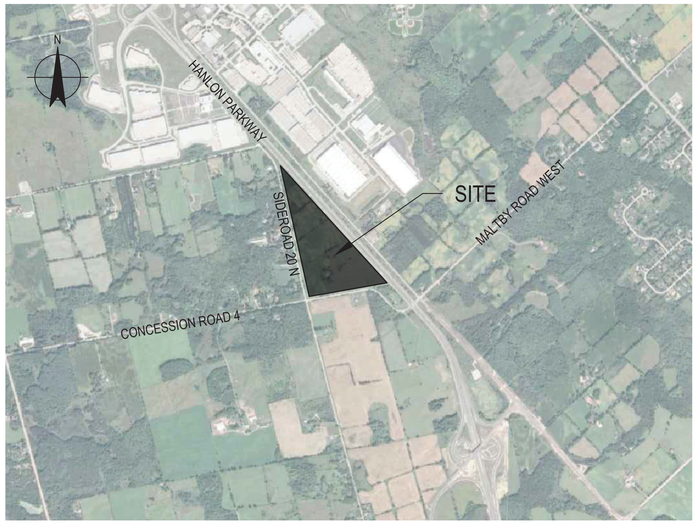
CLIENT:
PUSLINCH DEVELOPMENT GP INC.

GHD Ltd.
455 Phillip Street, Unit 100a
Waterloo, Ontario N2L 3X2 Canada
T 519 884 0510

PROJECT:
ESTILL INNOVATION HUB PROJECT SUPPORT

THE TOWNSHIP OF PUSLINCH

JANUARY 2025
PROJECT NUMBER: 12618927



LOCATION MAP

DRAWING LIST	
DWG No.	DRAWING TITLE
COV	COVER & INDEX
SS101	SITE SERVICING PLAN #1
SS102	SITE SERVICING PLAN #2
SG101	SITE GRADING PLAN #1
SG102	SITE GRADING PLAN #2
EX.STM101	EXISTING STORM DRAINAGE AREA PLAN
STM101	PROPOSED STORM DRAINAGE AREA PLAN #1
STM102	PROPOSED STORM DRAINAGE AREA PLAN #1

OPA_ZBA

No.	Issue	Checked	Approved	Date
1	ISSUED FOR OPA ZBA	J.P.	M.M.	2025.02.07

Author	C.SUTCLIIFE	Drafting Check	C.SUTCLIIFE	Project Manager	M.MIKHAIL
Designer	C.SUTCLIIFE	Design Check	S.STARCEVIC	Project Director	M.MIKHAIL

Bar is 25mm on original size sheet
0 25mm

2025.02.07 #12618927

GHD Ltd.
455 Phillip Street, Unit 100a
Waterloo, Ontario N2L 3X2 Canada
T 519 884 0510
www.ghd.com

Client: PUSLINCH DEVELOPMENT GP INC.
Project: ESTILL INNOVATION HUB PROJECT SUPPORT

Project No.: 12618927
Date: 2024-12-04
Scale:

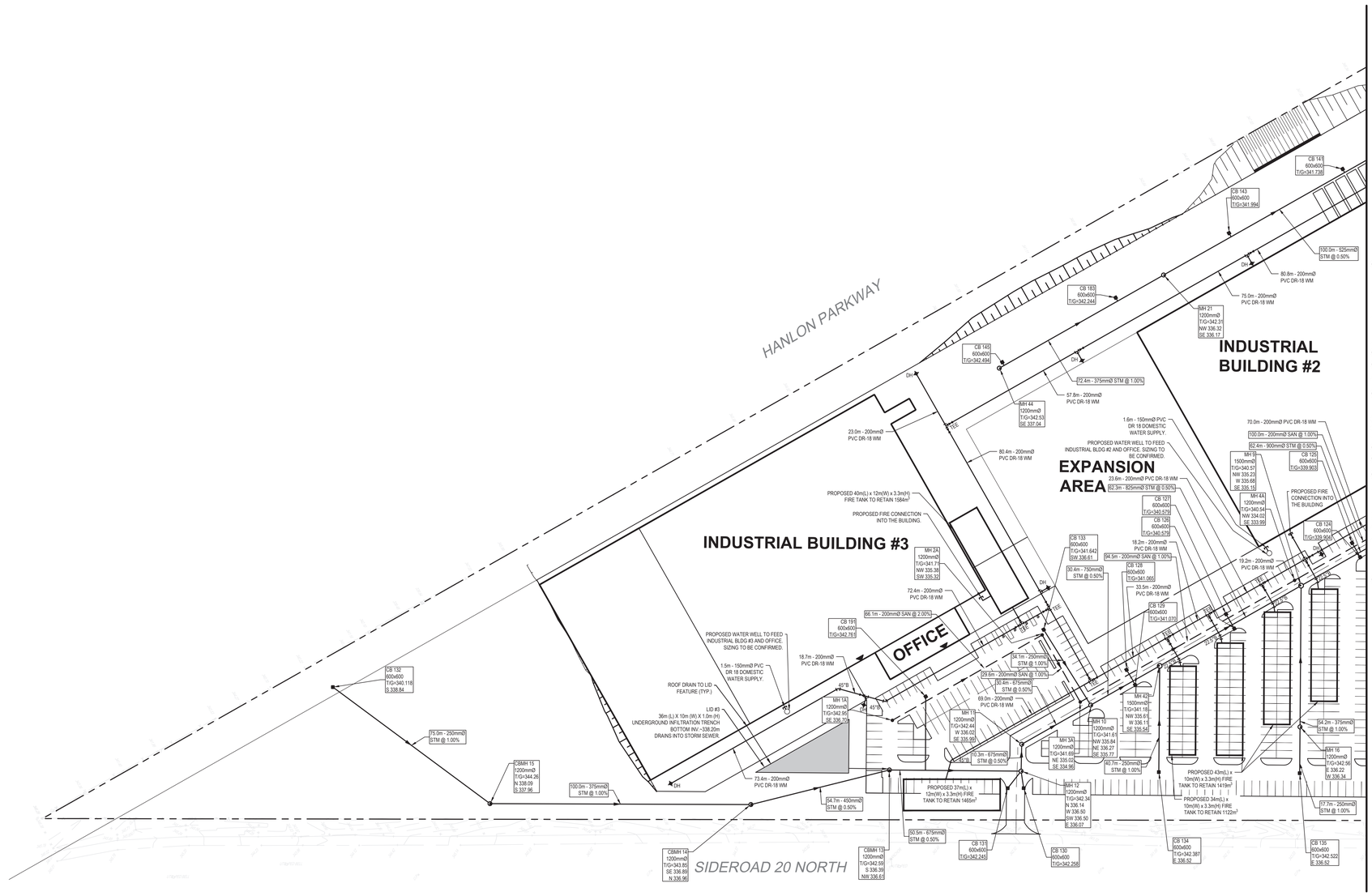
Title: COVER PAGE

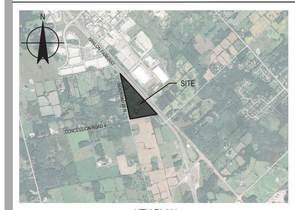
Size: ARCH E1
Sheet No.: COV
Sheet: 0 of 7

Plot Date: 5 February 2025 - 9:17 AM Plotted By: Cole Sutcliffe Path and Filename: \\ghdnetghd\CA\Waterloo\Projects\662\12618927\Digital_Design\ACAD\Sheets\12618927-GHD-00-00-DWG-CI-COV.dwg

