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TRIBAL PARTNERS CANADA INC.

FUNCTIONAL SERVICING REPORT

12892 DIXIE ROAD

FEBRUARY 24, 2021

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FUNCTIONAL SERVICING REPORT

12892 DIXIE ROAD

TRIBAL PARTNERS CANADA INC.

PROJECT NO.: 201-11545
DATE: FEBRUARY 2021

WSP
UNIT 500
119 SPADINA AVENUE
TORONTO, ON, CANADA M5V 2L1

T: +1 416 260-0387
F: +1 416 260-3028
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ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	SUBMISSION #1			
Date	February 24, 2021			
Prepared by	Justin Gleben			
Signature				
Checked by	Alex Williams			
Signature				
Authorised by	Alex Williams			
Signature				
Project number	201-11545			
Report number				
File reference				

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SIGNATURES

PREPARED BY

2021-02-25

Justin Gleben, M.Eng., P.Eng.
Project Engineer

REVIEWED BY

Alex Williams, P.Eng.
Project Manager

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TABLES

FIGURES

APPENDICES

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1 INTRODUCTION

1.1 SCOPE

WSP Canada Incorporated (WSP) has been retained by Armstrong Planning on behalf of Tribal Partners to prepare a Functional Servicing Report (FSR) to support an official plan amendment, rezoning and a site plan approval application for the proposed development of 12892 Dixie Road in Caledon, Ontario. The purpose of this report is to provide a conceptual framework for servicing the proposed development with respect to water supply, sanitary sewage and storm drainage. A Stormwater Management (SWM) Report outlining the proposed quality and quantity controls for stormwater on this site has been prepared under separate cover, also by WSP.

In preparing this report, WSP staff secured and analyzed available Region of Peel Record Drawings, architectural drawings prepared by Baldassarra Architects, as well as a topographic survey prepared by R. Avis Surveying Inc.

1.2 SITE DESCRIPTION

The site is a 78.9 ha parcel of land bounded by Old School Road to the North, Dixie Road to the East, and undeveloped lands to the West and South. The site is currently used for agricultural purposes, and is primarily vacant with the exception of a farmhouse and some associated structures. There is an existing woodlot within the property limits which is excluded from the proposed development of the site.

The proposed development will consist of four (4) industrial warehouse shell buildings with loading dock areas and associated trailer and car parking spaces. Buildings A, B, C, will include stormwater management ponds to control storm runoff from the site to meet quantity and quality control targets. Building D will utilize an underground storage facility. The total Gross Floor Area (GFA) of each of Building A, B, C, D respectively area: 81,931 m^2; 91,867 m^2; 48,324 m^2; 25,121 m^2.

All buildings will be serviced by existing watermain and future sanitary sewer in the adjacent Dixie Road right-of-way. Refer to Figure 1 for the Location Map, Figure 2 for the Predevelopment Plan, and Figure 3 for an illustration of the Proposed Development Plan.

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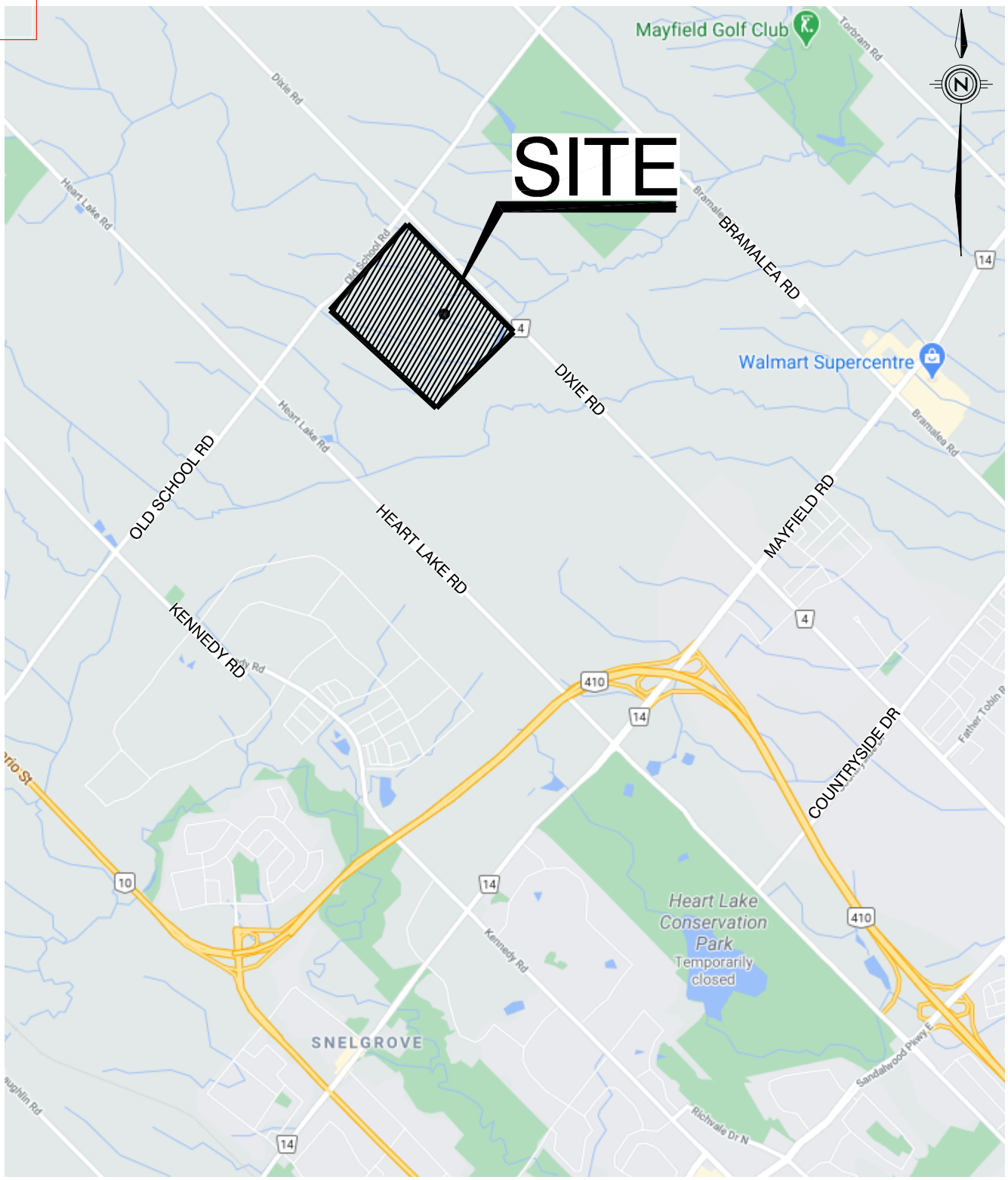

