For Office Use Only:

File Number		Public Notice Sign	
Related File Number		Application Fee	
Pre-consultation Meeting		Conservation Authority Fee	
Application Submitted		Well & Septic Info Provided	
Complete Application		Planner	

Check the type of planning application(s) you are submitting.

- ☐ Official Plan Amendment
- ☐ Zoning By-Law Amendment
- ☐ Temporary Use By-law
- ☐ Draft Plan of Subdivision/Vacant Land Condominium
- ☐ Condominium Exemption
- ☐ Site Plan Application
- ☐ Extension of a Temporary Use By-law
- ☐ Part Lot Control
- ☐ Cash-in-Lieu of Parking
- ☐ Renewable Energy Project or Radio Communication Tower

Please summarize the desired result of this application (for example, a special zoning provision on the subject lands to include additional use(s), changing the zone or official plan designation of the subject lands, creating a certain number of lots, or similar)

The desired result of this Zoning By-Law Amendment and Site Plan Application is to allow 1000105029 Ontario Inc to construct a 3,623 sq.m greenhouse manufacturing facility (Phase#1) and a 64.120 sq.m greenhouse facility for growing strawberrys for the wholesale market. (see the attached Zoning By-Law Amendment Report as perpared by Innovative Planning Solutions.

Property Assessment Roll Number: 49102807800

A. Applicant Information

Name of Owner 1000105029 Ontario Inc (William Dendekker)

Address 2148 Hwy#3

Town and Postal Code Simcoe, Ontario N3Y 4K6

Phone Number 1-519-582-8222

Cell Number 1-519-403-8589

Email bd@cdnbuildings.com

Name of Applicant same as above

Address

Town and Postal Code

Phone Number

Cell Number

Email

Name of Agent

Address

Town and Postal Code

Phone Number

Cell Number

Email

Unless otherwise directed, Norfolk County will forward all correspondence and notices regarding this application to both owner and agent noted above.

■ Owner ☐ Agent ☐ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

Farm Credit Cananda 1800 Hamilton Street, PO Box 4320, Regina SK S4P 4L3

B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):
   WDM CON14 PT LOT 23 RP 37R3879 PARTS 3 AND 4
   TOWNSHIP OF WINDHAM
   Municipal Civic Address: 2148 Hwy#3 Simcoe, Ontario
   Present Official Plan Designation(s):
   Present Zoning: Agricultural
2. Is there a special provision or site specific zone on the subject lands?
   ☐ Yes ■ No If yes, please specify corresponding number:
3. Present use of the subject lands:
   Cash Crop Farming
4. Please describe **all existing** buildings or structures on the subject lands and whether they will be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from the front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:
   All existing buildings are to be retained. Please see the attached site plan and elevation drawings showing all of the above required information.
5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.
   Not applicable
6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:
   Please see the attached site plan and elevation drawings showing all of above required information.

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ■

   If yes, identify and provide details of the building:

8. If known, the length of time the existing uses have continued on the subject lands:

9. Existing use of abutting properties:
   Cash crops on south and west sides and wholesale/retail greenhouse on east side.

10. Are there any easements or restrictive covenants affecting the subject lands?

    ☐ Yes ■ No If yes, describe the easement or restrictive covenant and its effect:

C. Purpose of Development Application

Note: Please complete all that apply.

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:
   Erect a greenhouse manufacturing facility (phase #1) and a greenhouse for strawberry production as phase#2.

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:
   Permitted use provision of zoning by-law is not able to be met with greenhouse manufacturing building as this is a typically permitted as per the general industrial zone. The purpose of the industrial use is intended to heavily serve the agricultural uses and the principal use of the majority of the site is retained for agricultural use.

3. Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? ☐ Yes ■ No If yes, describe its effect:

4. Does the requested amendment remove the subject land from an area of employment? ☐ Yes ■ No If yes, describe its effect:

5. Does the requested amendment alter, replace, or delete a policy of the Official Plan? ☐ Yes ☒ No If yes, identify the policy, and also include a proposed text of the policy amendment (if additional space is required, please attach a separate sheet):

_____

_____

_____

6. Description of land intended to be severed in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Proposed final lot size (if boundary adjustment): _____
   If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

   _____

   Description of land intended to be retained in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Buildings on retained land: _____
7. Description of proposed right-of-way/easement:
   Frontage: _____
   Depth: _____
   Width: _____
   Area: _____
   Proposed use: _____
8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

   _____

9. **Site Information**	**Zoning**	**Proposed**
Please indicate unit of measurement, for example: m, m^2 or %		
Lot frontage	30m	197.81m (ex)
Lot depth	n/a	506.95m (ex)
Lot width	n/a	380.77m (ex)
Lot area	40 acres	156795.67m2 (ex)
Lot coverage	n/a	46%
Front yard	13m	8.41m (ex)
Rear yard	3m	11.35m
Left Interior side yard	3m	35.42m
Right Interior side yard	3m	90m
Exterior side yard (corner lot)	13m	n/a
Landscaped open space	n/a	44.8%
Entrance access width	9m (MTO 305.070)	9m (MTOD 305.070)
Exit access width	same	same
Size of fencing or screening	n/a	n/a
Type of fencing	n/a	temp silt fence OPSD 219-110

10. Building Size

Number of storeys	n/a	2
Building height	11m	12.58
Total ground floor area	n/a	6329m2
Total gross floor area	n/a	7070m2
Total useable floor area	n/a	6363m2

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	95	95
Number of visitor parking spaces	n/a	n/a
Number of accessible parking spaces	5	5
Number of off street loading facilities	n/a	2

12. Residential (if applicable)

Number of buildings existing: 1

Number of buildings proposed: 0

Is this a conversion or addition to an existing building? ☐ Yes ■ No

If yes, describe:

Type	Number of Units	Floor Area per Unit in m2
Single Detached	1 (ex)	321.732m2 (ex)
Semi-Detached		
Duplex		
Triplex		
Four-plex		
Street Townhouse		
Stacked Townhouse		
Apartment - Bachelor		
Apartment - One bedroom		
Apartment - Two bedroom		
Apartment - Three bedroom		

Other facilities provided (for example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: 3

Number of buildings proposed: 2 - (1 for Phase #1 & 1 for Phase #2)

Is this a conversion or addition to an existing building? ☐ Yes ■ No

If yes, describe:

Indicate the gross floor area by the type of use (for example: office, retail, or storage):
Industrial = 5,561.97m2 Office = 1,309.81m2

Seating Capacity (for assembly halls or similar): n/a

Total number of fixed seats: n/a

Describe the type of business(es) proposed: Greenhouse Manufacturing / Greenhouse Growing

Total number of staff proposed initially: 15

Total number of staff proposed in five years: 30-35

Maximum number of staff on the largest shift: 15

Is open storage required: ☐ Yes ■ No

Is a residential use proposed as part of, or accessory to commercial/industrial use?

☐ Yes ■ No If yes please describe:

14. Institutional (if applicable)

Describe the type of use proposed:

Seating capacity (if applicable):

Number of beds (if applicable):

Total number of staff proposed initially:

Total number of staff proposed in five years:

Maximum number of staff on the largest shift:

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

15. Describe Recreational or Other Use(s) (if applicable)

D. Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ■ No ☐ Unknown
   If yes, specify the uses (for example: gas station or petroleum storage):

2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? ☐ Yes ■ No ☐ Unknown
3. Provide the information you used to determine the answers to the above questions:
   See attached Phase#1 Environmental report
4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ■ No

E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ■ Yes ☐ No
   If no, please explain:

2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ■ Yes ☐ No
   If no, please explain:

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☐ Yes ■ No

   If no, please explain:

   Property is not located in a protected water source area.

   Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

   Livestock facility or stockyard (submit MDS Calculation with application)

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Wooded area

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Municipal Landfill

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Sewage treatment plant or waste stabilization plant

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Provincially significant wetland (class 1, 2 or 3) or other environmental feature

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Floodplain

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Rehabilitated mine site

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Non-operating mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Industrial or commercial use (specify the use(s))

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active railway line

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Seasonal wetness of lands

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Erosion

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Abandoned gas wells

   ☐ On the subject lands or ☐ within 500 meters – distance _____

F. Servicing and Access

1. Indicate what services are available or proposed:

Water Supply

- ☐ Municipal piped water
- ☐ Communal wells
- ■ Individual wells
- ☐ Other (describe below)

Sewage Treatment

- ☐ Municipal sewers
- ☐ Communal system
- ■ Septic tank and tile bed in good working order
- ☐ Other (describe below)

Storm Drainage

- ☐ Storm sewers
- ☐ Open ditches
- ■ Other (describe below)

Retension Pond per attached S.W.M. dwgs.

2. Existing or proposed access to subject lands:

- ☐ Municipal road
- ■ Provincial highway
- ☐ Unopened road
- ☐ Other (describe below)

Name of road/street: Highway #3

G. Other Information

1. Does the application involve a local business? ■ Yes ☐ No
   If yes, how many people are employed on the subject lands?
   Approx 15 employees
2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.

H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Key map
4. Scale, legend and north arrow
5. Legal description and municipal address
6. Development name
7. Drawing title, number, original date and revision dates
8. Owner's name, address and telephone number
9. Engineer's name, address and telephone number
10. Professional engineer's stamp
11. Existing and proposed easements and right of ways
12. Zoning compliance table – required versus proposed
13. Parking space totals – required and proposed
14. All entrances to parking areas marked with directional arrows
15. Loading spaces, facilities and routes (for commercial developments)
16. All dimensions of the subject lands
17. Dimensions and setbacks of all buildings and structures
18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
19. Gross, ground and useable floor area
20. Lot coverage
21. Floor area ratio
22. Building entrances, building type, height, grades and extent of overhangs
23. Names, dimensions and location of adjacent streets including daylighting triangles
24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
25. All exterior stairways and ramps with dimensions and setbacks
26. Retaining walls including materials proposed
27. Fire access and routes
28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
29. Location of mechanical room, and other building services (e.g. A/C, HRV)
30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
31. Winter snow storage location

32. Landscape areas with dimensions
33. Natural features, watercourses and trees
34. Fire hydrants and utilities location
35. Fencing, screening and buffering – size, type and location
36. All hard surface materials
37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
38. Business signs (make sure they are not in sight lines)
39. Sidewalks and walkways with dimensions
40. Pedestrian access routes into site and around site
41. Bicycle parking
42. Architectural elevations of all building sides
43. All other requirements as per the pre-consultation meeting

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

- ☐ Zoning Deficiency Form
- ☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)
- ■ Architectural Plan
- ■ Buildings Elevation Plan
- ☐ Cut and Fill Plan
- ☐ Erosion and Sediment Control Plan
- ■ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)
- ☐ Landscape Plan
- ■ Photometric (Lighting) Plan
- ■ Plan and Profile Drawings
- ☐ Site Servicing Plan
- ■ Storm water Management Plan
- ■ Street Sign and Traffic Plan
- ☐ Street Tree Planting Plan
- ☐ Tree Preservation Plan
- ☐ Archaeological Assessment
- ☐ Environmental Impact Study

- ☐ Functional Servicing Report
- ▬ Geotechnical Study / Hydrogeological Review
- ▬ Minimum Distance Separation Schedule
- ☐ Noise or Vibration Study
- ☐ Record of Site Condition
- ▬ Storm water Management Report
- ▬ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

- ☐ Plan of standard condominium (2 paper copies and 1 electronic copy)
- ☐ Draft condominium declaration
- ☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

I. Development Agreements

A development agreement may be required prior to site plan approval, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.

J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required, it is their solicitor's responsibility on behalf of the owner, to disclose the registration of all transfer(s) of land and/or easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act, R.S.O. 1990, c. P.13* for the purposes of processing this application.

_____	June 19, 2025
Owner/Applicant Signature	Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We _____ am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize _____to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

_____	_____
Owner	Date
_____	_____
Owner	Date

N. Declaration

I, William Dendekker Sr. of Norfolk County

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:
Gibson Bennett Groom & Szorenyi Offices

Owner/Applicant Signature

In Tillsonburg, Ontario

This 19th day of June

A.D., 2025

A Commissioner, etc.

Tracey Lynne Justus, a Commissioner, etc.,
Province of Ontario,
for Gibson Bennett Groom & Szorenyi,
Barristers and Solicitors.
Expires July 13, 2026.

GENERAL NOTES - EXTERIORS

1. Readings shown are based on a total LLF of 0.81, 0.84, 0.87, 0.90 as indicated in the luminaire schedule at 0.0' (0.0m) AFG (at grade). Data references the extrapolated performance projections in a 25c ambient based on 10,000 hrs of LED testing (per IESNA LM-80-08 and projected per IESNA TM-21-11).

2. Please refer to the fixture labels for product type and mounting heights.

3. Product information can be obtained at https://www.acuitybrands.com/ or through your local agency.

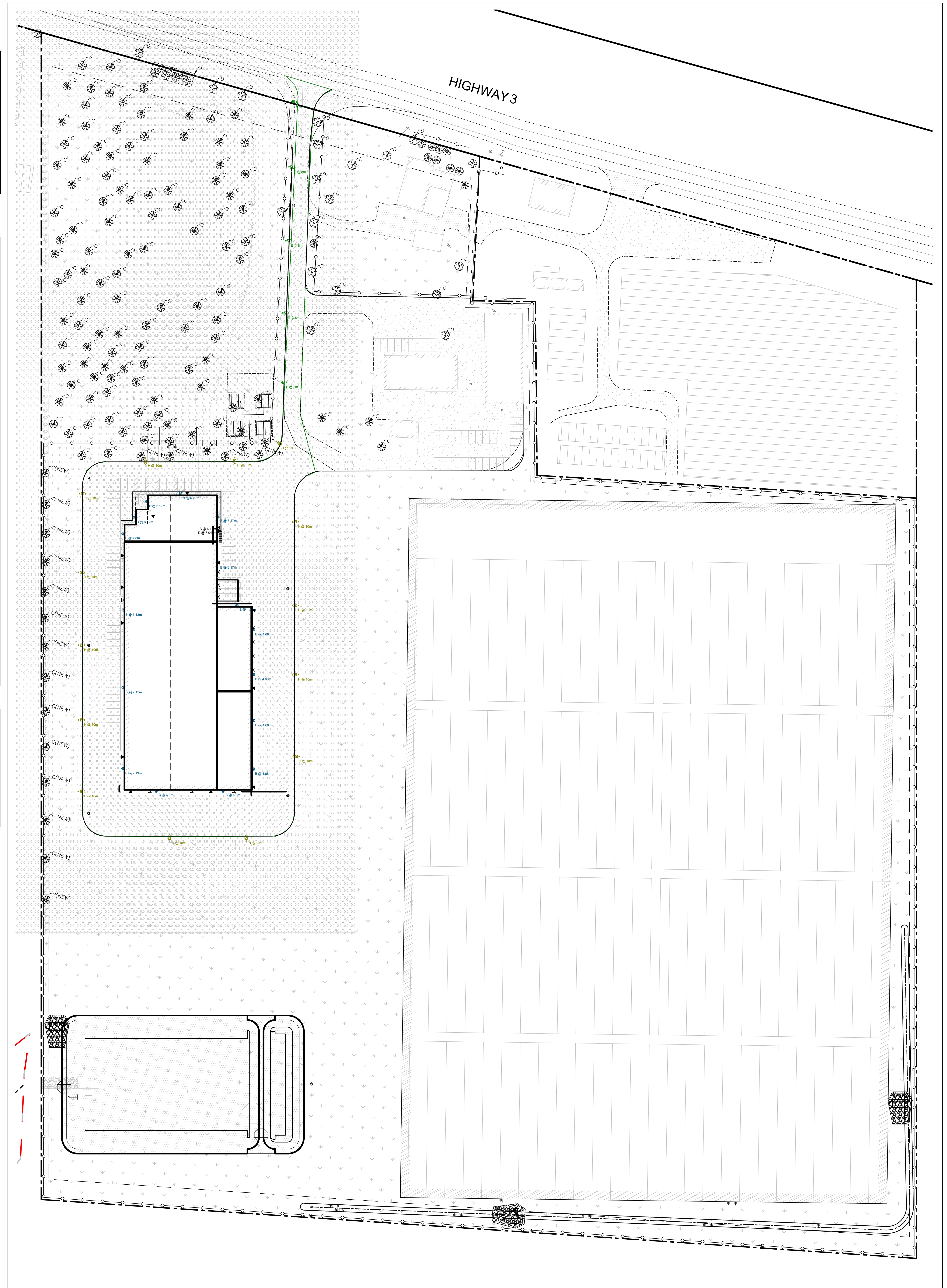
4. Grid spacing is 3.05m x 3.05m on center.

5. Note: pole and wall pack locations are based on provided plans or approximations using Google Earth.

Symbol	Label	Catalog Number	Description	Number Lamps	Lumens per Lamp	LLF	Wattage
	A	WDGE2 LED P2 40K 70CRI T2M	WDGE2 LED WITH P2 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 2 MEDIUM OPTIC	1	2326	0.84	18.9815
	B	WDGE3 LED P1 70CRI R3 40K	WDGE3 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 3 OPTIC	1	7523	0.87	51.1717
	C	WDGE3 LED P4 70CRI RFT 40K	WDGE3 LED WITH P4 - PERFORMANCE PACKAGE, 4000K, 70CRI, FORWARD THROW OPTIC	1	12277	0.87	87.8914
	D	ARV13 15W 40K OP. Adjusted LLF to reflect 15W.	Luminaire LED, Inc. - Round ceiling surface mount luminaire. Product ID: ARV13-25W-4000K OP Brown painted aluminum cast housing with linear prismatic white plastic bowl lens. 144 LEDs mounted in circular array on white PCB mounted on white painted base plate. One AC Electronics LEDs driver. Model: AC-25CD700AUZ. Operating at 120 Vac and 60 Hz with dimming disconnected.	144	17	0.58	27.5
	E	DSX0 LED P5 40K 70CRI T2M HS	D-Series Size 0 Area Luminaire P5 Performance Package 4000K CCT 70 CRI Type 2 Medium Houseside Shield	1	10370	0.81	90.12
	H	DSX1 LED P9 40K 70CRI T4M HS	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 4 Medium Houseside Shield	1	29689	0.81	277.0702

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ABOVE STAIR LANDING 2 (NORTH)	□	2.9 fc	2.9 fc	2.9 fc	1.0:1	1.0:1
DRIVE LANE & PARKING	✳	2.8 fc	6.1 fc	0.9 fc	6.8:1	3.1:1
PROPERTY LINE	×	0.0 fc	0.1 fc	0.0 fc	N/A	N/A
SPILL LIGHT SUMMARY	+	0.5 fc	6.1 fc	0.0 fc	N/A	N/A
UNDER STAIRCASE 2 (NORTH)	✳	6.4 fc	6.6 fc	6.2 fc	1.1:1	1.0:1



1 ELECTRICAL SITE PLAN
SCALE: 1:1000

Gerrits ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
Tel.: 613.217.8246

www.gerreng.com

0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
1.	ISSUED FOR APPROVAL	25/07/07
2.	ISSUED FOR APPROVAL	25/07/16
3.	-	-
4.	-	-
5.	-	-

ISSUED FOR:

APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS, QUOTATION/TENDER, OR CONSTRUCTION.

Client

CDNBUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DEHLI

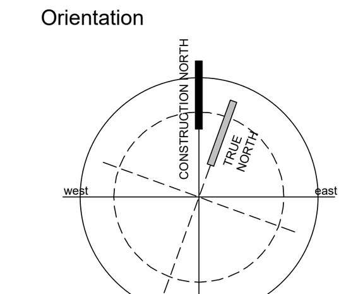
2148 Highway 3, Felhi, ON N4B 2W4 Norfolk County

Drawing:

LIGHTING PHOTOMETRICS

Project No. 1121-012-22	Designed by: MG	Checked by: MK	
Time Stamp:	Drawn by: MG	Approved by: MK	

Orientation



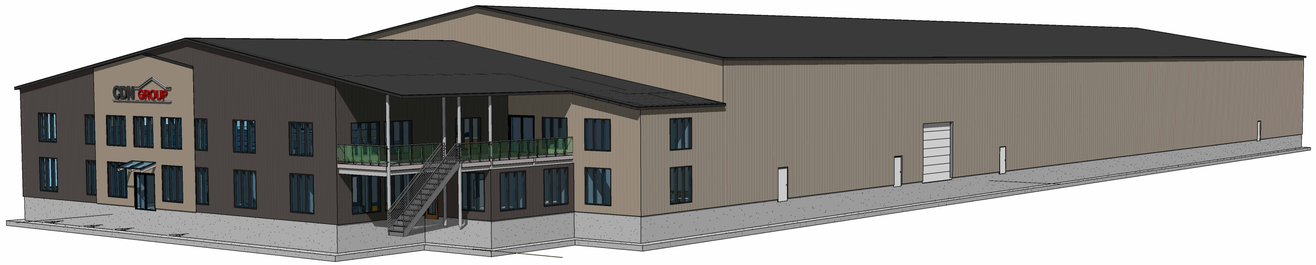
LICENSED PROFESSIONAL ENGINEER
2025/07/17
S. M. KHAYAT
100148318
PROVINCE OF ONTARIO

Drawing No.

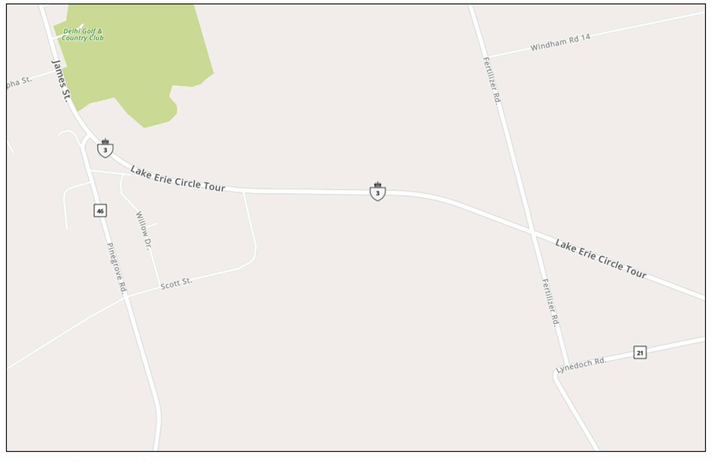
E-100

8340137 CANADA INC.

2148 HIGHWAY #3
DELHI, ONTARIO



01 rendered elevation
SCALE | nts



02 location
SCALE | nts

GENERAL NOTES

1. IN ADDITION TO THESE GENERAL NOTES, THE CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR OTHER SPECIFIC INSTRUCTIONS AS THEY MAY AFFECT THE GENERAL CONSTRUCTION OF THIS PROJECT. DISCREPANCIES BETWEEN PORTIONS OF THE CONTRACT DOCUMENTS ARE NOT INTENDED. THE CONTRACTOR IS TO CLARIFY WITH THE ARCHITECT AND OWNER ANY SUCH DISCREPANCIES PRIOR TO COMMENCING WORK.
2. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE BUILDING CODES AND LOCAL RESTRICTIONS. CONTRACTORS MUST COMPLY WITH CONTRACTOR REGISTRATION REQUIREMENTS OF ALL GOVERNING AUTHORITIES. ALL REQUIRED PERMITS SHALL BE ACQUIRED BEFORE COMMENCING ANY CONSTRUCTION.
3. APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS IN GOOD CONDITION ON THE PREMISES AT ALL TIMES.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO ANY WORK AND SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUBCONTRACTORS AND OWNER.
5. STATED DIMENSIONS TAKE PRECEDENCE OVER GRAPHICS. DO NOT SCALE DRAWINGS TO DETERMINE LOCATIONS. THE ARCHITECT SHALL BE NOTIFIED PRIOR TO CONTINUING WITH WORK IF ANY DISCREPANCIES OCCUR.
6. CONTRACTOR SHALL REFER AND CONFORM TO ALL RECOMMENDATIONS AND FINDINGS AS SET FORTH IN SOILS GEOLOGICAL REPORT. THE OWNER AND/OR ARCHITECT ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THE FINDINGS, OR FOR THE FINAL RECOMMENDATIONS, GRADING, TRENCHING, ETC.
7. CONTACT OWNER FOR INSTRUCTIONS PRIOR TO THE CONTINUATION OF WORK SHOULD ANY UNUSUAL CONDITIONS BECOME APPARENT DURING GRADING OR FOUNDATION CONSTRUCTION. EXISTING ELEVATIONS AND LOCATIONS TO BE JOINTED SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IF THEY DIFFER FROM THOSE SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OWNER SO THAT MODIFICATIONS CAN BE MADE BEFORE PROCEEDING WITH THE WORK.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREIN OR NOT AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THE WORK.
9. MEANS, METHODS, SAFETY MEASURES, CONSTRUCTION SITE PROTECTION, AND TEMPORARY SERVICES REQUIRED DURING CONSTRUCTION SHALL BE AT THE SOLE EXPENSE AND THE RESPONSIBILITY OF THE CONTRACTOR.
10. ANY DETAILS OR NOTES REQUIRING FIELD VERIFICATION BY THE CONTRACTOR ARE TO BE DONE DURING THE BID PROCESS. DISCREPANCIES FOUND AFTER THE GENERAL CONTRACTOR IS SELECTED WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND CORRECTED AT HIS/HER EXPENSE.

DRAWING INDEX

SYMBOLS

EXTERIOR/ INTERIOR ELEVATION REFERENCE	# / A# — ELEVATION NUMBER / SHEET NUMBER	**WINDOW SCHEDULE REFERENCE**	W# — WINDOW NUMBER / INDICATES 'WINDOW'
DETAIL REFERENCE	# / A# — DETAIL NUMBER / SHEET NUMBER	**DOOR SCHEDULE REFERENCE**	## — DOOR NUMBER
BUILDING SECTION REFERENCE	# / A# — SECTION NUMBER / SHEET NUMBER	**WALL TYPE REFERENCE**	W# — WALL TYPE NUMBER / INDICATES 'WALL'
WALL SECTION REFERENCE	# / A# — SECTION NUMBER / SHEET NUMBER	**SPACE DESIGNATION**	ROOM / # — SPACE NAME / SPACE NUMBER
REVISION SYMBOL	# / a — REVISION NUMBER	**CODED NOTE REFERENCE**	X / # — CODED NOTE NUMBER / SUPPLEMENTARY NOTE
ELEVATION HEIGHT REFERENCE	±000 / XXXXX — HEIGHT / ITEM REFERENCE	**CODED NOTE REFERENCE**	XX-00 — FINISHING TYPE NUMBER / FINISHING TYPE NOTE

MATERIAL INDICATIONS

- EARTH
- GRANULAR FILL
- CONCRETE
- BRICK
- CONCRETE MASONRY
- STONE
- WOOD, FINISH GRAIN
- STEEL OR METAL
- WOOD, END GRAIN (NON-STRUCTURAL)
- WOOD FRAMING, CONTINUOUS MEMBER
- WOOD BLOCKING, INTERRUPTED MEMBER
- PLYWOOD, EDGE
- ACOUSTIC TILE
- GYPSUM BOARD
- BATT INSULATION
- RIGID INSULATION / E.I.F.S.
- SHEAR WALL

NOTE: MATERIALS SHOWN ARE FOR WALL SECTIONS AND/OR LARGE SCALE DETAILS ONLY. MATERIAL PATTERNS FOR SMALL SCALE PLANS AND/OR ELEVATIONS MAY VARY. REFER TO INDIVIDUAL LEGENDS AND/OR SCHEDULES FOR VARIATIONS.

ABBREVIATIONS

ABV	ABOVE	DTL	DETAIL	GB	GYPSUM WALL BOARD	OFF	OFFICE	SCH	SCHEDULE
AFF	ABOVE FINISHED FLOOR	DIA	DIAMETER	GL	GLASS	O.C.	ON CENTER(S)	SECT	SECTION
		DIM	DIMENSION	GVS	GALVANIZED STEEL	OPN'G	OPENING	SHT	SHEET
AL	ALUMINUM	DN	DOWN			OPH	OPPOSITE HAND	SIM	SIMILAR
A/C	AIR CONDITIONING	DWR	DRAWER	HDW	HARDWARE	OD	OUTSIDE DIMENSION	SC	SOLID CORE
ARCH	ARCHITECT(URAL)	DWG	DRAWING	HDWH	HARDWOOD			SLD SUR	SOLID SURFACE
@	AT			HM	HOLLOW METAL	PT	PAINT(ED)	SPEC	SPECIFICATION
		EA	EACH	HMIN	HOLLOW METAL INSULATED	PLAM	PLASTIC LAMINATE	SS	STAINLESS STEEL
BCT	BABY CHANGE TABLE	ECB	EMERGENCY CALL BUTTON	HVAC	HEATING/VENTILATION AIR CONDITIONING	PLY	PLYWOOD	STO	STORAGE
BLK	BLOCK(ING)					PM	PROJECT MANAGER	STR	STRUCTURAL
BOT	BOTTOM	EGB	EDGE BAND			POL	POLISHED	SUSP	SUSPENDED
BLDG	BUILDING	ELEV	ELEVATION	IN (")	INCH	POR	PORCELAIN		
		EQ	EQUAL	ID	INSIDE DIMENSION	PROJ	PROJECT	TEL	TELEPHONE
CH	COAT HOOK	EQPT	EQUIPMENT	INT	INTERIOR	P TRE	PRESSURE TREATED	TYP	TYPICAL
CLG	CEILING	EX	EXISTING					THRU	THRU
CIRC	CIRCUIT\	EXP	EXPOSED	MFG	MANUFACTURE(R)	REFR	REFERENCE / REFRIGERATOR		
CL	CLEAR	EXT	EXTERIOR	MECH	MECHANICAL			UNO	UNLESS NOTED OTHERWISE
COL	COLUMN	EG	EXTERIOR GRADE	MISC	MISCELLANEOUS	REM	REMOVE(D)(ABLE)		
CONC	CONCRETE			MM	MILLIMETERS	REQD	REQUIRED	VCT	VINYL COMPOSITION TILE
CONST	CONSTRUCTION	FT (')	FEET, FOOT	MULL	MULLION	RELS	RESILIENT		
CONT	CONTINUOUS (OR) CONTINUE	FIN	FINISH(ED)			REV	REVISION(S)	W/	WITH
CT	CURRENT TRANSFORMER	FL	FLOOR(ING)	N/A	NOT APPLICABLE	RM	REVISED ROOM	W/O	WITHOUT
CTR	COUNTER	FD	FLOOR DRAIN	NIC	NOT IN CONTRACT	RO	ROUGH OPENING	WD	WOOD
		FLUR	FLUORESCENT	NOM.	NOMINAL	RND	ROUND		
		F.R.R.	FIRE RESISTANCE RATING	NTS	NOT TO SCALE				
		FUR	FURRED(ING)						

PROJECT CONTACT LIST

OWNER	ARCHITECT	CIVIL ENGINEER	STRUCTURAL ENGINEER	MECHANICAL ENGINEER
(NAME)	(NAME)	(NAME)	(NAME)	(NAME)
(ADDRESS)	(ADDRESS)	(ADDRESS)	(ADDRESS)	(ADDRESS)
(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)
(CONTACT)	(CONTACT)	(CONTACT)	(CONTACT)	(CONTACT)
(PHONE)	(PHONE)	(PHONE)	(PHONE)	(PHONE)
ELECTRICAL ENGINEER	**LANDSCAPE ARCHITECT**	**OTHER**	**OTHER**	**OTHER**
(NAME)	(NAME)	(NAME)	(NAME)	(NAME)
(ADDRESS)	(ADDRESS)	(ADDRESS)	(ADDRESS)	(ADDRESS)
(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)	(CITY, PR, POSTAL)
(CONTACT)	(CONTACT)	(CONTACT)	(CONTACT)	(CONTACT)
(PHONE)	(PHONE)	(PHONE)	(PHONE)	(PHONE)

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ISSUED FOR PERMIT	MAY 21, 2025

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TRUE NORTH | PROJECT NORTH

8340137 CANADA INC.

2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

COVER SHEET

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

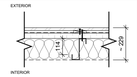
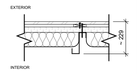
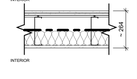
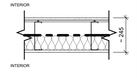
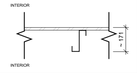
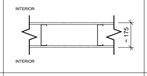
A0.00

Item	Ontario's 2024 Building Code Data Matrix Part 3 or 9			BC Reference (References are to Division B unless noted [A] for Division A or [C] for Division C.)	
1	Project Description:	■ New	☐ Part 11	■ Part 3	☐ Part 9
		☐ Addition	11.1 to 11.4	1.1.2. [A]	1.1.2. [A] & 9.10.1.3.
		☐ Change of Use	☐ Alteration		
2	Major Occupancy(s)	Group F2, Group D		3.1.2.1.(1)	9.10.2.
3	Building Area (m²)	Existing _____	New 6329 m² Total 6329 m²	1.4.1. 2. [A]	1.4.1.2. [A]
4	Gross Area	Existing _____	New 7070 m² Total 7070 m²	1.4.1.2. [A]	1.4.1.2. [A]
5	Number of Storeys	Above grade 2	Below grade 0	1.4.1.2 [A] & 3.2.1.1.	1.4.1.2 [A] & 9.10.4
6	Number of Streets/Fire Fighter Access	1		3.2.2.10. & 3.2.5.	9.10.20.
7	Building Classification	Group F, Division 2, up to 4 Storeys, Sprinklered (OBC 3.2.2.79.) Group D, up to 2 Storeys (OBC 3.2.2.64.)		3.2.2.20.-.83	9.10.2.
8	Sprinkler System Proposed	☐ Entire Building		3.2.2.20.-.83	9.10.8.2.
		☐ Selected Compartments		3.2.1.5.	
		■ Selected Floor Areas		3.2.2.17.	
		☐ Basement	☐ In Lieu of Roof Rating	INDEX	INDEX
		☐ Not Required	☐ Existing		
9	Standpipe required	☐ Yes	■ No ☐ Existing	3.2.9.	N/A
10	Fire Alarm required	☐ Yes	■ No ☐ Existing	3.2.4.	9.10.18.
11	Water Service/Supply is Adequate	■ Yes	☐ No	3.2.5.7.	N/A
12	High Building	☐ Yes	■ No	3.2.6.	N/A
13	Construction Restrictions	■ Combustible Permitted	☐ Non-Combustible Required ☐ Both	3.2.2.20.-.83	9.10.6.
	Actual Construction	☐ Combustible	■ Non-Combustible ☐ Both		
14	Mezzanine(s) Area m²	44 m²		3.2.1.1.(3)-(8)	9.10.4.1.
15	Occupant load based on	☐ m²/person	■ design of building ☐ No Change	3.1.17.	9.9.1.3.
		Occupancy F2	Load 98 persons		
		Occupancy D	Load 196 persons		
16	Barrier-free Design	■ Yes	☐ No (Explain) _____	3.8.	9.5.2.
17	Hazardous Substances	☐ Yes	■ No	3.3.1.2. & 3.3.1.19.	9.10.1.3.(4)
18	Required Fire Resistance Rating (FRR)	Horizontal Assemblies FRR (Hours)		Listed Design No. or Description 3.2.2.20.-.83 & 3.2.1.4.	9.10.8. 9.10.9.
		Floors 1 Hours			
		Roof 1 Hours			
		Mezzanine 1 Hours			
		FRR of Supporting Members		Listed Design No. Or Description	
		Floors 1 Hours			
		Roof 1 Hours			
		Mezzanine 1 Hours			
19	Spatial Separation – Construction of Exterior Walls			3.2.3.	9.10.14.