LEGEND

- DENOTES PROPOSED SANITARY MANHOLE
- DENOTES PROPOSED STORM MANOLE
- DENOTES PROPOSED CATCHBASIN
- DENOTES PROPOSED STORM SEWER
- DENOTES PROPOSED SANITARY SEWER
- DENOTES PROPOSED WATERMAIN
- DH DENOTES PROPOSED DRY HYDRANT
- DENOTES PROPOSED WATER WELL
- DENOTES PROPOSED WATER VALVE





KEY PLAN
N.T.S

GHD Ltd.
455 Phillip Street, Unit 100a
Waterloo, Ontario N2L 3X2 Canada
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Bar is 25mm on original size sheet
0 25mm

1:750 0 7.5m 15m

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Author	C.SUTCLIFFE	Designer	C.SUTCLIFFE
Drafting Check	C.SUTCLIFFE	Design Check	S.STARCEVIC
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

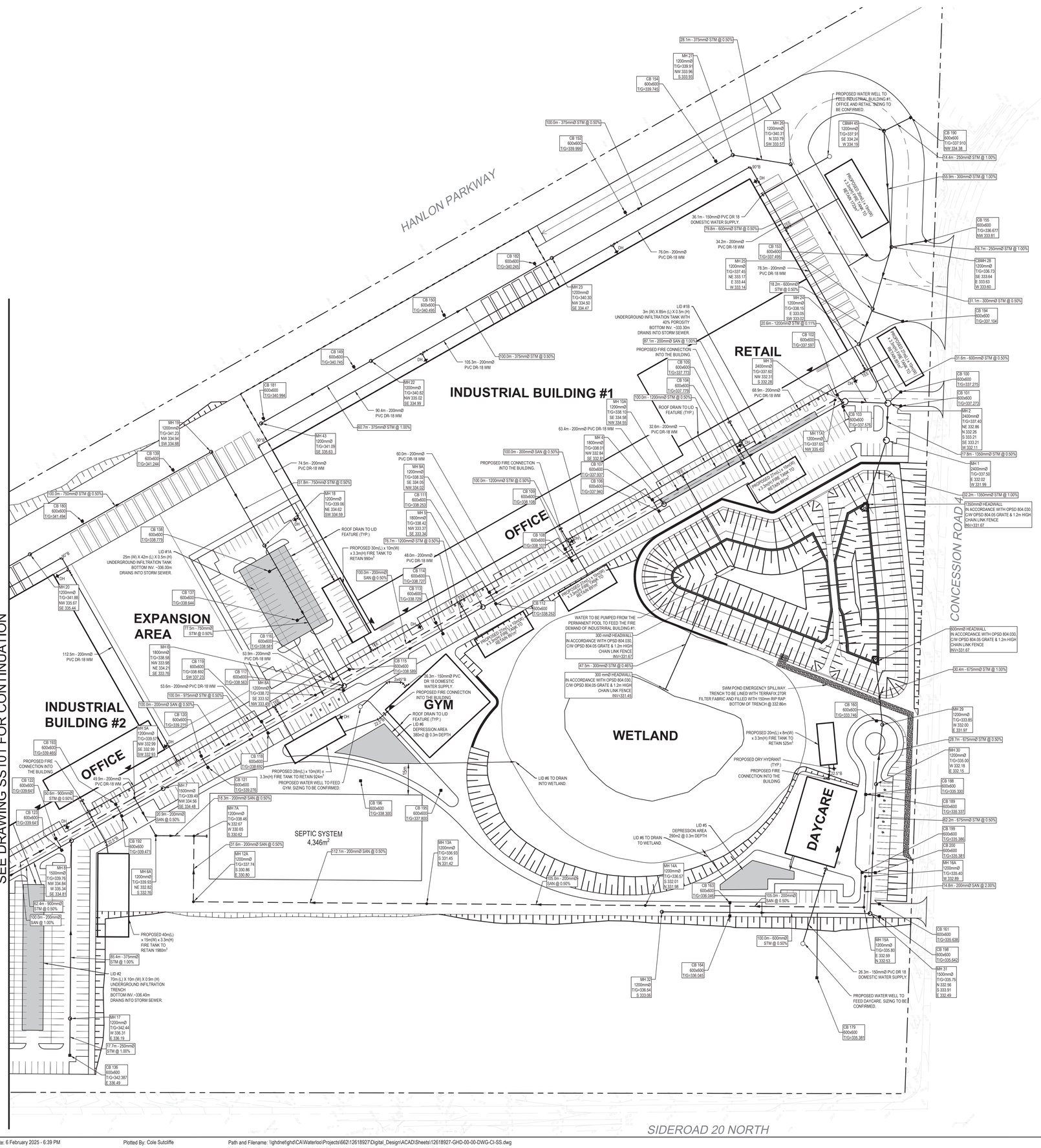
Title
SITE SERVICING PLAN #1

Size
ARCH E1

Sheet No.
SS101

Sheet
1 of 7

OPA_ZBA



LEGEND

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Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