CLIENT

TRIBAL PARTNERS CANADA INC

TITLE

12892 DIXIE ROAD

LOCATION PLAN

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FILENAME: C:\Users\ZhangJas\BIM 360\WSP Canada projects (AMER)\Land Development Ontario\Project Files\201-11545 - 12892 Dixie Road\MUN\Figures\201-11545_FIG-1.dwg
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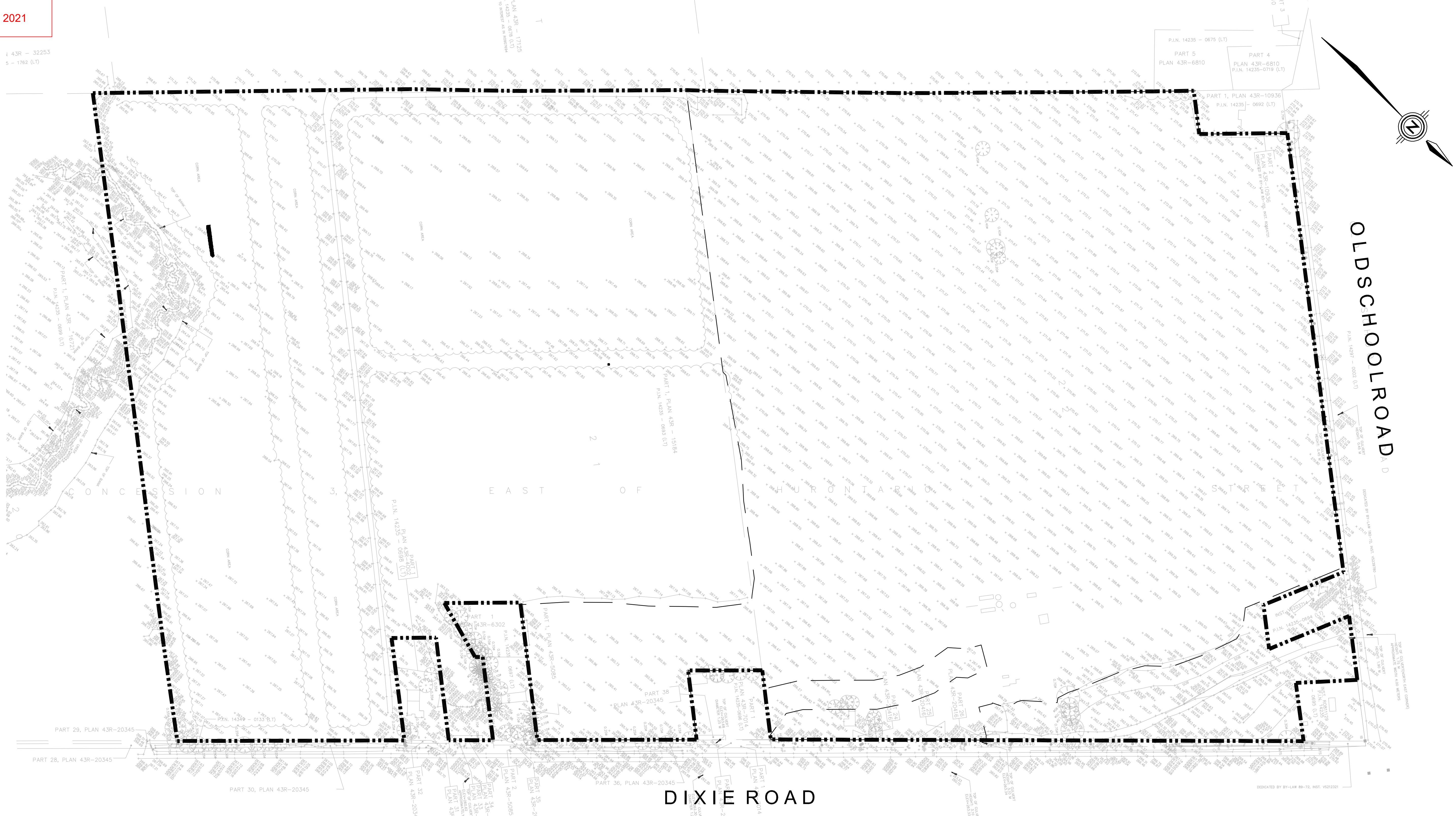