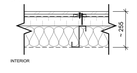
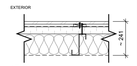
Wall	Area of EBF (m²)	L.D. (m)	H/L or L/H	Permitted Max. % of Openings	Proposed % of Openings	FRR (Hours)	Listed Design or Description	Comb Const	Comb. Constr. Nonc. Cladding	Non-comb. Constr.
North	913	288	>10:1	100%	3.3%					
South	1109	179	>10:1	100%	3.1%					
East	553	35	<3:1	55%	0.0%					
West	553	172	<3:1	100%	15.1%					

20	Plumbing Fixture Requirements					BC Reference ■ Part 3	☐ Part 9
	Male/Female Count @ 50 % / 50 %, except as noted otherwise		Occupant Load	BC Table Number	Fixtures Required	Fixtures Provided	
	Basement:	Occupancy _____					
		Occupancy _____					
	1ST Floor:	Occupancy F2	40	3.7.4.9.	6	6	
		Occupancy D	25	3.7.4.7.	6	6	
	2ND Floor:	Occupancy D	24	3.7.4.7.	4	6	
		Occupancy _____					
	3RD Floor:	Occupancy _____					
		Occupancy _____					
	(Adjust as Required for Additional Floors or Occupancies)						
21	Other (describe) _____						

WALL / PARTITION TYPES

TAG	FIRE RATING	SOUND RATING	MIN. R-VALUE	CONSTRUCTION PLAN/SECTION	DESCRIPTION
W1	N/A	N/A	R-13 + R-19 ci		EXTERIOR WALL (OFFICE) - SEE W1 CALCULATION - DIAMOND RIB VERTICAL CORRUGATED STEEL CLADDING - 25 AIR GAP - AIR BARRIER - 38 RIGID INSULATION (R-7.5) - 152 Z-GIRT OR C-GIRT @ 914 O.C. w/ BATTS INSUL. BTWN. (MIN. CAVITY INSUL. DEPTH AT GIRT IS 114, CONSIDERED CONTINUOUS.) (R-18) - POLY VAPOUR BARRIER
W2	N/A	N/A	R-13 + R-6.3 ci		EXTERIOR WALL (WAREHOUSE/SHOP) - DIAMOND RIB VERTICAL CORRUGATED STEEL CLADDING - 25 AIR GAP - AIR BARRIER - 38 RIGID INSULATION (R-7.5) - 152 Z-GIRT OR C-GIRT @ 915 O.C. w/ BATTS INSUL. BTWN. (MIN. 13 R-VALUE) - WMP-50 LINER
W3	1 HOUR ULC W453	STC 54	N/A		1H FRR DEMISING WALL BETWEEN OCCUPANCIES - 2 LAYERS OF 15.9 SHEETROCK FIRECODE C CORE GWB - RC-1 STEEL RESILIENT CHANNEL @ 600 [24"] O.C. SCREW ATTACHED TO STUDS - 203 STEEL STUDS @ 400 O.C. - 102 THERMAFIBER SAFB (SOUND ATTENUATION FIRE BLANKET) - SHEET METAL FINISH - ALL JOINTS TAPED AND MUDDED. C/W PERIMETER FIRESTOP CAULKING
W4	1 HOUR ULC W453	STC 54	N/A		1H FRR STAIR WALL - 15.9 SHEETROCK FIRECODE C CORE GWB - RC-1 STEEL RESILIENT CHANNEL @ 600 [24"] O.C. SCREW ATTACHED TO STUDS - 200 STEEL STUDS @ 400 O.C. - 102 THERMAFIBER SAFB (SOUND ATTENUATION FIRE BLANKET) - 15.9 SHEETROCK FIRECODE C CORE GWB - ALL JOINTS TAPED AND MUDDED. C/W PERIMETER FIRESTOP CAULKING
W5	N/A	N/A	N/A		152 SHEET METAL INTERIOR PARTITION - SHEET METAL FINISH - 152 Z-GIRT OR C-GIRT @ 915 O.C.
W6	N/A	N/A	N/A		152 INTERIOR PARTITION - 12.7 GYPSUM BOARD FINISH - 152 STEEL STUDS @ 400 O.C. - 12.7 GYPSUM BOARD FINISH
W7	N/A	N/A	N/A		152 INTERIOR PARTITION - 12.7 GYPSUM BOARD FINISH - 92 STEEL STUDS @ 400 O.C. - 12.7 GYPSUM BOARD FINISH

ROOF TYPES

TAG	FIRE RATING	SOUND RATING	MIN. R-VALUE	CONSTRUCTION PLAN/SECTION	DESCRIPTION
R1	N/A	N/A	R-25 + R-11 Ls		OFFICE ROOF - TUFF RIB VERTICAL CORRUGATED STEEL ROOFING PANELS - 25 AIR GAP - AIR BARRIER - 64 RIGID INSULATION (R-12.5) - 152 Z-GIRT OR C-GIRT @ 915 O.C. w/ BATTS INSUL. BTWN. (MIN. R-25) - POLY VAPOUR BARRIER
R2	N/A	N/A	R-10 + R-19		OFFICE ROOF - TUFF RIB VERTICAL CORRUGATED STEEL ROOFING PANELS - 25 AIR GAP - AIR BARRIER - 50 RIGID INSULATION (R-10) - 152 Z-GIRT OR C-GIRT @ 915 O.C. w/ BATTS INSUL. BTWN. (MIN. R-19) - POLY VAPOUR BARRIER

W1 CALCULATION

R-VALUES:

EXTERIOR CLADDING:	R-0.61
CONTINUOUS RIGID XPS INSULATION:	R-7.5
FIBREGLASS BATT INSULATION (C.I.):	R-18
FIBREGLASS BATT INSULATION:	R-22
TOTAL:	R-30.11
	U-0.033

SB-10 ZONE 5 REQUIREMENTS

CONTINUOUS INSULATION:	R-19
CAVITY INSULATION:	R-13
MAX. ASSEMBLY U-VALUE:	U-0.045

NOTE:

AIR BARRIER IS ACHIEVED THROUGH CONVENTIONAL AIR BARRIERS APPLIED TO THE EXTERIOR OF THE CONTINUOUS INSULATION, OR ALTERNATIVELY, THE INSULATION IS TUCK TAPED TO PROVIDE A CONTINUOUS AIR BARRIER THROUGH THE XPS INSULATION LAYER.

VAPOUR BARRIER IS ACHEIVED THROUGH CONVENTIONAL VAPOUR BARRIER MEMBRANES, TUCK TAPED AND LAPPED APPROPRIATELY AT JOINTS.

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TRUE NORTH | PROJECT NORTH

8340137 CANADA INC.

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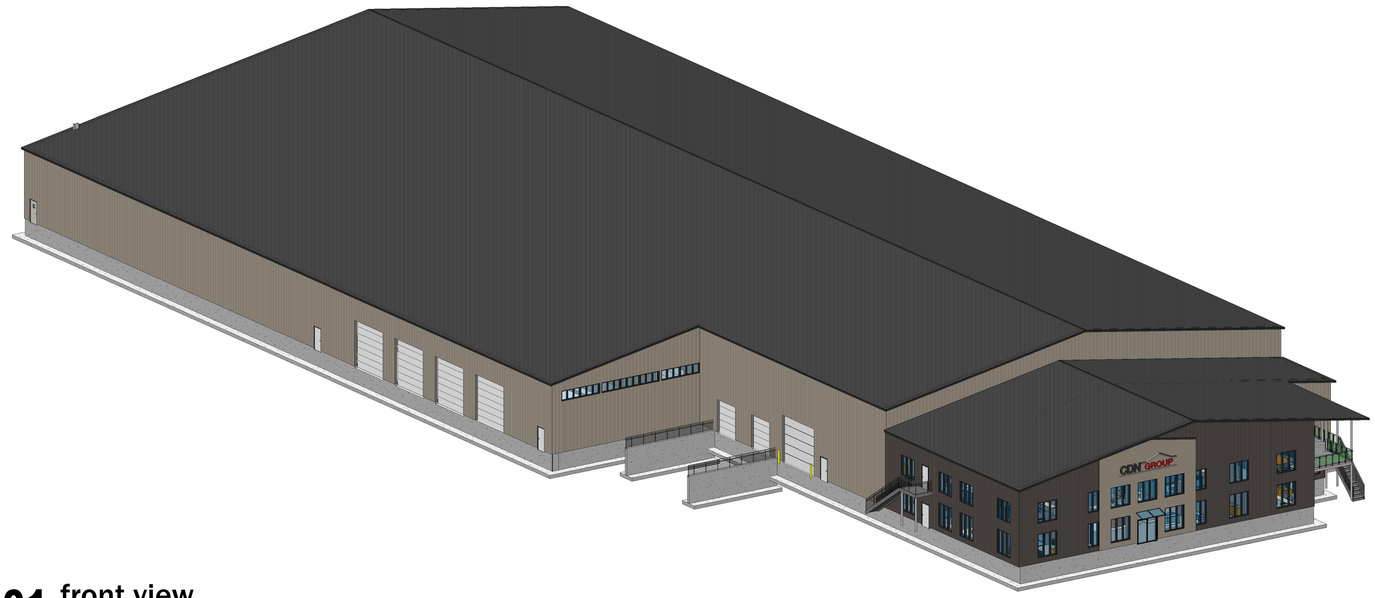
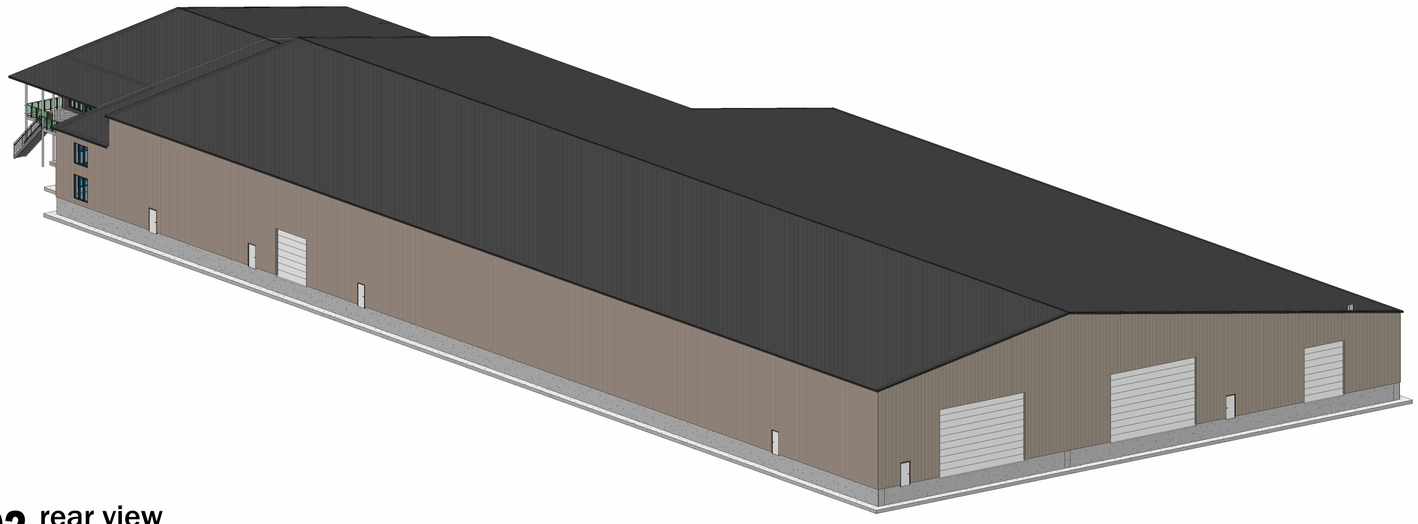
OBC MATRIX & ASSEMBLY LEGENDS

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	Author
Checked by:	Checker

A0.01



01 front view
SCALE | nts



02 rear view
SCALE | nts

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ISOMETRIC MODELS

Project No.:	23-PA32
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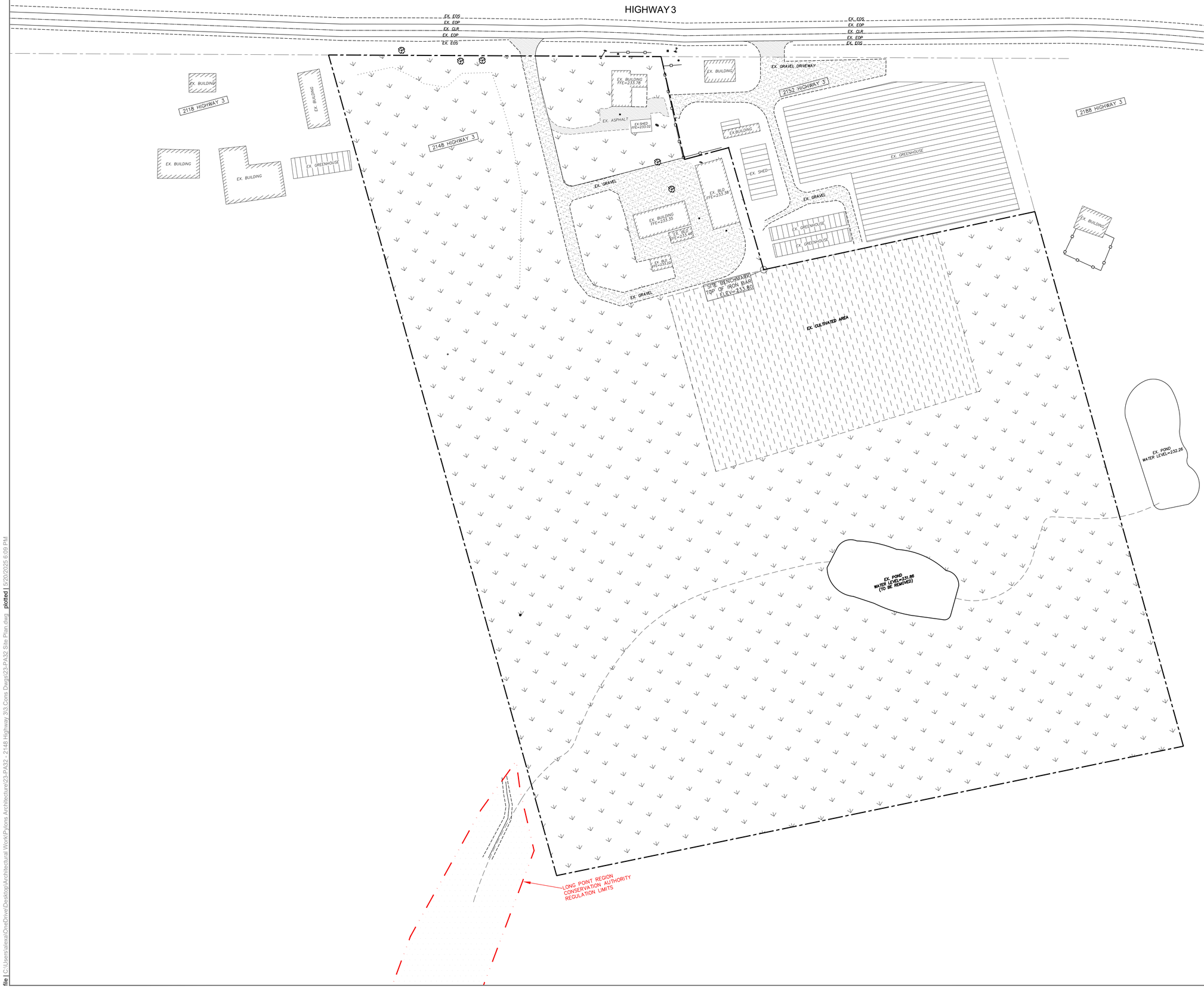
Date:	FEB 28, 2024
Drawn by:	MH
Checked by:	LDO

A0.02



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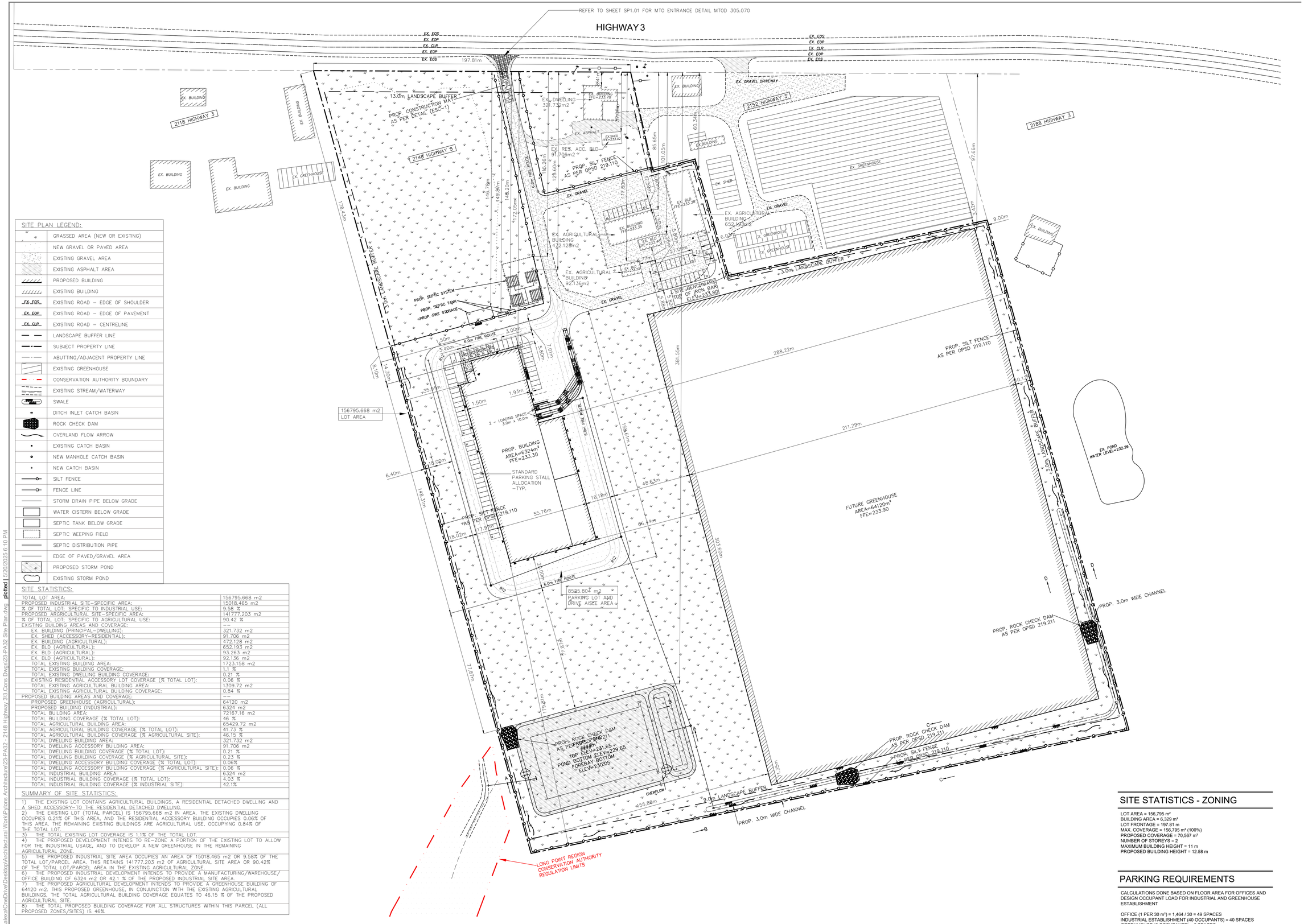
SURVEY

Project No.:	23-PA32
Scale:	AS NOTED
Date:	MAY 20, 2025
Drawn by:	AS/RN
Checked by:	RN

A1.00



SITE PLAN LEGEND:	
	GRASSED AREA (NEW OR EXISTING)
	NEW GRAVEL OR PAVED AREA
	EXISTING GRAVEL AREA
	EXISTING ASPHALT AREA
	PROPOSED BUILDING
	EXISTING BUILDING
EX. EOS	EXISTING ROAD – EDGE OF SHOULDER
EX. EOP	EXISTING ROAD – EDGE OF PAVEMENT
EX. CLR	EXISTING ROAD – CENTRELINE
	LANDSCAPE BUFFER LINE
	SUBJECT PROPERTY LINE
	ABUTTING/ADJACENT PROPERTY LINE
	EXISTING GREENHOUSE
	CONSERVATION AUTHORITY BOUNDARY
	EXISTING STREAM/WATERWAY
SWALE	SWALE
	DITCH INLET CATCH BASIN
	ROCK CHECK DAM
	OVERLAND FLOW ARROW
	EXISTING CATCH BASIN
	NEW MANHOLE CATCH BASIN
	NEW CATCH BASIN
	SILT FENCE
	FENCE LINE
	STORM DRAIN PIPE BELOW GRADE
	WATER CISTERN BELOW GRADE
	SEPTIC TANK BELOW GRADE
	SEPTIC WEEPING FIELD
	SEPTIC DISTRIBUTION PIPE
	EDGE OF PAVED/GRAVEL AREA
	PROPOSED STORM POND
	EXISTING STORM POND

SITE STATISTICS:	
TOTAL LOT AREA:	156795.668 m2
PROPOSED INDUSTRIAL SITE-SPECIFIC AREA:	15018.465 m2
% OF TOTAL LOT, SPECIFIC TO INDUSTRIAL USE:	9.58 %
PROPOSED ARGRICULTURAL SITE-SPECIFIC AREA:	141777.203 m2
% OF TOTAL LOT, SPECIFIC TO AGRICULTURAL USE:	90.42 %
EXISTING BUILDING AREAS AND COVERAGE:	--
EX. BUILDING (PRINCIPAL-DWELLING):	321.732 m2
EX. SHED (ACCESSORY-RESIDENTIAL):	91.706 m2
EX. BUILDING (AGRICULTURAL):	472.128 m2
EX. BLD (AGRICULTURAL):	652.193 m2
EX. BLD (AGRICULTURAL):	93.263 m2
EX. BLD (AGRICULTURAL):	92.136 m2
TOTAL EXISTING BUILDING AREA:	1723.158 m2
TOTAL EXISTING BUILDING COVERAGE:	1.1 %
TOTAL EXISTING DWELLING BUILDING COVERAGE:	0.21 %
EXISTING RESIDENTIAL ACCESSORY LOT COVERAGE (% TOTAL LOT):	0.06 %
TOTAL EXISTING AGRICULTURAL BUILDING AREA:	1309.72 m2
TOTAL EXISTING AGRICULTURAL BUILDING COVERAGE:	0.84 %
PROPOSED BUILDING AREAS AND COVERAGE:	--
PROPOSED GREENHOUSE (AGRICULTURAL):	64120 m2
PROPOSED BUILDING (INDUSTRIAL):	6324 m2
TOTAL BUILDING AREA:	72167.16 m2
TOTAL BUILDING COVERAGE (% TOTAL LOT):	46 %
TOTAL AGRICULTURAL BUILDING AREA:	65429.72 m2
TOTAL AGRICULTURAL BUILDING COVERAGE (% TOTAL LOT):	41.73 %
TOTAL AGRICULTURAL BUILDING COVERAGE (% AGRICULTURAL SITE):	46.15 %
TOTAL DWELLING BUILDING AREA:	321.732 m2
TOTAL DWELLING ACCESSORY BUILDING AREA:	91.706 m2
TOTAL DWELLING BUILDING COVERAGE (% TOTAL LOT):	0.21 %
TOTAL DWELLING BUILDING COVERAGE (% AGRICULTURAL SITE):	0.23 %
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% TOTAL LOT):	0.06%
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% AGRICULTURAL SITE):	0.06 %
TOTAL INDUSTRIAL BUILDING AREA:	6324 m2
TOTAL INDUSTRIAL BUILDING COVERAGE (% TOTAL LOT):	4.03 %
TOTAL INDUSTRIAL BUILDING COVERAGE (% INDUSTRIAL SITE):	42.1%

SUMMARY OF SITE STATISTICS:

1) THE EXISTING LOT CONTAINS AGRICULTURAL BUILDINGS, A RESIDENTIAL DETACHED DWELLING AND A SHED ACCESSORY-TO THE RESIDENTIAL DETACHED DWELLING.
2) THE EXISTING LOT (TOTAL PARCEL) IS 156795.668 m2 IN AREA. THE EXISTING DWELLING OCCUPIES 0.21% OF THIS AREA, AND THE RESIDENTIAL ACCESSORY BUILDING OCCUPIES 0.06% OF THIS AREA. THE REMAINING EXISTING BUILDINGS ARE AGRICULTURAL USE, OCCUPYING 0.84% OF THE TOTAL LOT.
3) THE TOTAL EXISTING LOT COVERAGE IS 1.1% OF THE TOTAL LOT.
4) THE PROPOSED DEVELOPMENT INTENDS TO RE-ZONE A PORTION OF THE EXISTING LOT TO ALLOW FOR THE INDUSTRIAL USAGE, AND TO DEVELOP A NEW GREENHOUSE IN THE REMAINING AGRICULTURAL ZONE.
5) THE PROPOSED INDUSTRIAL SITE AREA OCCUPIES AN AREA OF 15018.465 m2 OR 9.58% OF THE TOTAL LOT/PARCEL AREA. THIS RETAINS 141777.203 m2 OF AGRICULTURAL SITE AREA OR 90.42% OF THE TOTAL LOT/PARCEL AREA IN THE EXISTING AGRICULTURAL ZONE.
6) THE PROPOSED INDUSTRIAL DEVELOPMENT INTENDS TO PROVIDE A MANUFACTURING/WAREHOUSE/OFFICE BUILDING OF 6324 m2 OR 42.1 % OF THE PROPOSED INDUSTRIAL SITE AREA.
7) THE PROPOSED AGRICULTURAL DEVELOPMENT INTENDS TO PROVIDE A GREENHOUSE BUILDING OF 64120 m2. THIS PROPOSED GREENHOUSE, IN CONJUNCTION WITH THE EXISTING AGRICULTURAL BUILDINGS, THE TOTAL AGRICULTURAL BUILDING COVERAGE EQUATES TO 46.15 % OF THE PROPOSED AGRICULTURAL SITE.
8) THE TOTAL PROPOSED BUILDING COVERAGE FOR ALL STRUCTURES WITHIN THIS PARCEL (ALL PROPOSED ZONES/SITES) IS 46%

SITE STATISTICS - ZONING

LOT AREA = 156,795 m²
BUILDING AREA = 6,329 m²
LOT FRONTAGE = 197.81 m
MAX. COVERAGE = 156,795 m² (100%)
PROPOSED COVERAGE = 70,567 m²
NUMBER OF STOREYS = 2
MAXIMUM BUILDING HEIGHT = 11 m
PROPOSED BUILDING HEIGHT = 12.58 m

PARKING REQUIREMENTS

CALCULATIONS DONE BASED ON FLOOR AREA FOR OFFICES AND DESIGN OCCUPANT LOAD FOR INDUSTRIAL AND GREENHOUSE ESTABLISHMENT

OFFICE (1 PER 30 m²) = 1,464 / 30 = 49 SPACES
INDUSTRIAL ESTABLISHMENT (40 OCCUPANTS) = 40 SPACES
GREENHOUSE (6 OCCUPANTS) = 6 SPACES

TOTAL OF 95 PARKING SPACES INCLUDING:
2 TYPE A ACCESSIBLE SPACES AND 3 TYPE B ACCESSIBLE SPACES

General Notes

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ISSUED FOR PERMIT	MAY 21, 2025

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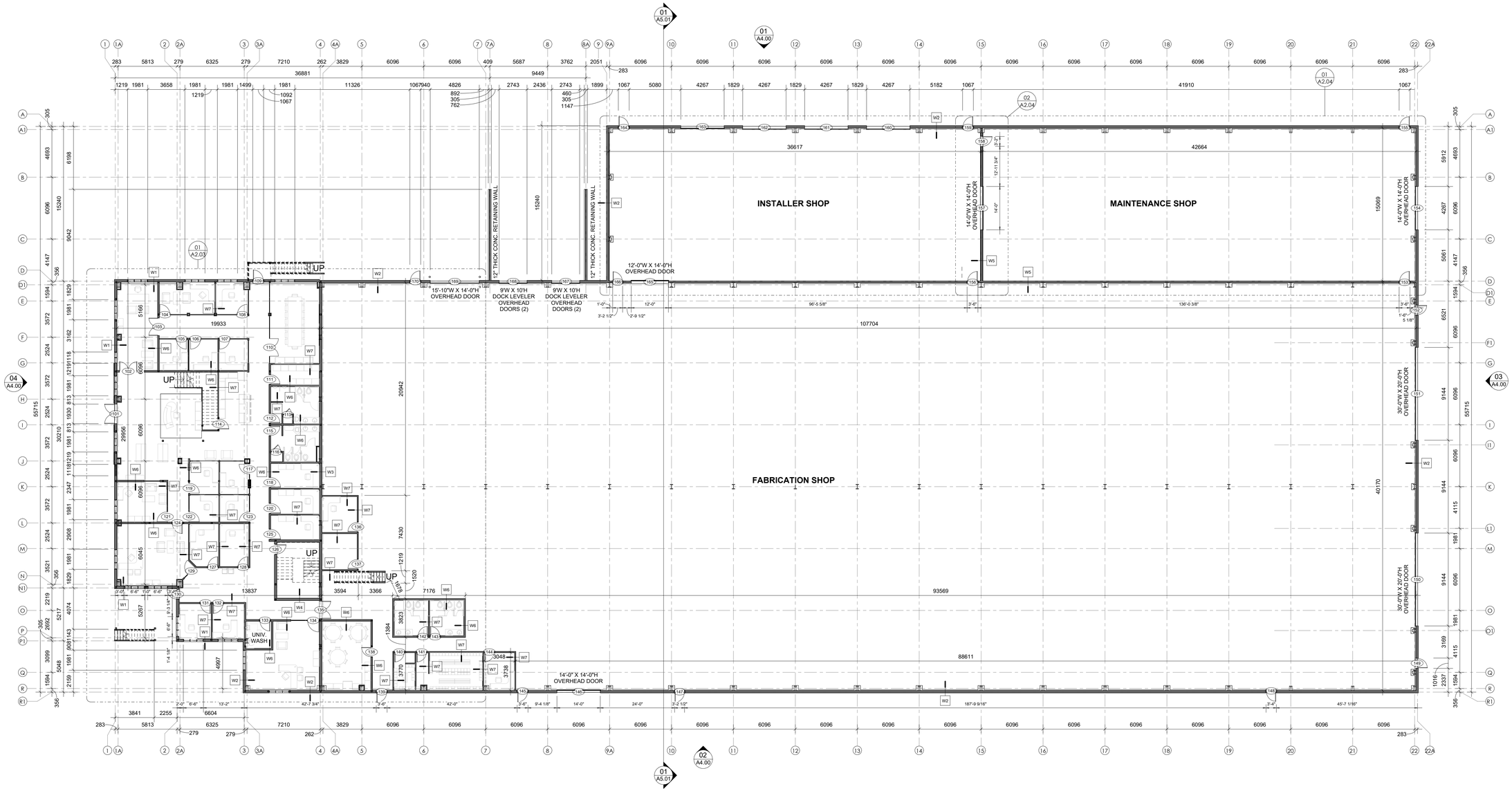
8340137 CANADA INC.

2148 HIGHWAY #3 DELHI, ONTARIO N4B 2C2

SITE PLAN

Project No.:	23-PA32
Scale:	AS NOTED
Date:	MAY 20, 2025
Drawn by:	AS/RN
Checked by:	RN

A1.01



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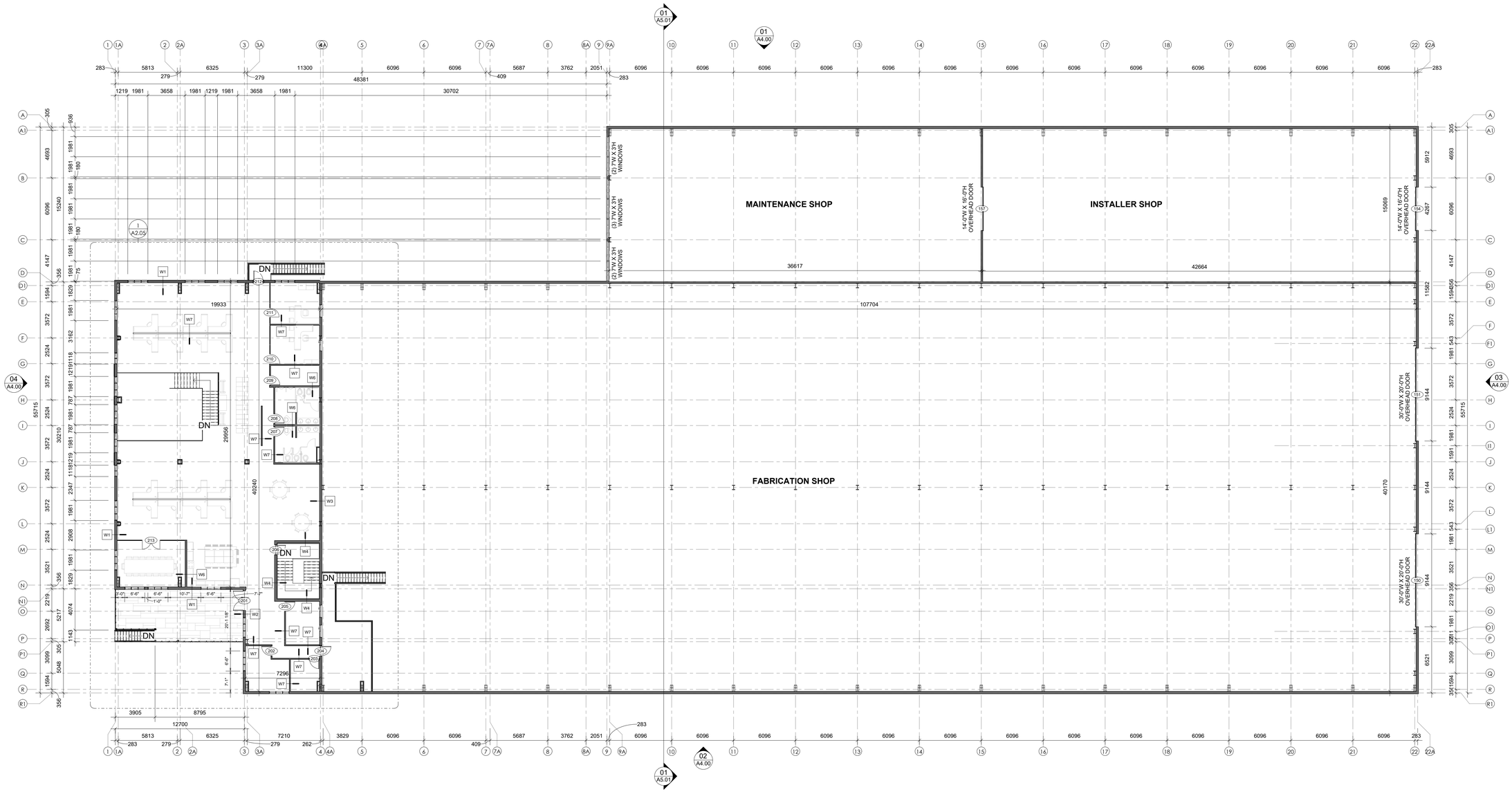
2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

GROUND FLOOR PLAN

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A2.01



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2148 HIGHWAY #3
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N4B 2C2

SECOND FLOOR PLAN

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A2.02

01 enlarged ground floor office plan

SCALE | 1 : 75

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2148 HIGHWAY #3
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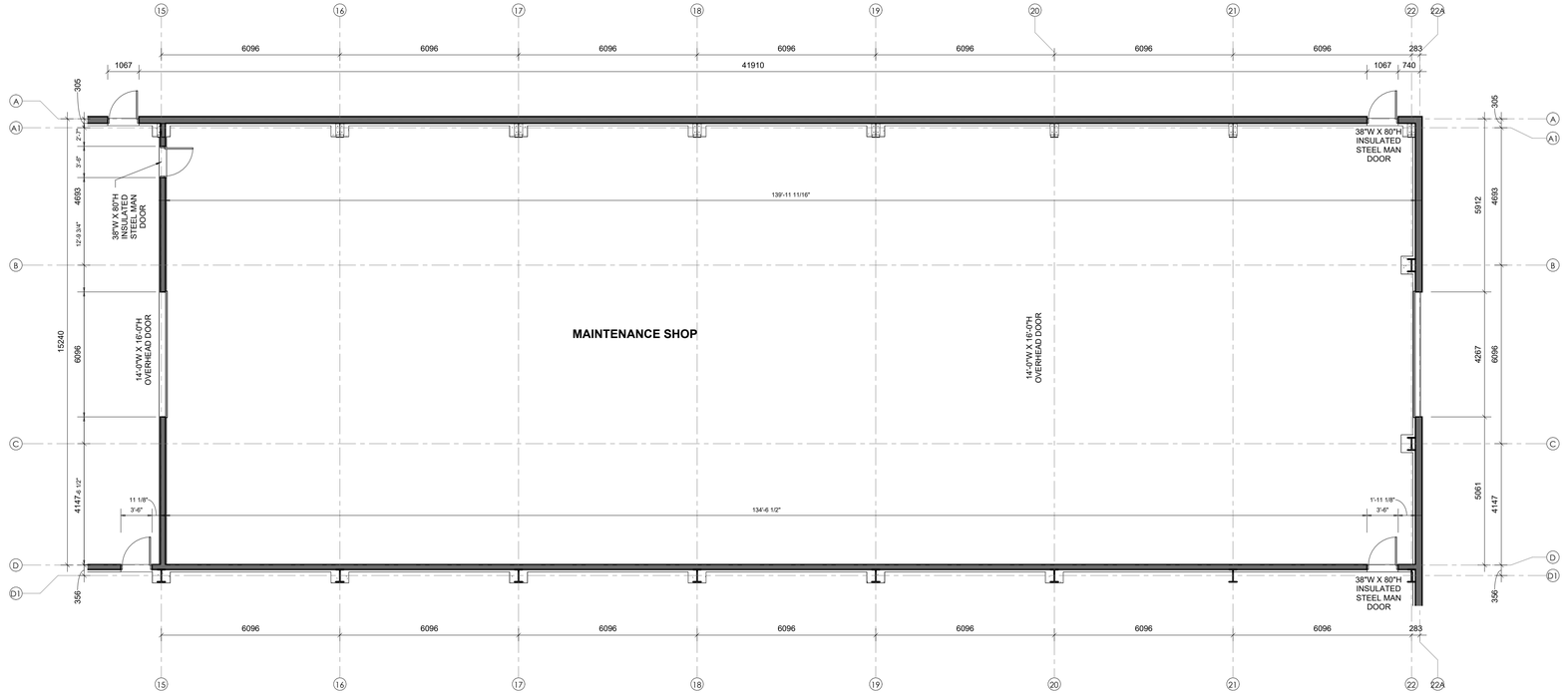
ENLARGED GROUND FLOOR OFFICE