Title
SITE SERVICING PLAN #2

Size ARCH E1

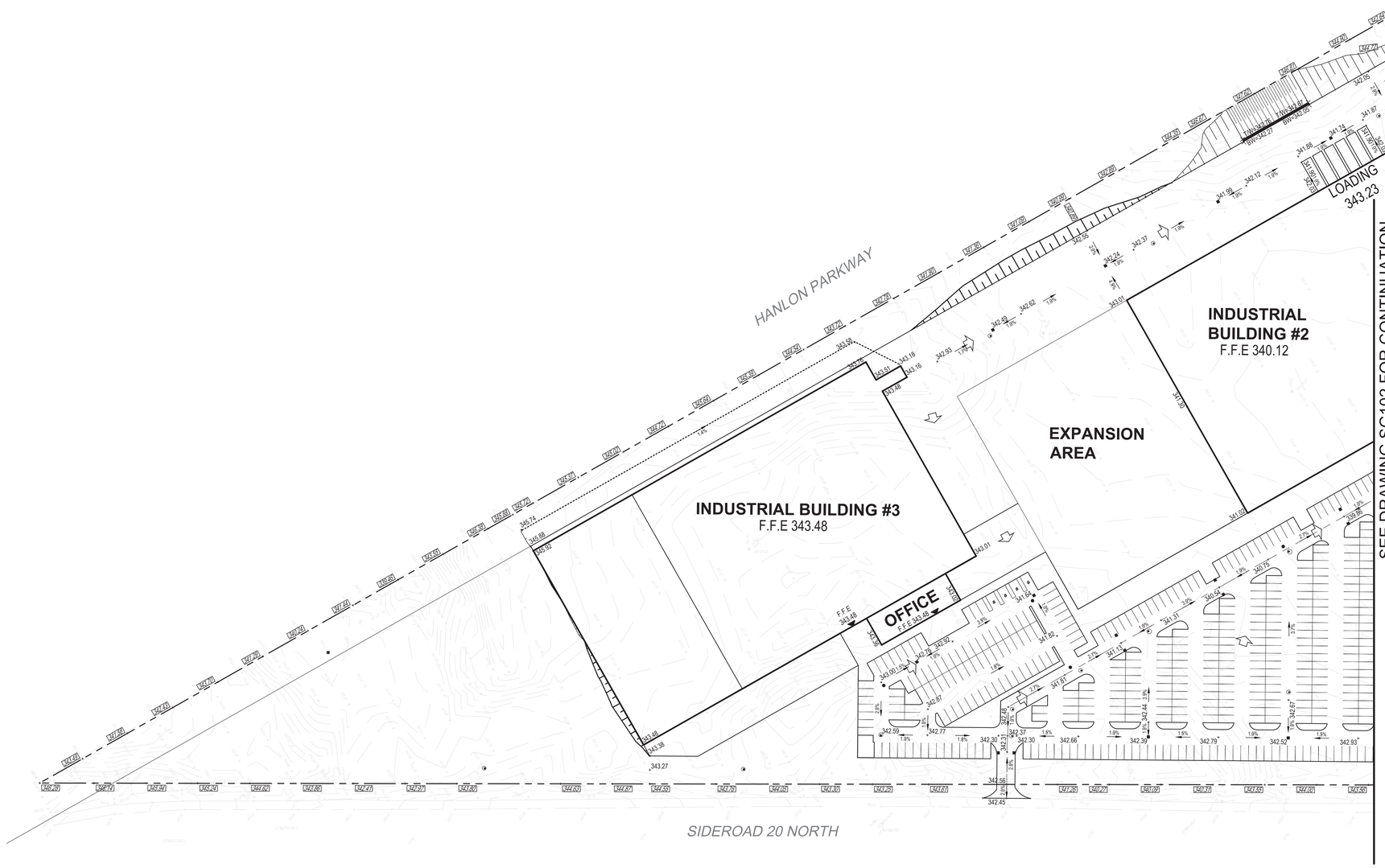
Sheet No. SS102

Sheet 2 of 7

OPA_ZBA

LEGEND

× 129.13	EXISTING ELEVATION TO BE MAINTAINED
× 130.65	PROPOSED ELEVATION
× 130.65HP	PROPOSED HIGH POINT ELEVATION
× 130.65SW	PROPOSED SWALE ELEVATION
2.0%	DRAINAGE DIRECTION
	3:1 SLOPING
	OVERLAND FLOW ROUTE
	PROPOSED SWALE



OPA_ZBA

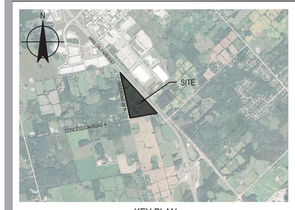
GHD Ltd.
100 Milverton Drive, Unit 404
Mississauga Ontario L5R 4H1 Canada
T 905 712 0510

www.ghd.com

Bar is 25mm on original size sheet

0 25mm

1:750 0 7.5m 15m



KEY PLAN
N.T.S

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Author	C.SUTCLIFFE	Designer	C.SUTCLIFFE
Drafting Check	C.SUTCLIFFE	Design Check	S.STARCEVIC
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

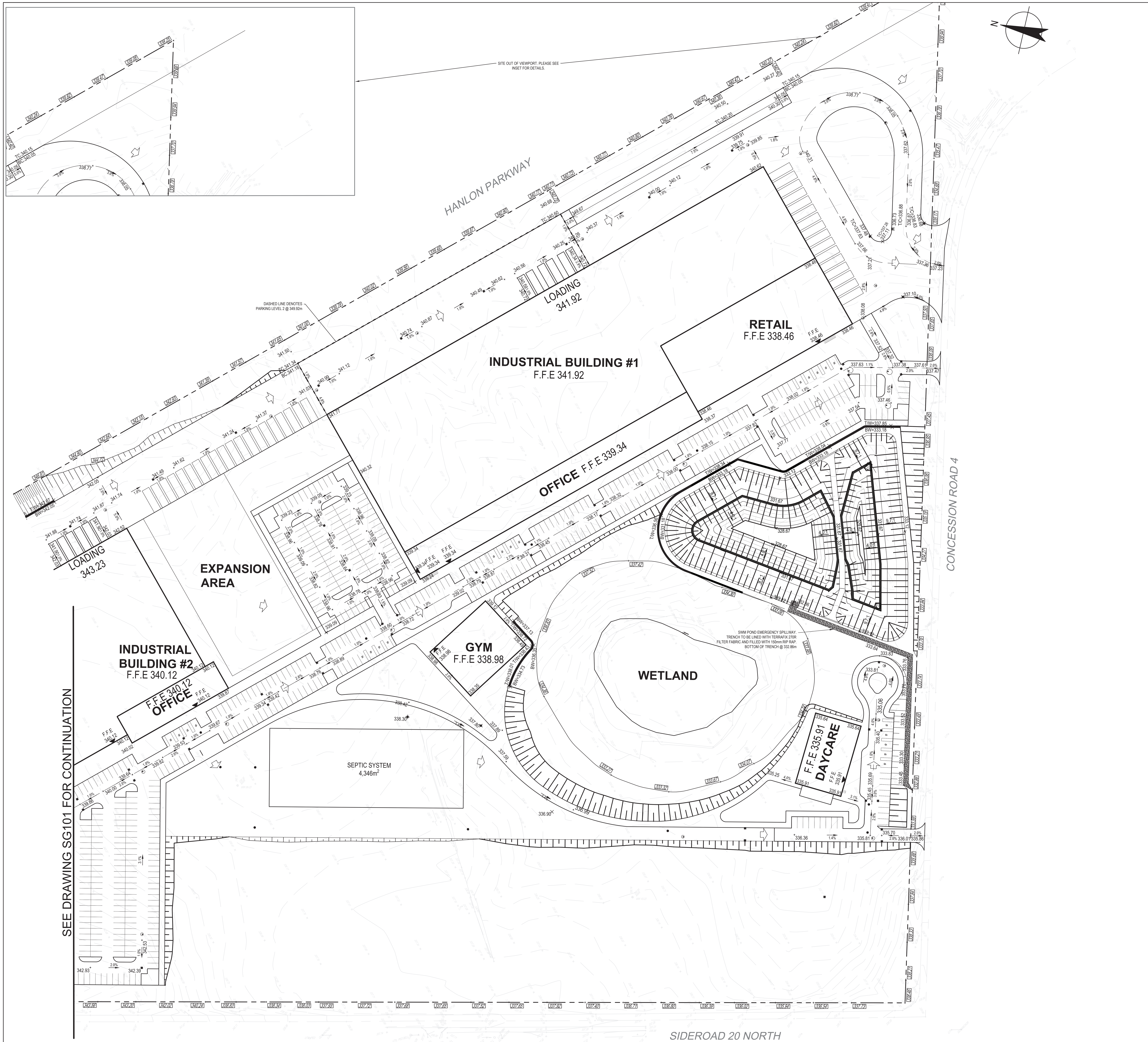
Project No.
12618927

Title
SITE GRADING PLAN #1

Size
ARCH E1

Sheet No.
SG101

Sheet
3 of 7



LEGEND

- × 129.13 EXISTING ELEVATION TO BE MAINTAINED
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- × 130.65SW PROPOSED SWALE ELEVATION
- 2.0% DRAINAGE DIRECTION
- 3:1 SLOPING
- OVERLAND FLOW ROUTE
- ------------ PROPOSED SWALE

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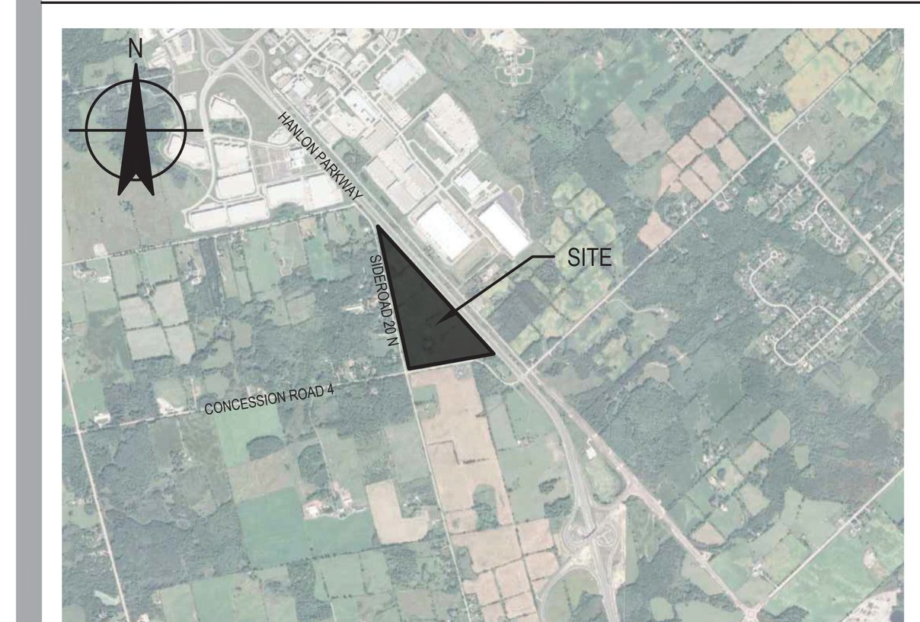