LEGEND

LIMIT OF PROPERTY

CLIENT
TRIBAL PARTNERS CANADA INC

TITLE
12892 DIXIE ROAD

PRE- DEVELOPMENT PLAN

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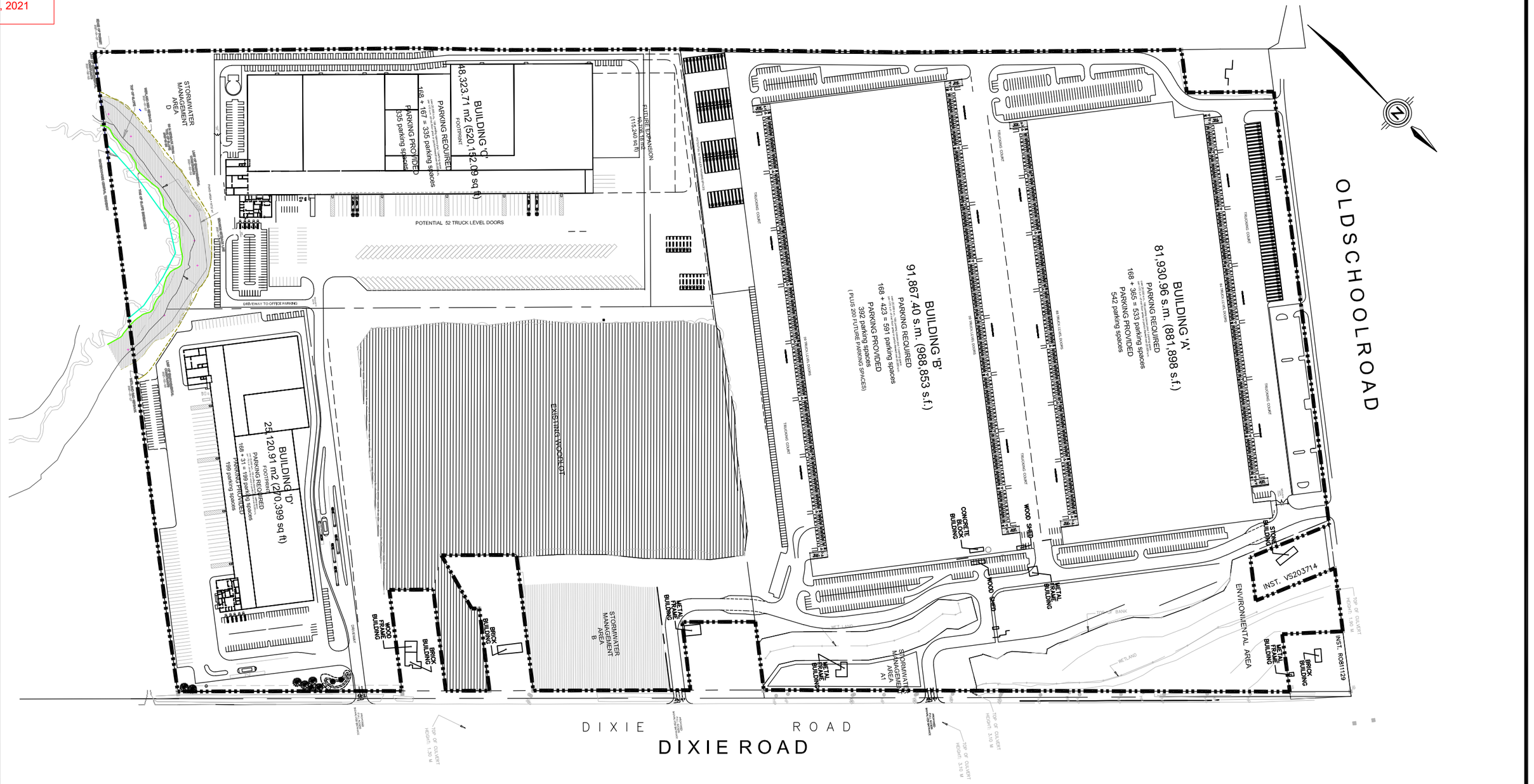

LEGEND

LIMIT OF PROPERTY

CLIENT: TRIBAL PARTNERS CANADA INC

TITLE: 12892 DIXIE ROAD

PROPOSED DEVELOPMENT PLAN

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2 WATER SUPPLY

2.1 EXISTING CONDITIONS

WSP has obtained sewer record drawings from the Region of Peel for the area surrounding the site. Existing watermains in the vicinity of the site include a 150mm diameter watermain along Old School Road, and an existing 150mm diameter watermain along Dixie Road connected to the Zone 7 pressure district.

2.2 FUTURE CONDITIONS

The Region of Peel 2020 Water & Wastewater Master Plan for the Lake-Based System identifies capital project D-268 as scheduled for completion in 2021. This project will extend a new 400mm diameter watermain along Dixie Road to Old School Road in front of the site.

2.3 DOMESTIC WATER DEMANDS

The peak domestic water demand for the development was calculated using the Region of Peel's design criteria for industrial development. A population density of 70 persons per hectare, average consumption of 300L/employee/day, a maximum day factor of 1.4 and peak hour factor of 3.0 were used to estimate the demands from each building. The estimated fire flows have been calculated using the recommendations of the 1999 Fire Underwriter's Survey. The table below lists the domestic and fire demands for buildings 1, 2, 3 and 4. For detailed calculations, see Appendix B.

Table 1: Domestic Water Demand and Fire Flow Requirements

		Domestic Demands (L/s)			Fire Flow (FUS)		
Building	**Area (m2)**	Avg. Day	Max. Day	Peak Hour	USGPM	L/min	L/s
A	81,931	2.0	2.8	6.0	9235	35,000	583
B	91,867	2.2	3.1	6.7	9763	37,000	617
C	48,324	1.2	1.6	3.5	7124	27,000	450
D	25,121	0.6	0.9	1.8	5277	20,000	333

2.4 FIRE SUPPLY

WSP has ordered hydrant flow tests to be completed on hydrants connected to the existing 150mm diameter watermains along Old School Road and Dixie Road. While the results of these tests are pending, it is anticipated that the water supply from the 150mm diameter watermains will be insufficient to provide fire flow for the proposed development. To ensure that adequate fire supply is available in the interim servicing condition, it is proposed to provide a temporary reservoir for each of the four buildings which can will store enough water to provide 2 hr fire protection. The design of the on-site booster pumps to provide required fire fighting pressures will be completed