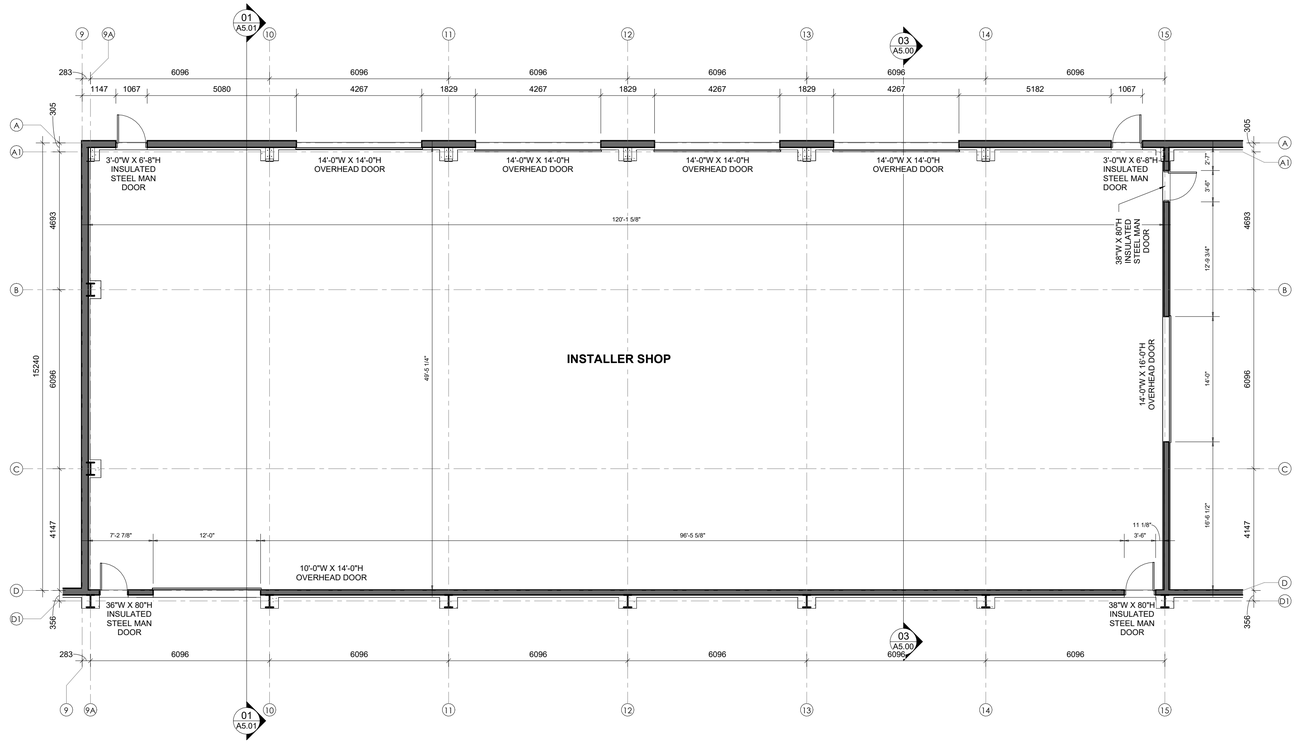
Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A2.03



01 enlarged maintenance shop plan

SCALE | 1 : 96



02 enlarged installer shop paln

SCALE | 1 : 96

General Notes

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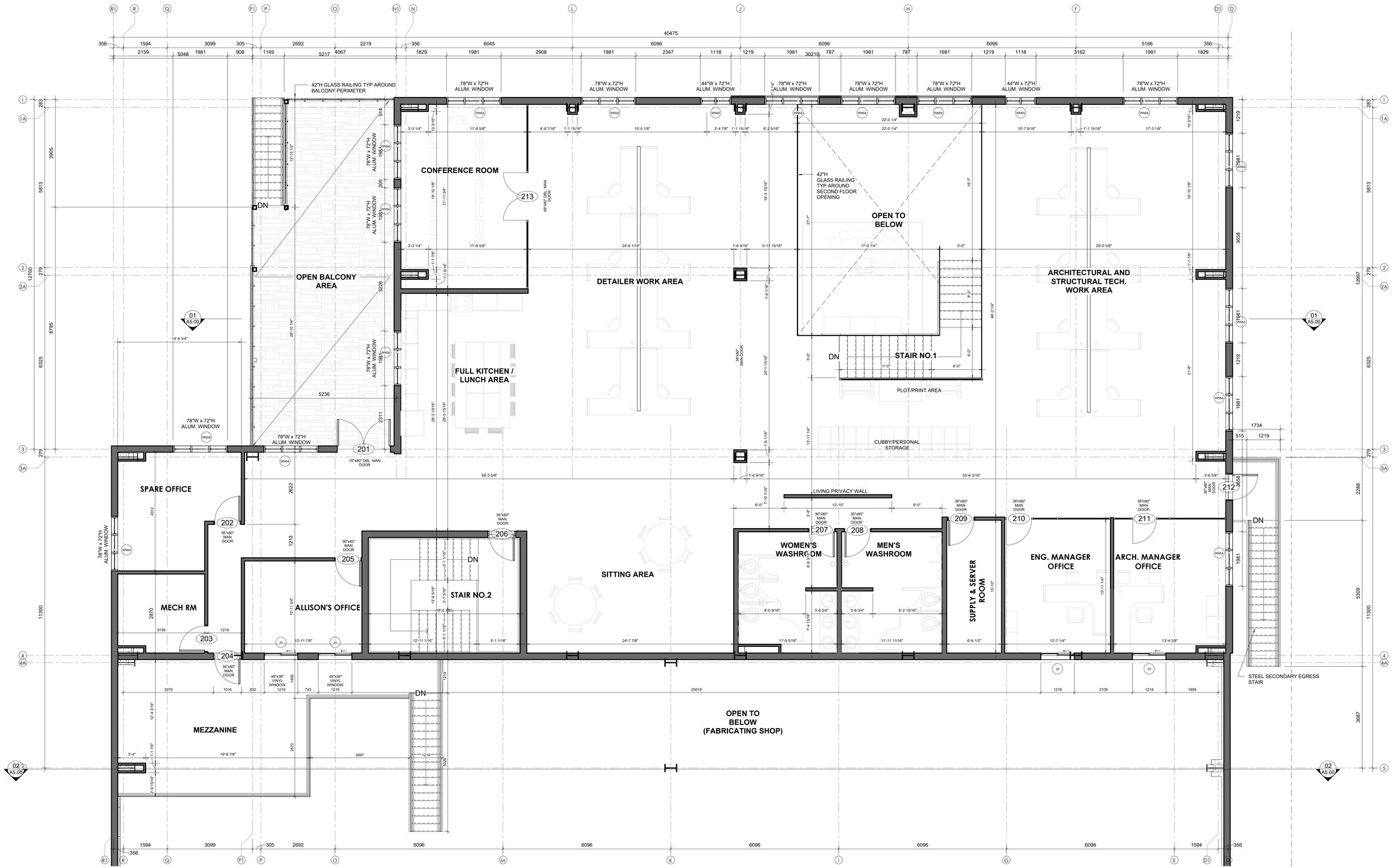
2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

ENLARGED GROUND FLOOR MAINTENANCE & INSTALL SHOP

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A2.04



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2148 HIGHWAY #3
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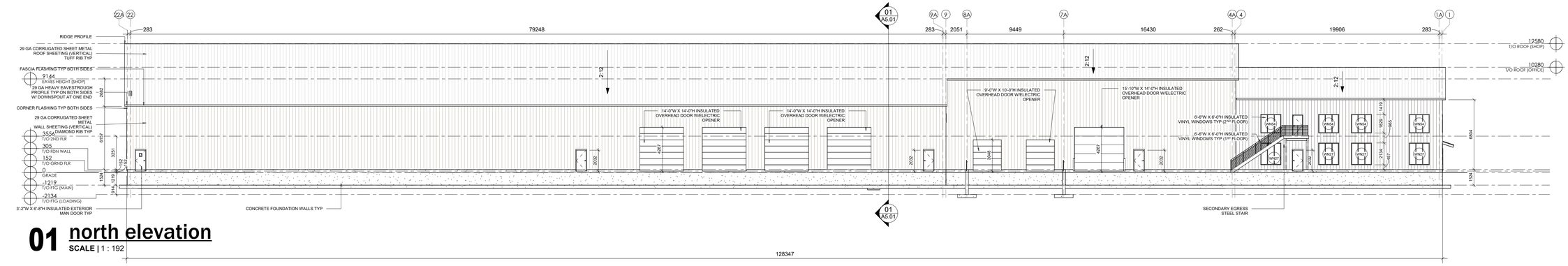
ENLARGED SECOND FLOOR OFFICE

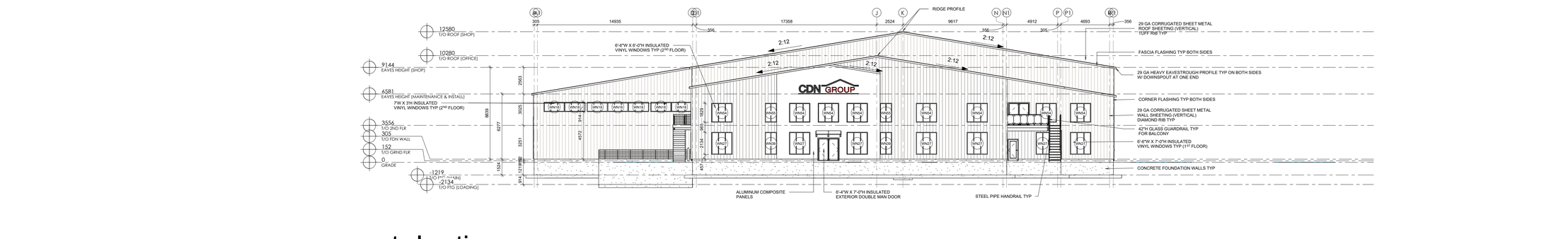
Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A2.05



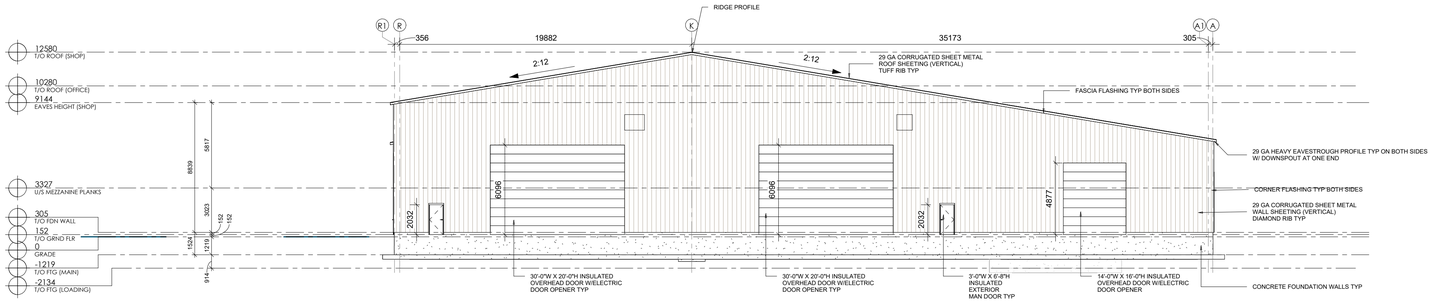
01 north elevation

SCALE | 1 : 192



02 south elevation

SCALE | 1 : 192



03 east elevation

SCALE | 1 : 192

04 west elevation

SCALE | 1 : 192

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ELEVATIONS

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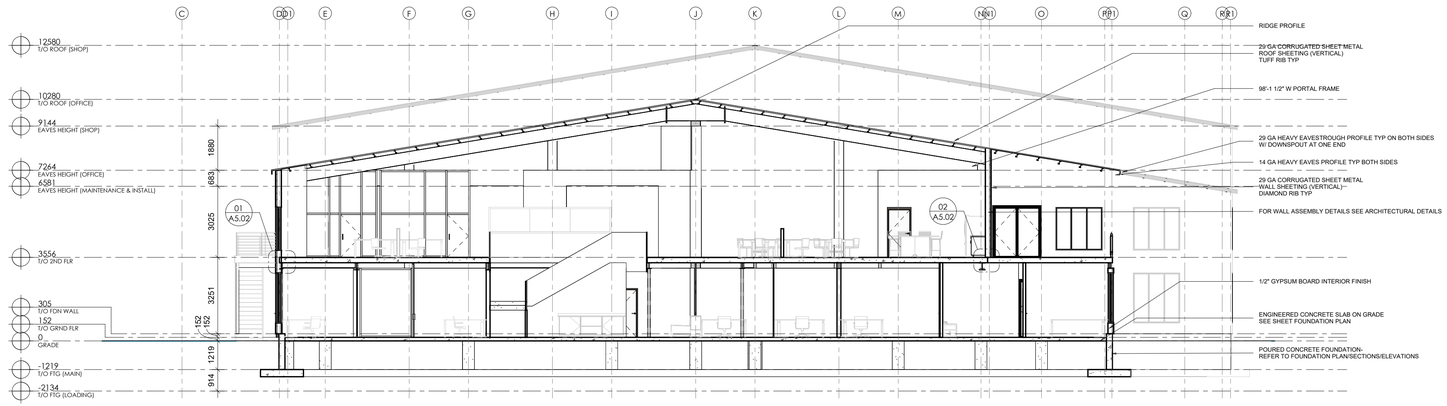
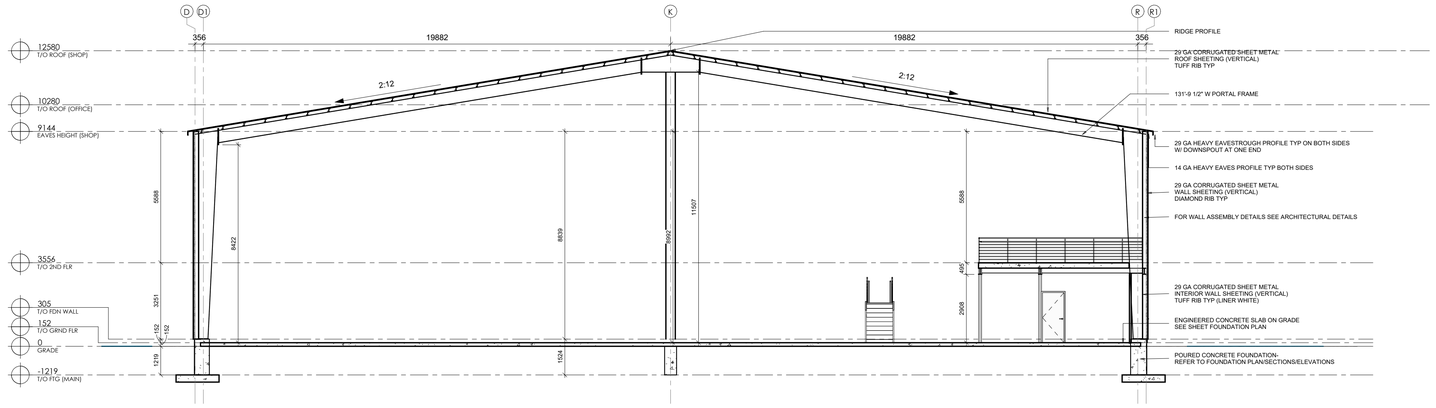
A4.00



01 section 'A'

SCALE | 1 : 120



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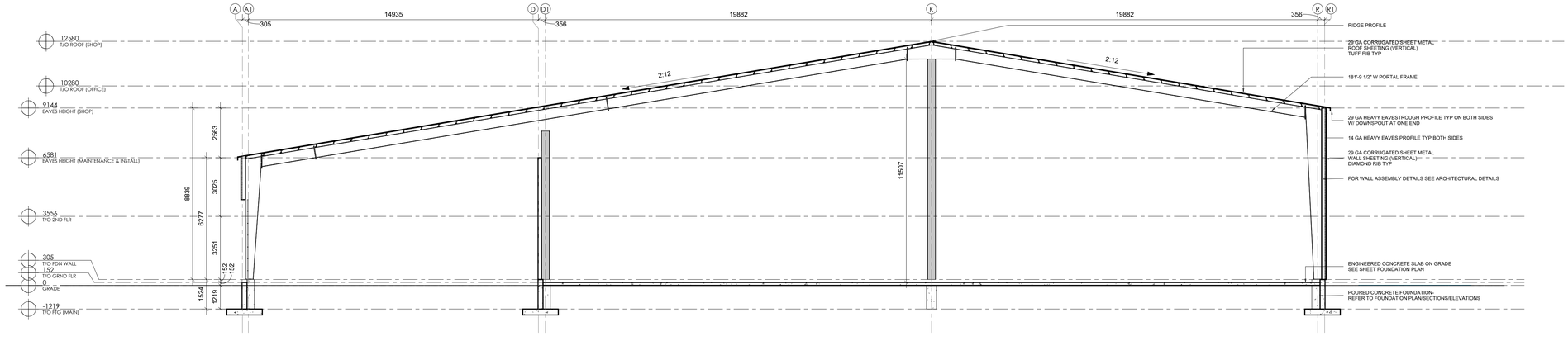

03 section 'C'

SCALE | 1 : 120

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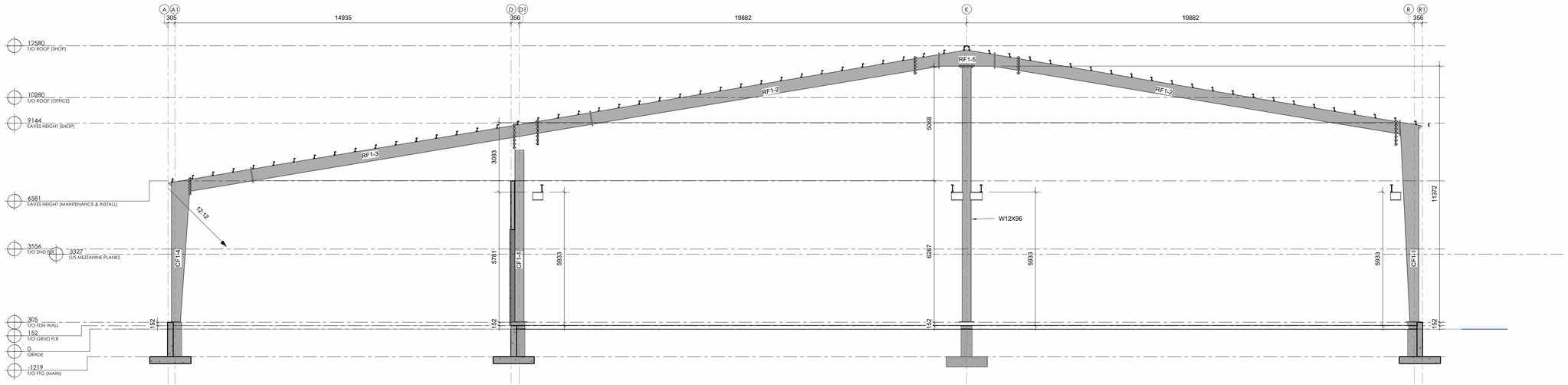
N4B 2C2

BUILDING SECTIONS

Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A5.00



01 portal frame

SCALE | 1 : 96

MEMBER TABLE

MARK	LENGTH	WEB DEPTH START/END	WEB PLATE THICK	FLANGE THICK	FLANGE WIDTH
CF1-1	26'-9"	300/1000	3/8	1/2	8"
RF1-2	53'-11"	1000/600	3/8	1/2	8"
RF1-3	47'-2"	600/300	3/8	1/2	8"
CF1-4	19'-7"	300/800	3/8	1/2	8"
RF1-5	19'-8"	1000/600	3/8	1/2	8"

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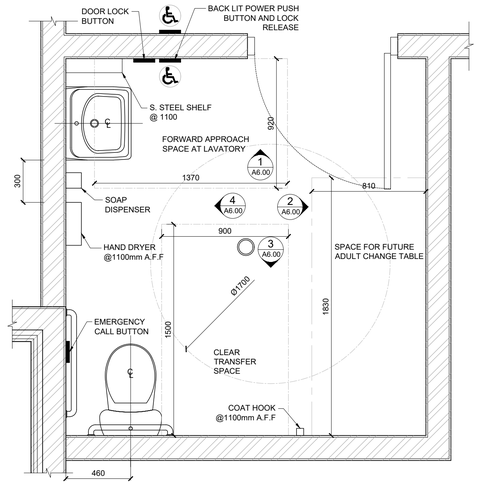
BUILDING SECTIONS

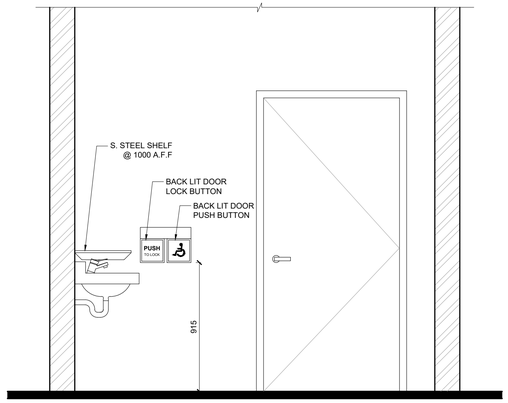
Project No.:	23-PA32
Scale:	1:800
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

A5.01

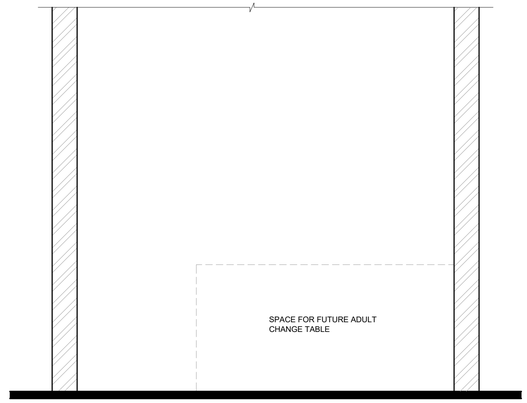


01 universal washroom detailed plan

SCALE | 1:20



ELEVATION 1



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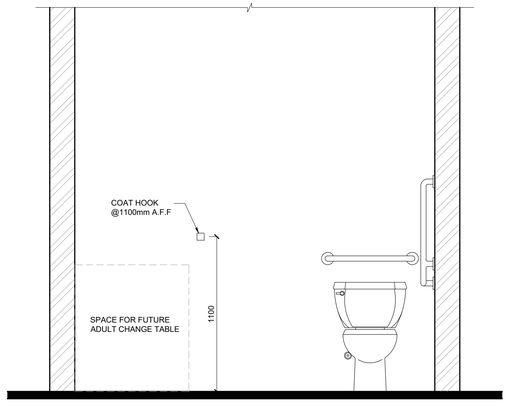

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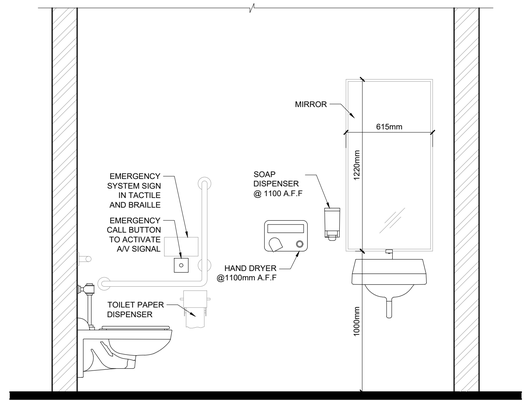

ELEVATION 4

02 universal washroom interior elevations

SCALE | 1:20

General Notes

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2148 HIGHWAY #3 DELHI,
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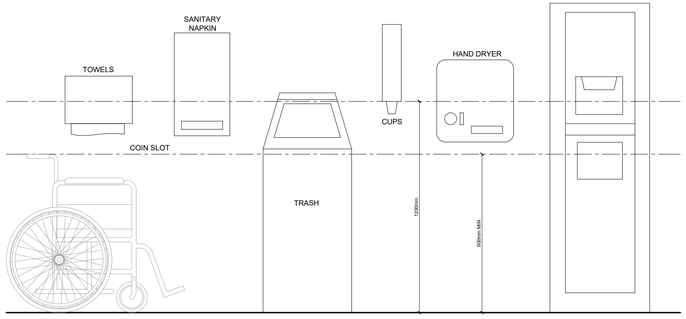
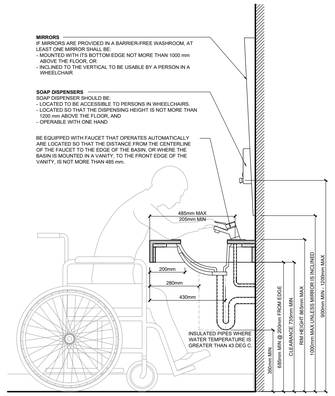
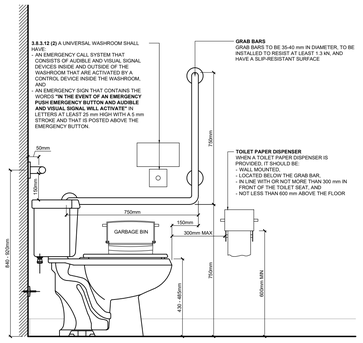
UNIVERSAL WASHROOM DETAILS

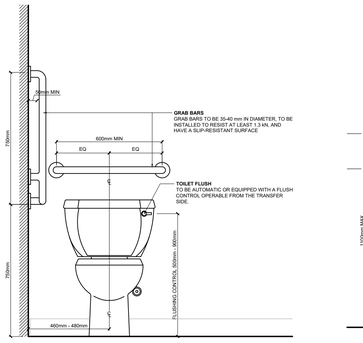
Project No.:	23-PA32
Scale:	AS NOTED
Date:	FEB 28, 2024
Drawn by:	AS/RN
Checked by:	RN

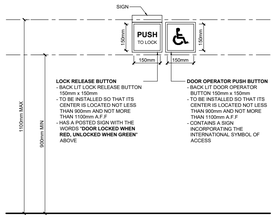
A6.00

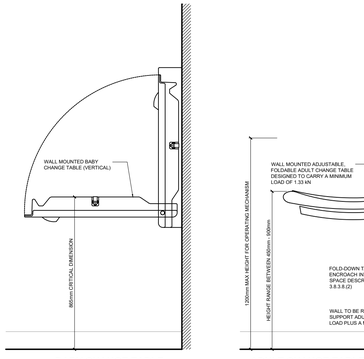


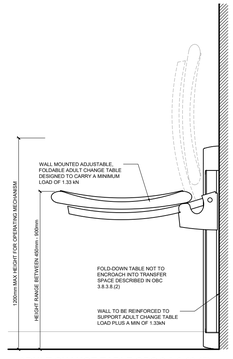


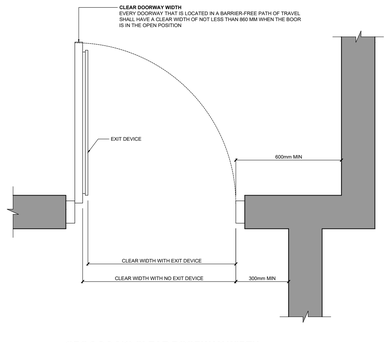


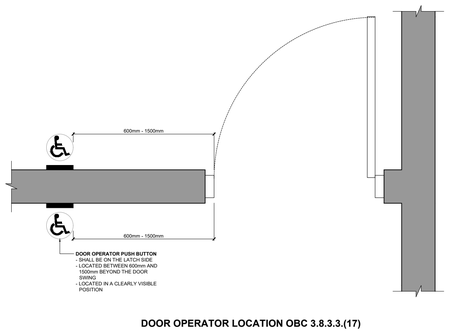












OBC 3.8.3.11 (3) ACCESSORIES

OBC 3.8.3.11 LAVATORIES, MIRRORS & WASHROOM ACCESSORIES

OBC 3.8.3.9 WATER CLOSETS

OBC 3.8.3.9 WATER CLOSETS

UNIVERSAL WASHROOM DOOR OPERATOR

BABY CHANGE TABLE

ADULT CHANGE TABLE OBC 3.8.3.12.(5)

OBC 3.8.3.3(1) CLEAR DOORWAY WIDTH

DOOR OPERATOR HEIGHT OBC 3.8.3.3.(17)

DOOR OPERATOR LOCATION OBC 3.8.3.3.(17)

01 barrier-free standard details

SCALE | NTS

EXCERPTS FROM THE 2012 ONTARIO BUILDING CODE, DIV. B, SECTION 3.8 BARRIER FREE DESIGN

3.8.1.2. Entrances

(1) Except as provided in Sentence 3.13.8.1.(2), the number of barrier-free entrances into a building shall conform to Table 3.8.1.2.

Table 3.8.1.2. Minimum Number of Pedestrian Entrances Required to be Barrier-Free

Item	Number of Pedestrian Entrances into Building	Min. Number of Pedestrian Entrances Req. to Be Barrier-free
1.	1 to 3	1
2.	4 or 5	2
3.	More than 5	Not less than 50%

(2) One of the barrier-free entrances required by Sentence (1) shall be the principal entrance to the building.
(3) In addition to the barrier-free entrances required by Sentence (1), a suite of assembly occupancy, business and personal services occupancy or mercantile occupancy that is located in the first storey of a building or in a storey to which a barrier-free path of travel is provided, and that is separated from the remainder of the building so that there is no access to the remainder of the building, shall have at least one barrier-free entrance.
(4) A barrier-free entrance shall,
  (a) be designed in accordance with Article 3.8.3.3., and
  (b) lead from,
  (i) the outdoors at sidewalk level, or
  (ii) a ramp that conforms to Article 3.8.3.4. and leads from a sidewalk.
(5) At a barrier-free entrance that includes more than one doorway, only one of the doorways is required to be designed in accordance with Article 3.8.3.3.
(6) If a walkway or pedestrian bridge connects two barrier-free storeys in different buildings, the path of travel from one storey to the other storey by means of the walkway or bridge shall be barrier-free.

3.8.1.1. Barrier-Free Path of Travel

(1) Except as required in Sentence (4) and except as permitted in Subsection 3.8.3., every barrier-free path of travel shall provide an unobstructed width of at least 1100 mm for the passage of wheelchairs.
(2) Interior and exterior walking surfaces that are within a barrier-free path of travel shall,
  (a) have no opening that will permit the passage of a sphere more than 13 mm in diam,
  (b) have any elongated openings oriented approximately perpendicular to the direction of travel,
  (c) be stable, firm and slip-resistant,
  (d) be bevelled at a maximum slope of 1 in 2 at changes in level not more than 13 mm, and
  (e) be provided with sloped floors or ramps at changes in level more than 13 mm.
(3) A barrier-free path of travel is permitted to include ramps, passenger elevators or other platform equipped passenger elevating devices to overcome a difference in level.
(4) Every barrier-free path of travel less than 1600 mm in width shall be provided with an unobstructed space not less than 1800 mm in width and 1800 mm in length located not more than 30 m apart.
(5) Where the headroom of an area in a barrier-free path of travel is reduced to less than 1980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor shall be provided.
(6) A normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel shall meet the following requirements:
  (a) interior walking surfaces throughout the normally occupied floor area shall comply with Clauses (2)(a) to (e), and
  (b) where the headroom of an area in a corridor or aisle in the normally occupied floor area is reduced to less than 1980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor shall be provided.

3.8.1.5 Controls

(1) Except as required by Sentences 3.5.2.2.(1) and 3.8.3.5.(1) for elevators and Sentence 3.8.3.3.(17) for power door operator controls, controls for the operation of building services or safety devices, including electrical switches, thermostats and intercom switches, intended to be operated by the occupant and located in a barrier-free path of travel shall,
  (a) be mounted,
  (i)1200 mm above the finished floor, in the case of a thermostat or a manual pull station, and
  (ii) not less than 900 mm and not more than 1100 mm above the finished floor, in the case of all other controls, and
  (b) be located, so as to be adjacent to and centered on either the length or the width of a clear floor space of 810 mm by 1 370 mm, and
  (c) be operable,
  (i) using one hand, without requiring tight grasping, pinching with fingers or twisting of the wrist, and with a force of not more than 22.2 N, in the case of a manual pull station, and
  (j) using a closed fist and with a force of not more than 22.2 N, in the case of all other controls.
(2) A signal intended for the public to indicate the operation of a building security system that controls access to a building shall consist of an audible and visual signal.

3.8.3.1. Exterior Walks

(1) Except as provided in Sentence (2), exterior walks that form part of a barrier-free path of travel shall,
  (a) be provided by means of a continuous plane not interrupted by steps or abrupt changes in level,
  (b) have a permanent, firm and slip-resistant surface,
  (c) except as required in Sentence 3.8.1.3.(4), have an uninterrupted width of not less than 1100 mm and a gradient not exceeding 1 in 20,
  (d) be designed as a ramp where the gradient is greater than 1 in 20,
  (e) have not less than 1100 mm wide surface of a different texture to that surrounding it, where the line of travel is level and even with adjacent walking surfaces,
  (f) be free from obstructions for the full width of the walk to a minimum height of 1980 mm, except that handrails are permitted to project not more than 100 mm from either side into the clear area,
  (g) have a level area adjacent to the entrance doorway conforming to Clause 3.8.3.4.(1)(c), and
  (h) have a tactile attention indicator conforming to Article 3.8.3.18. that is located to identify an entry into a vehicular route or area where no curbs or any other element separate the vehicular route or area from a pedestrian route.
(2) Where a difference in elevation between levels in a walkway is not more than 200 mm, a curb ramp conforming to Sentences (3) and (4) may be provided.
(3) The curb ramp permitted by Sentence (2) shall,
  (a) have a running slope conforming to Table 3.8.3.2.,
  (b) have a width of not less than 1500 mm exclusive of flared sides,
  (c) have a surface including flared sides that shall,
  (i) be slip-resistant,
  (ii) have a detectable warning surface that is colour- and texture-contrasted with the adjacent surfaces, and
  (iii) have a smooth transition from the ramp and adjacent surfaces, and
  (d) have flared sides with a slope of not more than 1:10 where pedestrians are likely to walk across them.
(4) Curb ramps described in Sentence (3) do not require handrails or guards.