KEY PLAN
N.T.S

2025.02.07
#12618927

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Drafting Check	C.SUTCLIFFE	Design Check	S.STARCEVIC
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

Title
SITE GRADING PLAN #2

Size ARCH E1

OPA_ZBA

Sheet No. SG102

Sheet 4 of 7

LEGEND

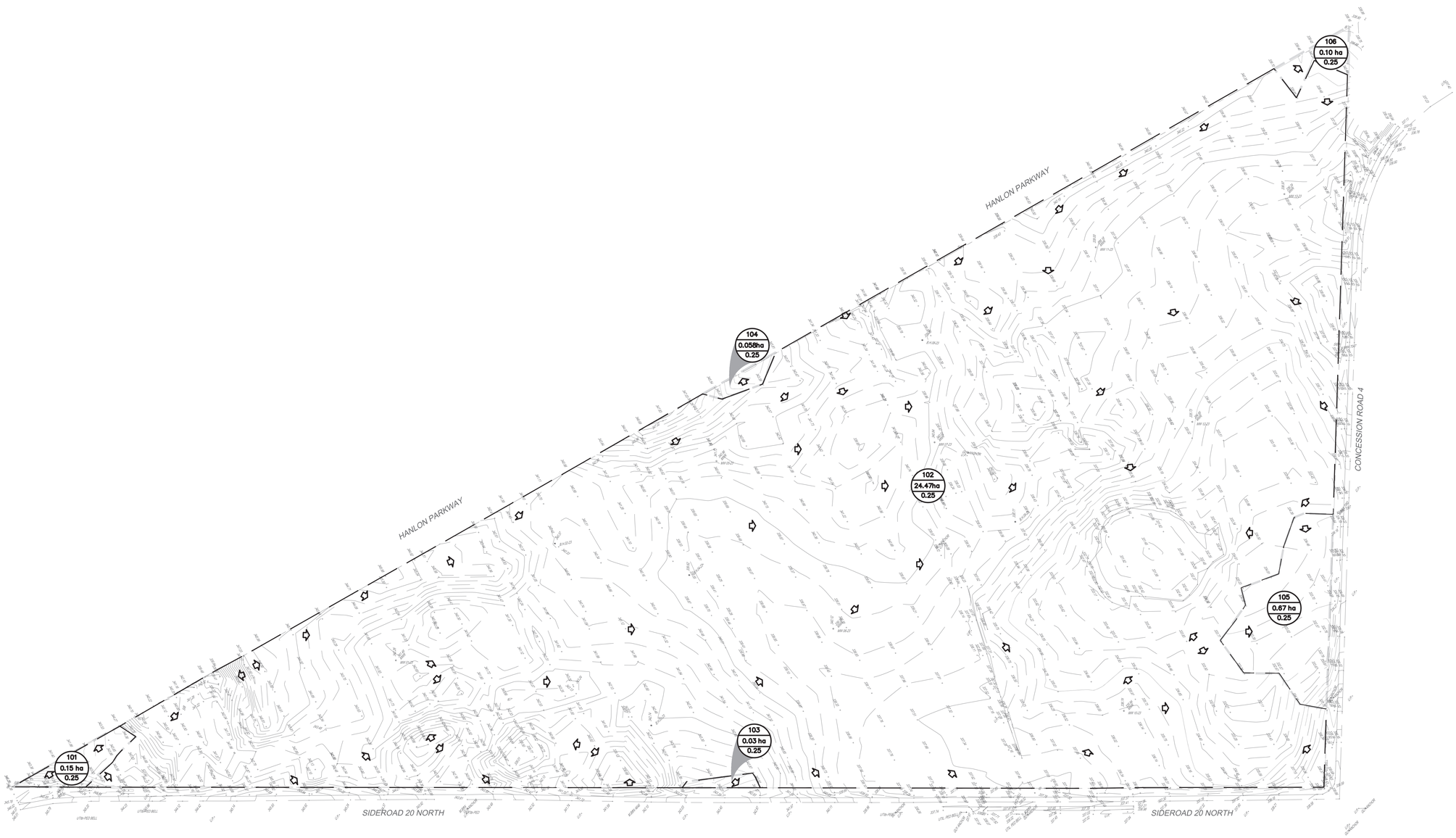
STORM WATER DRAINAGE

300 / 0.23 ha / 0.90 — AREA NUMBER / AREA IN HECTARES / RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

EXTERNAL DRAINAGE AREA BOUNDARY

OVERLAND FLOW



OPA_ZBA

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T 519 884 0510

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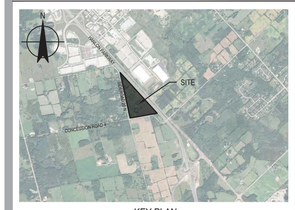
Bar is 25mm on original size sheet

0 — 25mm

1:1250 — 0 — 12.5m — 25m



KEY PLAN
N.T.S

No.	Issue	Checked	Approved	Date
1	ISSUED FOR OPA ZBA	M.L.	M.M.	2025.02.07

Author	C.SUTCLIFFE	Designer	F.TSANG
Drafting Check	C.SUTCLIFFE	Design Check	M.LI
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client

PUSLINCH DEVELOPMENT GP INC.

Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:1250

Project No.
12618927

Title

EXISTING STORM DRAINAGE AREA PLAN

Size ARCH E1

Sheet No. EX STM101

Sheet 5 of 7

LEGEND

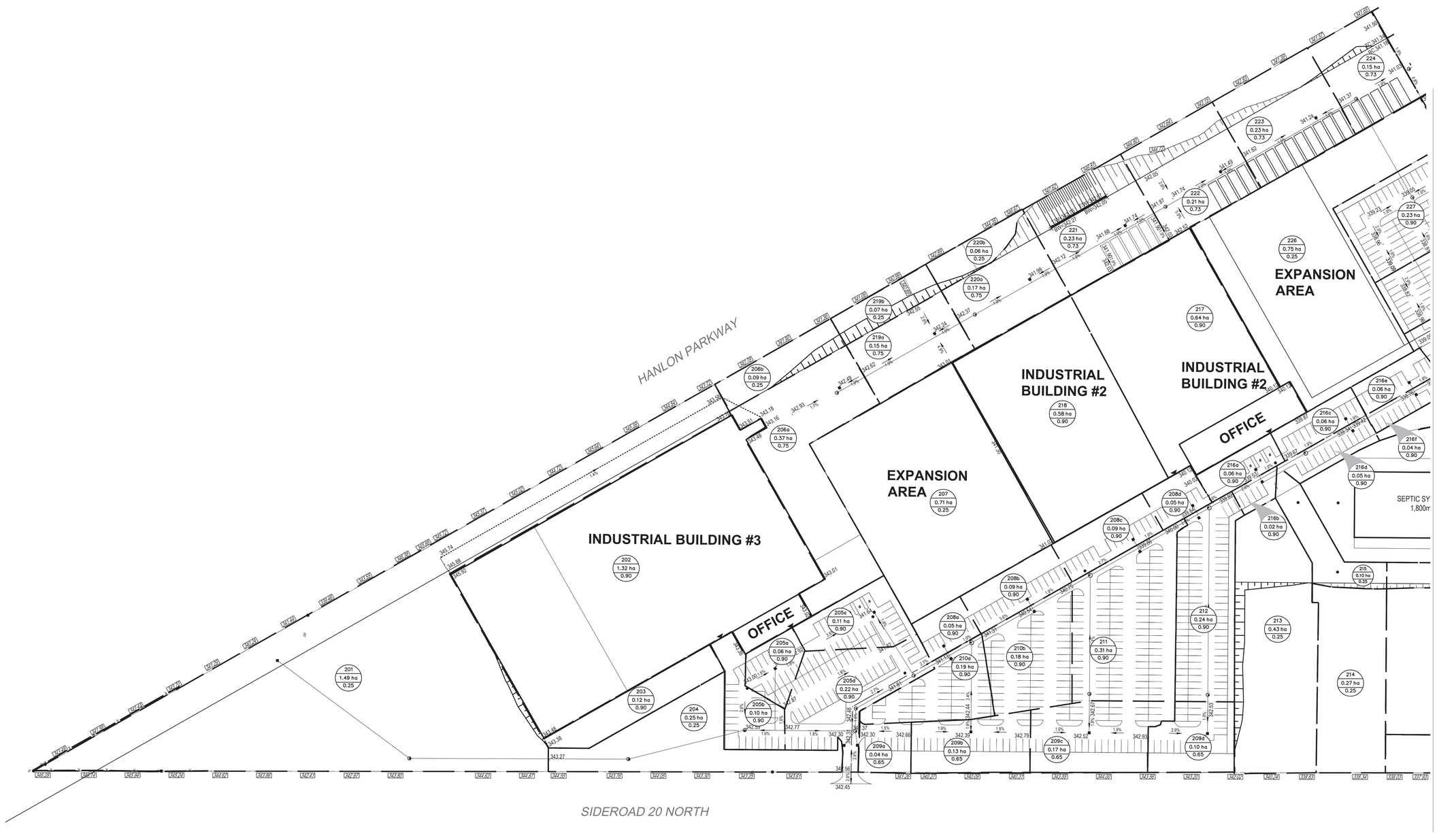
STORM WATER DRAINAGE

300 / 0.23 ha / 0.90 — AREA NUMBER, AREA IN HECTARES, RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

EXISTING DRAINAGE AREA BOUNDARY

OVERLAND FLOW



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T 519 884 0510

Bar is 25mm on original size sheet

0 — 25mm

1:750 0 7.5m 15m

KEY PLAN
N.T.S

No.	Issue	Checked	Approved	Date
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Author	C.SUTCLIFFE	Designer	F.TSANG
Drafting Check	C.SUTCLIFFE	Design Check	M.LI
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client

PUSLINCH DEVELOPMENT GP INC.

Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

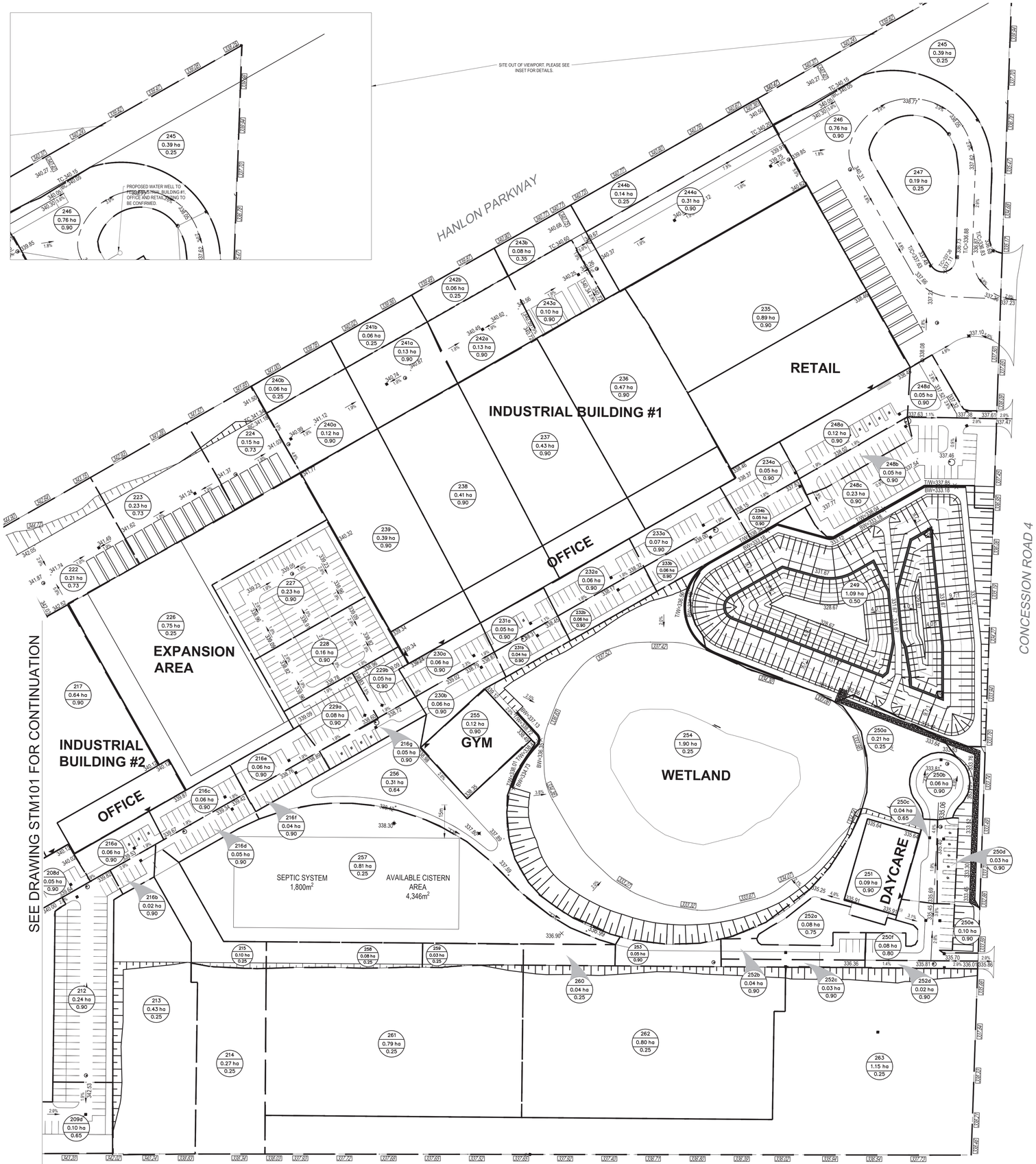
Title

STORM DRAINAGE AREA PLAN #1

Size ARCH E1

Sheet No. STM101

Sheet 6 of 7



LEGEND

STORM WATER DRAINAGE

300 — AREA NUMBER
0.23 ha — AREA IN HECTARES
0.90 — RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

EXISTING DRAINAGE AREA BOUNDARY

OVERLAND FLOW

OPA_ZBA

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0 — 25mm

1:750 0 7.5m 15m

KEY PLAN
N.T.S

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Drafting Check	C.SUTCLIFFE	Design Check	M.LI
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Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