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by the mechanical engineer in consultation with the Region of Peel. The temporary reservoirs may be provided as either underground or above ground storage provided the following volumes are met as shown in Table 2:

Table 2: Temporary Reservoir Requirements

		Fire Flow (FUS)			2 hr Fire Supply
Building	**Area (m2)**	USGPM	L/min	L/s	Volume (m^3)
A	81,931	9235	35,000	583	4200
B	91,867	9763	37,000	617	4440
C	48,324	7124	27,000	450	3240
D	25,121	5277	20,000	333	2400

The connections are proposed to include valve and boxes at the property line. In addition, a water meter, backflow preventer and a double detector check valve will be installed in the mechanical room within the building in accordance with the Region standards. The mechanical room will need to be accessible by the Region and provide remote read-out locations for the Region's use in reading the meters. The on-site watermains within the proposed building will be designed by the site mechanical consultant. Refer to Figure 4 for proposed water servicing layout.

2.5 INTERIM PROPOSED SERVICING

Interim service connections will be made to the existing 150mm diameter watermains along Dixie Road and Old School Road as shown on Figure 4, illustrating the proposed water servicing plan. Building A will have a 150mm diameter domestic connection from Old School Road, while each of the remaining Buildings B, C, and D will have 150mm diameter domestic services supplied from Dixie Road. Each domestic connection shall be separately metered and fitted with a backflow preventer.

A shared 300mm diameter watermain for fire protection shall be provided with a connection to Dixie Road to supply Buildings A and B. Hydrants shall be provided in front of each building. A second shared 300mm diameter watermain for fire protection is also provided from Dixie Road to supply fire protection for Buildings C and D, with hydrants provided in front of each of these buildings as well. As described in Section 2.4, in the interim servicing condition, temporary water reservoirs are required to meet fire demand for the proposed buildings.

2.6 ULTIMATE PROPOSED SERVICING

Once the Region has constructed the 400mm diameter watermain along Dixie Road in front of the site, all domestic and fire connections made to the existing 150mm diameter watermain along Dixie Road shall be transferred to the new 400mm diameter watermain. The new 400mm diameter main will provide sufficient fire supply to the site, and the temporary water reservoirs can be decommissioned after transferring the water service connections to the 400mm diameter main.

The domestic connection for Building A to Old School Road will remain as outlined in Section 2.5 in the ultimate servicing configuration.

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150mmØ DOMESTIC

300mmØ FIRE

BUILDING 'C'
48,323.71 m2 (520,152.09 sq ft)

HYDRANT

FUTURE EXPANSION
(116,240 sq ft)

HYDRANT

300mmØ FIRE

BUILDING 'D'
25,120.91 m2
(270,399 sq ft)

150mmØ DOMESTIC

EXISTING WOODLOT

BUILDING 'B'
91,867.40 s.m. (988,853 s.f.)

150mmØ DOMESTIC

HYDRANT

300mmØ FIRE

BUILDING 'A'
81,930.96 s.m. (881,898 s.f.)

150mmØ DOMESTIC

HYDRANT

300mmØ FIRE

CONNECT TO
EX. 150mmØ
WATERMAIN

OLD SCHOOL ROAD

300mmØ FIRE

ENVIRONMENTAL AREA

INST. VS203714

INST. RO811129

EX. 150mmØ WATERMAIN

CONNECT TO EX. 150mmØ WATERMAIN FOR INTERIM SERVICING. SERVICE TO BE TRANSFERRED TO FUTURE 400mmØ WATERMAIN ONCE CONSTRUCTED.

DIXIE ROAD

LEGEND

- LIMIT OF PROPERTY
- EX. WATERMAIN
- PROP. W/M CONNECTION
- PROP. VALVE & CHAMBER
- PROP. VALVE & BOX

CLIENT: TRIBAL PARTNERS CANADA INC

TITLE: 12892 DIXIE ROAD

WATER SERVICING PLAN

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3 SANITARY SEWERS

3.1 EXISTING SEWER SYSTEM

There are currently no sanitary sewers available along the frontage of the site on either Dixie Road or Old School Road. A 75mm diameter leachate line runs along Dixie Road in front of the site. Further south on Dixie Road, there is an existing 600mm diameter sanitary sewer which is capped at an existing manhole approximately 350m south of the southern limit of the site.

3.2 FUTURE SEWER SYSTEM

The existing 600mm diameter sanitary sewer was constructed at a depth of approximately 9m below ground surface per record drawings obtained from the Region, to allow for a future extension of the 600mm sanitary sewer north along Dixie Road, crossing underneath the existing box culvert and creek crossing. It is anticipated that the sanitary sewer will be extended to service the proposed development.

3.3 PROPOSED DEVELOPMENT

To calculate the theoretical peak sanitary flows, the following design criteria have been utilized:

- 70 persons/ha for industrial land use
- 302.8 L/cap/day average flow generation rate
- Harmon Peaking Factor
- Infiltration = 0.26 L/s/ha

The demand and peaking factors are based on Region of Peel Sanitary Sewer Design Criteria, March 2017.

3.4 PROPOSED SEWAGE FLOWS

The proposed buildings are industrial warehouses. The sanitary flow for this type of warehouse development are based on Region of Peel standards of 70 people/ha and result in an estimated total population of 1782 persons. According to Region of Peel standard drawing 2-9-2, the estimated sanitary generation for the proposed development is approximately 0.0228 m^3/s. See Appendix B for the sanitary design sheet.

Sanitary sewage from the four proposed buildings will be directed to two sanitary sewers. Buildings A and B will share an internal 200mm sanitary sewer connecting to Dixie Road. Buildings C and D will direct sanitary drainage to another 200mm diameter sanitary sewer connecting to Dixie Road. The proposed on-site sanitary sewers will each include a control manhole located at the property line. The proposed sanitary servicing configuration is shown in Figure 5.