Table 3.8.3.2. Ramp Rise and Slope

Item	Column 1	Column 2
	Vertical Rise Between Surfaces, mm	Slope
1.	75 to 200	1:10 to 1:12
2.	Less than 75	1:8 to 1:10

3.8.3.3. Doorways and Doors

(1) Every doorway that is located in a barrier-free path of travel shall have a clear width of not less than 860mm when the door is in the open position.
(2) Except as provided in Sentence 3.3.4.11.(11) and except where no bathroom within the suite is at the level of the suite entrance door to which a barrier-free path of travel is provided in accordance with Sentence 3.8.2.1.(1), the doorway to at least 1 bathroom and to each bedroom at the same level as such bathroom within a suite of residential occupancy shall have, when the door is in the open position, a clear width of not less than,
  (a) 760 mm where the door is served by a corridor or space not less than 1060 mm wide, and
  (b) 810 mm where the door is served by a corridor or space less than 1060 mm wide.
(3) Door opening devices that are the only means of operation shall,
  (a) be designed to be operable using a closed fist, and
  (b) be mounted not less than 900 mm and not more than 1100 mm above the finished floor.
(4) Except as permitted by Sentence (12), every door that provides a barrier-free path of travel through a barrier-free entrance required by Article 3.8.1.2. shall be equipped with a power door operator if the entrance serves a building containing a Group A, Group B, Division 2 or 3, Group C, Group D or Group E occupancy.
(5) Except as permitted by Sentence (12), where a barrier-free entrance required by Article 3.8.1.2. incorporates a vestibule, a door leading from the vestibule into the floor area shall be equipped with a power door operator in a building containing a Group A, Group B, Division 2 or 3, Group C, Group D or Group E occupancy.
(6) A door shall be equipped with a power door operator where the door serves,
  (a) a washroom for public use required to be barrier-free, or
  (b) a Group A occupancy within a Group C major occupancy apartment building.
(7) Except as permitted in Sentence (8), and except for doors with power operators, closers for doors in a barrier-free path of travel shall be designed to permit doors to open when a force of not more than 38 N is applied to the handles, push plates or latch-releasing devices in the case of exterior doors and 22 N in the case of interior doors.
(8) Sentence (7) does not apply to doors at the entrances to dwelling units, or where greater forces are required in order to close and latch the doors against prevailing differences in air pressures on opposite sides of the doors.
(9) Except for doors at the entrances to dwelling units, closers for interior doors in a barrier-free path of travel shall have a closing period of not less than 3 seconds measured from when the door is in an open position of 70° to the doorway, to when the door reaches a point 75 mm from the closed position, measured from the leading edge of the latch side of the door.
(10) Unless equipped with a power door operator, a door in a barrier-free path of travel shall have a clear space on the latch side extending the height of the doorway and not less than,
  (a) 600 mm beyond the edge of the door opening if the door swings toward the approach side,
  (b) 300 mm beyond the edge of the door opening if the door swings away from the approach side, and
  (c) 300 mm beyond both sides of a sliding door.
(11) Vestibules located in a barrier-free path of travel,
  (a) shall be arranged to allow the movement of wheelchairs between doors, and
  (b) shall provide,
  (i) where the doors into the vestibule are in series, a distance between the doors of at least 1 500mm plus the width of any door that swings into the space in the path of travel from one door to another, and
  (ii) where the doors into the vestibule are not aligned, a turning diameter of 1500 mm within the vestibule clear of any door swing.
(12) Only the active leaf in a multiple leaf door in a barrier-free path of travel need conform to the requirements of this Article.
(13) Except as provided in Clause 3.8.3.4.(1)(c), the floor surface on each side of a door in a barrier-free path of travel shall be level within a rectangular area,
  (a) as wide as the door plus the clearance required on the latch side by Sentence (10), and
  (b) whose dimension perpendicular to the closed door is not less than the width of the barrier-free path of travel but need not exceed 1 500 mm.
(14) Where a vision panel is provided in a door in a barrier-free path of travel, such panel shall be at least 75mm in width and be located so that,
  (a) the bottom of the panel is not more than 900 mm above the finished floor, and
  (b) the edge of the panel closest to the latch is not more than 250 mm from the latch side of the door.
(15) A door in a barrier-free path of travel consisting of a sheet of glass shall be marked with a continuous opaque strip that,
  (a) shall be colour and brightness contrasted to the background of the door,
  (b) shall be at least 50 mm wide,
  (c) shall be located across the width of the door at a height of 1 350 mm to 1 500 mm above the finished floor, and
  (d) may incorporate a logo or symbol provided such logo or symbol does not diminish,
  (i) the opacity of the strip,
  (ii) the width of the strip,
  (iii) the colour and brightness contrast of the strip to the background of the door, and
  (iv) the continuity of the strip across the width of the door.
(16) Reserved.
(17) Except where a proximity scanning device is installed in conformance with Sentence (18), the control for a power door operator required by Sentence (4), (5) or (6) shall,
  (a) have a face dimension of not less than,
  (i) 150 mm in diameter where the control is circular, or
  (ii) 50 mm by 100 mm where the control is rectangular,
  (b) be operable using a closed fist,
  (c) be located so that,
  (i) its centre is located not less than 900 mm and not more than 1100 mm from the finished floor or ground, or
  (ii) it extends from not more than 200 mm to not less than 900 mm above the finished floor or ground,
  (d) be located not less than 600 mm and not more than 1 500 mm beyond the door swing where the door opens towards the control,
  (e) be located to allow persons to activate the opening of the door from either direction of travel,
  (f) be located so that the path of travel is not obstructed,
  (g) in a clearly visible position, and
  (h) contain a sign incorporating the International Symbol of Access.
(18) A proximity scanning device that activates a power door shall be capable of detecting a person in a wheelchair.
(19) A normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel shall comply with the following requirements:
  (a) all doorways in public corridors in the normally occupied floor area shall comply with Sentence (1),
  (b) door opening devices that are the only means of operation on doors in the normally occupied floor area shall comply with Sentence (3),
  (c) where a vision panel is provided in a door in the normally occupied floor area, the panel shall comply with Sentence (14),
  (d) doors consisting of a sheet of glass in the normally occupied floor area shall comply with Sentence (15), and
  (e) where a power door operator is installed for doors in the normally occupied floor area, the control for the power door operator shall comply with Sentence (17).

3.8.3.1. Ramps

(1) Ramps located in a barrier-free path of travel shall,
  (a) have a minimum width of 900 mm between handrails,
  (b) have a maximum gradient of 1 in 12,
  (c) have a level area of at least 1 670 mm by 1 670 mm at the top and bottom of a ramp and where a door is located in a ramp, so that the level area extends at least 600 mm beyond the latch side of the door opening, except that where the door opens away from the ramp, the area extending beyond the latch side of the door opening may be reduced to 300 mm,
  (d) have a level area at least 1 670 mm long and at least the same width as the ramp,
  (i) at intervals of not more than 9 m along its length, and
  (ii) where there is a change of 90° or more in the direction of the ramp,
  (e) except as provided in Sentence (2), be equipped with handrails on both sides that shall,
  (i) be continuously graspable along their entire length and have circular cross-section with an outside diameter not less than 30 mm and not more than 40 mm, or any non-circular shape with a graspable portion that has a perimeter not less than 100 mm and not more than 155 mm and whose largest cross-sectional dimension is not more than 57 mm,
  (ii) be not less than 865 mm and not more than 965 mm high, measured vertically from the surface of the ramp, except that handrails not meeting these requirements are permitted provided they are installed in addition to the required handrail,
  (iii) be terminated in a manner that will not obstruct pedestrian travel or create a hazard,
  (iv) extend horizontally not less than 300 mm beyond the top and bottom of the ramp,
  (v) be provided with a clearance that conforms to Sentence 3.4.6.5.(13), and
  (vi) be designed and constructed such that handrails and their supports will withstand the loading values obtained from the nonconcurrent application of a concentrated load not less than 0.9 kN applied at any point and in any direction for all handrails and a uniform load not less than 0.7 kN/m applied in any direction to the handrail,
  (f) except as provided in Sentence (2), have a wall or a guard on both sides and where a guard is provided the guard shall,
  (i) be not less than 1 070 mm measured vertically to the top of the guard from the ramp surface, and
  (ii) be designed so that no member, attachment or opening located between 140 mm and 900 mm above the ramp surface being protected by the guard will facilitate climbing,
  (g) be provided,
  (i) with a curb at least 50 mm high on any side of the ramp where no solid enclosure or solid guard is provided, and
  (ii) with railings or other barriers that extend to within 50 mm of the finished ramp surface or have a curb not less than 50 mm high, and
  (h) except as provided in Sentence (2), where the ramp is wider than 2 200 mm, have an intermediate handrail with a clear width of 900 mm between the intermediate handrail and one of the handrails described in Clause (e).
(2) Where a ramp serves as an aisleway for fixed seating, the requirements for handrails in Clauses (1)(e) and (h) and for walls or guards in Clause (1)(f) need not apply.
(3) Floors or walks in a barrier-free path of travel having a slope steeper than 1 in 20 shall be designed as ramps.

3.8.3.8. Water Closet Stalls and Enclosures

1) Every barrier-free water closet stall or enclosure in a washroom described in Sentence 3.8.2.3.(3) or (4) shall,
  (a) have a clear turning space within the stall or enclosure of at least 1500 mm in diameter,
  (b) have a clear floor space in front of the stall or enclosure of at least 1500 mm in diameter,
  (c) be equipped with a door that,
  (i) is capable of being latched from the inside with a mechanism conforming to Subclause 3.8.1.5.(1)(c)(ii),
  (ii) in an open position, has a clear opening of at least 860 mm wide,
  (iii) swings outward, unless 820 mm by 1440 mm clear floor area is provided within the stall to permit the door to be closed without interfering with the wheelchair,
  (iv) is self-closing so that, when at rest, the door remains open not more than 50 mm beyond the jamb,
  (v) is provided with a horizontal, D-shaped, visually contrasting door pull on both sides of the door, mounted on the vertical centre line of the door, located at a height not less than 800 mm and not more than 1000 mm above the finished floor,
  (vi) is aligned with a clear transfer space required by Subclause (2)(a)(ii) or Clause (2)(b), and
  (vii) is capable of having the latch required by Subclause (i) released from the outside in case of an emergency,
  (d) be equipped with a water closet conforming to Article 3.8.3.9. that is located in accordance with Clause (2)(a) or (b),
  (e) be equipped with a coat hook mounted not more than 1 200 mm above the finished floor on a side wall and projecting not more than 50 mm from the wall,
  (f) have a clearance of at least 1 700 mm between the outside of the stall face and the face of an in-swinging washroom door and 1 400 mm between the outside of the stall face and any wall-mounted fixture or other obstruction, and
  (g) be equipped with a toilet paper dispenser mounted on the side wall closest to the water closet so that,
  (i) the dispenser is located below the grab bar,
  (ii) the closest edge of the dispenser is 300 mm from the front of the water closet seat, and
  (iii) the bottom of the dispenser is 600 mm to 800 mm above the finished floor.
(2) A water closet described in Clause (1)(d) shall be,
  (a) located so that,
  (i) the centre line of the water closet is not less than 460 mm and not more than 480 mm from one side wall, and
  (ii) a clear transfer space at least 900 mm wide and 1 500 mm deep is provided on the other side of the water closet, or
  (b) located so that a clear transfer space at least 900 mm wide and 1 500 mm deep is provided on each side of the water closet.
(3) Where a water closet is located in accordance with Clause (2)(a),
  (a) a grab bar conforming to Sentences (5) and (7) shall be provided on the side wall referred to in Subclause (2)(a)(i),
  (b) a fold-down grab bar may be provided and, if one is provided, it shall conform to Sentence (8) and be provided on the side of the water closet opposite the grab bar described in Clause (a), and
  (c) a grab bar conforming to Sentences (6) and (7) shall be provided on the wall behind the water closet.
(4) Where a water closet is located in accordance with Clause (2)(b),
  (a) a fold-down grab bar conforming to Sentence (8) shall be provided on each side of the water closet, and
  (b) a grab bar conforming to Sentences (6) and (7) shall be provided on the wall behind the water closet.
(5) A grab bar described in Clause (3)(a) shall,
  (a) be continuous L-shaped with 750 mm long horizontal and vertical components, and
  (b) be wall mounted with the horizontal component 750 mm above the finished floor and the vertical component 150 mm in front of the water closet.
(6) A grab bar described in Clause (3)(c) or (4)(b) shall,
  (a) be at least 600 mm in length, and
  (b) be wall mounted horizontally from 840 mm to 920 mm above the finished floor and, where the water closet has a water tank, be wall mounted 150 mm above the tank.
(7) A grab bar described in Clause (3)(a) or (c) or (4)(b) shall,
  (a) be installed to resist a load of at least 1.3 kN applied vertically or horizontally,
  (b) be not less than 30 mm and not more than 40 mm in diameter,
  (c) have a clearance of not less than 38 mm and not more than 50 mm from the wall to the inside surface of the grab bar, and
  (d) have a slip-resistant surface.
(8) A fold-down grab bar described in Clause (3)(b) or (4)(a) shall,
  (a) be mounted on the wall behind the water closet,
  (i) with the horizontal component 750 mm above the finished floor, and
  (ii) not less than 390 mm and not more than 410 mm from the centre line of the water closet,
  (b) not require a force of more than 22.2 N to pull it down,
  (c) be at least 750 mm in length,
  (d) be installed to resist a load of at least 1.3 kN applied vertically or horizontally,
  (e) be not less than 30 mm and not more than 40 mm in diameter, and
  (f) have a slip-resistant surface.
(9) A fold-down grab bar installed in accordance with Sentence (8) is permitted to encroach into,
  (a) the clear turning space described in Clause (1)(a), or
  (b) a clear transfer space described in Subclause (2)(a)(ii) or Clause (2)(b).
(10) Where an ambulatory water closet stall or enclosure is required by Sentence 3.8.2.3.(6), it shall,
  (a) be at least 1 500 mm in depth and be not less than 890 mm and not more than 940 mm in width,
  (b) be equipped with a door that shall,
  (i) be capable of being latched from the inside with a mechanism that is operable using a closed fist,
  (ii) when the door is in an open position, have a clear opening of at least 810 mm,
  (iii) swing outward, unless the minimum dimensions in Clause (a) are not located within the door swing,
  (iv) be provided with spring-type or gravity hinges so that the door closes automatically,
  (v) be provided with a door pull on both sides of the door, near the latch side of the door, located at a height not less than 900 mm and not more than 1 100 mm above the finished floor, and
  (vi) be capable of having the latch required by Subclause (i) released from the outside in the case of an emergency,
  (c) be equipped with a water closet conforming to Article 3.8.3.9. and located so that its centre line is centred between the partition walls,
  (d) be equipped on each side of the water closet with grab bars conforming to Clause (3)(a), and
  (e) be equipped with a coat hook conforming to Clause (1)(e).

3.8.3.1. Water Closets

(1) A water closet described in Clause 3.8.3.8.(1)(d) or (10)(c) or 3.8.3.12.(1)(d) shall,
  (a) be equipped with a seat located at not less than 430 mm and not more than 485 mm above the finished floor,
  (b) flush automatically or be equipped with a flushing control that,
  (i) is located between 500 mm and 900 mm above the finished floor,
  (ii) is operable from the transfer side, and
  (iii) is operable using a closed fist and with a force of not more than 22.2 N, and
  (c) be equipped with a back support where there is no seat lid or tank.

3.8.3.1. Urinals

(1) Where more than one urinal is provided in a washroom described in Sentence 3.8.2.3.(3) or (4), at least one urinal shall,
  (a) be mounted with the rim located not more than 430 mm above the finished floor,
  (b) have a clear floor space at least 800 mm wide that is perpendicular to, and centred on, the urinal and is unobstructed by privacy screens, and
  (c) have no step in front of it.
(2) A urinal described in Sentence (1) shall,
  (a) flush automatically or be equipped with a flushing control that is,
  (i) located between 900 mm and 1 100 mm above the finished floor, and
  (ii) operable using a closed fist and with a force of not more than 22.2 N, and
  (b) have installed on each side, a vertically mounted grab bar that,
  (i) complies with Article 3.8.3.8.(7),
  (ii) is not less than 600 mm long, with its centre line 1 000 mm above the finished floor, and
  (iii) is located not more than 380 mm from the centre line of the urinal.
(3) Where privacy screens are installed for a urinal described in Sentence (1), they shall,
  (a) be mounted a minimum of 460 mm from the centre line of the urinal, and
  (b) have a clearance of at least 50 mm from the grab bars required by Clause (2)(b).
(4) Where more than one urinal is provided in a washroom described in Sentence 3.8.2.3.(6), at least one urinal conforming to Sentences (1) to (3) shall be provided in the washroom.

3.8.3.11. Lavatories, Mirrors and Washroom Accessories

(1) A washroom described in Sentence 3.8.2.3.(2), (3) or (4) shall be provided with a lavatory that shall,
  (a) be located so that the distance between the centre line of the lavatory and the side wall is not less than 460 mm,
  (b) have a rim height not more than 865 mm above the finished floor,
  (c) have a clearance beneath the lavatory not less than,
  (i) 920 mm wide,
  (ii) 735 mm high at the front edge,
  (iii) 685 mm high at a point 200 mm back from the front edge, and
  (iv) 350 mm high over the distance from a point 280 mm to a point 430 mm back from the front edge,
  (d) have insulated pipes where they would otherwise present a burn hazard or have water supply temperature limited to a maximum of 43°C,
  (e) be equipped with faucets that,
  (i) operate automatically or comply with 3.7.4.2.(11)(b)(i) and (ii), and
  (ii) are located so that the distance from the centre line of the faucet to the edge of the basin or, where the basin is mounted in a vanity, to the front edge of the vanity, is not more than 485 mm,
  (f) have a minimum 1 370 mm deep floor space to allow for a forward approach, of which a maximum of 500 mm can be located under the lavatory,
  (g) have a soap dispenser that,
  (i) operates automatically or is operable using a closed fist and with a force of not more than 22.2 N, and
  (ii) is located not more than 1 100 mm above the finished floor, within 500 mm from the front of the lavatory, and
  (h) have a towel dispenser or other hand drying equipment that is,
  (i) located to be accessible to persons in wheelchairs,
  (ii) located so that the dispensing height is not more than 1 200 mm above the finished floor,
  (iii) operable with one hand, and
  (iv) located not more than 610 mm, measured horizontally, from the edge of the lavatory.
(2) If mirrors are installed in a washroom described in Sentence 3.8.2.3.(2), (3) or (4), at least one mirror shall be,
  (a) installed above a lavatory required by Sentence (1), and
  (b) mounted with its bottom edge not more than 1 000 mm above the finished floor or inclined to the vertical to be usable by a person in a wheelchair.
(3) If dispensing or hand-operated washroom accessories, other than those located in water closet stalls or enclosures and those described in Clause (1)(g), are provided, they shall be mounted so that,
  (a) the dispensing height is not less than 900 mm and not more than 1 200 mm above the finished floor,
  (b) the controls or operating mechanisms are mounted not less than 900 mm and not more than 1 200 mm above the finished floor, and
  (c) a minimum 1 370 mm deep floor space is provided in front of the controls or operating mechanisms to allow for a front approach.
(4) Where a shelf is installed above a lavatory required by Sentence (1), it shall,
  (a) be located not more than 200 mm above the top of the lavatory and not more than 1 100 mm above the finished floor, and
  (b) project not more than 100 mm from the wall.
(5) A washroom described in Sentence 3.8.2.3.(6) shall be provided with a lavatory conforming to Clauses (1)(e), (g) and (h).

3.8.3.1. Universal Washrooms

(1) A universal washroom shall,
  (a) be served by a barrier-free path of travel,
  (b) have a door that,
  (i) complies with Article 3.8.3.3.,
  (ii) has a graspable latch-operating mechanism that is,
    (A) operable using a closed fist and with a force of not more than 22.2 N, and
    (B) located between 900 mm and 1 000 mm above the finished floor, and
  (iii) is capable of being locked from the inside and released from the outside in case of emergency,
  (c) have one lavatory conforming to Sentences 3.8.3.11.(1), (3) and (4),
  (d) have one water closet conforming to Article 3.8.3.9. that is located in accordance with Clause 3.8.3.8.(2)(a) or (b),
  (e) have grab bars conforming to,
  (i) Sentence 3.8.3.8.(3), if the water closet is located in accordance with Clause 3.8.3.8.(2)(a), or
  (ii) Sentence 3.8.3.8.(4), if the water closet is located in accordance with Clause 3.8.3.8.(2)(b),
  (f) have no internal dimension between walls that is less than 1 700 mm,
  (g) have a coat hook that conforms to Clause 3.8.3.8.(1)(e) and a shelf that is located not more than 1 100 mm above the finished floor and projects not more than 100 mm from the wall,
  (h) be designed to permit a wheelchair to turn in an open space not less than 1 700 mm in diameter,
  (i) be provided with a door equipped with a power door operator,
  (j) be provided with a mirror,
  (i) installed above a lavatory described in Clause (1)(c), and
  (ii) mounted with its bottom edge not more than 1 000 mm above the finished floor or inclined to the vertical to be usable by a person in a wheelchair, and
  (k) have lighting controlled by a motion sensor conforming to Sentence 12.2.4.1.(2).
(2) A universal washroom shall have,
  (a) an emergency call system that consists of audible and visual signal devices inside and outside of the washroom that are activated by a control device inside the washroom, and
  (b) an emergency sign that contains the words IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE in letters at least 25 mm high with a 5 mm stroke and that is posted above the emergency button.
(3) A clear space not less than 810 mm wide and 1 830 mm long shall be provided in each universal washroom for an adult-size change table.
(4) Where the clear space provided for an adult-size change table is adjacent to a wall, reinforcement shall be installed in the wall to permit the future installation of the change table.
(5) Where an adult-size change table is installed, it shall,
  (a) when fully loaded, have a surface height above the finished floor that can be adjusted from between 450 mm and 500 mm at the low range to between 850 mm and 900 mm at the high range,
  (b) be designed to carry a minimum load of 1.33 kN,
  (c) have a clear floor space parallel to the long side of the table not less than 760 mm wide and 1 500 mm long, and
  (d) in the case of a fold-down table,
  (i) be installed so that it does not encroach into a clear transfer space described in Clause 3.8.3.8.(2)(a) or (b), and
  (ii) have no operating mechanisms higher than 1 200 mm.
(6) A universal washroom need not conform to Sentences (3) and (4) if,
  (a) it is located in an individual suite that,
  (i) is used for an assembly occupancy, a business and personal services occupancy, a mercantile occupancy or an industrial occupancy, and
  (ii) meets one of the following requirements,
    (A) it is located in a building that is less than 300 m2 in building area, or
    (B) it is less than 300 m2 in area, if located in a building that is at least 300 m2 in building area, or
  (b) another universal washroom conforming to this Article is provided on the same floor level within 45 m.

General Notes

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VERIFY ALL DIMENSIONS, MATERIALS, AND STRUCTURAL MEMBERS ON SITE.
ANY AND ALL DISCREPANCIES ARE TO BE REPORTED TO THE DESIGNERS BEFORE PROCEEDING WITH THE WORK.
DRAWINGS NOT TO BE SCALED.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSE UNLESS COUNTERSIGNED BELOW.

Revision	Date
ISSUED FOR SPA	APR 28, 2025
ISSUED FOR PERMIT	MAY 21, 2025

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ONTARIO ASSOCIATION OF ARCHITECTS
Rafik Nassif
May 21, 2025
RAFIK NASSIF
LICENCE
7988

TRUE NORTH

PROJECT NORTH

8340137 CANADA INC.

2148 HIGHWAY #3 DELHI,
ONTARIO N4B 2C2

BARRIER FREE STANDARD DETAILS

Project No.: 23-PA32
Scale: AS NOTED
Date: FEB 28, 2024
Drawn by: AS/RN
Checked by: RN

A6.01

file | C:\Users\alexa\OneDrive\Desktop\Architectural Work\Pylons Architecture\23-PA32 - 2148 Highway 3\3 Cons Dwgs\23-PA32 Cons Dwgs.dwg plotted | 5/20/2025 6:10 PM

1. DRAWINGS

1. THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNDER THIS CONTRACT UNLESS OTHERWISE NOTED ON THE SPECIFIC DETAIL DWGS.
2. THE STANDARD DRAWINGS OF THE LOCAL MUNICIPALITY , ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS) AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) CONSTITUTE PART OF THE PLANS OF THIS CONTRACT.
3. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY THE LOCAL MUNICIPALITY AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS.
4. THE STANDARD DRAWINGS INCLUDED WITH THESE PLANS ARE PROVIDED FOR CONVENIENCE ONLY AND ARE NOT TO BE CONSTRUED TO BE A COMPLETE SET FOR THE PURPOSE OF THE CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT STANDARD DRAWINGS AND SPECIFICATIONS AS REQUIRED FOR THIS CONTRACT.

2. MEASUREMENTS

1. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.
2. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

3. GENERAL

1. EXISTING SERVICES AND UTILITIES SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE AND THEIR LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS THEY WISH WITH THE UNDERSTANDING THAT THE OWNER DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
3. GRANULAR MATERIAL, USED FOR BACKFILL, SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE ENGINEER. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 200mm OF APPROVED TOPSOIL AND NURSERY SOD UNLESS NOTED OTHERWISE.

4. PARKING LOT

1. NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.
2. PAVEMENT STRUCTURE TO BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO START OF CONSTRUCTION
3. THE PARKING LOT PAVEMENT STRUCTURE SHALL CONSIST OF THE FOLLOWING:

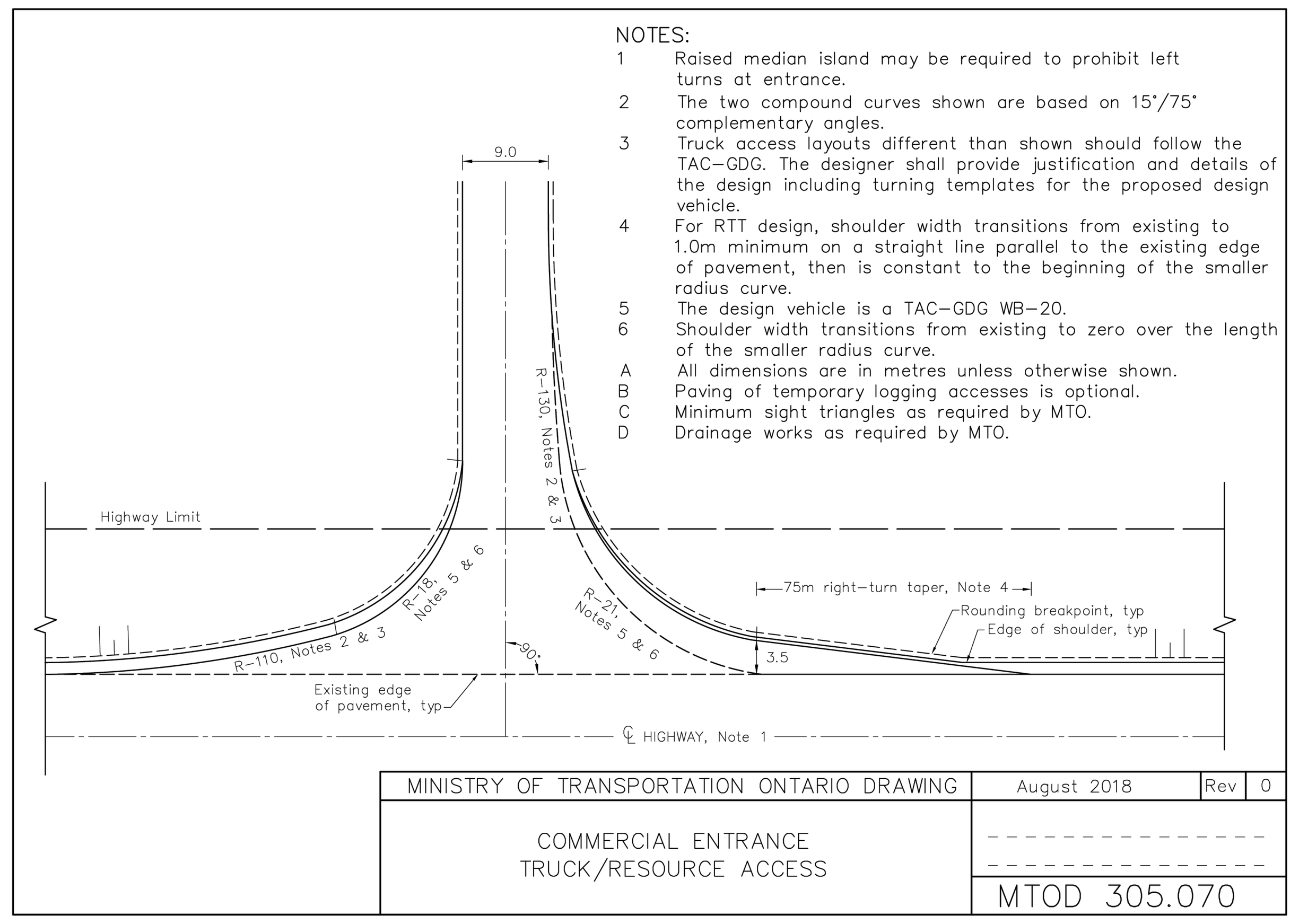
MEDIUM DUTY	GRAVEL (HEAVY DUTY)	CONCRETE (HEAVY DUTY)
– 40mm HL3	– 200mm GRANULAR "A"	– 150mm CAST–IN–PLACE CONCRETE
– 50mm HL4	– 450mm GRANULAR "B"	– 150mm GRANULAR "A"
– 150mm GRANULAR "A"		– 300mm GRANULAR "B"
– 300mm GRANULAR "B"		

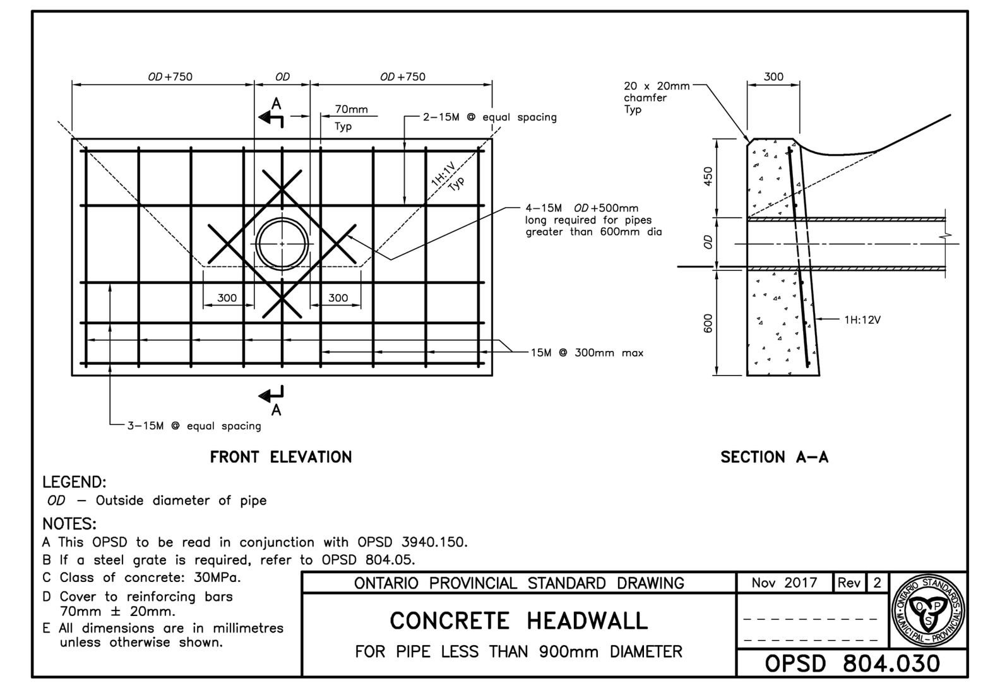
5. SEWERS

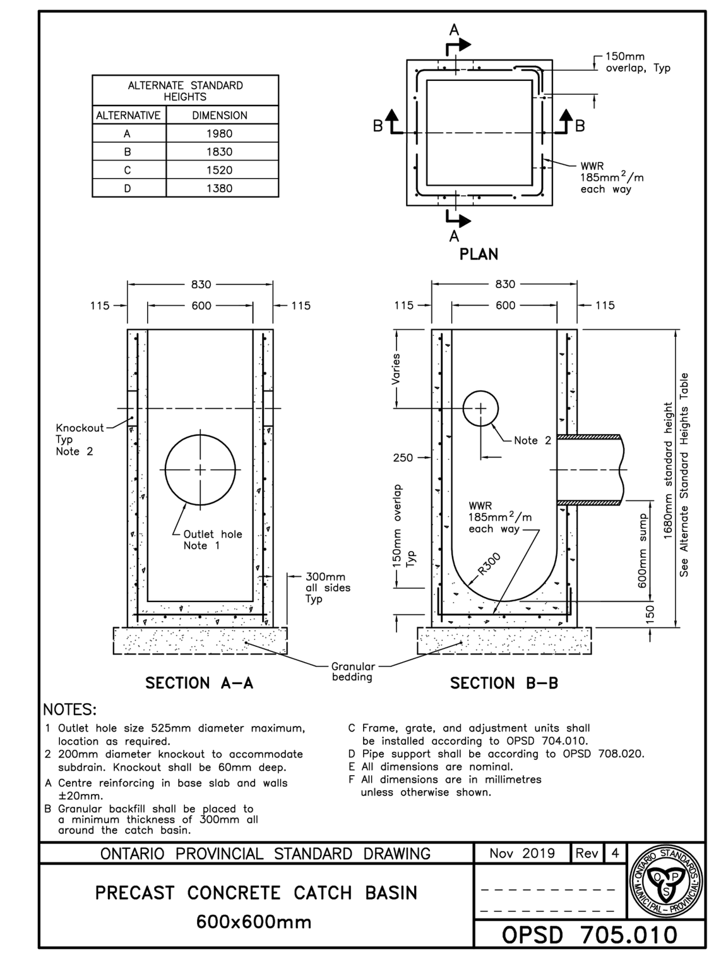
1. INTERNAL SANITARY SEWERS AND LATERALS TO BE MINIMUM 150mm DIAMETER PVC DR 28 WITH JOINTS CONFORMING TO CSA STANDARD A257.3.
2. SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL), UNLESS APPROVED OTHERWISE BY THE ENGINEER.
3. PRECAST MANHOLES SHALL BE 1200mm DIAMETER UNLESS OTHERWISE SPECIFIED, AND SHALL BE IN ACCORDANCE WITH OPSD 701.010. FRAME AND GRATE TO BE "TYPE A" CLOSED COVER AND TO CONFORM TO OPSD 401.010.
4. MANHOLE TOPS ARE TO BE SET TO FINAL GRADE.