Title
STORM DRAINAGE AREA PLAN #2

Size
ARCH E1

Sheet No.
STM102

Sheet
7 of 7

Appendix C

C-1 Calculations

ONSITE SEWAGE SYSTEM CALCULATION SHEET

Project Name:	**4631 Sideroad 20 N.**	**Designed By:**	**C.R./A.S.**
Project No:	**12618927**	**Checked By:**	**A.S.**

Based on Architectural Plans Provided By:	Sweeny & Co. Architects.
Dated:	1/27/2025

Occupancy Per Table 8.2.1.3.B of OBC	**Building 1 - Office**	
Office Building	**Unit Flow Rate L/day**	**Variable**
Per number of employees or	75	60
per 9.3m2 Office Space	75	
Sewage Flow L/day	or	**4,500**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 1 - Manufacturing**	
Factory	**Unit Flow Rate L/day**	**Variable**
Number of employees (no showers) or	75	
Number of employees (with Showers)	125	180
Sewage Flow L/day	or	**22,500**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 1 - Warehouse**	
Warehouse	**Unit Flow Rate L/day**	**Variable**
Number of waterclosets and	950	14
Number of loading bays	150	66
Sewage Flow L/day	and	**23,200**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 1 - Retail**	
Shopping Centre (excluding food and laundry)	**Unit Flow Rate L/day**	**Variable**
Floor space Area m2		2300
Per 1m2 of Floor Area	5	2300.0
Sewage Flow L/day	or	**11,500**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 1 - Conference & Food Services**	
Assembly Hall	**Unit Flow Rate L/day**	**Variable**
Per seat (with no food service) or	8	
Per seat (with Food Service)	36	250
Sewage Flow L/day	or	**9,000**

Building 2 Total Sewage flow L/day	**48,200**

ONSITE SEWAGE SYSTEM CALCULATION SHEET

Project Name:	**4631 Sideroad 20 N.**	**Designed By:**	**C.R./A.S.**
Project No:	**12618927**	**Checked By:**	**A.S.**

Based on Architectural Plans Provided By:	Sweeny & Co. Architects.
Dated:	1/27/2025

Occupancy Per Table 8.2.1.3.B of OBC	**Building 2 - Office**	
Office Building	**Unit Flow Rate L/day**	**Variable**
Per number of employees or	75	20
per 9.3m2 Office Space	75	
Sewage Flow L/day	or	**1,500**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 2 - Manufacturing**	
Factory	**Unit Flow Rate L/day**	**Variable**
Number of employees (no showers) or	75	
Number of employees (with Showers)	125	100
Sewage Flow L/day	or	**12,500**

Building 2 Total Sewage flow L/day	**14,000**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 3 - Office**	
Office Building	**Unit Flow Rate L/day**	**Variable**
Per number of employees or	75	20
per 9.3m2 Office Space	75	
Sewage Flow L/day	or	**1,500**

Occupancy Per Table 8.2.1.3.B of OBC	**Building 3 - Manufacturing**	
Factory	**Unit Flow Rate L/day**	**Variable**
Number of employees (no showers) or	75	
Number of employees (with Showers)	125	100
Sewage Flow L/day	or	**12,500**

Building 3 Total Sewage flow L/day	**14,000**

ONSITE SEWAGE SYSTEM CALCULATION SHEET

Project Name:	**4631 Sideroad 20 N.**	**Designed By:**	**C.R./A.S.**
Project No:	**12618927**	**Checked By:**	**A.S.**

Based on Architectural Plans Provided By:	Sweeny & Co. Architects.
Dated:	1/27/2025

Occupancy Per Table 8.2.1.3.B of OBC	**Gym**	
Swimming and Bathing Facilities	**Unit Flow Rate L/day**	**Variable**
per person	40	250
Sewage Flow L/day	or	10,000

Occupancy Per Table 8.2.1.3.B of OBC	**Daycare**	
Day Care Facility	**Unit Flow Rate L/day**	**Variable**
Per person (staff and children)	75	50
Sewage Flow L/day	or	**3,750**

Building 1 Total Sewage flow L/day	48,200
Building 2 Total Sewage flow L/day	14,000
Building 3 Total Sewage flow L/day	14,000
Gym Total Sewage flow L/day	10,000
Day Care Total Sewage flow L/day	3,750
Total Sewage Flow L/day	**89,950**

Design flow L/day	**90,000**

Fire Flow Calculations

As per Fire Underwriter's Survey Guidelines (2020 Version)

PROJ: 4631 Sideroad 20 N Building 1 | **DATE CREATED:** January 10, 2025

JOB#: 12618927 | **DATE PRINTED:** February 6, 2025

C **Coefficient related to type of construction**

	[yes/no]	
• Wood frame (Type V)		1.5
• Heavy Timber (Type IV)		0.9
• Ordinary construction (Type III)	yes	1
• Non-combustible construction(Type II)		0.8
• Fire resistive construction (Type I)		0.6

A **Area of structure considered (m ^{2})**

	(m2)		
✓ Construction coefficient below 1.0			
✓ Vertical openings properly protected			
• Single Largest Floor Area [Level 1]	25800		
• 25% of the immediately adjoining floor (above) [Level 4]	0		
• 25% of the immediately adjoining floor (below) [Level 2]	0		
	25,800	<==>	277,709 ft^2

F **Required fire flow (L/min)**

F = 220 C (A)$^{0.5}$ ***35,000 L/min***

Occupancy hazard reduction of surcharge

	[yes/no]	
• Non-combustible		-25%
• Limited combustible		-15%
• Combustible		0%
• Free burning	yes	15%
• Rapid burning		25%

40,250 L/min **(1)**

Sprinkler Reduction

• Non-combustible - Fire Resistive (3)	yes	40%	***16,100 L/min*** **(2)**

Exposure surcharge (cumulative (%), 4 sides)

	[yes/no]			
0 - 3 m	no	25%	0 side	
3.1 - 10 m	no	20%	0 side	
3.1 - 10 m, Type I, L-H Factor 100+	yes	4%	1 side	4%
10.1 - 20 m	no	15%	0 side	
20.1 - 30 m	no	10%	0 side	
20.1-30 m, Type I, L-H Factor 100+	yes	0%	1 side	0%
>30.1m	yes	0%	2 side	0%
			Cumulative Total	**4%**

1,610 L/min **(3)**

REQUIRED FIRE FLOW [(1) - (2) + (3)] ***26,000 L/min***

(2,000 L/min < Fire Flow < 45,000 L/min) ***or*** ***433.33 L/s***

or ***6,868 USGPM***

Fire Flow Calculations

As per Fire Underwriter's Survey Guidelines (2020 Version)

PROJ: 4631 Sideroad 20 N Building 2 | **DATE CREATED:** January 10, 2025

JOB#: 12618927 | **DATE PRINTED:** February 6, 2025

C **Coefficient related to type of construction**

	[yes/no]	
• Wood frame (Type V)		1.5
• Heavy Timber (Type IV)		0.9
• Ordinary construction (Type III)	yes	1
• Non-combustible construction(Type II)		0.8
• Fire resistive construction (Type I)		0.6

A **Area of structure considered (m ^{2})**

	(m2)		
✓ Construction coefficient below 1.0			
✓ Vertical openings properly protected			
• Single Largest Floor Area [Level 3]	18116		
• 25% of the immediately adjoining floor (above) [Level 4]	0		
• 25% of the immediately adjoining floor (below) [Level 2]	0		
	18,116	<==>	194,999 ft^2

F **Required fire flow (L/min)**

F = 220 C $(A)^{0.5}$ ***30,000 L/min***

Occupancy hazard reduction of surcharge

	[yes/no]	
• Non-combustible		-25%
• Limited combustible		-15%
• Combustible		0%
• Free burning		15%
• Rapid burning	yes	25%