3.5 INTERIM PROPOSED SERVICING

Prior to the construction of the Region's sanitary sewer along Dixie Road to the site, on-site sanitary holding tanks are provided as an interim servicing solution. Sanitary sewers will be constructed to service the proposed buildings and extend to the control manholes at the property line along Dixie Road. In the interim condition, there will be no connection from the control manhole to the Regional sanitary sewer. A diversion manhole is provided for each sanitary sewer which directs flows to a sanitary holding tank for the interim servicing. Bulkheads will be provided

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at the control manhole and diversion manhole to prevent sewage from flowing to the control manhole until the ultimate connection is constructed. The sanitary holding tanks are sized to hold 7 days of sanitary generation, and require the following volumes:

Table 3: Sanitary Holding Tank Requirements

Building	Population	Average Daily Flow Generation (m^3)	Average Weekly Flow Generation (m^3)
A + B	1267	383	**2685**
C + D	514	155	**1089**

Sanitary holding tanks shall be maintained by the owner and sewage hauled off-site for treatment until the ultimate servicing configuration is constructed.

3.6 ULTIMATE PROPOSED SERVICING

Once the Region has constructed the 600mm diameter sanitary sewer along Dixie Road in front of the site, sanitary connections shall be made from the control manholes previously installed at the property line, to the sanitary sewer within the right-of-way. Bulkheads at the control manhole and diversion manhole shall be removed, and the interim sanitary sewer between the diversion manhole and holding tank will be parged and abandoned.

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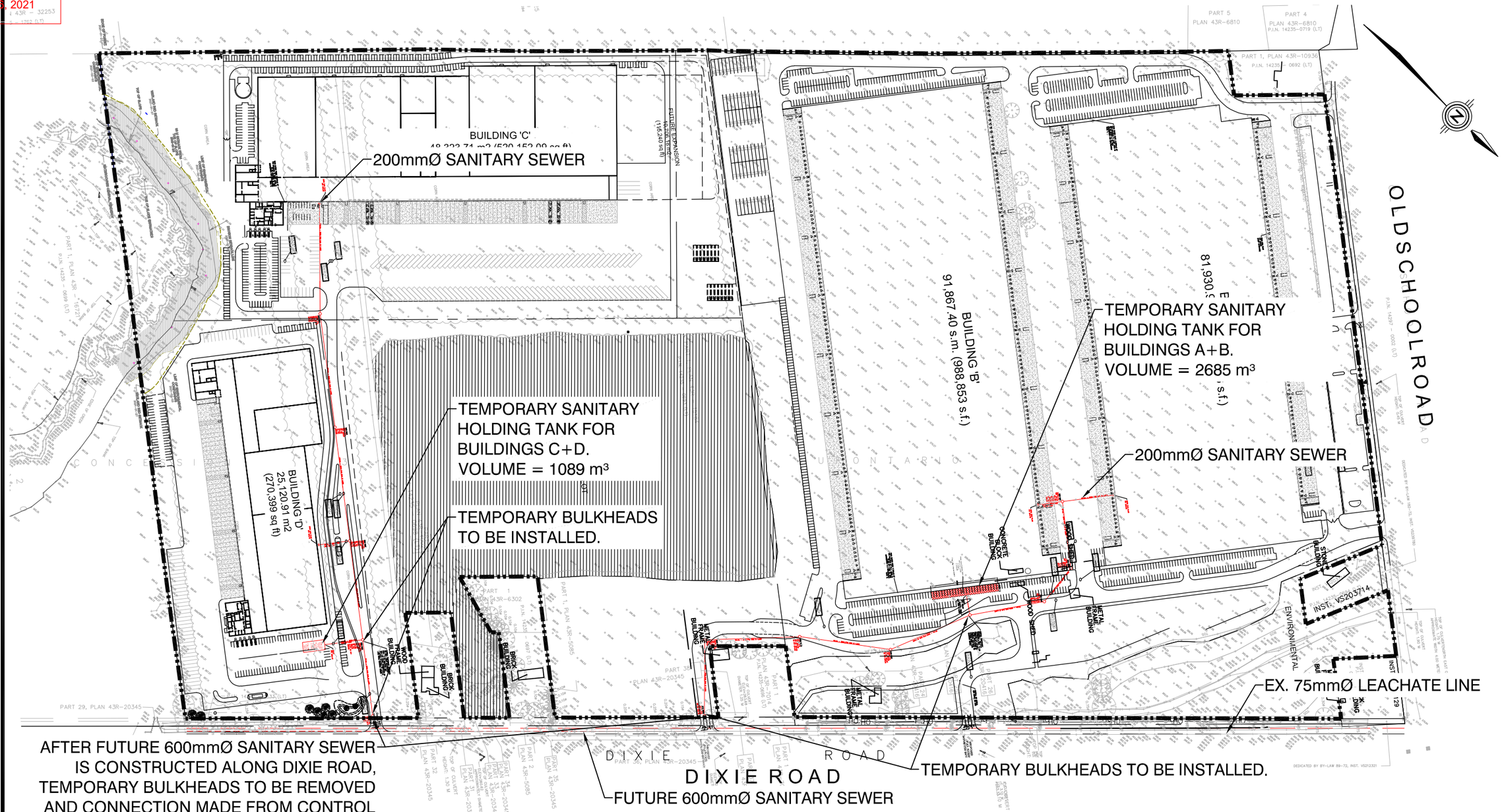

LEGEND

- LIMIT OF PROPERTY
- EX. SANITARY SEWER
- PROP. SAN CONNECTION

CLIENT: TRIBAL PARTNERS CANADA INC

TITLE: 12892 DIXIE ROAD

SANITARY SERVICING PLAN

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4 STORM DRAINAGE

A Stormwater Management Report for this development has been prepared under a separate cover by WSP Canada Inc. which details the stormwater quantity and quality controls provided to meet the requirements of the TRCA and Town of Caledon.