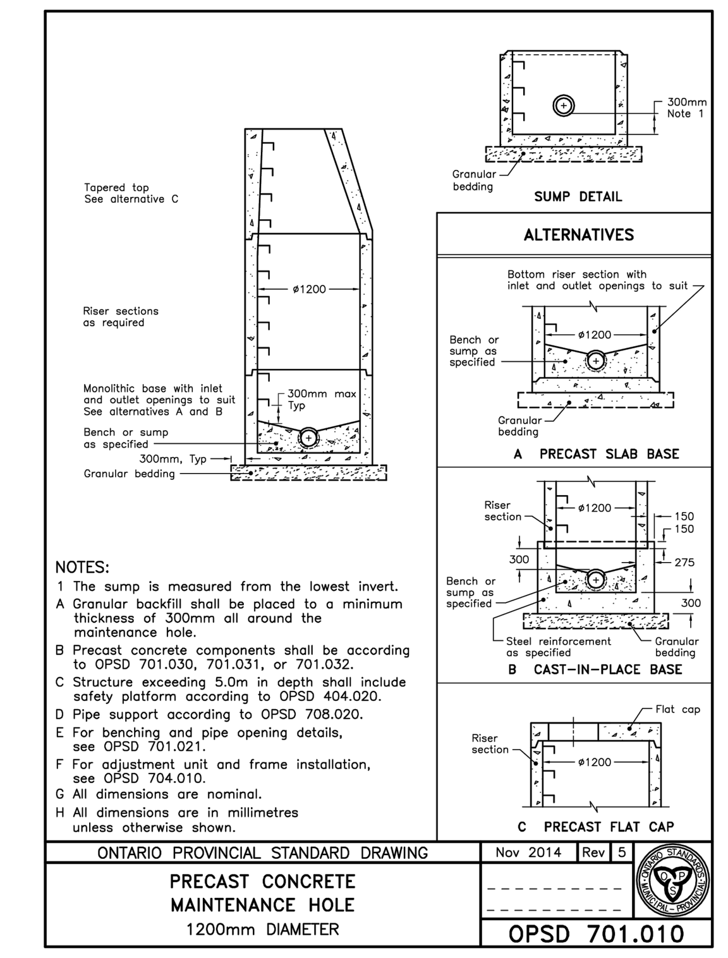
6. WATERMAINS

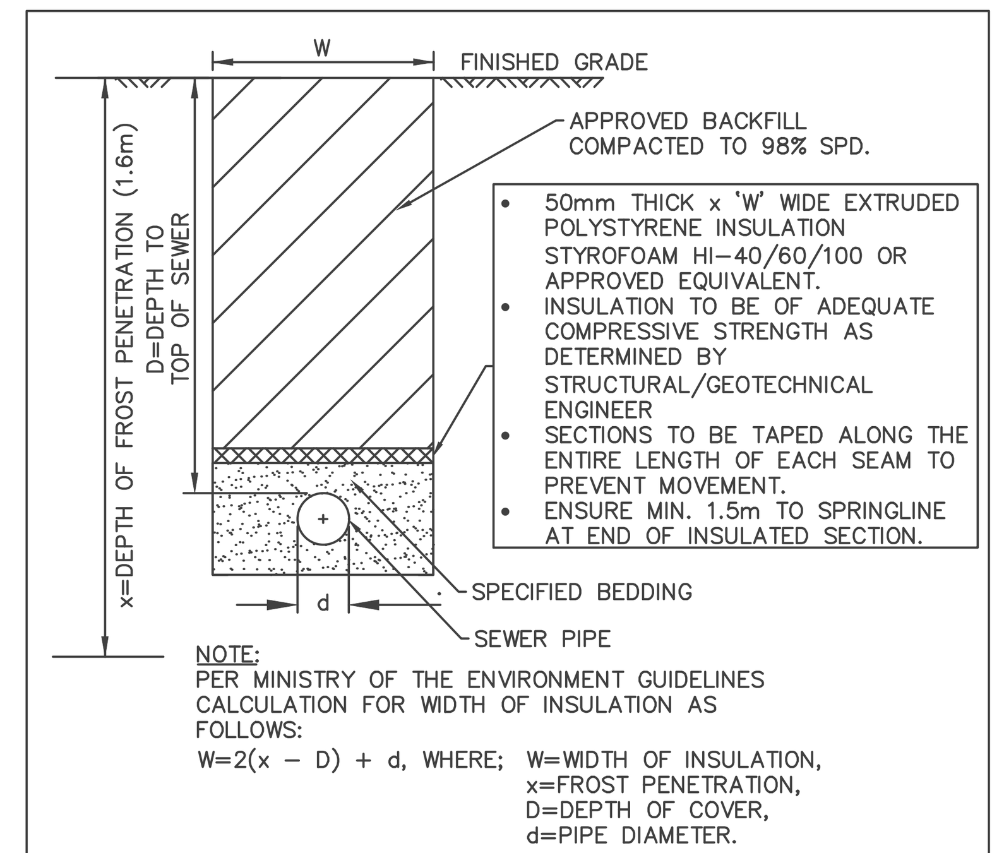
1. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE WATERMAIN AND THE SANITARY/STORM SEWER IS TO BE 2.5 METERS.
2. A MINIMUM OF 0.5m VERTICAL CLEARANCE BETWEEN THE WATERMAIN, SANITARY, STORM AND/OR ALL UTILITIES MUST BE KEPT, WHILE STILL MAINTAINING A MINIMUM DEPTH OF COVER AT ALL TIMES. WHERE WATERMAIN CONFLICTS WITH SEWER PIPE, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY TO OBTAIN MINIMUM COVER AND VERTICAL CLEARANCE.
3. WATERMAINS SHALL BE PVC DR 18 AND INSTALLED WITH A MINIMUM COVER OF 1.7m (MEASURED FROM FINISHED GRADE TO TOP OF WATERMAIN). IF MINIMUM COVER CAN NOT BE ACHIEVED, INSULATION AS PER DETAIL PROVIDED.
4. WATERMAIN SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES.
5. COPPER WATER SERVICES 25mm DIA. SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS 1104.010.
6. WATERMAIN BEDDING SHALL ADHERE TO THE MUNICIPAL STANDARD AND BE PLACED MIN 150mm BELOW AND 300mm ABOVE THE WATERMAIN.
7. CONCRETE THRUST BLOCKS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, ENDS OF MAINS AND CONNECTIONS 100mm AND LARGER AS PER STANDARD DRAWINGS. ALL BENDS TO BE MECHANICALLY RESTRAINED.
8. ALL JOINTS MUST BE MECHANICALLY RESTRAINED AND THRUST BLOCKED.
9. ANY EXISTING, ON SITE, WATER WELLS MUST BE DECOMMISSIONED.
10. WHERE A COPPER SERVICE MUST BE JOINED UNDER THE FLOOR, THE COPPER SHALL BE JOINED BY SILVER SOLDER CONNECTION ONLY.
11. ALL SERVICE PIPE MATERIAL MUST BE DUCTILE IRON AND MECHANICALLY RESTRAINED FROM THE RESTRAINED FROM THE RESTRAINING FLANGE TO A MINIMUM OF 3 METERS OUTSIDE THE FOUNDATION. ALL DUCTILE SHALL BE POLY WRAPPED FOR ADDED PROTECTION.
12. OPERATION OF FIRE HYDRANTS AND VALVES ON POTABLE WATER BY OTHER THAN MUNICIPAL CITY DEPARTMENT IS PROHIBITED.
13. THE CITY WILL SWAB, CHLORINATE AND FLUSH ALL NEW SERVICES. THE CONTRACTOR SHALL PERFORM PRESSURE TEST WITH WATER FIELD COORDINATOR WITNESSING.
14. EXTERNAL CONTRACTOR TO COORDINATE WITH INTERNAL CONTRACTOR ON ALL INSTALLATION, SWABBING, CHLORINATING AND TESTING WITNESSED BY WATER FIELD SERVICES COORDINATOR.
15. MECHANICAL RESTRAINTS WILL BE REQUIRED ON ALL HYDRANTS. A MINIMUM OF TWO PIPE LENGTHS OF EITHER SIDE OF THE HYDRANT TEE CONNECTION. HYDRANTS TO BE PAINTED RED.
16. TRACING WIRE (#12 TWU STRANDED COPPER) TO BE INSTALLED ON THE TOTAL LENGTH OF ALL PVC WATERMAINS AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT.
17. SERVICE CONNECTIONS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS.
18. CONTRACTOR TO PROVIDE PLAN FOR REMOVING CHLORINATED WATER FROM SITE.
19. A CHLORINATION TAIL SHALL BE INSTALLED JUST BEHIND TAPPING VALVE TO FACILITATE CHLORINATING SERVICE, TO BE REMOVED AFTER TESTING.



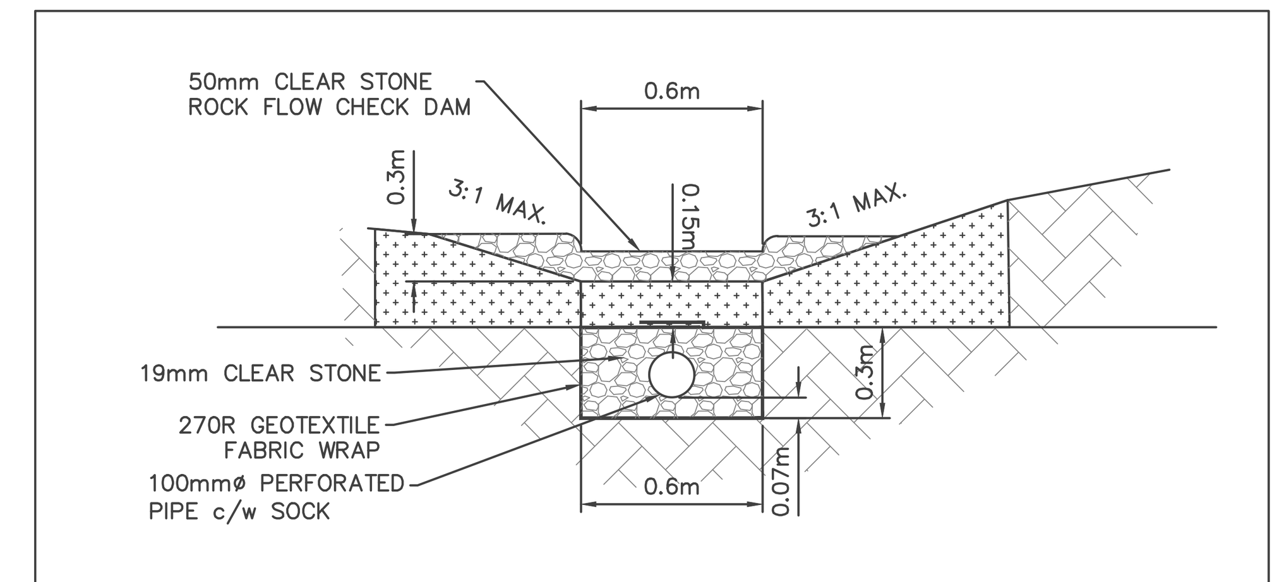




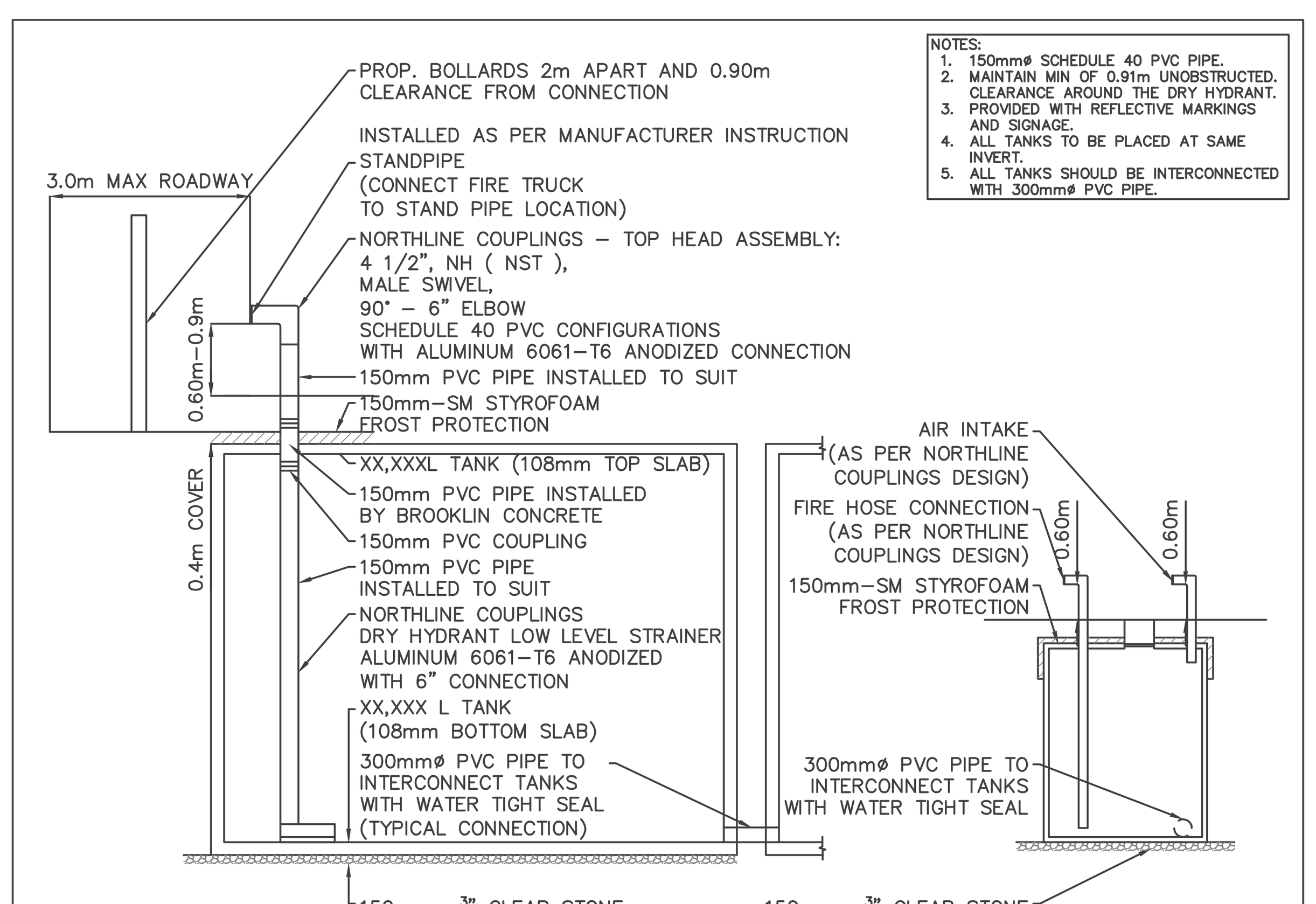




PIPE INSULATION DETAIL
(N.T.S.)



SWALE WITH PERFORATED PIPE
N.T.S.



DRY HYDRANT WITH TANK
N.T.S.

SEPTIC DESIGN NOTES:

DESIGN DAILY SEWAGE FLOW

PROPOSED "SIZE OF HOUSE"
BASE FLOW (O.B.C. 8.2.1.3.A.)
AREA: "AREA OF HOUSE" sq.m.
FIXTURE LOAD: XXX
DESIGN FLOW Q = XXX L/D

SEPTIC TANK

MINIMUM WORKING CAPACITY OF SEPTIC TANK TO BE THE GREATER OF 2x DAILY FLOW RATE OR 3,600L: (O.B.C 8.2.2.3.(1)(a))
2 x XXX L/D = XXXXL > XXXXL
SEPTIC TANK CAPACITY = X,XL

SEPTIC SYSTEM

FILTER BED SYSTEM AS PER O.B.C. 8.7.5.

REQ'D CONTACT AREA OF FILTER BED
A = Q/XX
A = XXXX / XX (O.B.C. 8.7.5.2.(4))
A = XXX sq.m.

PROVIDED CONTACT AREA OF FILTER BED
A = L X W
A = XXX sq.m.

REQ'D EXPANDED CONTACT AREA OF FILTER BED
A = QT/850
A = XXX x XX / 850 (O.B.C. 8.7.5.3.(6))
A = XXX sq.m.

PROVIDED EXPANDED CONTACT AREA OF FILTER BED
A = L x W
A = XXXX sq.m.

REQ'D LOADING AREA OF FILTER BED
A = Q/X
A = XXX/X
A = XXXX sq.m.

PROVIDED LOADING AREA OF FILTER BED
A = XXX sq.m.

DISTRIBUTION PIPE

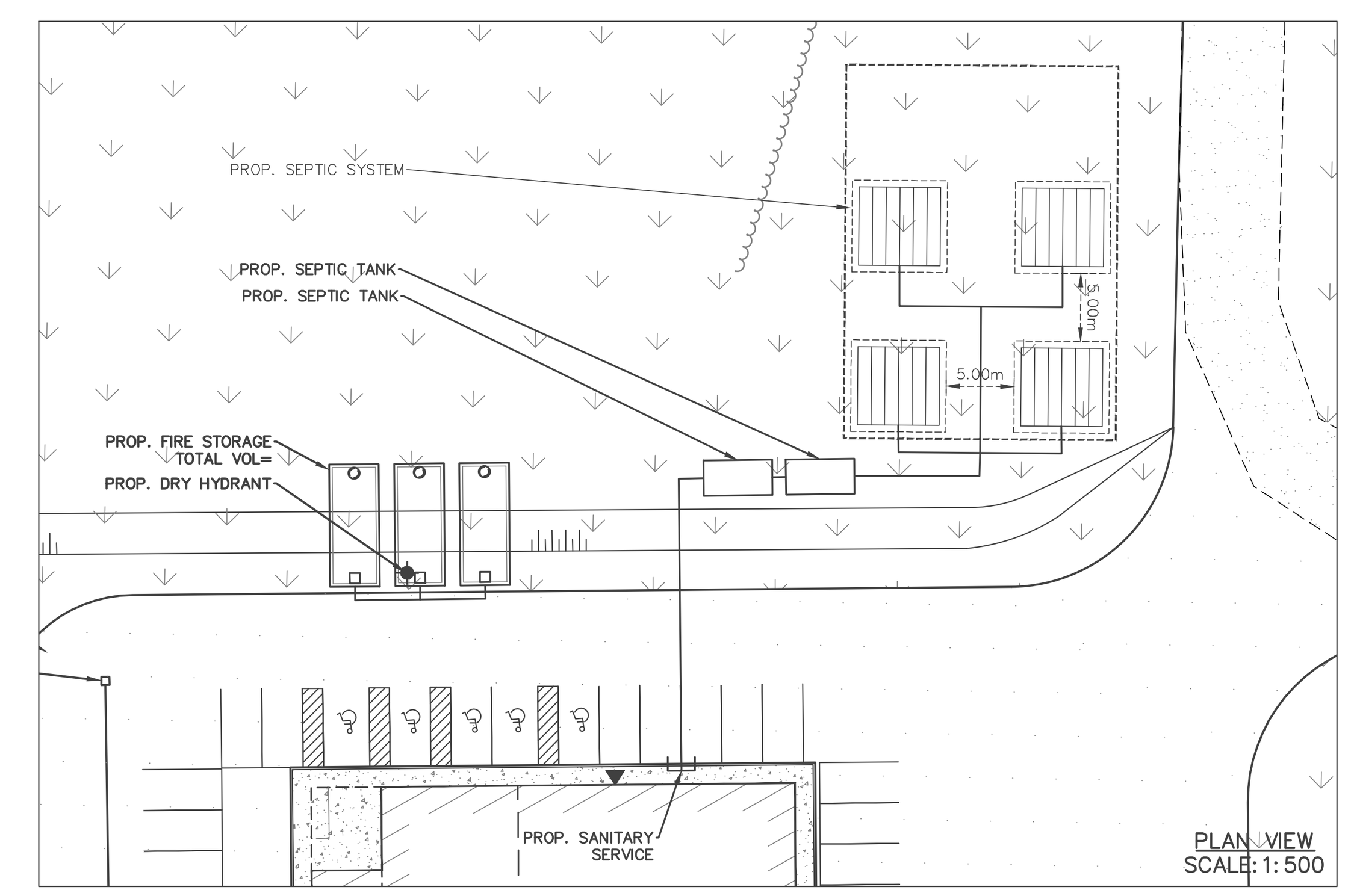
DISTRIBUTION PIPE TO BE LAID ON CLEAN IMPORTED SAND MATERIAL. CONTRACTOR TO ENSURE THAT ALL TOPSOIL IS STRIPPED FROM SITE. ALL HEAVY EQUIPMENT TO BE KEPT OFF LEACHING BED AREA. BASE OF BED TO BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO THE PLACEMENT OF DISTRIBUTION PIPING.

REINSTATEMENT:

ALL TOPSOIL FROM CONSTRUCTION AREAS TO BE STOCKPILED AND THEN REPLACED TO A MINIMUM DEPTH OF 150mm. SOD AND/OR SEED AND MULCH TO BE APPLIED TO ALL DISTURBED AREAS. ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH LATEST EDITION OF THE ONTARIO BUILDING CODE (PART 8). ALL SURFACE DRAINAGE, FOOTING DRAINS, ROOF LEADERS AND SUMP PUMP DRAINS MUST BE DIRECTED AWAY FROM LEACHING BED.

NOTES:

1. THE PERCOLATION RATE OF THE NATIVE SOILS IS ASSUMED TO BE 50 min/cm.
2. THE BOTTOM OF THE STONE LAYER MUST BE VERTICALLY SEPARATED AT LEAST 600 mm FROM THE HIGH GROUND WATER TABLE, ROCK OR SOIL WITH A PERCOLATION RATE OF 1 min/cm OR LESS, OR GREATER THAN 50 min/cm. NATIVE SOIL WITH A PERCOLATION RATE BETWEEN 1min/cm AND 50 min/cm, OR IMPORTED LEACHING FILL WITH A PERCOLATION RATE EQUAL TO OR LESS THAN 15 min/cm CAN BE USED TO SATISFY THIS VERTICAL SEPARATION REQUIREMENT.
3. THE SAND LAYER SHALL ALSO BE EXTENDED 15M BEYOND THE PERIMETER OF THE DISTRIBUTION PIPES IN THE DIRECTION OF FLOW. THIS EXTENDED LAYER CAN BE COMPRISED OF NATIVE SOIL. IF IT HAS THE PROPERTIES OF SENTENCE 8.7.7.1(4) OF THE ONTARIO BUILDING CODE.
4. THE BASE OF THE SAND LAYER IS SLOPED 1–2% IN THE DIRECTION OF FLOW.
5. ALL SEPTIC SYSTEMS TO BE LOCATED A MIN. 3.0m AWAY FROM ALL PROPERTY LINES.
6. ALL SEPTIC SYSTEMS TO BE LOCATED A MIN. 15.0m FROM DRILLED WELLS AND 30.0m FROM ALL DUGS WELLS.



PLAN VIEW
SCALE: 1:500

SECTION A–A
SCALE:

SECTION B–B
SCALE:

Gerrits ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
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0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS, QUOTATION/TENDER, OR CONSTRUCTION.

Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

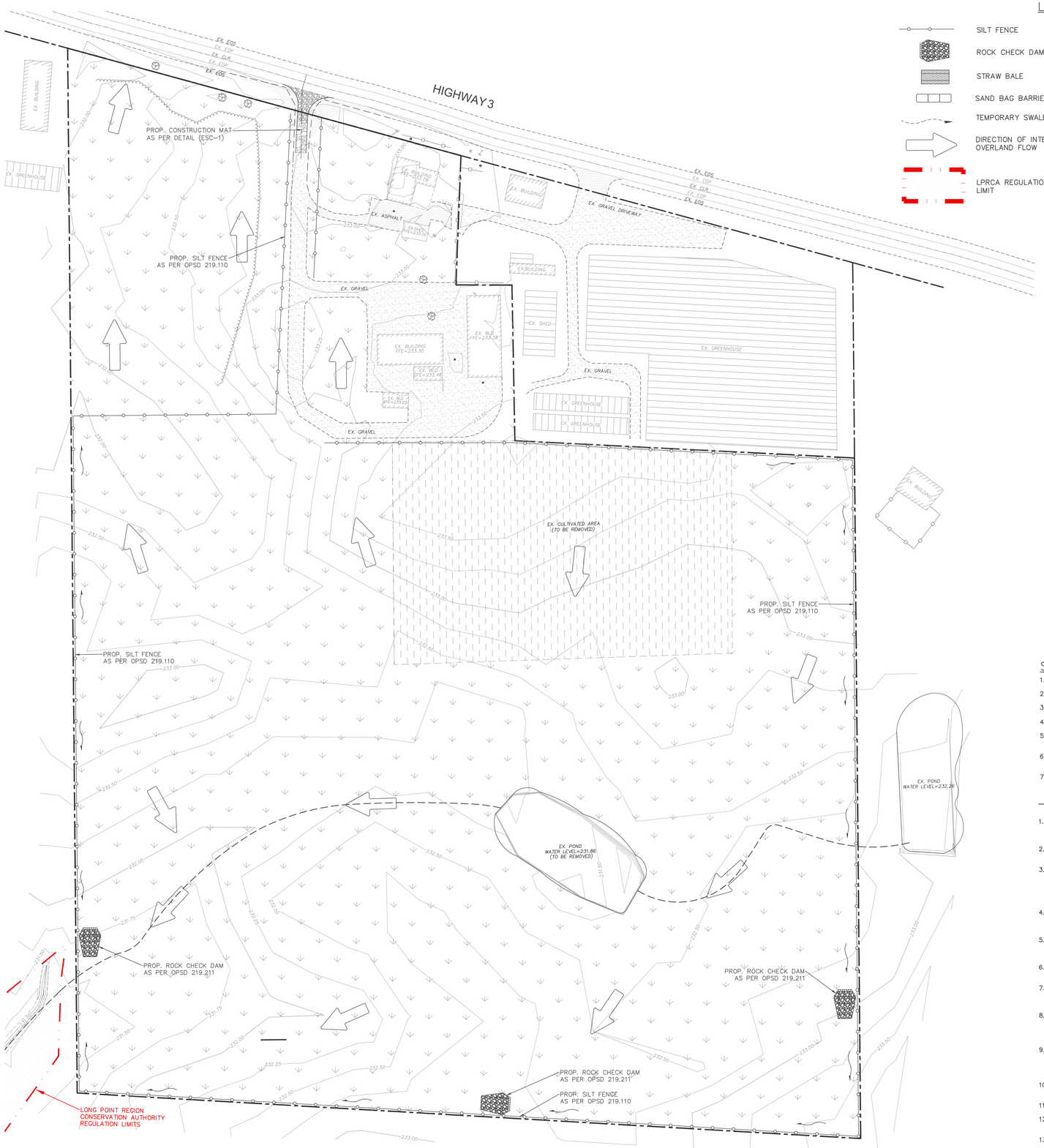
Drawing:

NOTES & DETAILS

Project No. 1121-012-22	Designed by: RM	Checked by: KF
Scale:	Drawn by: RM	Approved by: JDM
Orientation	Stamp	

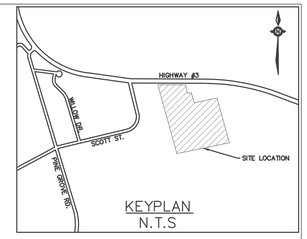
Drawing No.

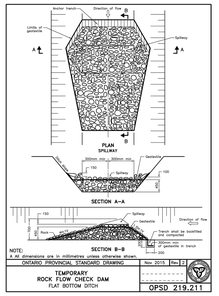
ND-1

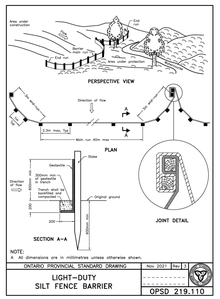


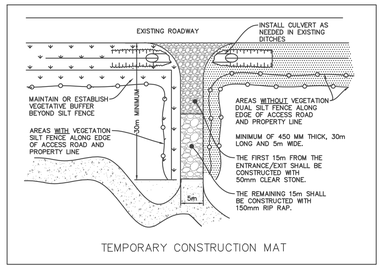
LEGEND

- SILT FENCE
- ROCK CHECK DAM
- STRAW BALE
- SAND BAG BARRIER
- TEMPORARY SWALE
- DIRECTION OF INTERIM OVERLAND FLOW
- LPRCA REGULATION LIMIT
- ASPHALT REMOVAL AREA
- CULTIVATED AREA
- TREED AREA
- DECIDUOUS TREE
- CONIFEROUS TREE









SEQUENCE OF CONSTRUCTION

1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ONSITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. COMMENCE WITH EARTH EXCAVATION AND SITE SERVICING (TO BE REMOVED FROM SITE – NO STOCKPILE).
5. EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.
7. ALL CONSTRUCTION VEHICLES TO ACCESS THE SITE VIA THE DESIGNATED CONSTRUCTION ENTRANCES AS SHOWN.

NOTES FOR SEDIMENT & EROSION CONTROL

1. DISTURBED AREAS THAT HAVE FAILED TO HAVE STABLE GROUND COVER ESTABLISHED BY OCTOBER 30TH SHALL BE PROTECTED WITH A SILTATION CONTROL FENCE OR STRAW MULCH ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION BECOMES ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
2. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30 M FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE ADMINISTRATOR.
3. SILT FENCE SHALL BE PUT IN PLACE PRIOR TO AND MAINTAINED DURING ALL GRADING. SILT FENCE SHALL COMPLY WITH OPSD 219.110 FOR LIGHT DUTY AND / OR OPSD 219.130 FOR HEAVY DUTY; UNLESS NOTED OTHERWISE. SILT FENCE TO BE INSPECTED PRIOR TO COMMENCEMENT OF EARTH GRADING ACTIVITIES. SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGED AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROLS TO BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN EVENT. INSTALLATION SHALL BE TO THE MANUFACTURER'S SUGGESTED SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK, AND AFTER EVERY RAINFALL EVENT.
5. MUD MATS WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE SHALL BE USED. MUD MATS TO BE 300mm IN DEPTH, 6.0m WIDE BY 20.0m LONG, FIRST 10.0m TO 150mmø CLEAR STONE WITH THE REMAINING 10.0m CONSISTING OF 50mmø CLEAR STONE; OR MEET MUNICIPAL STANDARDS WHERE IDENTIFIED.
6. CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 805, CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS ALL APPLICABLE MUNICIPAL STANDARDS.
7. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES SHOULD BE PRESENTED IN WRITING FOR APPROVAL OF THE SITE ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE CONSERVATION AUTHORITY.
8. THE TOPS OF ALL FILTER FABRIC MUST BE A MINIMUM OF 1.0 METRES ABOVE THE GROUND LEVEL AND ATTACHED TO THE FENCE WITH A CONTINUOUS STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOPED THROUGH THE FABRIC ON BOTH SIDES OF THE FENCE. FILTER FABRIC IS TO BE TERRAFIX 270R OR EQUIVALENT.
9. ALL DISTURBED GROUND LEFT INACTIVE SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONTROL MEASURES. THIS PERIOD OF INACTIVITY SHALL BE AT THE DISCRETION OF THE MUNICIPAL DIRECTOR OF ENGINEERING BUT SHALL NOT EXCEED (30) DAYS OR SUCH LONGER PERIOD DEEMED ADVISABLE BY THE MUNICIPAL DIRECTOR OF ENGINEERING.
10. CONTRACTOR SHALL INSTALL AND MAINTAIN CATCHBASIN SEDIMENT BARRIERS THROUGHOUT THE SITE DURING ALL CONSTRUCTION ACTIVITIES IN ORDER TO MITIGATE SEDIMENT ENTERING THE STORM STORM SEWERS.
11. NO FUEL TO BE STORED ON SITE. IN CASE OF A SPILL PLEASE CONTACT: MOECC SPILLS ACTION CENTER 1-800-268-6060.
12. SEDIMENT CONTROLS ARE TO REMAIN IN PLACE UNTIL WRITTEN DIRECTION IS RECEIVED FROM THE ENGINEER REGARDING THEIR REMOVAL.
13. EROSION AND SEDIMENT CONTROLS WILL BE INSPECTED ON AS PER MUNICIPAL REQUIREMENTS OR AFTER SIGNIFICANT RAINFALL EVENTS.

Gerrits ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
Tel.: 613.217.8246

www.gerreng.com

This drawing may have been reduced.

0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK; TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

EROSION & SEDIMENT CONTROL PLAN

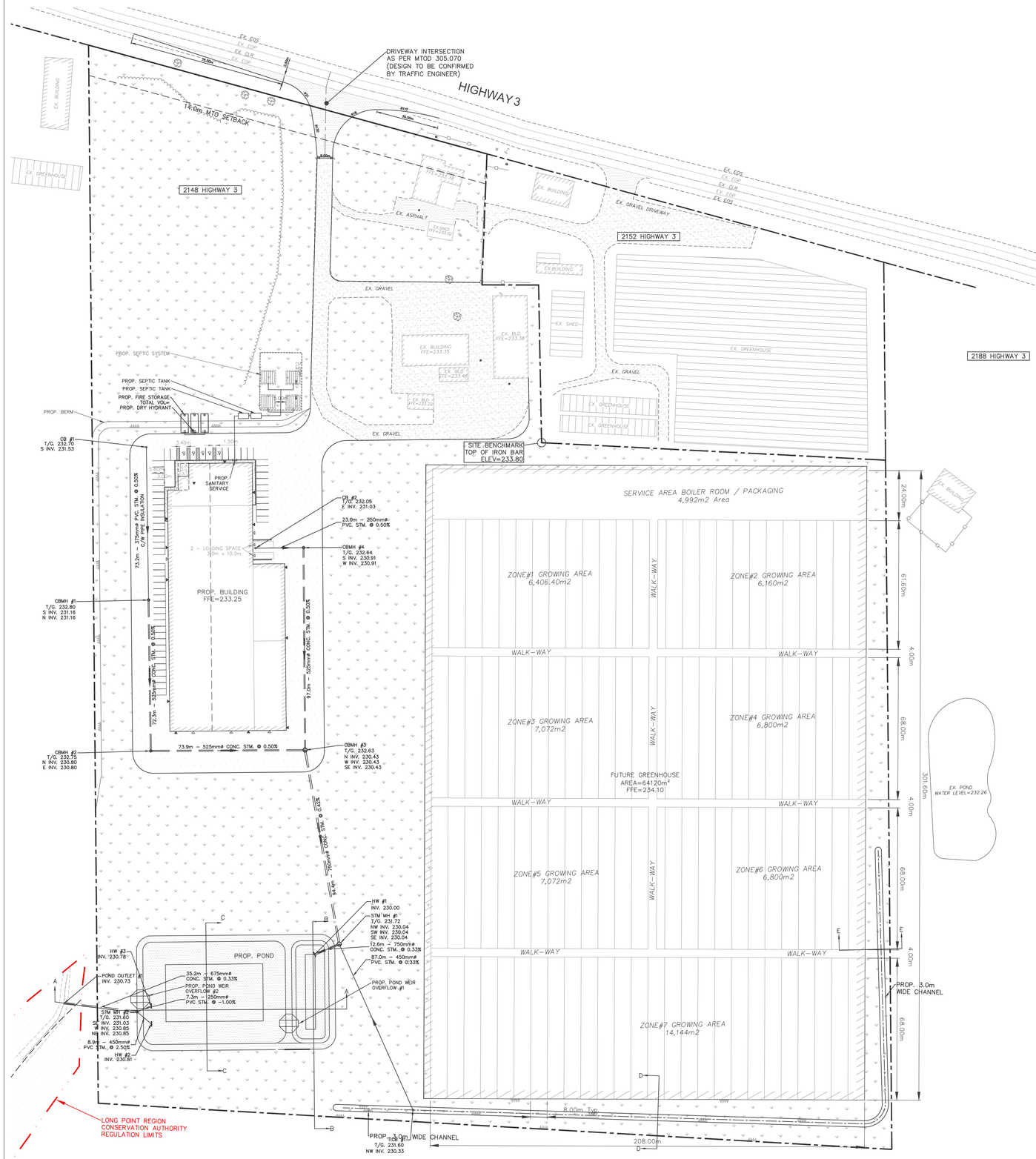
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

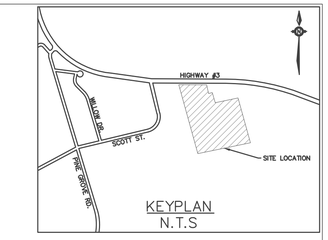
Orientation

Stamp

Drawing No.

ESC-1





KEYPLAN
N.T.S

LEGEND

- PRIVACY FENCE
- ACOUSTIC FENCE
- CHAIN LINK FENCE
- SILT FENCE
- GAS LINE
- HYDRO LINE
- BELL LINE
- EXISTING SANITARY MAINTENANCE HOLE
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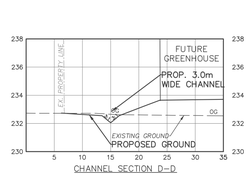
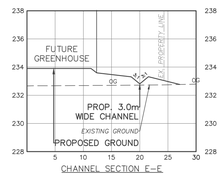
- GRAVEL AREA





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BENCHMARK; TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

SITE SERVICING PLAN

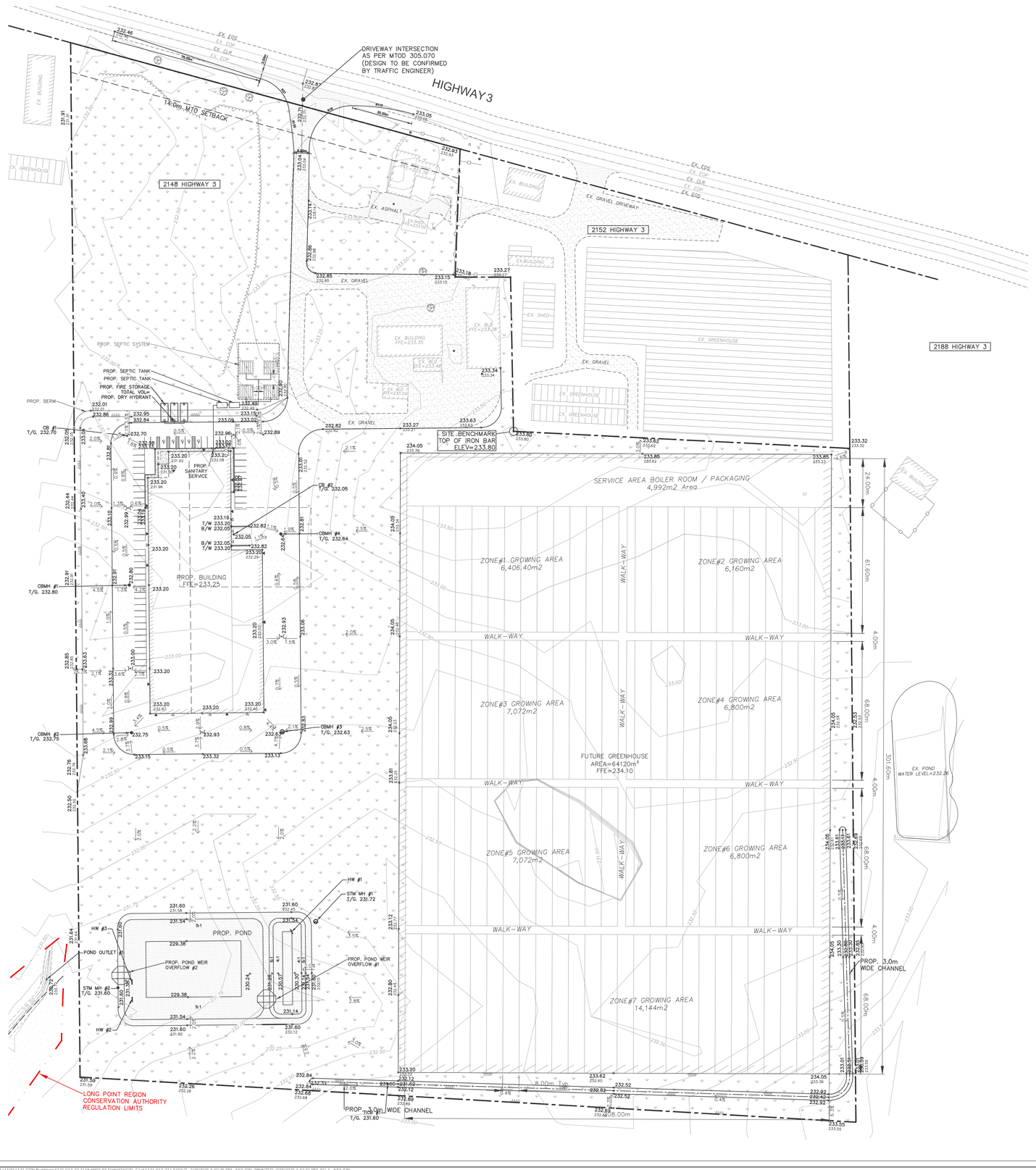
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

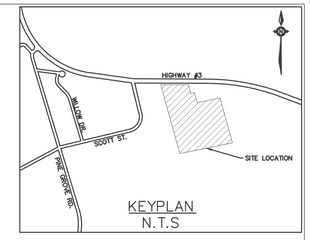
Orientation

Stamp

Drawing No.