37,500 L/min **(1)**

Sprinkler Reduction

• Non-combustible - Fire Resistive (3)	yes	40%	***15,000 L/min***	**(2)**

Exposure surcharge (cumulative (%), 4 sides)

	[yes/no]			
0 - 3 m		25%		
3.1 - 10 m		20%	0 side	
3.1 - 10 m, Type I, LH Factor 100+	yes	4%	1 side	4%
10.1 - 20 m		15%		
20.1 - 30 m		10%		
20.1-30 m , Type I, L-H Factor Over 100	yes	0%	1 side	0%
>30.1m	yes	0%	2 side	0%
			Cumulative Total	**4%**

1,500 L/min **(3)**

REQUIRED FIRE FLOW [(1) - (2) + (3)]		***24,000 L/min***
(2,000 L/min < Fire Flow < 45,000 L/min)	***or***	***400.00 L/s***
	or	***6,340 USGPM***

Fire Flow Calculations

As per Fire Underwriter's Survey Guidelines (2020 Version)

PROJ: 4631 Sideroad 20 N Building 3 | **DATE CREATED:** January 10, 2025

JOB#: 12618927 | **DATE PRINTED:** February 6, 2025

C **Coefficient related to type of construction**

	[yes/no]	
◆ Wood frame (Type V)		1.5
◆ Heavy Timber (Type IV)		0.9
◆ Ordinary construction (Type III)	yes	1
◆ Non-combustible construction(Type II)		0.8
◆ Fire resistive construction (Type I)		0.6

A **Area of structure considered (m ^{2})**

	(m2)		
✓ Construction coefficient below 1.0			
✓ Vertical openings properly protected			
◆ Single Largest Floor Area [Level 3]	13053		
◆ 25% of the immediately adjoining floor (above) [Level 4]			
◆ 25% of the immediately adjoining floor (below) [Level 2]			
	13,053	<==>	140,501 ft^2

F **Required fire flow (L/min)**

F = 220 C (A)$^{0.5}$ ***25,000 L/min***

Occupancy hazard reduction of surcharge	[yes/no]			
◆ Non-combustible		-25%		
◆ Limited combustible		-15%		
◆ Combustible		0%		
◆ Free burning		15%		
◆ Rapid burning	yes	25%		
			31,250 L/min	**(1)**
Sprinkler Reduction				
◆ Non-combustible - Fire Resistive (3)	yes	40%	***12,500 L/min***	**(2)**

Exposure surcharge (cumulative (%), 4 sides)	[yes/no]			
0 - 3 m		25%		
3.1 - 10 m		20%		
10.1 - 20 m		15%		
20.1 - 30 m		10%		
20.1-30 m , Type I, L-H Factor Over 100	yes	0%	1 side	0%
>30.1m	yes	0%	3 side	0%
			Cumulative Total	**0%**
			0 L/min	**(3)**

REQUIRED FIRE FLOW [(1) - (2) + (3)]		***19,000 L/min***
(2,000 L/min < Fire Flow < 45,000 L/min)	***or***	***316.67 L/s***
	or	***5,019 USGPM***

Fire Flow Calculations

As per Fire Underwriter's Survey Guidelines (2020 Version)

PROJ: 4631 Sideroad 20 N Gym | **DATE CREATED: January 10, 2025**

JOB#: 12618927 | **DATE PRINTED: February 6, 2025**

C **Coefficient related to type of construction**

	[yes/no]	
◆ Wood frame (Type V)		1.5
◆ Heavy Timber (Type IV)		0.9
◆ Ordinary construction (Type III)	yes	1
◆ Non-combustible construction(Type II)		0.8
◆ Fire resistive construction (Type I)		0.6

A **Area of structure considered (m ^{2})**

	(m2)		
✓ Construction coefficient below 1.0			
✓ Vertical openings properly protected			
◆ Single Largest Floor Area [Level 3]	1394		
◆ 25% of the immediately adjoining floor (above) [Level 4]			
◆ 25% of the immediately adjoining floor (below) [Level 2]			
	1,394	<==>	15,005 ft^2

F **Required fire flow (L/min)**

F = 220 C (A)$^{0.5}$ ***8,000 L/min***

Occupancy hazard reduction of surcharge	[yes/no]			
◆ Non-combustible		-25%		
◆ Limited combustible		-15%		
◆ Combustible		0%		
◆ Free burning	yes	15%		
◆ Rapid burning		25%		
			9,200 L/min	**(1)**

Sprinkler Reduction				
◆ Non-combustible - Fire Resistive (3)	yes	40%	***3,680 L/min***	**(2)**

Exposure surcharge (cumulative (%), 4 sides)	[yes/no]			
0 - 3 m		25%		
3.1 - 10 m		20%		
10.1 - 20 m		15%		
20.1 - 30 m		10%		
20.1-30 m , Type I, L-H Factor Over 100	yes	0%	1 side	0%
>30.1m	yes	0%	3 side	0%
			Cumulative Total	**0%**
			0 L/min	**(3)**

REQUIRED FIRE FLOW [(1) - (2) + (3)]		***6,000 L/min***
(2,000 L/min < Fire Flow < 45,000 L/min)	***or***	***100.00 L/s***
	or	***1,585 USGPM***

Fire Flow Calculations

As per Fire Underwriter's Survey Guidelines (2020 Version)

PROJ: 4631 Sideroad 20 N Daycare
JOB#: 12618927

DATE CREATED: January 10, 2025
DATE PRINTED: February 6, 2025

C **Coefficient related to type of construction**

	[yes/no]	
◆ Wood frame (Type V)		1.5
◆ Heavy Timber (Type IV)		0.9
◆ Ordinary construction (Type III)	yes	1
◆ Non-combustible construction(Type II)		0.8
◆ Fire resistive construction (Type I)		0.6

A **Area of structure considered (m ^{2})**

	(m2)		
✓ Construction coefficient below 1.0			
✓ Vertical openings properly protected			
◆ Single Largest Floor Area [Level 3]	929		
◆ 25% of the immediately adjoining floor (above) [Level 4]			
◆ 25% of the immediately adjoining floor (below) [Level 2]			
	929	<==>	10,000 ft^2

F **Required fire flow (L/min)**

F = 220 C (A)$^{0.5}$ ***7,000 L/min***

Occupancy hazard reduction of surcharge	[yes/no]		
◆ Non-combustible		-25%	
◆ Limited combustible		-15%	
◆ Combustible		0%	
◆ Free burning	yes	15%	
◆ Rapid burning		25%	
			8,050 L/min (1)

Sprinkler Reduction			
◆ Non-combustible - Fire Resistive (3)	yes	40%	***3,220 L/min*** (2)

Exposure surcharge (cumulative (%), 4 sides)	[yes/no]			
0 - 3 m		25%		
3.1 - 10 m		20%		
10.1 - 20 m		15%		
20.1 - 30 m		10%		
20.1-30 m , Type I, L-H Factor Over 100	0%	0%		
>30.1m	yes	0%	4 side	0%
			Cumulative Total	**0%**
			0 L/min	(3)

REQUIRED FIRE FLOW [(1) - (2) + (3)]		***5,000 L/min***
(2,000 L/min < Fire Flow < 45,000 L/min)	***or***	***83.33 L/s***
	or	***1,321 USGPM***

DOMESTIC WATER DEMAND CALCULATION SHEET

Project Name:	**4631 Sideroad 20 N.**	**Designed By:**	**C.R./A.S.**
Project No:	**12618927**	**Checked By:**	**A.S.**