4.1 EXISTING STORM SEWERS

There are currently no existing storm sewers in the vicinity of the site. The existing site drainage primarily drains overland to a ditch along the west side of the Dixie Road right-of-way, and is conveyed to tributaries of the Humber River.

4.2 MINOR STORM DRAINAGE SYSTEM

For minor storm events, all storm drainage on-site will be captured via catchbasins, and conveyed through an on-site storm sewer system sized for the 5 year storm event. The drainage is divided into four catchments – one for each building. Buildings A, B, C each utilize a traditional stormwater management pond while Building D includes and underground stormwater management facility to meet quantity and quality control targets.

Refer to Figure 6 for an illustration of the proposed storm servicing, and Appendix B for the storm design sheet. For further details regarding the stormwater management, refer to WSP's SWM Report.

4.3 MAJOR STORM DRAINAGE SYSTEM

The major storm system is a conveyance system for flows in excess of the minor system flows. For the development of the site, the grading design is such that the surface (i.e. parking lots, drive aisles, walkways and landscaped areas) grades will direct surface drainage away from the building to the stormwater management facilities through overland flow routes. The proposed grading of the subject site will ensure that existing grade elevations will be met along the property limits.

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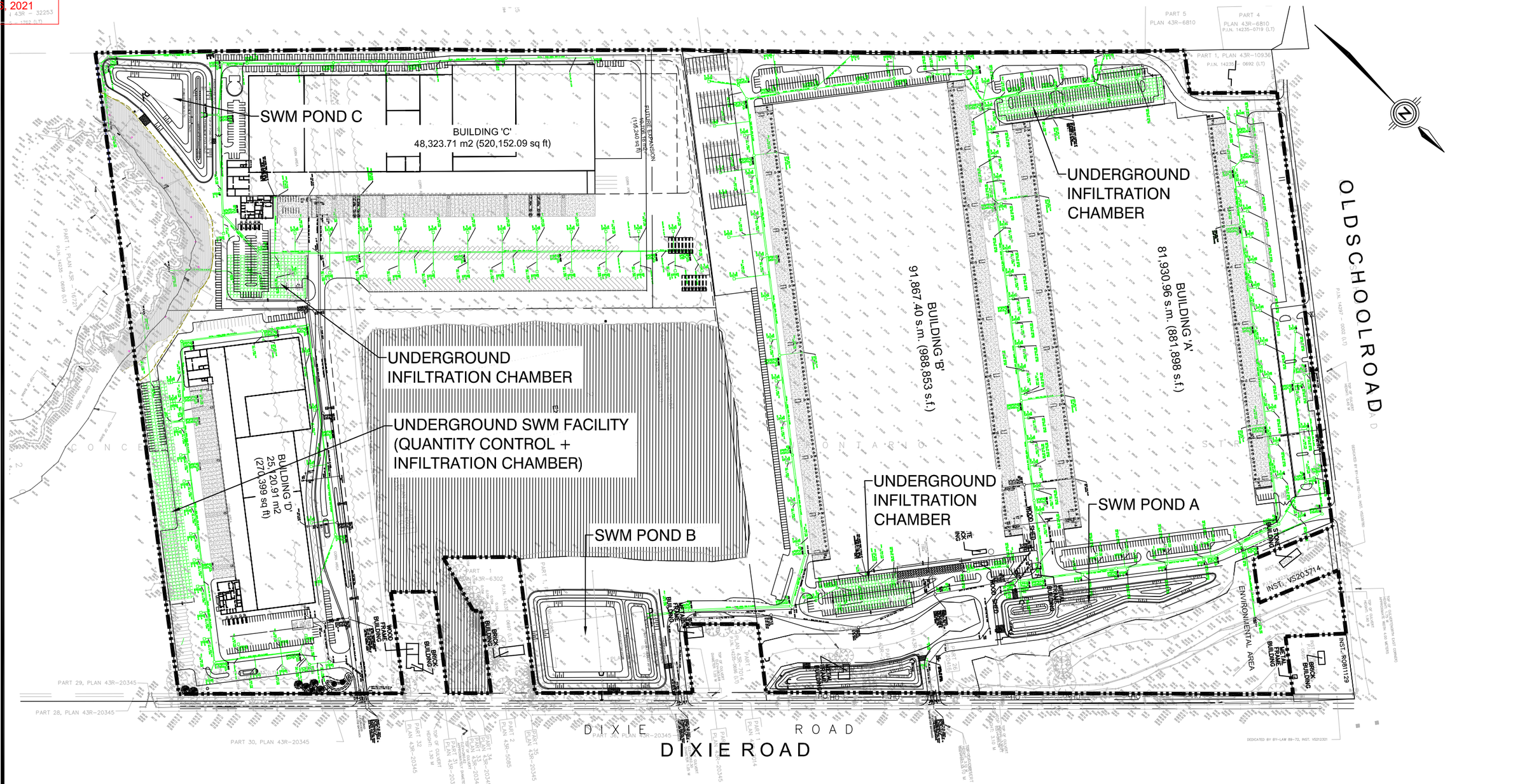

LEGEND

- LIMIT OF PROPERTY
- EX. STORM SEWER
- PROP. STORM CONNECTION

CLIENT	TRIBAL PARTNERS CANADA INC
TITLE	12892 DIXIE ROAD

STORM SERVICING PLAN

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5 UTILITIES

5.1 EXISTING CONDITIONS

The servicing utilities companies in the geographical area including: Bell, Rogers, Hydro One, and Enbridge Gas have been contacted to determine the location of existing facilities at or near the site. The location of all utilities must be confirmed in the field prior to construction.