SS-1





KEYPLAN
N.T.S

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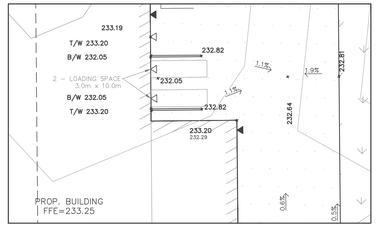

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No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
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BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

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Client

CDN BUILDINGS
523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI
2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

SITE GRADING PLAN

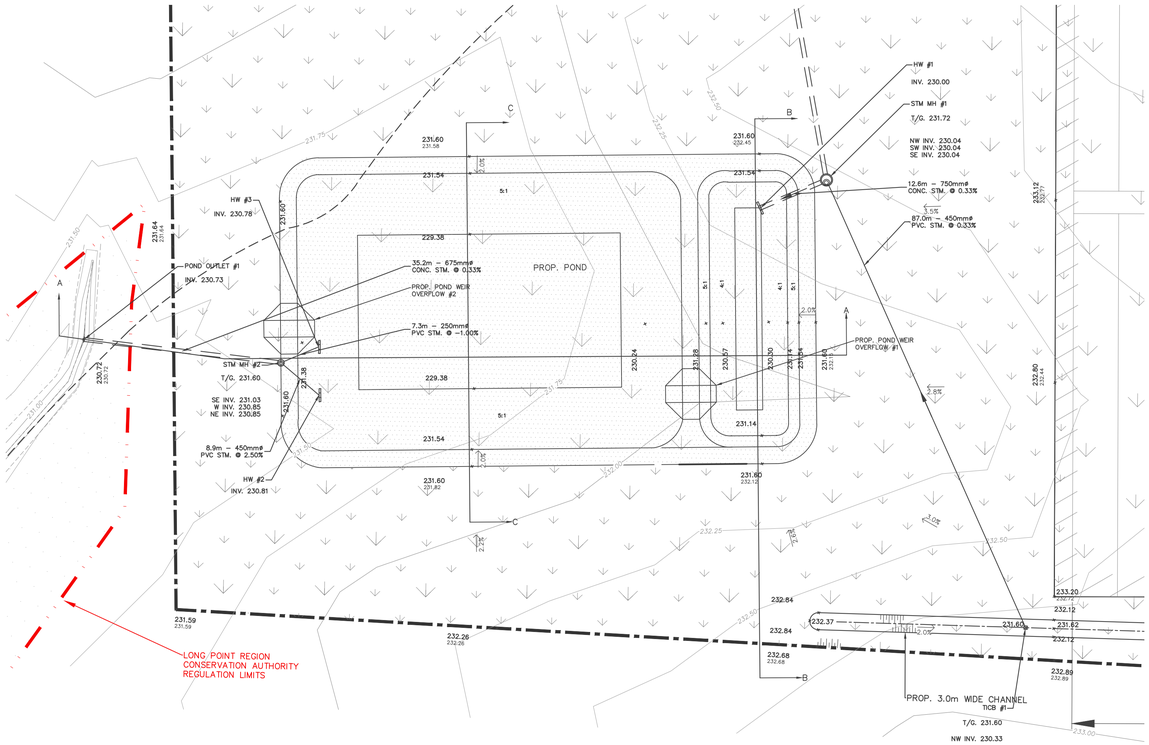
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

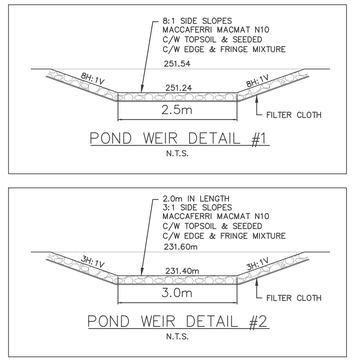
Orientation

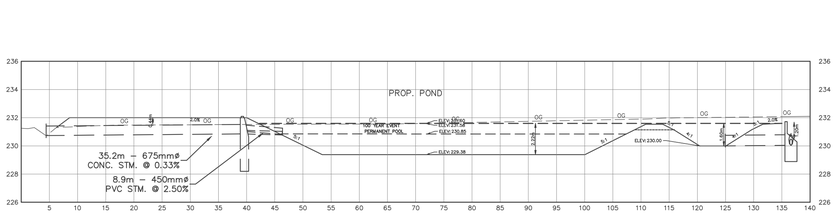
Stamp

Drawing No.

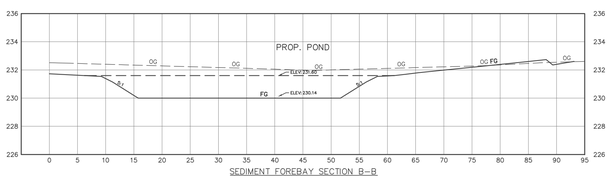
SG-1



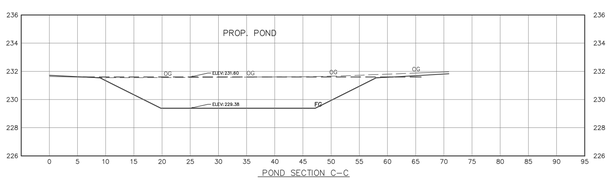




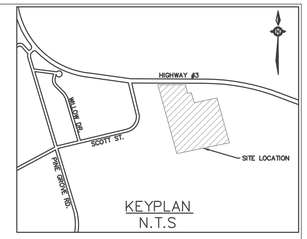
POND SECTION A–A



SEDIMENT FOREBAY SECTION B–B



POND SECTION C–C



LEGEND

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- GRAVEL AREA

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No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK; TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

POND PLAN

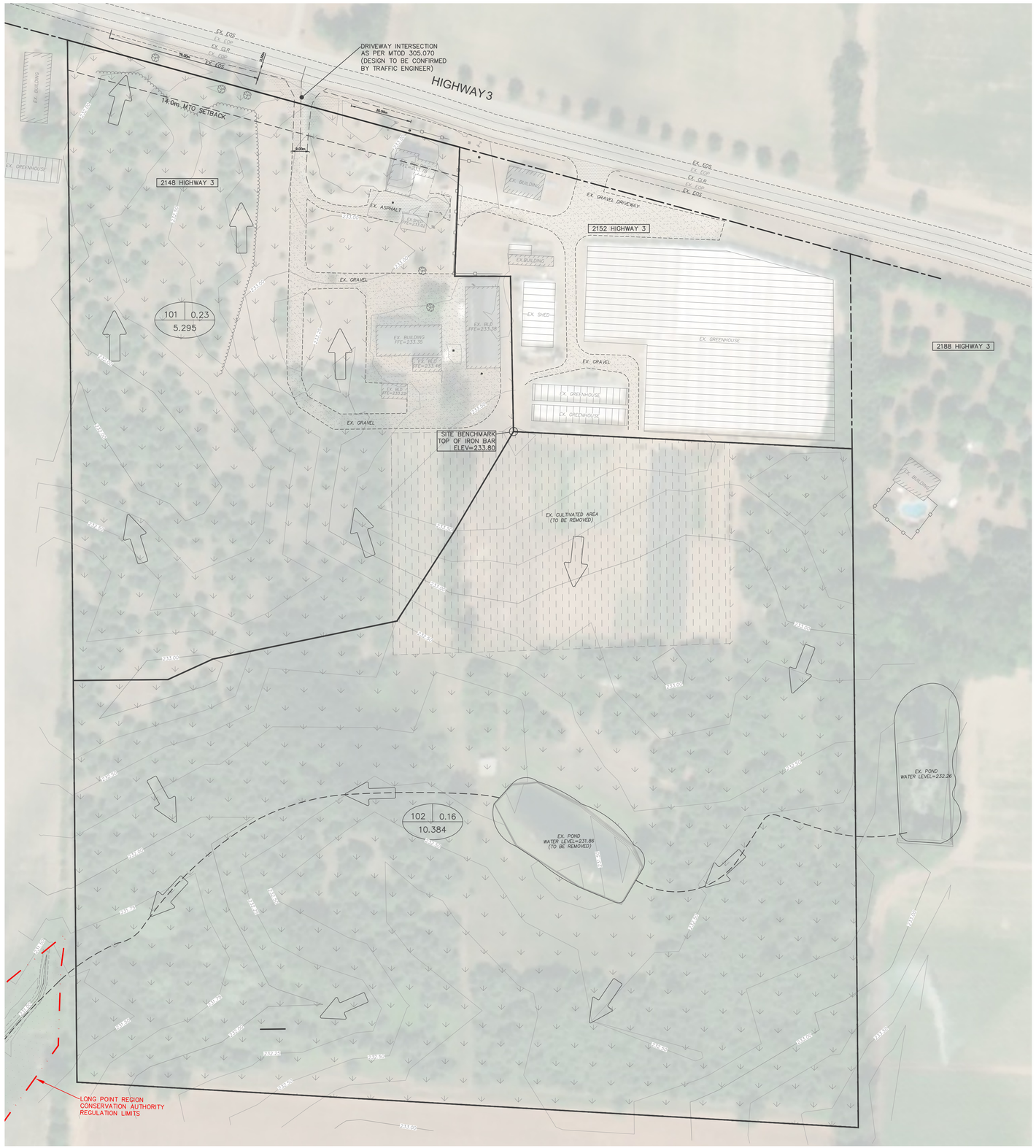
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:500	Drawn by: RM	Approved by: JDM

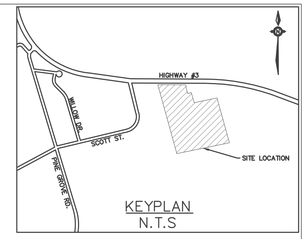
Orientation

Stamp

Drawing No.

PND-1





LEGEND

ID X/P–1 0.75 5.55 AREA (ha) — RUNOFF COEFFICIENT

CATCHMENT BOUNDARY

OVERLAND FLOW

LPRCA REGULATION LIMIT

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No.	Issuance Description	YY/MM/DD
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BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT
ELEVATION OF 233.80

Issued For:

APPROVAL

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

PRE–DEVELOPMENT STORMWATER DRAINAGE PLAN

Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

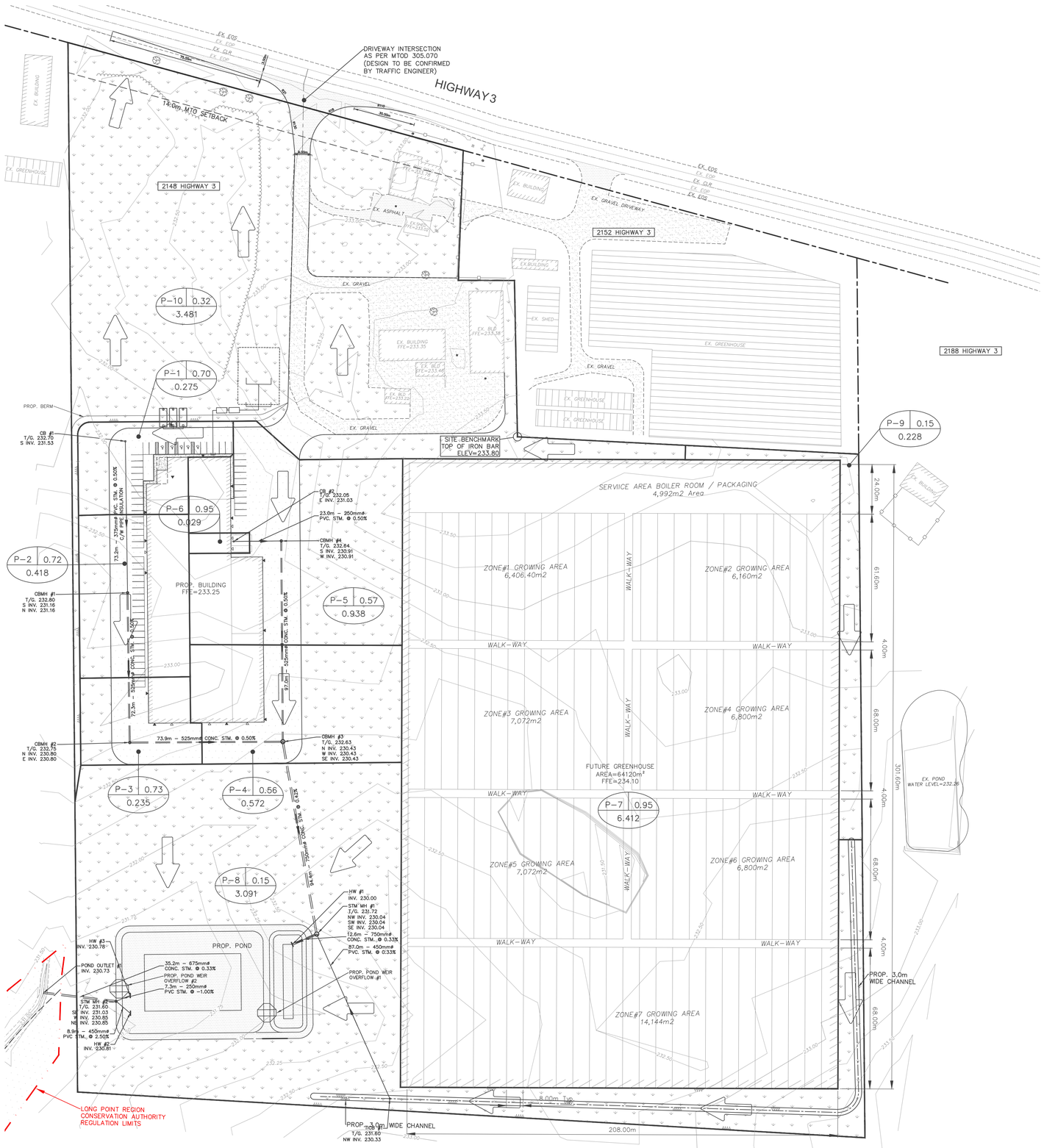
Orientation

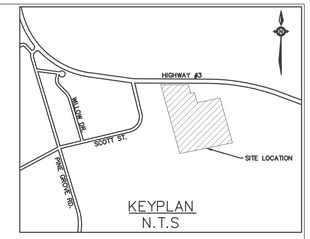
Stamp

Drawing No.

SWM-1

SAVED: X:\11000\1121 CDN Buildings\1121-012-22 2148 HWY #3 Delhi\DWGS_Civil\1121-012-22 LAYOUT, 2/28/2025 4:40:26 PM , KFILION PRINTED: 2/28/2025 4:42:24 PM, SWM-1, KFILION





LEGEND

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CATCHMENT BOUNDARY

OVERLAND FLOW

LPRCA REGULATION LIMIT

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BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

POST DEVELOPMENT STORMWATER DRAINAGE PLAN

Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

Orientation

Stamp

Drawing No.

SWM-2

Bill Dendekker

From: Hannelore Yager <Hannelore.Yager@norfolkcounty.ca>
Sent: November 27, 2023 11:30 AM
To: 'Heather Dixon'
Cc: Cheryl-Anne Ross; Bill Dendekker
Subject: RE: AA23-177A 2148 Highway 3 Requirement for an EIS

Hello,

Coincidentally yes, I did just receive feedback from both Forestry and the Director of Planning – good timing and thank you for your patience.

Forestry has undertaken on-site inspections to evaluate the accuracy of the Significant Woodland Mapping. The mapping, as I understand it, was done as a desktop exercise, and so it is not uncommon to have an individual tree or grouping of trees mapped as Significant Woodland. The Forestry Department's on-site investigation and opinion is intended to recommend relief from the Significant Woodland designation requirements in instances when it is relatively clear the designation does not fit the intended criteria to be considered a Significant Woodland.

At the time of inspection by the Forestry Department of the area, the area was deemed to be a past functioning Christmas tree farm, and as such, the tree removal and clearing was deemed to be in compliance with the by-law.

With the trees being gone now, my understanding from your statements and the Forestry Department's review is that area does not meet the intended classification for "Significant Woodlands".

The authority to waive any requirements for an EIS is with the Director of Planning – I can confirm this has been waived.

Please save this email for your records and include it with for your future submission. That way, future planning staff (when reviewing an application for 'completeness') can see a planner has consulted Forestry staff and the Director has waived an EIS. I will also save this to County Planning files.

Sincerely,
Hanne Yager

Hannelore Yager, MScPl
Planner
Planning
Community Development Division
185 Robinson St.
Suite 200, Simcoe, Ontario, N3Y 5L6
519-426-5870 x. 8095 | 226-NORFOLK

Providing valued public services that are responsive to our community's needs

From: Heather Dixon <Heather@aboudtng.com>
Sent: Monday, November 27, 2023 11:00 AM

Gerrits
ENGINEERING

CIVIL | STRUCTURAL | MECHANICAL | ELECTRICAL

ENGINEERING | BUILDINGS | RELATIONSHIPS

BARRIE | ONTARIO | 705-737-3303
WWW.GERRENG.COM

February 28, 2025

Project Number 1121-012-22

Functional Servicing Report

Regarding:

Proposed Greenhouse Building
2148 Highway 3
Delhi, Ontario

Prepared on behalf of:

CDN Buildings

By:

GERRITS ENGINEERING LIMITED
222 Mapleview Dr. W., Suite 300
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APPENDICES

LIST OF FIGURES & DRAWINGS

1. Introduction

Gerrits Engineering Ltd. (GEL) has been retained by CDN Buildings (Client) to provide engineering services for the proposed development located within the property identified as 2148 Highway 3 in Delhi, Ontario.

This Functional Servicing Report (FSR) has been prepared in support of the Site Plan Control Application prepared by CDN Building (CDN) to demonstrate how the proposed development can be serviced by the surrounding existing municipal infrastructure. This FSR will examine the property's conceptual servicing with relation to:

- Potable Water Supply
- Sanitary Sewerage
- Storm Sewerage
- Stormwater Management
- Erosion & Sediment Controls

1.1. Supporting & Reference Documents

The following documents have been referenced in the preparation of this report:

- Ministry of the Environment, Guidelines for the Design of Sanitary Sewage Works and Water Works – 2008
- Ministry of the Environment, Stormwater Management Planning and Design Manual, March 2003
- Ontario Building Code (OBC, 2024)
- Ministry of Transportation, Drainage Management Manual (MTO, 1997)

1.2. Subject Property

The site is located at 2148 Highway 3 in Delhi, Ontario and is legally described as Concession/Lot in the Township of Delhi, County of Norfolk. The site is presently developed with a single-family home, associated barn/warehouse structures, outdoor storage and parking areas. The site is bound by Highway 3 to the north, a commercial garden center to the east, residential/agricultural land to the west and agricultural land to the south. The site is approximately 15.7 ha in area, trapezoidal in shape and generally slopes in two directions. Approximately one-third of the site drains to the north towards Highway 3, while the other two-thirds of the site drains to the south/southwest. The topographical information is based on a survey completed by JoeTOPO Survey and CADD and aerial mapping from Google Imagery.

Figure 1 - Subject Property (Red)

1.3. Proposed Land Use

The proponent is seeking to undertake the proposed development in two phases. The first phase will consist of the construction of a fabrication shop for a greenhouse manufacturing establishment, including 161 parking spaces. The structure will include a maintenance shop for repairs, wash bays, a fabrication shop equipped with a crane/hoist, office space for employees and sales. The second phase of the development will consist of the construction of a greenhouse for growing strawberries. The preliminary site plan is attached in Appendix C.

2. Sanitary Servicing

It is proposed that the subject lands will be serviced by an on-site sewage system as per the Ontario Building Code (O.B.C).

2.1 Septic System

The development of the private septic system will be required to meet the provisions of Part 8 of the Ontario Building Code, more specifically Class IV sewage systems, which governs the design and installation of sewage systems of less than 10,000 L per day.

Based on the O.B.C. Table 8.2.1.3.B, the following design flow rate has been generated for both facilities including the existing residence. Referencing the Geotechnical Investigation conducted by JLP Services Incorporated, dated November 21, 2022; the surficial soils are identified in Unified Soils Classification Groups SW-SP (Well-Graded to Poorly Graded Sand) and SM (Silty Sand). The SW-SP soils have high permeability at an approximate percolation rate of 7.6 cm/hr and the SM soils have a moderate permeability at an approximate percolation rate between 0.5 to 7.6 cm/hr.

This percolation rate of 8 min/cm was used for sizing the proposed leaching beds.

Q_{peak} = Proposed Buildings (O.B.C) + Existing Residence
= 950 Liters/Water Closet/Day & 150 Litres/Loading Bay/day (Warehouse) and 75 Liters/Employee/Day (Office) + 500 Litres/resident
=4 Water Closets and 3 Loading Bays - (950 L/WC/D x 2 + 150 L/LB/D x 3) + 25 Employees (75 Litres/Employee/day x 25) + 5 residents (500 L/resident/day x 5)
= 8,625 Liters/Day

Minimum Size of Septic Tank

As per O.B.C. 8.2.2.3.(1)(b);

Tank = 3 x 21,891 L
= 25,875 L

Size of Filter Bed Contact Area

As per O.B.C. 8.7.5.2.(4), the filter medium shall have an effective area that does not exceed 50 L/m^2 therefore required filter medium area is:

Area = Q / 50
= 8,625 / 50
= 173 m^2

Size of Filter Bed Expanded Contact Area

As per O.B.C. 8.7.5.3.(6), the base of the filter medium shall extend to a thickness of at least 250mm over an area meeting the requirements of the following formula:

Area = QT / 850
= 8,625 x 8 / 850
= 82 m^2

Loading Area

As per O.B.C. 8.7.4.1., the area described in Sentence 8.7.4.2.(1) shall be designed such that the loading rate does not exceed the values as laid out in Table 8.7.4.1. of the O.B.C.

Area = Q / 6
= 8,625 / 6
= 1,438 m^2

The following details the required and provided volumes of the septic bed system:

	Required
Tank Size (L):	8,625
Contact Area (m^2):	173
Expanded Contact Area (m^2):	82
Loading Area (m^2):	1,438

3. Water Supply and Distribution

3.1. Design Criteria

As previously indicated, it is proposed to service the facility with an existing well located at the north end of the facility. The water servicing for this Development has been considered from an internal perspective and the preliminary analysis of the onsite demands has been as per the MOE guidelines, and includes the following criteria:

- Commercial/Industrial Demand (Average Day Demand) = 28m^3/ha*d
- Max Day Factor (MDD) = 4.9
- Peak Hour Factor (PH) = 7.4
- Minimum pressure in system at MDD = 350 kPa
- Maximum pressure in system at MDD = 700 kPa
- Minimum pressure in system at Peak Hour (Maximum Day) Demands = 275 kPa
- Minimum pressure in system at Fire Flow + Maximum Day Demands = 140 kPa

The projected daily average, maximum day, and peak hourly flows from the subject property are summarized in the table below:

Table 1 – Design Water Flows

Average Daily Demand (Design)	195	m^3/d
	2.3	L/s
Maximum Day Demand (Design)	956	m^3/d
	11.1	L/s
Peak Hour Flow (Design)	1443	m^3/d
	16.7	L/s

3.2. Internal Distribution System

To service the subject facility's internal water distribution system, a private well is to be constructed and maintained in accordance with the Ontario Water Resources Act R.R.O 1990, Regulation 903 and the Safe Drinking Water Act including Ontario Regulation 169/03.

3.3. Fire Flow Requirement

As per the Ontario Building Code (2024) Section A-3.2.5.7 "Water Supply", it is required to provide adequate water supply for firefighting of every building. The required water supply for firefighting operations will be calculated for the proposed industrial/commercial building. As per the same code, adequate water supply for firefighting is not required for farm buildings of low human occupancy, which are exempt under the National Farm Building Code of Canada 1995. Structures used primarily for agricultural production, such as greenhouses, are generally classified as farm buildings because their design and use are focused on production rather than serving as places for long-term or high-density human occupancy. As such, no additional fire water supply will be provided for the proposed greenhouse. Detailed water supply calculations for the proposed commercial/industrial structure are provided in Appendix A and summarized as 1,586,693 L or 1587 m^3. It is acceptable to use a water supply from the permanent pool of the pond equal to 3,147 m^3, which would be pumped from a dry hydrant system.

4. Storm Drainage and Stormwater Management

A key component of the Development is the need to address environmental and related Stormwater Management (SWM) issues. These are examined in a framework aimed at meeting the Norfolk County, Long Point Region Conservation Authority (LPRCA), and MOE requirements. SWM parameters have evolved from an understanding of the location and sensitivity of the site's natural systems.

It is understood that the objectives of the SWM plan are to:

- Protect life and property from flooding and erosion.
- Maintain water quality for ecological integrity, recreational opportunities etc.
- Protect and maintain groundwater flow regime(s).
- Protect aquatic and fishery communities and habitats.
- Maintain and protect significant natural features.
- Protect and provide diverse recreational opportunities that are in harmony with the environment.

4.1. Existing Drainage Conditions

The subject property is approximately 15.7 Ha in size and as previously mentioned the site is presently developed with a single-family home, associated barn/warehouse structures, outdoor storage, and parking areas. The site is evaluated as having two drainage areas consisting of grasslands with hardened surfaces such as building roofs, concrete, gravel and asphalt surfaces. Based on our review of the mapping, topography across the development area is moderate, generally sloping southwest towards an existing watercourse for catchment area 102 and sloping north towards Highway 3 for catchment area 101. No onsite flow attenuation controls exist and pre-development flows from the site drain overland, in the form of sheet flow, towards the existing water course and the right of way. The existing watercourse meanders north and south, ultimately flowing west and drains into Big Creek, see attached Ontario Watershed Information Tool Mapping attached in Appendix D. Using the Ministry of Transportation SWM policies and Design Guidelines, the existing site statistics produce the following weighted runoff coefficient:

Undeveloped Lands	=	132,636 m^2	R	=	0.15	AR	=	6,454
Cultivated Lands	=	17,101 m^2	R	=	0.22	AR	=	3,762
Asphalt	=	557 m^2	R	=	0.95	AR	=	529
Building Roof	=	1,727 m^2	R	=	0.95	AR	=	1,641
Gravel	=	4,773 m^2	R	=	0.60	AR	=	2,864
					Total	AR	=	15,250

Site Area = 156,794 m^2 AR = 15,250 Weighted R = 0.18

4.2. Proposed Drainage Conditions

The proposed development will increase the imperviousness of the site, and it is important to quantify the increase in stormwater runoff rates for proper sizing of the on-site controls with downstream facilities. As per the proposed statistics, the post development weighted runoff is:

Unimproved Lands	=	70,463 m^2	R	=	0.15	AR	=	10,570
Asphalt	=	9,235 m^2	R	=	0.95	AR	=	8,773
Concrete	=	155 m^2	R	=	0.95	AR	=	147
Gravel	=	4,772 m^2	R	=	0.60	AR	=	4,533
Building Roof	=	72,169 m^2	R	=	0.95	AR	=	68,561
					Total	AR	=	92,584

Site Area = 156,794 m^2 AR = 92,584 Weighted R = 0.59

4.2.1. Hydrology Model Results

Given the size of the site, the Modified Rational Method will be used to determine the existing and anticipated SWM release rates. The Ministry of Transportation IDF curve equations were used for determining the storm intensity values and the following release rates have been calculated (Detailed calculations have been included in Appendix A):

Site Area	= 15.7 hectares
Runoff Coefficient	= 0.23 (existing condition) – Catchment Area X-101
	= 0.16 (existing condition) – Catchment Area X-102
	= 0.67 (proposed condition) – Catchment Area P1-P9
	= 0.32 (proposed condition) – Catchment Area P10
Time of Concentration (t_c)	= 10 Minutes
Rainfall Intensity	= Ministry of Transportation IDF Curve Parameters
Peaking Factor (C_i)	= 1.00 (2, 5 & 10 year design period)
	= 1.10 (25 year design period
	= 1.20 (50 year design period)
	= 1.25 (100 year design period)
Runoff Rate (Q_r)	= C_i x C x I x A x 360^{-1}

Applying the above criteria results in the following release rates:

Table 2 – Unmitigated Release Rates

	2 year (m^3/s)	5 year (m^3/s)	10 year (m^3/s)	25 year (m^3/s)	50 year (m^3/s)	100 year (m^3/s)
Pre-Development X-101 Towards the Right of Way	0.27	0.36	0.42	0.54	0.66	0.75
Pre-Development X-102 Towards the Water Course	0.38	0.49	0.57	0.74	0.90	1.02
Post-Development (w/o Attenuation) Towards the Right of Way	0.25	0.33	0.39	0.50	0.61	0.69
Post-Development (w/o Attenuation) Towards the Water Course	1.84	2.43	2.82	3.64	4.4	5.03

Based on the above results, there is a decrease in runoff to the Highway 3 right-of-way and a significant increase to the existing water course. Based on the modelled storm events, attenuation of runoff will be required for quantity control of flows directed to the existing watercourse.

4.3. Stormwater Quantity Control

The comparison of the pre and post development flows calculated in Table 2, indicates that quantity control is required for the site. The post development flows must be controlled such that they are less than or equal to the predevelopment flows for the site. To provide quantity control, on-site storage is required and is proposed to be provided in a wet pond that will receive site runoff prior to discharging at a controlled rate, through two quantity control pipe orifices and an overflow weir, to the southwest towards the existing watercourse that is ultimately tributary to Big Creek.

Release from the wet pond will be controlled by an outlet pipe sized using the following equation:

$Q = cA\sqrt{2gh}$

Q = allowable release rate
A = orifice area (m^2)
c = orifice coefficient = 0.80
g = gravitational constant = $9.81 m/s^2$
h = high water level over center of orifice (m)

We find that the proposed quantity control pipe orifices of 250 mm at an elevation of 230.85 m and 450 mm at an elevation 231.03 m in addition to the 3 m by 2.5 m overflow weir at an elevation 231.40 m, restrict the post development allowable release rates from the controlled areas, such that post development flows from the site are less than or equal to the pre development flows calculated in Table 2. The controlled calculated release rates for the proposed development are summarized in Table 3 below with detailed calculations have been included within Appendix A.

Table 3: Mitigated Release Rates & Storage Requirements

	2 year	5 year	10 year	25 year	50 year	100 year
Allowable Release Rate	0.63	0.84	0.97	1.25	1.51	1.73
Post Development Controlled Release Rate	0.30	0.39	0.45	0.59	0.83	1.13
Storage Volume Required (m^3)	1060	1385	1587	2015	2385	2653

The calculations summarized in Table 3 indicate that there is a reduction in the post development flows from the site and therefore the SWMF provides adequate quantity control. The quantity storage requirements within the stormwater management facility are calculated to be approximately 2653 m^3. The proposed SWMF has been sized with a total available quantity control volume of about 2660 m^3, which exceeds storage requirements. Detailed calculations have been provided in Appendix A.

4.4. Stormwater Quality Control

The MOE issued a "Stormwater Management Planning and Design Manual" in March 2003. This manual has been adopted by a variety of agencies including the Town. The objective of our SWM quality control will be to ensure MOE's Enhanced Protection. To achieve Enhanced Protection, permanent and temporary control of erosion and sediment transport are proposed and are discussed in the following sections.

4.4.1. Stormwater Quality Control During Construction

To ensure stormwater quality control during construction, it is imperative that effective environmental and sedimentation controls be in place throughout the entire area subjected to construction activities. With the requirement of earth grading, there will be a potential of soil erosion. It is therefore recommended that the following be implemented to assist in achieving acceptable stormwater runoff quality:

- Restoration of exposed surfaces with vegetation and non-vegetative material as soon as construction schedules permit;
- Installation of temporary sediment ponds, filter strips, silt fences and rock check dams or other similar facilities throughout the site, and specifically during all construction activities;
- Reduce stormwater drainage velocities where possible;
- Ensure that disturbed areas that are left inactive for more than 30 days shall be vegetated and stabilized as instructed by the Engineer;
- Minimize the amount of existing vegetation removed.

4.4.2. Permanent Quality Control

The objective of the permanent SWM quality controls will be to ensure MOE's Enhanced Protection Levels are met for the site runoff. The proposed development will increase the imperviousness of the site. It is important to quantify this increase to evaluate the potential downstream impacts. As per the site's statistics, the post development's Total Imperviousness (TIMP) is calculated as follows:

Area of Building	=	70,780 m^2
Area of Asphalt	=	11,195 m^2
Area of Conc.	=	165 m^2
Area of Gravel	=	4,772 m^2
Total Area	=	156,794 m^2

TIMP $= (A_{BLD} + A_{ASP} + A_{GRAV}) / A_{TOTAL}$
$= (78,853) / 121,980$
$= 0.65$ (or 65%)

The existing developed portion of the site will not be subject to additional quality control as the post development conditions for the site are to be the same as the predevelopment conditions. The developed portion of the site will be required to meet quality control in accordance with MOE Enhanced Protection Levels.

4.4.3. Wet Pond

Wet ponds are the most used end-of-pipe facility in the province of Ontario. Given that the proposed site provides an ideal condition to achieve many of the preferred criteria, a wet pond configuration was selected as the preferred alternative to achieve the stormwater management control objectives for the proposed development. Utilizing the MECP Manual Table 3.2 "Water Quality Storage Requirements based on Receiving Waters" and a site imperviousness of 65%, the stormwater management wet pond permanent pool volume required is 173 m^3/ha, which provides a calculated volume of 2104 m^3. In addition to the permanent pool volume for quality control, an additional 40 m^3/ha for active storage (extended detention) equal to 488 m^3 must be included in the pond sizing for quality control. The total required stormwater management quality control volume is calculated as follows:

Quality Control (80% TSS Removal)	2,104 m^3
Extended Detention Sizing:	488 m^3
Total:	2,592 m^3

A forebay to the wet pond is provided as pre-treatment. The minimum criteria for a forebay is 1m in depth, sized to ensure non-erosive velocities leaving the forebay and a maximum area equal to or less than 33% of the total permanent pool. The forebay length is determined by using the Forebay Settling Length Equation:

$$Dist = \sqrt{\frac{rQ_p}{V_s}}$$

Where:
Dist= Forebay Length (m)

r=length to width ratio of forebay for a single inlet (2:1)

Q_p= peak flow rate from the pond during the design quality storm (0.75 m^3/s for 2-year return period)

V_s= Settling Velocity (0.0003 m/s used as per MOE Guideline Recommendations)

Given the above equation and the parameters as described, we find that a forebay length of 31 m is required. The total forebay length from the inlet to the channel overflow is 44 m, therefore there is sufficient forebay length to provide sediment distribution and pretreatment.

The dispersion length of the forebay can be calculated using the following equation:

$$Dist = \frac{8Q}{DV_f}$$

Where:
Q= Full capacity of the inlet pipe (0.64 m3/s for a 750mm HDPE pipe at 0.33%)

D= Depth of Forebay (1.5 m)

Vf= Desired velocity in the forebay (0.15 m/s)

Given the above equation and the parameters as described, we find that a dispersion length within the forebay of 23 m is required. The total forebay length from the inlet to the channel overflow is 44 m, therefore there is sufficient forebay length to provide dispersion.

The minimum forebay deep bottom width can be calculated using the following equation:

$$W = \frac{Dist}{8}$$

Where:
W= Width (m)

Dist= Distribution length (23 m)

Given the above equation and parameters as described, we find that a minimum forebay deep bottom width is calculated as 2.9 m. The width of the forebay deep bottom is 3m, therefore the requirement is met.

4.5. Erosion and Sediment Control

To ensure Stormwater runoff quality is controlled during construction, an erosion and sediment control strategy will be implemented to mitigate transportation of silt off-site to the existing roads and sewers. It is imperative that effective controls be put in place and maintained until all areas are stabilized with surface cover. All erosion and sediment control Best Management Practices (BMP) shall be designed, constructed, and maintained in accordance with the CVC's erosion control requirements.