Based on Architectural Plans Provided By:	Sweeny & Co. Architects.
Dated:	1/27/2025

Building	Peak Sewage flow (L/day)	Average Day Demand (L/min)	Max Day Demand (L/min)
Industrial Building 1	48,200	24.98	33.47
Industrial Building 2	14,000	7.26	9.72
Industrial Building 3	14,000	7.26	9.72
Gym	10,000	5.18	6.94
Daycare	3,750	1.94	2.60
Total	**89,950**	**46.62**	**62.47**

Note

1) Peak Sewage flow is calculated using Table 8.2.1.3B. of the OBC
2) Max day demand (MDD) peaking factor is 1.34 per City of Guelph Standard
3) Average day demand is derivded from dividing peak sewage flows by MDD peaking factor

FIRE FLOW CALCULATION SHEET

Project Name: Danby and UCF - TIS	**Designed By:**	**CR**
Project No: 12618927	**Checked By:**	
	Date:	**2/6/2025**

Design Based on Architectural Plans Provided By:	Sweeny and Co Architects
Dated:	1/27/2025

Building	Required Fire Flow [L/min]	Required Duration	Required Volume, m3	# of Hydrants Required	Max Recommended Spacing Between Hydrants [m]
Industrial Building #1	26,000.00	6.00	9,360.00	7	75.00
Industrial Building #2	24,000.00	5.50	7,920.00	6	75.00
Industrial Building #3	19,000.00	4.50	5,130.00	5	90.00
Gym	6,000.00	2.00	720.00	1	150.00
Daycare	5,000.00	1.75	525.00	1	180.00

Appendix D

D-1 Excerpts

REFERENCE No.: 12618927

BOREHOLE REPORT

Page 1 of 1

BOREHOLE No.: MW6-23

ELEVATION: 339.4 m

CLIENT: Danby Products Limited

PROJECT: Danby - Estill Innovation Company

LOCATION: Puslinch, Ontario

DESCRIBED BY: Carson Best CHECKED BY: Kateryna Pidriiko

DATE (START): 22 November 2023 DATE (FINISH): 22 November 2023

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4814078.3 EASTING: 564840.3 DRILLING TYPE: Track -mounted drill rig CME 850 DRILLING METHOD: Hollow Stem Auger (O.D. 203 mm)

Depth Feet	Depth Metres	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments (Gravel Sand Silt Clay)	LAB Testing Unit Weight (Dry) KN/m³	LAB Testing Moisture Content %	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	COMMENTS
0		339.4		GROUND SURFACE			%		%	%			
	0.4	339.0		TOPSOIL (356 mm)									
	0.6	338.7		FILL: SILT, trace clay, rootlets. corn husks, dark brow, moist, loose		SS1			23	70.8	1-2-2-3	4	Concrete; 0.6 m Sand; 0.9 m
	1.0			NATIVE: SILT, trace clay, trace sand, brown, moist, compact		SS2	0-9-87-4 Non-Plastic		18	83.3	3-4-6-6	10	
						SS3			20	66.7	2-4-9-23	13	Hole-plug
	2.0			trace, gravel, sand seam (approximately 50-80 mm) at 2.0 m bgs									
	2.3	337.1		SANDY GRAVEL, some silt, brown, wet to moist, very dense		SS4	66-20-(14)		19	70.8	4-30-26-27	56	2.7 m
	3.0			SPT refusal due to possible obstruction		SS5			3	85.7	22-46-50/21mm	96/203 mm	3.0 m
	4.0					SS6	64-24-(12)		5	83.3	20-32-36-45	68	Screen
	4.6	334.8		SILTY SAND, some gravel, brown, moist, very dense		SS7			6	83.3	7-22-30-25	52	4.6 m
	5.0												
	5.2	334.2		END OF BOREHOLE									5.2 m
	6.0			NOTES: - End of Borehole at 5.2 m bgs. - Borehole was dry upon completion of drilling. - bgs denotes 'below ground surface'.									
	7.0												
	8.0												
	9.0												

△ Undisturbed Vane Value (kPa)
□ Remoulded Field Vane Value (kPa)
△³ Number refer to Sensitivity
○ Water content (%)
W_p W_l Atterberg limits (%)
● "N" Value (blows/12 in.-30 cm)
★ "DCPT" Value (blows/12 in.-30 cm)

10 20 30 40 50 60 70 80 90

PIEZOMETER/ STANDPIPE INSTALLATION

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Report: 12618927 SOIL LOG Date: 6/2/24

REFERENCE No.: 12618927

BOREHOLE REPORT

Page 1 of 1

BOREHOLE No.: BH9-23

ELEVATION: 338.8 m

CLIENT: Danby Products Limited

PROJECT: Danby - Estill Innovation Company

LOCATION: Puslinch, Ontario

DESCRIBED BY: Carson Best CHECKED BY: Kateryna Pidriiko

DATE (START): 20 November 2023 DATE (FINISH): 20 November 2023

LEGEND

- SS - SPLIT SPOON
- ST - SHELBY TUBE
- VA - VANE SHEAR
- AU - AUGER PROBE
- RC - CORE SAMPLE
- ▼ - WATER LEVEL (MEASURED)
- ▽ - WATER LEVEL (OBSERVED)

NORTHING: 4813973.9 EASTING: 564949.1 DRILLING TYPE: Track -mounted drill rig CME 850 DRILLING METHOD: Hollow Stem Auger (O.D. 203 mm)

Depth (Feet)	Depth (Metres)	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL	SAMPLES State	SAMPLES Type and Number	LAB Testing Comments (Gravel Sand Silt Clay)	LAB Testing Unit Weight (Dry) KN/m³	LAB Testing Moisture Content %	Recovery/ TCR(%)	Blows per/15cm/ RQD(%)	'N' Value SCR(%)	COMMENTS PIEZOMETER/ STANDPIPE INSTALLATION
0		338.8		GROUND SURFACE			%		%	%			
	0.1	338.6		TOPSOIL (127 mm)									
1				FILL: SANDY SILT, trace to some gravel, trace corn husk, brown, wet, loose		SS1			43	50	1-3-4-4	7	
2	0.6	338.2		NATIVE: SILTY SAND, trace sand, trace gravel, brown, moist, compact									
3	1.0					SS2			13	79.2	8-7-8-8	15	
4													
5				loose at 1.6 m bgs									
6				silt layers (approximately 100-150 mm) at 1.8 m bgs		SS3			18	75	3-4-4-5	8	
7	2.0												
8				silt layers (approximately 100 mm) at 2.3 m bgs		SS4			14	79.2	5-10-7-8	17	
9													
10	3.0	335.7		SILT, some clay, trace sand, brown, moist, compact		SS5	0-4-78-18		18	79.2	5-8-7-7	15	
11	3.0												
12													
13	4.0												
14													
15	4.6	334.2		SAND, some silt, some gravel, brown, moist, dense		SS6			5	37.5	14-14-18-21	32	
16	5.0												
17	5.2	333.6		END OF BOREHOLE									
18				NOTES:									
19				- End of Borehole at 5.2 m bgs.									
20	6.0			- Borehole was dry upon completion of drilling.									
21				- bgs denotes 'below ground surface'.									
22													
23	7.0												
24													
25													
26	8.0												
27													
28													
29	9.0												
30													
31													
32													

△ Undisturbed Vane Value (kPa)
□ Remoulded Field Vane Value (kPa)
△³ Number refer to Sensitivity
○ Water content (%)
W_p W_l Atterberg limits (%)
● "N" Value (blows/12 in.-30 cm)
★ "DCPT" Value (blows/12 in.-30 cm)

10 20 30 40 50 60 70 80 90

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