5.2 RELOCATION OF EXISTING UTILITIES AND PROVISION FOR NEW SERVICES

New building construction and any roadworks will require field locates by each utility company and relocation as needed. As the current site is undeveloped and used primarily for agricultural uses, no on-site utility relocations are anticipated.

Each utility provider must confirm the capacity of their existing infrastructure to support the demands of the proposed development and upgrade infrastructure as necessary.

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6 CONCLUSIONS

6.1 WATER SERVICING

The domestic water service for Building A is provided from Old School Road in both the interim and ultimate servicing condition. The remaining domestic and fire connections for the proposed development will ultimately be serviced by a new 400mm diameter watermain along Dixie Road to be constructed by the Region.

To provide interim servicing, domestic and fire connections for each building will be made to the existing 150mm diameter watermain along Dixie Road. To compensate for the assumed insufficient fire flow provided by the 150mm diameter main, temporary water reservoirs shall be provided on-site to supply 2 hr of fire flow for each building with on-site booster pumps to address any shortfall in pressure requirements.

With the exception of Building A, all other water connections shall be made to the 150mm diameter watermain along Dixie Road in the interim condition, and transferred to the 400mm diameter watermain in the ultimate condition at the owner's expense.

6.2 SANITARY SERVICING

Sanitary sewage from this development will ultimately be conveyed to the future 600mm diameter sanitary sewer to be extended along Dixie Road via two 200mm diameter connections.

In the interim servicing condition, sanitary drainage from the site shall be directed to two holding tanks, the contents of which will be hauled off-site for disposal on a weekly basis or as necessary. Buildings A and B will drain to one holding tank, and Buildings C and D will drain to the other.

Based on the Region of Peel sanitary sewer design criteria, the internal sanitary sewers have sufficient capacity to convey sewage to Dixie Road.

6.3 STORM SERVICING

Minor and major storm drainage for the proposed development will be collected by the internal site drainage system and directed to an assortment of three stormwater management ponds and one underground stormwater management facility to provide quantity and quality control of site runoff.

For details concerning stormwater management, refer to the Stormwater Management Report under a separate cover.

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A FUS FIRE FLOW CALCULATIONS

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APPENDIX A

FIRE FLOW CALCULATIONS - BUILDING A

Project: **12892 Dixie Road**
Job No.: **201-11545**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

A. **Determine Type of Construction**
=> Non-combustible Construction
Therefore C = 0.8

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Total GFA of Largest Floor - one floor only

A = 81,931 m2

C. **Determined the Fire Flow**
F = 220 x 0.8 x √81931
F = 50,378 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> No Reduction for Combustible Occupancies
Therefore 0% reduction

0% reduction of 50378 Lpm =	-	Lpm
50378 - 0 =	50,378	Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=> Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 30% reduction

30% reduction of 50378 Lpm =	15,113	Lpm
50378 - 15113 =	35,265	Lpm

F. **Determine the Total Increase For Exposures**

West Side	>45	0%				
East Side	>45	0%				
North Side	>45	0%				
South Side	>45	0%				
	Total	0%	of	50,378	=	0 Lpm

G. **Req'd Fire Flow = C - E + F**
F = 35,265 Lpm
F = 35,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 9,235 US GPM

Note

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APPENDIX A

FIRE FLOW CALCULATIONS - BUILDING B

Project: **12892 Dixie Road**
Job No.: **201-11545**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

A. **Determine Type of Construction**
=> Non-combustible Construction
Therefore C = 0.8

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Total GFA of Largest Floor - one floor only

A = 91,867 m2

C. **Determined the Fire Flow**
F = 220 x 0.8 x √91867
F = 53,345 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> No Reduction for Combustible Occupancies
Therefore 0% reduction

0% reduction of 53345 Lpm =	-	Lpm
53345 - 0 =	53,345	Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=> Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 30% reduction

30% reduction of 53345 Lpm =	16,004	Lpm
53345 - 16004 =	37,341	Lpm

F. **Determine the Total Increase For Exposures**

West Side	>45	0%				
East Side	>45	0%				
North Side	>45	0%				
South Side	>45	0%				
	Total	0%	of	53,345	=	0 Lpm

G. **Req'd Fire Flow = C - E + F**
F = 37,341 Lpm
F = 37,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 9,763 US GPM

Note

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APPENDIX A

FIRE FLOW CALCULATIONS - BUILDING C

Project: **12892 Dixie Road**
Job No.: **201-11545**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

A. **Determine Type of Construction**
=> Non-combustible Construction
Therefore C = 0.8

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Total GFA of Largest Floor - one floor only

A = 48,324 m2

C. **Determined the Fire Flow**
F = 220 x 0.8 x √48324
F = 38,690 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> No Reduction for Combustible Occupancies
Therefore 0% reduction

0% reduction of 38690 Lpm =	-	Lpm
38690 - 0 =	38,690	Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=> Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 30% reduction

30% reduction of 38690 Lpm =	11,607	Lpm
38690 - 11607 =	27,083	Lpm

F. **Determine the Total Increase For Exposures**

West Side	>45	0%				
East Side	>45	0%				
North Side	>45	0%				
South Side	>45	0%				
	Total	0%	of	38,690	=	0 Lpm

G. **Req'd Fire Flow = C - E + F**
F = 27,083 Lpm
F = 27,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 7,124 US GPM

Note

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APPENDIX A

FIRE FLOW CALCULATIONS - Building D

Project: **12892 Dixie Road**
Job No.: **201-11545**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

A. **Determine Type of Construction**
=> Non-combustible Construction
Therefore C = 0.8

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Total GFA of Largest Floor - one floor only

A = 25,121 m2

C. **Determined the Fire Flow**
F = 220 x 0.8 x √25121
F = 27,895 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> No Reduction for Combustible Occupancies
Therefore 0% reduction