Items that will be addressed for both temporary and permanent erosion and sediment controls are based on the following:

- Site location description and area;
- Existing and proposed land use;
- Vegetative cover;
- Existing drainage routes;
- Proposed site works;
- Proposed outlets;
- Permits required;
- Sediment filters and barriers - silt fences;
- Construction entrance location;
- Protection to catch basins and ditch inlets;

To prevent construction generated sediments from entering the storm sewers or leaving the site by overland flow, the following measures should be implemented during the construction phase:

- Temporary sediment control fencing should be erected around the perimeter of the grading activities.
- Temporary sediment fabric and stone filters should be installed on existing and proposed catch basins until surface cover and vegetation has been stabilized.
- A temporary construction access mud mat should be implemented to reduce the amount of materials that may be transported off site.
- Construction during drier months should be monitored for wind-borne transport of sediments. At the direction of the engineer, the contractor may be directed to water down exposed earth areas with an aqueous solution of calcium chloride.
- All disturbed areas not under immediate construction for 30 days, or not intended for building activities within a 3-month time period, should be stabilized with seeding.
- Built up sediment should be removed and disposed off-site at least once a month, or more frequently as directed by the engineer.

5. Conclusions

Implementation of the designs outlined in this report will ensure that there are appropriately sized services that support the operational conditions of the site and that the stormwater drainage from the site complies with the requirements of the reviewing authorities, is of acceptable quality both during and after construction, and further, in the event of a major storm, that proper facilities are in place to protect the buildings and adjacent properties.

All of which is respectfully submitted,

Gerrits Engineering Ltd.

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Appendix A
Design Calculations

Gerrits ENGINEERING

Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

RUNOFF COEFFICIENT CALCULATIONS

Reference Material

**Insert the municipality or guideline that provides the C values

Parameters

Surface Area	Runoff Coefficient
Undeveloped	0.15
Cultivated	0.22
Predevelopment Gravel	0.60
Post Development Gravel	0.95
Asphalt	0.95
Concrete	0.95
Building Roof	0.95

WEIGHTED RUNOFF COEFFICIENTS

Area ID	Total Area (m^2)	Cultivated	Undeveloped	Gravel	Asphalt	Concrete	Building	Weighted Runoff Coefficient
Predevelopment Sub Areas								0.18
X-101	52953	2869	43027	4773	557	0	1727	0.23
X-102	103841	14232	89609	0	0	0	0	0.16
Total	**156794**	**17101**	**132636**	**4773**	**557**	**0**	**1727**	**0.18**
Post Development Sub Areas								0.59
P-1	2752	0	866	0	1296	127	463	0.70
P-2	4184	0	1183	0	1409	0	1592	0.72
P-3	2348	0	651	0	1247	0	450	0.73
P-4	5725	0	2770	0	1621	0	1334	0.56
P-5	9375	0	4467	0	2591	28	2289	0.57
P-6	286	0	0	0	88	0	198	0.95
P-7	64120	0	0	0	0	0	64120	0.95
P-8	30914	0	30914	0	0	0	0	0.15
P-9	2276	0	2276	0	0	0	0	0.15
P-10	34814	0	27336	4772	983	0	1723	0.32
Total	**156794**	**0**	**70463**	**4772**	**9235**	**155**	**72169**	**0.59**
Controlled Sub Areas (P1 - P9)								0.67
Total	**121980**	**0**	**43127**	**0**	**8252**	**155**	**70446**	**0.67**
Uncontrolled Sub Areas (P4)								0.32
Total	**34814**	**0**	**27336**	**4772**	**983**	**0**	**1723**	**0.32**

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STORM SEWER DESIGN SHEET

Reference Documents

MECP Design Guidelines for Sewage Works, 2008
Ontario Building Code, 2012

IDF Curve Parameters

Storm Event	Coeff A	Coeff B	Coeff C
5-Year	30.7	-0.699	0.000

Formulae

Rainfall Intensity, I (mm/hr)= A*(tc/60)^B
Release Rate, Q (m^3/s)=C,CIA/360

Where: t_c=Time of Concentration (min)
C= Runoff Coefficient
I= Rainfall Intesity (mm/hr)
A= Area (ha)

Return Event: 5-Year

STREET NAME	AREA ID	FROM MH	TO MH	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	AREA (ha)	C	C*A	ACCUM. C*A	TIME TO (min)	TIME IN (min)	INTENSITY (mm/hr)	TOTAL Q (m^3/s)	Q FULL (m^3/s)	V FULL (m/s)	% FULL
N/A	P1	CB 1	CBMH 1	73.2	0.50	375	0.28	0.70	0.19	0.19	10	1.1	107.42	0.057	0.124	1.123	46%
N/A	P2	CBMH 1	CBMH 2	72.3	0.50	525	0.42	0.72	0.30	0.50	11.1	0.9	99.94	0.137	0.304	1.405	45%
N/A	P3	CBMH 2	CBMH 3	73.9	0.50	525	0.23	0.73	0.17	0.67	11.9	0.9	94.87	0.176	0.304	1.405	58%
N/A	P6	CB 2	CBMH 4	23	0.50	250	0.03	0.95	0.03	0.03	10.0	0.4	107.42	0.008	0.042	0.857	19%
N/A	P5	CBMH 4	CBMH 3	97	0.50	525	0.94	0.57	0.53	0.56	10.4	1.2	104.18	0.162	0.304	1.405	53%
N/A	P4	CBMH 3	STM MH 1	94.4	0.42	750	0.57	0.56	0.32	1.55	12.8	1.0	90.29	0.388	0.722	1.633	54%
N/A	P8	TICB 1	STM MH 1	87	0.33	450	3.09	0.15	0.46	0.46	10.0	1.4	107.42	0.138	0.164	1.030	84%
N/A	POND	STM MH 1	POND INLET	12.6	0.33	750				2.01	13.78	0.15	85.83	0.480	0.640	1.448	75%

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Project Name: 2148 HWY 3- Delhi
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PRE AND POST DEVELOPMENT RELEASE RATES

IDF Curve Parameters

Storm Event	Coeff A	Coeff B	Coeff C
2-Year	23.3	-0.699	0.000
5-Year	30.7	-0.699	0.000
10-Year	35.6	-0.699	0.000
25-Year	41.8	-0.699	0.000
50-Year	46.4	-0.699	0.000
100-Year	50.9	-0.699	0.000

Site Statistics

Predevelopment	
Total Site Area (ha)	15.68
Runoff Coefficient, C	0.18
Time of Concentration (mins)	10

Post Development	
Total Site Area (ha)	15.68
Runoff Coefficient, C	0.59
Time of Concentration (mins)	10

Formulae

Rainfall Intensity, I (mm/hr)= A*(tc/60)^B
Release Rate, Q (m^3/s)=C_iCIA/360

Where:
t_c=Time of Concentration (min)
C_i= Peaking Coefficient
C= Runoff Coefficient
I= Rainfall Intesity (mm/hr)
A= Area (ha)

PREDEVELOPMENT RELEASE RATES

Return Rate	Peaking Coefficient, C_i	Runoff Coefficient, C	Rainfall Intensity (mm/hr)	Release Rate (m^3/s)
2-Year	1	0.18	81.52	0.63
5-Year	1	0.18	107.42	0.83
10-Year	1	0.18	124.56	0.97
25-Year	1.1	0.18	146.25	1.25
50-Year	1.2	0.18	162.35	1.51
100-Year	1.25	0.18	178.09	1.73

POST DEVELOPMENT RELEASE RATES

Return Rate	Peaking Coefficient, C_i	Runoff Coefficient, C	Rainfall Intensity (mm/hr)	Release Rate (m^3/s)
2-Year	1	0.59	81.52	2.10
5-Year	1	0.59	107.42	2.76
10-Year	1	0.59	124.56	3.20
25-Year	1.1	0.59	146.25	4.14
50-Year	1.2	0.59	162.35	5.01
100-Year	1.25	0.59	178.09	5.73

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Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

SUB AREA POST DEVELOPMENT RELEASE RATES

IDF Curve Parameters

Storm Event	Coeff A	Coeff B	Coeff C
2-Year	23.3	-0.699	0.000
5-Year	30.7	-0.699	0.000
10-Year	35.6	-0.699	0.000
25-Year	41.8	-0.699	0.000
50-Year	46.4	-0.699	0.000
100-Year	50.9	-0.699	0.000

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Time of Concentration (mins)	10

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Time of Concentration (mins)	10

Formulae

Rainfall Intensity, I (mm/hr)= A*(tc/60)^B
Release Rate, Q (m^3/s)=C_iCIA/360

Where:
t_c=Time of Concentration (min)
C_i= Peaking Coefficient
C= Runoff Coefficient
I= Rainfall Intesity (mm/hr)
A= Area (ha)

RELEASE RATES TRIBUTARY TO CONTROL SYSTEM (P1-P9)

Return Rate	Peaking Coefficient, C_i	Runoff Coefficient, C	Rainfall Intensity (mm/hr)	Release Rate (m^3/s)
2-Year	1	0.67	81.52	1.84
5-Year	1	0.67	107.42	2.43
10-Year	1	0.67	124.56	2.82
25-Year	1.1	0.67	146.25	3.64
50-Year	1.2	0.67	162.35	4.40
100-Year	1.25	0.67	178.09	5.03

RELEASE FROM UNCONTROLLED AREAS (P10)

Return Rate	Peaking Coefficient, C_i	Runoff Coefficient, C	Rainfall Intensity (mm/hr)	Release Rate (m^3/s)
2-Year	1	0.32	81.52	0.254
5-Year	1	0.32	107.42	0.334
10-Year	1	0.32	124.56	0.388
25-Year	1.1	0.32	146.25	0.501
50-Year	1.2	0.32	162.35	0.606
100-Year	1.25	0.32	178.09	0.693

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Project Name: 2148 HWY 3- Delhi
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STAGE STORAGE DISCHARGE FOR CONTROLLED AREA (P1-P9)

Formulae

Quantity Control Orifice

Release Rate, Q (m^3/s)=$c*A*(2*g*h)^{\wedge 0.5}$
Where:
c= Orifice Constant (0.8 pipe, 0.63 plate)
A= Area (m^2)
g= gravitational constant (m/s^2)
h= Head loss across orifice (m)

Over Flow Weir

Release Rate, Q (m^3/s)= $C*(h^{\wedge 3/2})*w$
Where:
C= Rectangular C
h=Depth of flow above weir (m)
w=width of weir (m)

Rectangular C Equation

y=(a+bx)/(1+cx+dx^2)
Where:

a	-10383.48985
b	3418997.012
c	2131595.078
d	-235014.2466

Quantity Control Systems

Quantity Control Orifice 1

Diameter (mm):	250.000
Elevation (m):	230.85
Constant:	0.8
Centroid (m):	230.98

Quantity Control Orifice 2

Diameter (mm):	450.000
Elevation (m):	231.03
Constant:	0.8
Centroid (m):	231.26

Over Flow Weir

Width (m):	3
Side Slopes:	3H:1V
Bottom Elevation (m):	231.4
Length of Weir (m):	2.50

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
230.88	0.00	0
231.03	0.04	482
231.23	0.09	1176
231.38	0.31	1737
231.48	0.49	2132
231.58	0.81	2560
231.63	1.00	2660

Notes:

Check

Storm Event	Allowable (m^3/s)	Controlled (m^3/s)	Storage (m^3)	Release	Storage
2-Year	0.634	0.295	1060	PASS	PASS
5-Year	0.835	0.386	1385	PASS	PASS
10-Year	0.968	0.447	1587	PASS	PASS
25-Year	1.25	0.592	2015	PASS	PASS
50-Year	1.51	0.830	2385	PASS	PASS
100-Year	1.73	1.128	2653	PASS	PASS

Elevation (m)	Incremental Depth (m)	Area (m^2)	Storage Volume (m^3)	Active Storage Volume (m^3)	Head Loss Across Orifice (m)	Calculated Release from Orifice (m^3/s)	Head Loss Across Orifice (m)	Calculated Release from Orifice (m^3/s)	Depth of Flow Above Weir (m)	Overflow (x)	Rectangular 'C'	Calculated Release from Weir (m^3/s)	Total Flow (m^3/s)	
229.38	0.00	13	0	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.43	0.05	1315	65	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.48	0.05	1352	131	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.53	0.05	1391	200	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.58	0.05	1429	271	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.63	0.05	1469	343	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.68	0.05	1508	417	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.73	0.05	1549	494	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.78	0.05	1590	572	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.83	0.05	1631	653	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.88	0.05	1673	735	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.93	0.05	1715	820	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
229.98	0.05	1758	907	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.03	0.05	1978	1001	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.08	0.05	2038	1101	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.13	0.05	2099	1205	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.18	0.05	2161	1311	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.23	0.05	2224	1421	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.28	0.05	2288	1534	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.33	0.05	2352	1650	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.38	0.05	2417	1769	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.43	0.05	2483	1891	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.48	0.05	2550	2017	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.53	0.05	2617	2146	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.58	0.05	2685	2279	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.63	0.05	2754	2415	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.68	0.05	2823	2554	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.73	0.05	2893	2697	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.78	0.05	2963	2844	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.83	0.05	3034	2994	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.88	0.05	3105	3147	0	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	PERMANENT POOL
230.93	0.05	3176	3304	157	0.00	0.000	0.00	0.000	0.00	0.00	0.00	0.00	0.000	
230.98	0.05	3248	3465	318	0.00	0.012	0.00	0.000	0.00	0.00	0.00	0.00	0.012	
231.03	0.05	3320	3629	482	0.06	0.041	0.00	0.000	0.00	0.00	0.00	0.00	0.041	EXTENDED DETENTION
231.08	0.05	3393	3797	650	0.11	0.056	0.00	0.000	0.00	0.00	0.00	0.00	0.056	
231.13	0.05	3466	3968	821	0.16	0.068	0.00	0.000	0.00	0.00	0.00	0.00	0.068	
231.18	0.05	3544	4143	996	0.21	0.079	0.00	0.000	0.00	0.00	0.00	0.00	0.079	
231.23	0.05	3623	4323	1176	0.25	0.088	0.00	0.000	0.00	0.00	0.00	0.00	0.088	
231.28	0.05	3703	4506	1359	0.31	0.096	0.03	0.089	0.00	0.00	0.00	0.00	0.185	
231.33	0.05	3784	4693	1546	0.36	0.104	0.08	0.154	0.00	0.00	0.00	0.00	0.258	
231.38	0.05	3864	4884	1737	0.41	0.111	0.13	0.199	0.00	0.00	0.00	0.00	0.310	
231.43	0.05	3946	5079	1932	0.46	0.117	0.18	0.236	0.03	0.01	1.20	0.02	0.372	
231.48	0.05	4027	5279	2132	0.50	0.124	0.22	0.267	0.08	0.03	1.46	0.10	0.490	
231.53	0.05	4110	5482	2335	0.56	0.130	0.28	0.296	0.13	0.05	1.52	0.21	0.639	
231.58	0.05	4879	5707	2560	0.61	0.135	0.33	0.321	0.18	0.07	1.55	0.35	0.811	
231.63	0.05	5164	5807	2660	0.66	0.141	0.38	0.345	0.23	0.09	1.57	0.52	1.004	MAX POND HEIGHT

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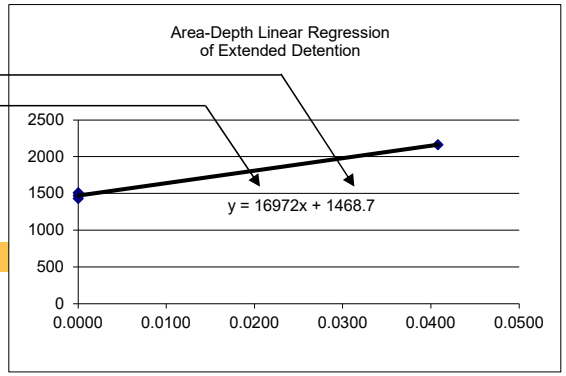
DRAWDOWN TIME

Parameters

Orifice Invert Elevation	230.85 m
Size of Orifice	250.00 mm
Orifice Constant	0.80

Elevation (m)	Area (m^2)	Volume (m^3)	Cum. Volume (m^3)	Storage Vol. (m^3)	Depth over Orifice (m)	h (m)	Flow (m^3/s)
230.88	1429	0.0	0	0	0.03	0.00	0.0000
230.93	1469	0.0	0	0	0.08	0.00	0.0000
230.98	1508	0.0	0	0	0.13	0.00	0.0000
231.03	2161	0.0	0	0	0.18	0.06	0.0408

Elevation of Perm. Pool	230.85 m
Intercept of Regression	1468.7 C_3
Slope of Regression	16972.00 C_2
Elevation of Overflow	1468.7 m
Depth over Orifice	0.70 m
Orifice Area	0.04909 sq.m
Drawdown Time	24.34 hrs.



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Gerrits ENGINEERING

2-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
2-Year Release Rate (m^3/s)	1.843

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
2-Year Release Rate (m^3/s)	0.254

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
230.88	0.000	0.00
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative $storage_{(i-1)}+\Delta$ $Storage_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.184	0.000	11.06	11.06	
2	0.369	0.001	22.06	33.12	
3	0.553	0.003	33.00	66.12	
4	0.737	0.006	43.89	110.01	
5	0.921	0.009	54.73	164.74	
6	1.106	0.014	65.51	230.25	
7	1.290	0.019	76.23	306.48	
8	1.474	0.026	86.90	393.38	
9	1.659	0.033	97.52	490.90	
10	1.843	0.041	108.09	598.98	
11	1.659	0.049	96.59	695.57	
12	1.474	0.055	85.14	780.71	
13	1.290	0.061	73.74	854.45	
14	1.106	0.066	62.38	916.83	
15	0.921	0.070	51.07	967.90	
16	0.737	0.074	39.80	1007.70	
17	0.553	0.076	28.58	1036.29	
18	0.369	0.078	17.41	1053.70	
19	0.184	0.080	6.28	1059.98	Max Storage
20	0.000	0.080	-4.80	1055.18	
21	0.000	0.080	-4.78	1050.40	
22	0.000	0.079	-4.76	1045.64	
23	0.000	0.079	-4.74	1040.90	
24	0.000	0.079	-4.72	1036.18	
25	0.000	0.078	-4.70	1031.47	
26	0.000	0.078	-4.68	1026.79	
27	0.000	0.078	-4.67	1022.12	
28	0.000	0.077	-4.65	1017.48	
29	0.000	0.077	-4.63	1012.85	
30	0.000	0.077	-4.61	1008.24	
31	0.000	0.076	-4.59	1003.65	
32	0.000	0.076	-4.57	999.08	
33	0.000	0.076	-4.55	994.53	
34	0.000	0.076	-4.53	990.00	
35	0.000	0.075	-4.52	985.48	
36	0.000	0.075	-4.50	980.98	
37	0.000	0.075	-4.48	976.50	
38	0.000	0.074	-4.46	972.04	
39	0.000	0.074	-4.44	967.60	
40	0.000	0.074	-4.42	963.18	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.025	0.025	0.000	0.000
2	0.051	0.051	0.000	0.000
3	0.076	0.076	0.000	0.000
4	0.101	0.101	0.000	0.000
5	0.127	0.127	0.000	0.000
6	0.152	0.152	0.000	0.000
7	0.178	0.178	0.000	0.000
8	0.203	0.203	0.000	0.000
9	0.228	0.228	0.000	0.000
10	0.254	0.254	0.000	0.000
11	0.228	0.228	0.000	0.000
12	0.203	0.203	0.000	0.000
13	0.178	0.178	0.000	0.000
14	0.152	0.152	0.000	0.000
15	0.127	0.127	0.000	0.000
16	0.101	0.101	0.000	0.000
17	0.076	0.076	0.000	0.000
18	0.051	0.051	0.000	0.000
19	0.025	0.025	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.025	
2	0.052	
3	0.079	
4	0.107	
5	0.136	
6	0.166	
7	0.197	
8	0.229	
9	0.262	
10	0.295	Max Release
11	0.277	
12	0.258	
13	0.239	
14	0.218	
15	0.197	
16	0.175	
17	0.153	
18	0.129	
19	0.105	
20	0.080	
21	0.080	
22	0.079	
23	0.079	
24	0.079	
25	0.078	
26	0.078	
27	0.078	
28	0.077	
29	0.077	
30	0.077	
31	0.076	
32	0.076	
33	0.076	
34	0.076	
35	0.075	
36	0.075	
37	0.075	
38	0.074	
39	0.074	
40	0.074	

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Gerrits ENGINEERING

5-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
5-Year Release Rate (m^3/s)	2.428

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
5-Year Release Rate (m^3/s)	0.334

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
230.88	0.000	0.00
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative storage$_{(i-1)}$+Δ Storage$_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.243	0.000	14.57	14.57	
2	0.486	0.001	29.06	43.63	
3	0.728	0.004	43.49	87.12	
4	0.971	0.007	57.83	144.95	
5	1.214	0.012	72.11	217.06	
6	1.457	0.018	86.31	303.37	
7	1.700	0.026	100.44	403.81	
8	1.943	0.034	114.50	518.31	
9	2.185	0.043	128.52	646.84	
10	2.428	0.052	142.57	789.41	
11	2.185	0.062	127.42	916.83	
12	1.943	0.070	112.33	1029.17	
13	1.700	0.078	97.31	1126.47	
14	1.457	0.085	82.34	1208.82	
15	1.214	0.101	66.78	1275.60	
16	0.971	0.127	50.63	1326.23	
17	0.728	0.147	34.86	1361.09	
18	0.486	0.161	19.46	1380.56	
19	0.243	0.169	4.43	1384.99	Max Storage
20	0.000	0.171	-10.24	1374.75	
21	0.000	0.167	-10.00	1364.75	
22	0.000	0.163	-9.76	1354.99	
23	0.000	0.159	-9.53	1345.46	
24	0.000	0.155	-9.30	1336.15	
25	0.000	0.151	-9.08	1327.07	
26	0.000	0.148	-8.87	1318.20	
27	0.000	0.144	-8.66	1309.55	
28	0.000	0.141	-8.45	1301.10	
29	0.000	0.138	-8.25	1292.85	
30	0.000	0.134	-8.05	1284.79	
31	0.000	0.131	-7.86	1276.93	
32	0.000	0.128	-7.68	1269.25	
33	0.000	0.125	-7.49	1261.75	
34	0.000	0.122	-7.32	1254.44	
35	0.000	0.119	-7.14	1247.29	
36	0.000	0.116	-6.97	1240.32	
37	0.000	0.113	-6.81	1233.51	
38	0.000	0.111	-6.65	1226.87	
39	0.000	0.108	-6.49	1220.38	
40	0.000	0.106	-6.33	1214.04	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.033	0.033	0.000	0.000
2	0.067	0.067	0.000	0.000
3	0.100	0.100	0.000	0.000
4	0.134	0.134	0.000	0.000
5	0.167	0.167	0.000	0.000
6	0.201	0.201	0.000	0.000
7	0.234	0.234	0.000	0.000
8	0.267	0.267	0.000	0.000
9	0.301	0.301	0.000	0.000
10	0.334	0.334	0.000	0.000
11	0.301	0.301	0.000	0.000
12	0.267	0.267	0.000	0.000
13	0.234	0.234	0.000	0.000
14	0.201	0.201	0.000	0.000
15	0.167	0.167	0.000	0.000
16	0.134	0.134	0.000	0.000
17	0.100	0.100	0.000	0.000
18	0.067	0.067	0.000	0.000
19	0.033	0.033	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.033	
2	0.068	
3	0.104	
4	0.141	
5	0.179	
6	0.219	
7	0.260	
8	0.302	
9	0.344	
10	0.386	Max Release
11	0.363	
12	0.338	
13	0.312	
14	0.285	
15	0.268	
16	0.261	
17	0.248	
18	0.228	
19	0.202	
20	0.171	
21	0.167	
22	0.163	
23	0.159	
24	0.155	
25	0.151	
26	0.148	
27	0.144	
28	0.141	
29	0.138	
30	0.134	
31	0.131	
32	0.128	
33	0.125	
34	0.122	
35	0.119	
36	0.116	
37	0.113	
38	0.111	
39	0.108	
40	0.106	

Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

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10-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
10-Year Release Rate (m^3/s)	2.816

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
10-Year Release Rate (m^3/s)	0.388

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
230.88	0.000	0.00
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative $storage_{(i-1)}$+Δ $Storage_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.282	0.000	16.89	16.89	
2	0.563	0.001	33.70	50.60	
3	0.845	0.004	50.43	101.02	
4	1.126	0.009	67.06	168.09	
5	1.408	0.014	83.62	251.71	
6	1.689	0.021	100.09	351.79	
7	1.971	0.030	116.47	468.27	
8	2.253	0.040	132.78	601.04	
9	2.534	0.049	149.12	750.16	
10	2.816	0.059	165.40	915.56	
11	2.534	0.070	147.84	1063.40	
12	2.253	0.080	130.34	1193.74	
13	1.971	0.095	112.56	1306.30	
14	1.689	0.140	92.99	1399.29	
15	1.408	0.176	73.89	1473.18	
16	1.126	0.206	55.24	1528.42	
17	0.845	0.227	37.04	1565.46	
18	0.563	0.242	19.26	1584.72	
19	0.282	0.250	1.91	1586.63	Max Storage
20	0.000	0.250	-15.03	1571.61	
21	0.000	0.245	-14.67	1556.94	
22	0.000	0.239	-14.32	1542.61	
23	0.000	0.233	-13.98	1528.63	
24	0.000	0.228	-13.65	1514.98	
25	0.000	0.222	-13.33	1501.65	
26	0.000	0.217	-13.01	1488.64	
27	0.000	0.212	-12.70	1475.94	
28	0.000	0.207	-12.40	1463.54	
29	0.000	0.202	-12.11	1451.43	
30	0.000	0.197	-11.82	1439.62	
31	0.000	0.192	-11.54	1428.08	
32	0.000	0.188	-11.26	1416.81	
33	0.000	0.183	-11.00	1405.82	
34	0.000	0.179	-10.74	1395.08	
35	0.000	0.175	-10.48	1384.60	
36	0.000	0.171	-10.23	1374.37	
37	0.000	0.166	-9.99	1364.38	
38	0.000	0.163	-9.75	1354.62	
39	0.000	0.159	-9.52	1345.10	
40	0.000	0.155	-9.30	1335.81	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.039	0.039	0.000	0.000
2	0.078	0.078	0.000	0.000
3	0.116	0.116	0.000	0.000
4	0.155	0.155	0.000	0.000
5	0.194	0.194	0.000	0.000
6	0.233	0.233	0.000	0.000
7	0.271	0.271	0.000	0.000
8	0.310	0.310	0.000	0.000
9	0.349	0.349	0.000	0.000
10	0.388	0.388	0.000	0.000
11	0.349	0.349	0.000	0.000
12	0.310	0.310	0.000	0.000
13	0.271	0.271	0.000	0.000
14	0.233	0.233	0.000	0.000
15	0.194	0.194	0.000	0.000
16	0.155	0.155	0.000	0.000
17	0.116	0.116	0.000	0.000
18	0.078	0.078	0.000	0.000
19	0.039	0.039	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.039	
2	0.079	
3	0.121	
4	0.164	
5	0.208	
6	0.254	
7	0.301	
8	0.350	
9	0.398	
10	0.447	Max Release
11	0.419	
12	0.390	
13	0.366	
14	0.372	
15	0.370	
16	0.361	
17	0.344	
18	0.320	
19	0.288	
20	0.250	
21	0.245	
22	0.239	
23	0.233	
24	0.228	
25	0.222	
26	0.217	
27	0.212	
28	0.207	
29	0.202	
30	0.197	
31	0.192	
32	0.188	
33	0.183	
34	0.179	
35	0.175	
36	0.171	
37	0.166	
38	0.163	
39	0.159	
40	0.155	

Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

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25-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
25-Year Release Rate (m^3/s)	3.637

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
25-Year Release Rate (m^3/s)	0.501

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24
#REF!	#REF!	#REF!

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative $storage_{(i-1)}$+Δ $Storage_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.364	0.000	21.82	21.82	
2	0.727	0.000	43.64	65.46	
3	1.091	0.000	65.46	130.92	
4	1.455	0.000	87.28	218.20	
5	1.818	0.000	109.10	327.30	
6	2.182	0.000	130.92	458.23	
7	2.546	0.000	152.74	610.97	
8	2.909	0.009	174.04	785.00	
9	3.273	0.021	195.15	980.15	
10	3.637	0.034	216.17	1196.33	
11	3.273	0.096	190.62	1386.95	
12	2.909	0.171	164.27	1551.22	
13	2.546	0.236	138.55	1689.77	
14	2.182	0.291	113.45	1803.22	
15	1.818	0.340	88.69	1891.91	
16	1.455	0.381	64.45	1956.36	
17	1.091	0.410	40.86	1997.23	
18	0.727	0.429	17.93	2015.15	Max Storage
19	0.364	0.437	-4.38	2010.77	
20	0.000	0.435	-26.08	1984.69	
21	0.000	0.423	-25.37	1959.31	
22	0.000	0.411	-24.68	1934.64	
23	0.000	0.400	-24.00	1910.64	
24	0.000	0.389	-23.35	1887.29	
25	0.000	0.378	-22.71	1864.58	
26	0.000	0.368	-22.09	1842.50	
27	0.000	0.358	-21.48	1821.02	
28	0.000	0.348	-20.89	1800.12	
29	0.000	0.339	-20.32	1779.80	
30	0.000	0.329	-19.77	1760.03	
31	0.000	0.320	-19.23	1740.81	
32	0.000	0.312	-18.70	1722.11	
33	0.000	0.304	-18.24	1703.86	
34	0.000	0.297	-17.81	1686.05	
35	0.000	0.290	-17.39	1668.67	
36	0.000	0.283	-16.97	1651.69	
37	0.000	0.276	-16.57	1635.12	
38	0.000	0.270	-16.18	1618.94	
39	0.000	0.263	-15.79	1603.15	
40	0.000	0.257	-15.42	1587.73	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.050	0.050	0.000	0.000
2	0.100	0.100	0.000	0.000
3	0.150	0.150	0.000	0.000
4	0.200	0.200	0.000	0.000
5	0.250	0.250	0.000	0.000
6	0.300	0.300	0.000	0.000
7	0.350	0.350	0.000	0.000
8	0.401	0.401	0.000	0.000
9	0.451	0.451	0.000	0.000
10	0.501	0.501	0.000	0.000
11	0.451	0.451	0.000	0.000
12	0.401	0.401	0.000	0.000
13	0.350	0.350	0.000	0.000
14	0.300	0.300	0.000	0.000
15	0.250	0.250	0.000	0.000
16	0.200	0.200	0.000	0.000
17	0.150	0.150	0.000	0.000
18	0.100	0.100	0.000	0.000
19	0.050	0.050	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.050	
2	0.100	
3	0.150	
4	0.200	
5	0.250	
6	0.300	
7	0.350	
8	0.409	
9	0.471	
10	0.535	
11	0.547	
12	0.572	
13	0.587	
14	0.592	Max Release
15	0.590	
16	0.581	
17	0.560	
18	0.529	
19	0.487	
20	0.435	
21	0.423	
22	0.411	
23	0.400	
24	0.389	
25	0.378	
26	0.368	
27	0.358	
28	0.348	
29	0.339	
30	0.329	
31	0.320	
32	0.312	
33	0.304	
34	0.297	
35	0.290	
36	0.283	
37	0.276	
38	0.270	
39	0.263	
40	0.257	

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Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

50-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
50-Year Release Rate (m^3/s)	4.404

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
50-Year Release Rate (m^3/s)	0.606

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24
#REF!	#REF!	#REF!

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative $storage_{(i-1)}+\Delta$ $Storage_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.440	0.000	26.42	26.42	
2	0.881	0.000	52.85	79.27	
3	1.321	0.000	79.27	158.54	
4	1.762	0.000	105.69	264.23	
5	2.202	0.000	132.12	396.35	
6	2.642	0.000	158.54	554.89	
7	3.083	0.005	184.67	739.56	
8	3.523	0.017	210.34	949.90	
9	3.964	0.032	235.91	1185.81	
10	4.404	0.092	258.72	1444.53	
11	3.964	0.194	226.16	1670.68	
12	3.523	0.284	194.37	1865.05	
13	3.083	0.368	162.87	2027.92	
14	2.642	0.443	131.99	2159.90	
15	2.202	0.511	101.45	2261.36	
16	1.762	0.587	70.46	2331.81	
17	1.321	0.640	40.86	2372.67	
18	0.881	0.671	12.60	2385.27	Max Storage
19	0.440	0.680	-14.40	2370.87	
20	0.000	0.670	-40.17	2330.70	
21	0.000	0.639	-38.36	2292.34	
22	0.000	0.611	-36.63	2255.71	
23	0.000	0.583	-34.98	2220.73	
24	0.000	0.557	-33.41	2187.33	
25	0.000	0.532	-31.90	2155.43	
26	0.000	0.508	-30.46	2124.96	
27	0.000	0.487	-29.21	2095.76	
28	0.000	0.473	-28.41	2067.35	
29	0.000	0.461	-27.63	2039.71	
30	0.000	0.448	-26.88	2012.84	
31	0.000	0.436	-26.14	1986.70	
32	0.000	0.424	-25.43	1961.27	
33	0.000	0.412	-24.73	1936.54	
34	0.000	0.401	-24.05	1912.49	
35	0.000	0.390	-23.40	1889.09	
36	0.000	0.379	-22.76	1866.33	
37	0.000	0.369	-22.13	1844.20	
38	0.000	0.359	-21.53	1822.67	
39	0.000	0.349	-20.94	1801.73	
40	0.000	0.339	-20.37	1781.37	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.061	0.061	0.000	0.000
2	0.121	0.121	0.000	0.000
3	0.182	0.182	0.000	0.000
4	0.243	0.243	0.000	0.000
5	0.303	0.303	0.000	0.000
6	0.364	0.364	0.000	0.000
7	0.424	0.424	0.000	0.000
8	0.485	0.485	0.000	0.000
9	0.546	0.546	0.000	0.000
10	0.606	0.606	0.000	0.000
11	0.546	0.546	0.000	0.000
12	0.485	0.485	0.000	0.000
13	0.424	0.424	0.000	0.000
14	0.364	0.364	0.000	0.000
15	0.303	0.303	0.000	0.000
16	0.243	0.243	0.000	0.000
17	0.182	0.182	0.000	0.000
18	0.121	0.121	0.000	0.000
19	0.061	0.061	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.061	
2	0.121	
3	0.182	
4	0.243	
5	0.303	
6	0.364	
7	0.429	
8	0.503	
9	0.577	
10	0.698	
11	0.740	
12	0.769	
13	0.793	
14	0.806	
15	0.814	
16	0.830	Max Release
17	0.822	
18	0.792	
19	0.741	
20	0.670	
21	0.639	
22	0.611	
23	0.583	
24	0.557	
25	0.532	
26	0.508	
27	0.487	
28	0.473	
29	0.461	
30	0.448	
31	0.436	
32	0.424	
33	0.412	
34	0.401	
35	0.390	
36	0.379	
37	0.369	
38	0.359	
39	0.349	
40	0.339	

Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

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100-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

Controlled Sub Areas (P1 - P9)	
Total Site Area (ha)	12.20
Runoff Coefficient, C	0.67
Storm Duration (mins)	20
100-Year Release Rate (m^3/s)	5.032

Uncontrolled Sub Areas (P4)	
Total Site Area (ha)	3.48
Runoff Coefficient, C	0.32
Storm Duration (mins)	20
100-Year Release Rate (m^3/s)	0.693

Rating Curve Data Points

Elevation (m)	Outflow (m^3/s)	Storage (m^3)
230.88	0.000	0.00
231.03	0.041	481.84
231.23	0.088	1175.52
231.38	0.310	1737.04
231.48	0.490	2131.62
231.58	0.811	2559.79
231.63	1.004	2660.24

Formulae

$Q_{in}=Q_p/(t_d/2)*t_i$

Q_{out}=Computer Generated using rating curve data points

Storage (m^3)= Cumulative $storage_{(i-1)}+\Delta$ $Storage_i$

Δ Storage (m^3)= $(Q_{in}-Q_{out})(t_i-t_{(i-1)})*60$

Where:

Q_{in}= Flow rate tributary to the system at a given time (m^3/s)

Q_{out}=Flow rate out of the system at a given time (m^3/s)

T_d= Storm Duration (min)

T_i= Time(min)