0% reduction of 27895 Lpm =	-	Lpm
27895 - 0 =	27,895	Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=> Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 30% reduction

30% reduction of 27895 Lpm =	8,369	Lpm
27895 - 8369 =	19,526	Lpm

F. **Determine the Total Increase For Exposures**

West Side	>45	0%				
East Side	>45	0%				
North Side	>45	0%				
South Side	>45	0%				
	Total	0%	of	27,895	=	0 Lpm

G. **Req'd Fire Flow = C - E + F**
F = 19,526 Lpm
F = 20,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 5,277 US GPM

Note

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APPENDIX

B SANITARY FLOW CALCULATIONS

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THE REGIONAL MUNICIPALITY OF PEEL
SANITARY DESIGN CHART
12892 DIXIE ROAD

CONSULTANT:
WSP Canada Inc

*** DESIGN FLOWS AS PER REGION OF PEEL SANITARY SEWER DESIGN FLOW CHART STD. DWG. 2 - 5 - 2**

Manning's n= 0.013

DATE: 22-Jan-21
DESIGNED BY: S.A.W./J.G.
CHECKED BY:

LOCATION	FROM MH	TO MH	AREA (ha)	AREA DENSITY (ppha)	UNITS	POP.	CUM. AREA (ha)	CUM. POP.	SEWAGE FLOW * (m^3/sec)	INFILTRATION FLOW * 0.00020 (m^3/sec/ha)	TOTAL FLOW (m^3/sec)	FALL (m)	LENGTH (m)	GRADIENT (%)	PIPE SIZE (mm)	CAPACITY (m^3/sec)	VELOCITY (m/sec)
Proposed Building A	PLUG	MH1	8.92	70		624	8.92	624	0.0130	0.0018	0.0148		52.0	1.00	200	0.033	1.04
Proposed Building B	PLUG	MH1	9.19	70		643	9.19	643	0.0130	0.0018	0.0148		25.0	1.00	200	0.033	1.04
	MH1	MH2				0	18.11	1268	0.0169	0.0036	0.0205		67.4	1.00	200	0.033	1.04
	MH2	MH3				0	18.11	1268	0.0169	0.0036	0.0205		43.0	1.00	200	0.033	1.04
	MH3	MH4				0	18.11	1268	0.0169	0.0036	0.0205		75.9	1.00	200	0.033	1.04
	MH4	TEMP TANK 1				0	18.11	1268	0.0169	0.0036	0.0205		31.8	1.00	200	0.033	1.04
Future Sanitary Buildout	MH4	Fut MH 9				0	18.11	1268	0.0169	0.0036	0.0205		87.1	1.00	200	0.033	1.04
	Fut MH 9	Fut MH 10				0	18.11	1268	0.0169	0.0036	0.0205		92.1	1.00	200	0.033	1.04
	Fut MH 10	Fut MH 11				0	18.11	1268	0.0169	0.0036	0.0205		95.4	1.00	200	0.033	1.04
	Fut MH 11	Fut MH 12				0	18.11	1268	0.0169	0.0036	0.0205		76.3	1.00	200	0.033	1.04
Proposed Building C	PLUG	MH5	4.83	70		338	4.83	338	0.0130	0.0010	0.0140		111.8	1.00	200	0.033	1.04
	MH5	MH6				0	4.83	338	0.0130	0.0010	0.0140		115.0	1.00	200	0.033	1.04
	MH6	MH7				0	4.83	338	0.0130	0.0010	0.0140		115.0	1.00	200	0.033	1.04
Proposed Building D	PLUG	MH7	2.51	70		176	2.51	176	0.0130	0.0005	0.0135		31.7	1.00	200	0.033	1.04
	MH7	MH8				0	7.34	514	0.0130	0.0015	0.0145		100.3	1.00	200	0.033	1.04
	MH8	TEMP TANK 2				0	7.34	514	0.0130	0.0015	0.0145		38.6	1.00	200	0.033	1.04
Future Sanitary Buildout	MH8	Fut MH 13				0	7.34	514	0.0130	0.0015	0.0145		77.1	1.00	200	0.033	1.04

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REGION OF PEEL MULTI-USE DEMAND TABLE
WATER CONNECTION

CONNECTION POINT	
1. Existing 150mm Watermain west of Old School Road	
2. Existing 150mm Watermain South of Dixie Road	
3. Existing 150mm Watermain South of Dixie Road	
4. Existing 150mm Watermain South of Dixie Road	
Pressure zone of connection point	
Pressure Zone 7	
Total equivalent population to be serviced	1733
Total lands to be serviced(ha)	24.72

No.	Water demand					
	Demand type	Building A	Building B	Building C	Building D	Total
1	Average day flow (L/s)	1.99	2.24	1.18	0.61	6.02
2	Maximum day flow (L/s)	2.8	3.1	1.6	0.9	8.4
3	Peak hour flow (L/s)	6	6.7	3.5	1.8	18
4	Fire flow (L/s)	583	617	450	333	617
Analysis						
5	Maximum day plus fire flow (L/s)	585.8	620.1	451.6	333.9	625.4
6	Peak hour flow (L/s)	6	6.7	3.5	1.8	18
7	Maximum demand flow (L/s)	585.8	620.1	451.6	333.9	625.4

WASTEWATER CONNECTION

	Building A + B	Building C + D	Total
Interim Connection Point	Holding Tank	Holding Tank	
Ultimate Connection Point	Dixie Road	Dixie Road	
Total Land to be serviced (ha)	17.38	7.34	24.72
Total equivalent population to be serviced	1218	515	1733
Average Daily Flow Generation (m^3/d)	369	156	525
Wastewater Sewer Effluent (m^3/s)	0.0043	0.0018	0.0061