Hydrograph Data (Controlled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)	
0	0.000	0.000	0.00	0.00	
1	0.503	0.000	30.19	30.19	
2	1.006	0.003	60.23	90.43	
3	1.510	0.008	90.12	180.55	
4	2.013	0.015	119.86	300.41	
5	2.516	0.025	149.44	449.85	
6	3.019	0.038	178.88	628.73	
7	3.523	0.051	208.31	837.04	
8	4.026	0.065	237.66	1074.70	
9	4.529	0.081	266.88	1341.58	
10	5.032	0.154	292.73	1634.31	
11	4.529	0.269	255.59	1889.90	
12	4.026	0.380	218.77	2108.67	
13	3.523	0.479	182.59	2291.27	
14	3.019	0.610	144.58	2435.85	
15	2.516	0.718	107.87	2543.72	
16	2.013	0.799	72.82	2616.53	
17	1.510	0.920	35.36	2651.89	
18	1.006	0.988	1.09	2652.98	Max Storage
19	0.503	0.990	-29.23	2623.74	
20	0.000	0.934	-56.06	2567.69	
21	0.000	0.827	-49.59	2518.10	
22	0.000	0.780	-46.80	2471.29	
23	0.000	0.745	-44.69	2426.60	
24	0.000	0.711	-42.68	2383.92	
25	0.000	0.679	-40.76	2343.16	
26	0.000	0.649	-38.92	2304.24	
27	0.000	0.619	-37.17	2267.07	
28	0.000	0.592	-35.49	2231.58	
29	0.000	0.565	-33.89	2197.68	
30	0.000	0.539	-32.37	2165.32	
31	0.000	0.515	-30.91	2134.41	
32	0.000	0.492	-29.52	2104.89	
33	0.000	0.478	-28.66	2076.23	
34	0.000	0.465	-27.88	2048.36	
35	0.000	0.452	-27.11	2021.25	
36	0.000	0.440	-26.37	1994.87	
37	0.000	0.427	-25.65	1969.22	
38	0.000	0.416	-24.95	1944.28	
39	0.000	0.404	-24.27	1920.01	
40	0.000	0.393	-23.60	1896.41	

Hydrograph Data (Uncontrolled)

Minute	In Flow (m^3/s)	Out Flow (m^3/s)	Delta-Storage (m^3)	Cummulative Storage (m^3)
0	0.000	0.000	0.000	0.000
1	0.069	0.069	0.000	0.000
2	0.139	0.139	0.000	0.000
3	0.208	0.208	0.000	0.000
4	0.277	0.277	0.000	0.000
5	0.346	0.346	0.000	0.000
6	0.416	0.416	0.000	0.000
7	0.485	0.485	0.000	0.000
8	0.554	0.554	0.000	0.000
9	0.624	0.624	0.000	0.000
10	0.693	0.693	0.000	0.000
11	0.624	0.624	0.000	0.000
12	0.554	0.554	0.000	0.000
13	0.485	0.485	0.000	0.000
14	0.416	0.416	0.000	0.000
15	0.346	0.346	0.000	0.000
16	0.277	0.277	0.000	0.000
17	0.208	0.208	0.000	0.000
18	0.139	0.139	0.000	0.000
19	0.069	0.069	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000

Total Release from Site

Minute	Out Flow (m^3/s)	
0	0.000	
1	0.069	
2	0.141	
3	0.216	
4	0.292	
5	0.372	
6	0.454	
7	0.536	
8	0.619	
9	0.705	
10	0.846	
11	0.893	
12	0.934	
13	0.964	
14	1.025	
15	1.065	
16	1.076	
17	1.128	Max Release
18	1.127	
19	1.060	
20	0.934	
21	0.827	
22	0.780	
23	0.745	
24	0.711	
25	0.679	
26	0.649	
27	0.619	
28	0.592	
29	0.565	
30	0.539	
31	0.515	
32	0.492	
33	0.478	
34	0.465	
35	0.452	
36	0.440	
37	0.427	
38	0.416	
39	0.404	
40	0.393	

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Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

WATER QUALITY CALCULATIONS

Reference Material

MECP Stormwater Management Planning & Design Manual (2003)

Table 3.2: Water Quality Storage Requirements Based on Receiving Waters

Proection Level	SWMP Type	Storage Volume (m3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced 80% Long-term S.S. Removal	Infiltarion	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250

Table 4.4 "Minimum Soil Percolation Rates

Soil Type	Percolation Rate (mm/hr)
Sand	210
Loamy Sand	60
Sandy Loam	25
Loamy Sand	15

Site Statistics

Drainage Area (m^2)	121980
Site Impervious Area (m^2)	78853
Impervious Level	64.64%
Soil Type	Sandy Loam
Percolation Rate (mm/hr)	25.00
Porosity of Storage Media (n)	0.40

Formulae

Equation 4.2: Maximum Allowable Soakaway Pit Depth

$d=PT/1000$

where:
d= maximum allowable depth of soakaway pit
P= percolation rate (mm/h from Table 4.4)
T= drawdown time (24-48h)

Equation 4.3: Infiltration Trench Bottom Area

$A=1000V/Pn\Delta t$

where:
A= bottom area of the trench (m^2)
V= runoff volume to be infiltrated (m3 from Table 3.2)
P= Percolation rate of surrounding native soil (mm/h)
n= porosity of the storage media (0.4 for clear stone)
Δt= retention time (24 o 48 hours)

Quality Sizing Criteria

Wet Pond

Storage Volume for Quality Control (m^3/ha):	173
Storage Volume for Extended Detention (m^3/ha):	40
Total Volume Required for Quality Control (m^3):	2104
Total Volume Required for Extended Detention (m^3):	488

Minimum Sizing of Infiltration Measure

Percolation Rate (mm/hr):	25.00
Trench Bottom Area Required for 24-Hours (m^2):	8767.5
Trench Bottom Area Required for 48 Hours (m^2):	4383.7
Maximum Depth for 24 Hours (m):	0.6
Maximum Depth for 48 Hours (m):	1.2

Project Name: 2148 HWY 3- Delhi
Project Number: 1121-012-22
Date: 2/28/2025

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ONTARIO BUILDING CODE (2012) MINIMUM WATER SUPPLY

Reference Documents	Building Information		Formulae
Ontario Building Code (2024)	Building Classification	F-2	$Q = K * V * S_{tot}$
Site Plan Completed by CDN dated 2025/01/21	Construction Type	Non-combustible	Where:
Note: Building information obtained from preliminary site plan	Number of Storeys	2.5	Q= Minimum water supply in litres
	Total GFA (m^2)	6678	K= Water supply coefficient from Step 1
			V= Total building volume in cubic metres
			S_{tot}= Total of Spatial Coefficient values from step 3

1. WATER SUPPLY COEFFICIENT, K

Parameters	Notes
Type of Construction: Building is of combustible construction. Floor assemblies are fire separations with no fire-resistance rating.	Information provided from the preliminary site plan completed by CDN dated January 21, 2025 and will be required to be updated as per the final approved site plan.

Building Classification	Coefficient, K
F-2	27

2. TOTAL BUILDING VOLUME, V

Parameters		Notes
Proposed Building Height (m)	8.8	Information provided from the preliminary site plan completed by CDN dated January 21, 2025 and will be required to be updated as per the final approved site plan.
Proposed Gross Floor Area (m^2)	6678	
Total Building Volume (m^3)	58766.4	

3. SPATIAL COEFFICIENT, S_{tot}

Parameters		Formulae
North Separation Distance	Adjustment	$S_{tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + S_{side4}]$
10+ m	0.00	
East Separation Distance	Adjustment	Where:
10+ m	0.00	S_{tot}= Total of Spatial coefficient values from propoerty line exposures on all sides
South Separation Distance	Adjustment	Note: Max value for S_{tot} not to exceed 2.0
10+ m	0.00	
West Separation Distance	Adjustment	
10+ m	0.00	
Total of Spatial Coefficient Values	1	

MINIMUM SUPPLY OF WATER

WATER SUPPLY	TARGET DURATION	MINIMUM FLOW RATE (L/min)
1586693 L 1587 m3 419160 USG	30 Minutes	9000 L/min

Note: The calculated minimum water supply Q, shall not be less than the minimum flow rate multiplied by the target duration

Appendix B
Geotechnical Investigation Report

JLP
Geotechnical & Environmental Consultants

Geotechnical Investigation

Proposed Greenhouse
2148 Highway #3
Delhi, Ontario

Client:
CDN Buildings
523 James Street, Unit #3
Delhi, Ontario
N4B 2C2

Attention: Bill Dendekker, President

Type of Document:
Geotechnical Report

Project Number:
G4633-22-8

JLP Services Inc.
Geotechnical and Environmental Consultants
405 York Road
Guelph, Ontario
N1E 3H3

Date Submitted:
November 21, 2022

Table of Contents

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Enclosures

List of Appendices

1. Introduction

JLP Services Inc. (JLP) was retained by CDN Buildings (CDN) to carry out a geotechnical investigation for the proposed greenhouse to be constructed at 2148 Highway #3 in Delhi, Ontario.

It is understood that the proposed greenhouse and associated building to the west of the greenhouse will consist of single-storey, steel frame, slab-on-grade structures having a floor area of about 9,285 and 3,625 square metres, respectively.

The purpose of the investigation was to reveal the subsurface conditions and to determine the relevant soil properties for recommendations for the design and construction of the building foundations, slab-on-grade construction, storm water management, private septic system and pavement designs.

The conclusions and recommendations given within this report are based on the assumption that above-mentioned design concept will proceed into construction. If changes are made either in the design phase and/or during construction, JLP must be retained to review these changes. The result of this review may require modifications of our recommendations or the requirement of additional field and/or laboratory analysis to determine if the proposed changes are acceptable from a geotechnical standpoint.

2. Site Description

The site is municipally addressed as 2148 Highway #3, Delhi, Ontario. It is located on south side of Highway #3, 200± metres east of Scott Street.

The site is accessed from Highway #3 and has a fairly flat topography. At the time of the investigation, the front portion of the site was occupied by numerous buildings appearing to be used for agricultural purposes, associated pavements, etc. with low lying vegetation/wild grasses/weeds surface cover where not occupied by buildings. Additionally, it is noted that at the time of the investigation, there is a pond located in the vicinity of Test Pit 2 (see Enclosure 2).

3. Field Work

The fieldwork was carried out on August 24, 2022 and consisted of six (6) test pits at the approximate locations indicated on the Test Pit Location Plan, Enclosure 1. The test pits were excavated with a hydraulic excavator supplied and operated by CDN Buildings. The subsurface soils were visually inspected and logged.

Geotechnical field staff from JLP Services Inc. supervised the fieldwork. The ground surface elevation at each of the test pit locations was interpolated from the Contour Plan supplied to JLP by CDN (see Enclosure 3).

4. Subsurface Conditions

Full details of the soils encountered in the test pits are given on the Test Pit logs, Enclosures 4 to 9, inclusive and the following notes are intended to summarize this data.

All test pits encountered a surficial deposit of **topsoil**, ranging between 200 to 350mm± thick.

The topsoil at Test Pit 2 was underlain by a 200mm± thick layer of sand **fill**, brown in colour.

Native **sand** and/or **silty sand** was encountered below the topsoil and fill at the test pits to the full depth of investigation of 1.5± metres below grade. It is noted the sand generally contained trace to some silt, trace clay and was brown in colour. Typical grain size distribution curves for these materials can be found on Enclosures 10 to 13, inclusive.

Based on visual and tactile examination, the sand/silty sand is considered to be in generally moist condition and the relative density in compact state.

5. Groundwater Conditions

The test pits were dry and open to the full depth of investigation on completion of the fieldwork program.

An examination of the soil samples indicated that they were generally moist.

It is noted no sub-artesian water pressures were encountered in the test pits.

It is expected that the groundwater table at the proposed building areas is likely to be below the depths of the investigation.

Seasonal fluctuation of the groundwater level should be anticipated.

6. Discussion and Recommendations

6.1 General

It is understood the proposed greenhouse and associated building to the west of the greenhouse will consist of single-storey, steel frame, slab-on-grade structures having a floor area of about 9,285 and 3,625 square metres, respectively. We note final grading plans for the site were not available at the time of this report and the following discussion is therefore considered preliminary. It should be reviewed when more details are available.

Based on the findings of the test pits, the soil profile at the site generally consisted of surficial topsoil over compact sand/silty sand.

The local groundwater table is expected to be located below Elevation 230.1m although seasonal fluctuations can be expected.

6.2 Building Foundations

The existing topsoil and fill are not considered suitable bearing strata. The foundations for the proposed buildings should, therefore, be extended into the underlying native undisturbed sand/silty sand for support.

The proposed buildings can be supported on footings founded at least 300mm into the compact native sand/silty sand and designed to a geotechnical reaction of 100 kPa at Serviceability Limit States (S.L.S.) and a factored geotechnical resistance of 150 kPa at Ultimate Limit States (U.L.S.).

We note that the existing pond is located within the proposed building envelope for the greenhouse and, therefore, will have to be drained and filled with engineered fill to support the building foundations and floor slab.

If it is necessary to raise the grades to accommodate the final site grading and in order to remediate the existing pond the following procedures must be used to construct "engineered fill" to support the proposed dwelling:

1. All water, vegetation, topsoil and fill must be removed from the entire proposed buildings footprint.
2. Geotechnical personnel from JLP Services Inc., prior to placement of engineered fill should inspect the exposed subgrade. Any loose zones which are encountered should be removed

and replaced with approved on-site or imported granular material, compacted to at least 98% Standard Proctor maximum dry density.

3. The areas can then be brought up to the design pre-grade level with selected on-site soil materials approved for re-use or natural soil approved for import, placed in maximum 200mm thick lifts and compacted to a minimum of 98% of the standard Proctor maximum dry density (SPMDD).
4. Moisture conditioning should be applied to the soil materials, as required for effective compaction.
5. All imported soil materials should be assessed by JLP prior to transport to the site in accordance with the "On-site and Excess Soil Management Regulation", O.Reg.406/19 and supporting amendments.
6. All imported soil materials should be free from organics and debris and deleterious materials and should be tested geotechnically by JLP prior to transport to the site.
7. The "engineered fill" under all structures to be supported should extend to at least 1.0 metre laterally beyond the edge of their perimeters at the founding level and at least a distance equal to the depths of the fill pad, at the level of the approved subgrade.
8. Temporary fill slopes should be no steeper than 1 vertical to 1 horizontal and should be protected from surface erosion.
9. All water, vegetation, topsoil and unsuitable material removal, subgrade preparation, fill placement and compaction should be monitored on a full-time basis by geotechnical staff from JLP to approve materials and to verify that the specified degree of compaction have been achieved.

All the exterior footings subjected to freezing temperatures should be located at least 1.2 metres below finished grade or provided with equivalent thermal insulation for adequate frost protection.

Elevation difference between adjacent footings should not be more than a half of the horizontal distance between them.

It is estimated that the total and differential settlements of footings designed to these bearing pressures on native undisturbed compact sand/silty sand or on "engineered fill" will be less than 25 and 20mm respectively, which are normally considered acceptable for the proposed structure.

It is recommended that all foundation excavations be inspected by geotechnical personnel from JLP Services Inc. to ensure the founding soils are similar to those identified in the test pits and that they are capable of supporting the design bearing pressures.

Based on the 2012 Building Code Compendium, the classification of soils for seismic design should be based on the average properties of the top 30 metres of the soil profile. The deepest test pit was only 1.5 metres below grade and was terminated in native compact sand/silty sand. Assuming this deposit extends to depth, the soils at the site may be classified as Site Class 'D' under the site classification for seismic site response of 2012 Building Code Compendium.

6.3 Excavation and Groundwater Control

Excavation to reach the footing founding levels will extend through surficial topsoil, fill and native sand/silty sand deposits.

Excavations must be carried out in accordance with the current Occupation Health and Safety Act (OHSA) and local regulations. For guidance, the side slopes should be cut back to 1 vertical to 1 horizontal as the existing fill, native sand/silty sand are considered to be Type 3 soils within the meaning of the OHSA.

Minor seepage from groundwater in the fill and coarse sand seams may be anticipated during construction. However, it should be possible to control and remove seepage water from these sources or surface water from precipitation by pumping on as and where required basis.

6.4 Subsurface Walls

For the design of subsurface walls, if any, the magnitude of which can be determined from:

$$p = K(\gamma d + q)$$

where;

p = earth pressure, kN/m^2

K = earth pressure co-efficient = 0.33, if retaining structure is permitted to move, otherwise K = 0.5

γ	=	unit weight of backfill, 22 kN/m^3 for sandy material
d	=	depth below finished grade, m
q	=	all adjacent surcharge, kN/m^2

The above expression assumes that a perimeter drainage is provided at footing founding levels and the perimeter drainage system is effective to prevent the build-up of any hydrostatic pressure behind the perimeter walls.

If perimeter drainage cannot be provided due to high groundwater level in relation to the subsurface structure, the subsurface walls can be waterproofed and designed for full hydrostatic pressure.

6.5 Floor Slabs

All topsoil and any deleterious materials encountered should be stripped from the proposed building areas. The exposed subgrade should be re-compacted from the surface to 98% of its Standard Proctor maximum dry density. Any loose/wet material encountered should be sub-excavated and replaced with approved fill.

The fill may consist of approved on-site materials free of organics and cobbles/boulders or approved imported sandy fill. All fill materials should be placed in 150 to 200mm thick lifts and compacted to 98% of its Standard Proctor maximum dry density.

A layer of well-graded, free-draining material, such as OPSS Granular 'A', at least 150mm thick and compacted to at least 100% of its Standard Proctor maximum dry density, should be placed under the floor slabs to provide a uniform bearing surface and to act as a vapour barrier.

Frequent inspections by geotechnical personnel from JLP Services Inc. should be carried out during construction to verify compaction of the subgrade and base courses by in-situ density testing using nuclear gauges.

6.6 Stormwater Management and Septic System Designs

Grain size distribution curves were prepared for representative samples of the subsoils obtained at the test pits. These grain size distribution analyses were performed following applicable ASTM laboratory procedures and are found on Enclosures 10 to 13, inclusive.

The grain size distribution curves were compared to the family of curves presented in the Supplementary Standard SB-6 of the 2012 Building Code Compendium. According to the Unified Soils Classification System and taking into consideration the specific physical nature of the soils, the samples in question are considered to have the properties noted in the following Table 1.

Table 1: Soil Permeability and T-time Estimation

Sample Number	Material					Unified Soils Classification Group	Estimated Co-efficient of Permeability (k) (cm/sec)	Estimated T-time (min/cm)
	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)			
TP 1, Sam 1	SAND, trace silt, trace clay	0	90.5	7.7	1.8	(SW-SP)	10^{-1} - 10^{-3}	10
TP 3, Sam 1	SAND, some silt, some clay	0	70.2	17.1	12.7	(SM)	10^{-3} - 10^{-5}	15
TP 4, Sam 1	SILTY SAND, some clay	0	63.0	22.1	14.9	(SM)	10^{-3} - 10^{-5}	15
TP 6, Sam 1	SAND, trace clay	0.4	89.0	0.7	9.9	(SW-SP)	10^{-1} - 10^{-3}	10

If a storm water management pond is to be constructed for the proposed development, a low permeability liner may be required to maintain a permanent wet pond. The low permeability liner may be constructed with a minimum 1m thick layer of clayey soils conforming to OPSS.MUNI 1205 requirements. Alternatively, a geosynthetic clay liner, such as Bentofix CNSL, or a synthetic liner, such as Nilex Geomembrane PVC 40 mil or similar products, may be used.

If a geosynthetic or synthetic liner is used, a minimum 300mm thick marker layer should be placed above the liner as an indicator/protective soil cover. The liner should be installed as per manufacturer's guidelines and up to a minimum of 0.6m above the design flood level in the pond. An underdrainage system may be required to relieve the hydrostatic uplift against the liner if the bottom of pond is lower than the highest observed groundwater level in the vicinity of the pond.

6.7 Pavement Designs

At the time of this report, it is understood that there may be concrete loading docks on the sides of the proposed buildings as well as asphalt pavement for the passenger car parking fronting the proposed buildings with the rest of the pavement on the site consisting of gravel pavement.

We recommend, as a minimum the removal of the existing topsoil, fill materials and any other deleterious materials encountered and underlying subsoils to a sufficient depth to allow for the following pavement designs. The underlying subgrade should then be re-compacted from the surface to at least 98% of its Standard Proctor maximum dry density prior to construction of the pavements. Any loose areas which are detected should be sub-excavated and backfilled with approved on-site material or approved imported granular material. All fill materials should be placed in 150 to 200mm thick lifts and compacted to at least 98% Standard Proctor maximum dry density.

Considering the probable traffic requirements and subsoil conditions, the following pavement designs presented in Table 2 are recommended:

Table 2: Recommended Pavement Structures

Material	Passenger Car Parking (Medium Duty) (mm)	Gravel Pavement for Heavy Equipment/Trucks (Heavy Duty) (mm)	Concrete Loading Docks for Heavy Equipment/Trucks* (Heavy Duty) (mm)
Asphaltic Concrete Surface Course	40	-	-
Asphaltic Concrete Base/Binder Course	50	-	-
Cast-in-place-Concrete	-	-	150
Granular 'A' Base Course	150	200	150
Granular 'B' Sub-base Course	300	450	300

*1. Steel reinforced with 150mm x 150mm WWM 40mm clear from top to receive wood float finish;
2. Provide clean straight 10mm bituminous expansion joints between existing and new concrete paving or existing structures and at 6m intervals maximum;
3. Control joints shall be provided at a maximum 1500mm intervals to a depth of 38mm;
4. Control joints shall be hand tooled to establish finishing pattern and then sawcut if hand tooling is not deep enough;
5. Tool finish all walk edges.

It is noted that the gravel pavement will likely require regular maintenance including placement of additional Granular 'A' to the surface due to wear from heavy vehicles traffic and turning and/or winter maintenance.

The granular base materials should be compacted to at least 100% Standard Proctor maximum dry density. The asphalt should be compacted to OPS Specifications.

Frequent inspections by geotechnical personnel from JLP Services Inc. should be carried out during construction to verify the compaction of the subgrade, base courses and asphaltic concrete by in-situ density testing using nuclear gauges. As well, we recommend testing of the concrete for compliance with OPS Specifications for the loading docks pavement.

7. Statement of Limitation

The Statement of Limitation including the Terms and Conditions of this report is presented on Appendix 'A' is an integral part of this report.

8. Closure

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

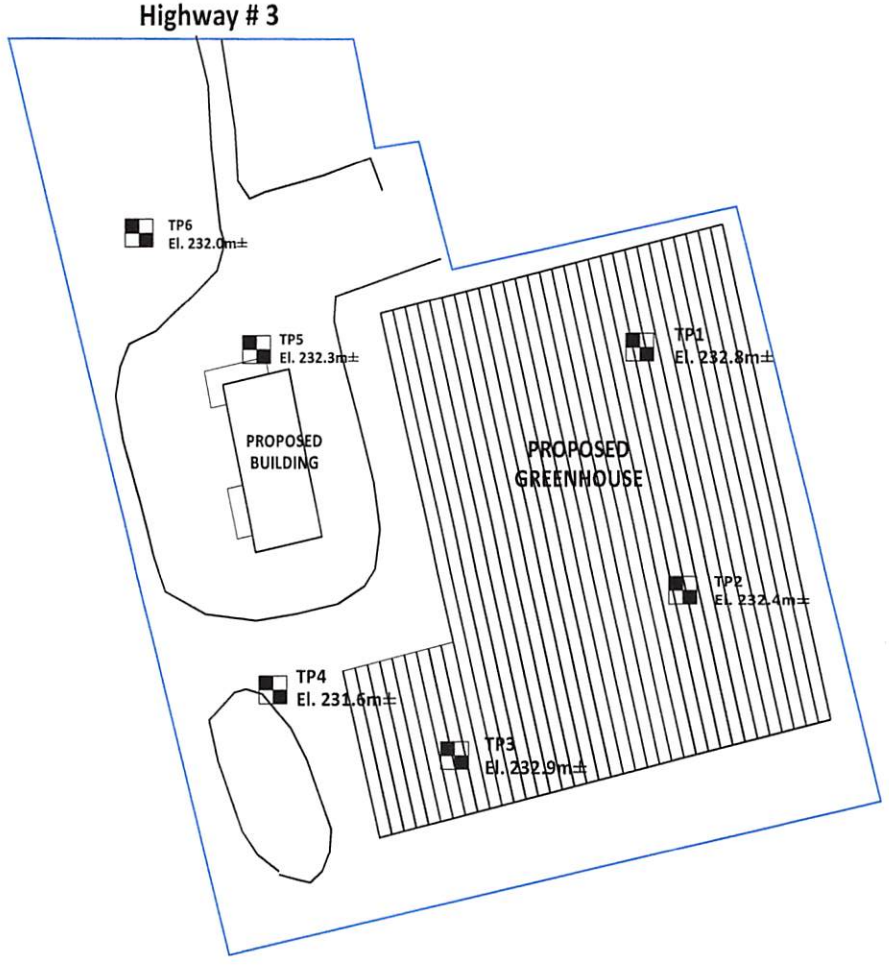
Sincerely,
JLP Services Inc.

LICENSED PROFESSIONAL ENGINEER
Nov 21, 2022
A. H-M. LEE
PROVINCE OF ONTARIO

Alexander Lee, M.Sc. (Eng.), P.Eng.
Senior Geotechnical Engineer

J. Board, B.A.
General Manager

Enclosures



Legend

Test Pit (JLP 24-Aug-2022) [Approx.]

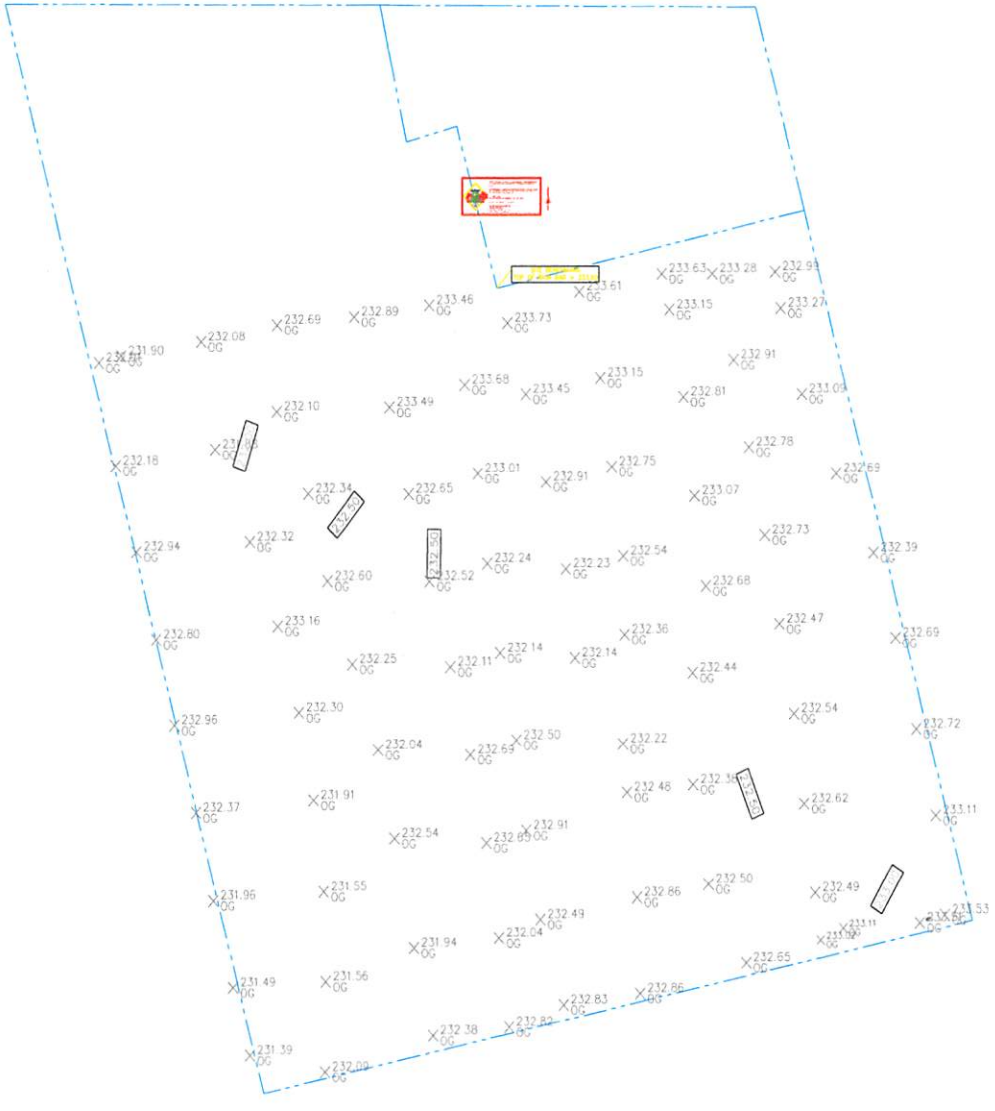
N

Notes:
1. The soil types and boundaries are applicable only at the location of the boreholes. Between boreholes, they are assumed and may change substantially. The topsoil thicknessess quoted in the report are used for discussion purposes only and should not be used for estimating purposes.
2. The Ground Surface elevations at the borehole locations were derived from the Temporary Benchmark (TBM) as shown.
3. The soil samples will be retained for three months from the date of issue of the final report and then discarded, unless the client has requested to extend the storage period wil fees.

JLP
Geotechnical & Environmental Consultants

Test Pit Location Plan
Proposed Greenhosue
2148 Highway 3
Delhi, Ontario

Date: November 14, 2022	Ref. No. G4633-22-11	
Prepared By: GB	Checked By: JB	ENCL. No. 1
Source: Site Plan	Scale: N.T.S.	



Notes:
1. The soil types and boundaries are applicable only at the location of the boreholes. Between boreholes, they are assumed and may change substantially. The topsoil thicknessess quoted in the report are used for discussion purposes only and should not be used for estimating purposes.
2. The Ground Surface elevations at the borehole locations were derived from the Temporary Benchmark (TBM) as shown.
3. The soil samples will be retained for three months from the date of issue of the final report and then discarded, unless the client has requested to extend the storage period wit fees.

JLP
Geotechnical & Environmental Consultants

Contour Plan
Proposed Building
2148 Highway 3,
Delhi, Ontario

Date: November 14, 2022	Ref. No. G4633-22-11	
Prepared By: GB	Checked By: JB	DWG. No. 2
Source: Site Plan	Scale: N.T.S.	

NOTE: Trees shown on plan removed prior to August, 2022.

Legend

Notes:
1. The soil types and boundaries are applicable only at the location of the boreholes. Between boreholes, they are assumed and may change substantially. The topsoil thicknessess quoted in the report are used for discussion purposes only and should not be used for estimating purposes.
2. The Ground Surface elevations at the borehole locations were derived from the Temporary Benchmark (TBM) as shown.
3. The soil samples will be retained for three months from the date of issue of the final report and then discarded, unless the client has requested to extend the storage period wit fees.

JLP
Geotechnical & Environmental Consultants

Existing Condition Plan
Proposed Greenhosue
2148 Highway 3
Delhi, Ontario

Date: November 14, 2022	Ref. No. G4633-22-11	
Prepared By: GB	Checked By: JB	ENCL. No. 3
Source: Site Plan	Scale: N.T.S.	

TEST PIT NUMBER TP1

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 232.8 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	
				TOPSOIL: about 250mm thick topsoil, no odour, no staining.	
				0.30	232.50
0.5	SS 1	8333		**SAND**: Brown sand, compact, moist, no odour, no staining.	
1.0					
1.5				1.50	231.30

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

TEST PIT NUMBER TP2

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 232.4 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
			TOPSOIL: about 250mm thick topsoil, no odour, no staining.	
			0.30	232.10
			FILL about 200mm thick sand, brown, loose, moist, no odour, no staining.	
0.5			0.60	231.80
			SAND: Brown sand, compact, moist, no odour, no staining.	
1.0				
1.5			1.50	230.90

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

TEST PIT NUMBER TP3

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 232.9 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION
				TOPSOIL: about 200mm thick topsoil, no odour, no staining.
0.20				232.70
				SAND: Brown sand, trace silt, compact, moist, no odour, no staining.
0.5				
	SS 1	76 92		
1.0				
1.5				
1.50				231.40

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

TEST PIT NUMBER TP4

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 231.6 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION
				TOPSOIL: about 200mm thick topsoil, no odour, no staining.
0.20				231.40
0.5	SS 1	7692		**SAND**: Brown sand, compact to dense, moist, no odour, no staining.
1.0				
1.5				
1.50				230.10

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

TEST PIT NUMBER TP5

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 232.3 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
			TOPSOIL: about 200mm thick topsoil, no odour, no staining.
0.20			232.10
			SAND: Brown sand, compact, moist, no odour, no staining.
0.5			
1.0			
1.5			
1.50			230.80

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

TEST PIT NUMBER TP6

JLP
Geotechnical & Environmental Consultants

CLIENT CDN Buildings
PROJECT NAME Proposed Greenhouse
PROJECT NUMBER G4633--22-8
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
DATE STARTED 24-8-22 **COMPLETED** 24-8-22
GROUND ELEVATION 232 m Geodetic **TEST PIT SIZE** 1.5m x 1.5m
EXCAVATION CONTRACTOR CDN Buildings
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator
AT TIME OF EXCAVATION ---
LOGGED BY JB **CHECKED BY** JB
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION
				TOPSOIL: about 200mm thick topsoil, no odour, no staining.
0.20				231.80
				SAND: Brown sand, compact, moist, no odour, no staining.
0.5				
	SS 1	7692		
1.0				
1.5				
1.50				230.50

TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS
Bottom of test pit at 1.50 m.

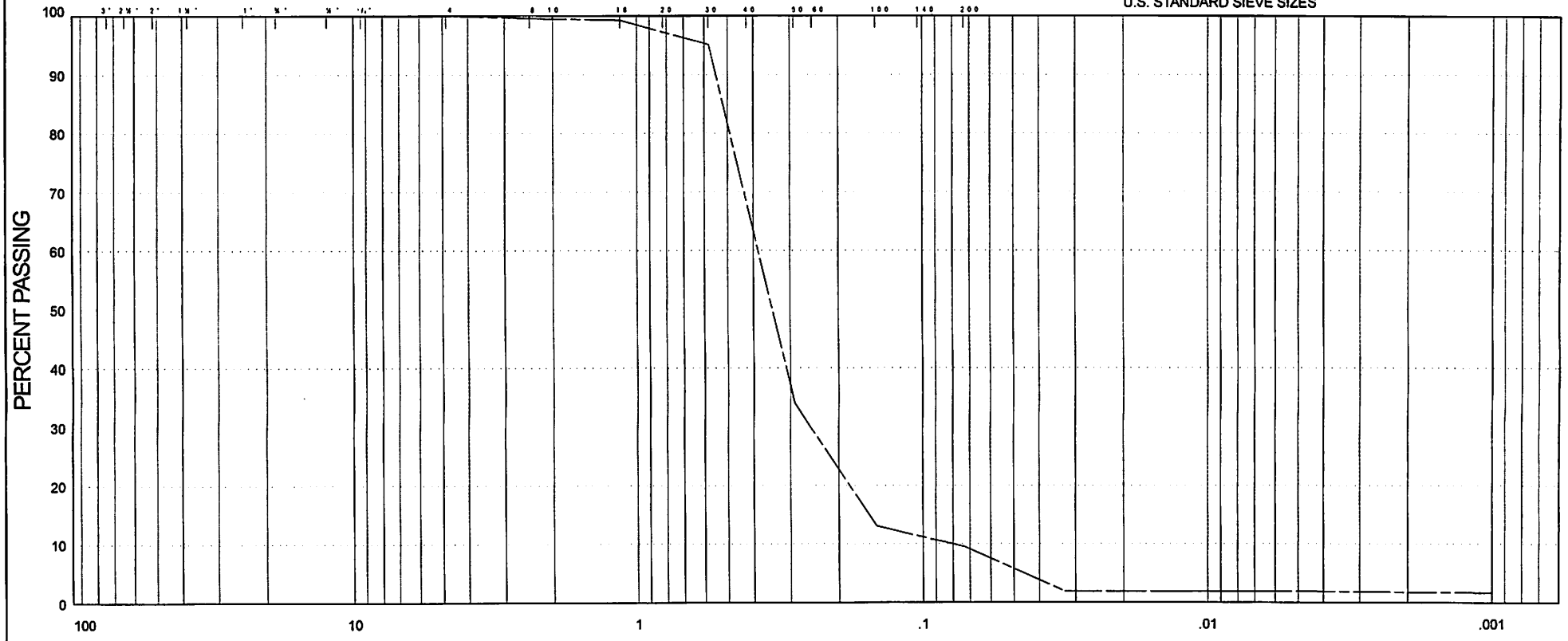
GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-8

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

UNIFIED SOIL CLASSIFICATION SYSTEM

U.S. STANDARD SIEVE SIZES



Grain Size in Millimeters

PROJECT: Proposed Greenhouse

LOCATION: 2148 Highway 3, Delhi, ON

TEST PIT N°: 1

SAMPLE N°: 1

DEPTH: 0.3 - 1.5m±

ELEVATION: 232.5 - 231.3m±

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:

SAND, trace silt, trace clay (SW-SP)

PLASTIC PROPERTIES

LIQUID LIMIT	% = -
PLASTIC LIMIT	% = -
PLASTICITY INDEX	% = -
MOISTURE CONTENT	% = 4.6

ENCLOSURE N° 10

JLP SERVICES INC.

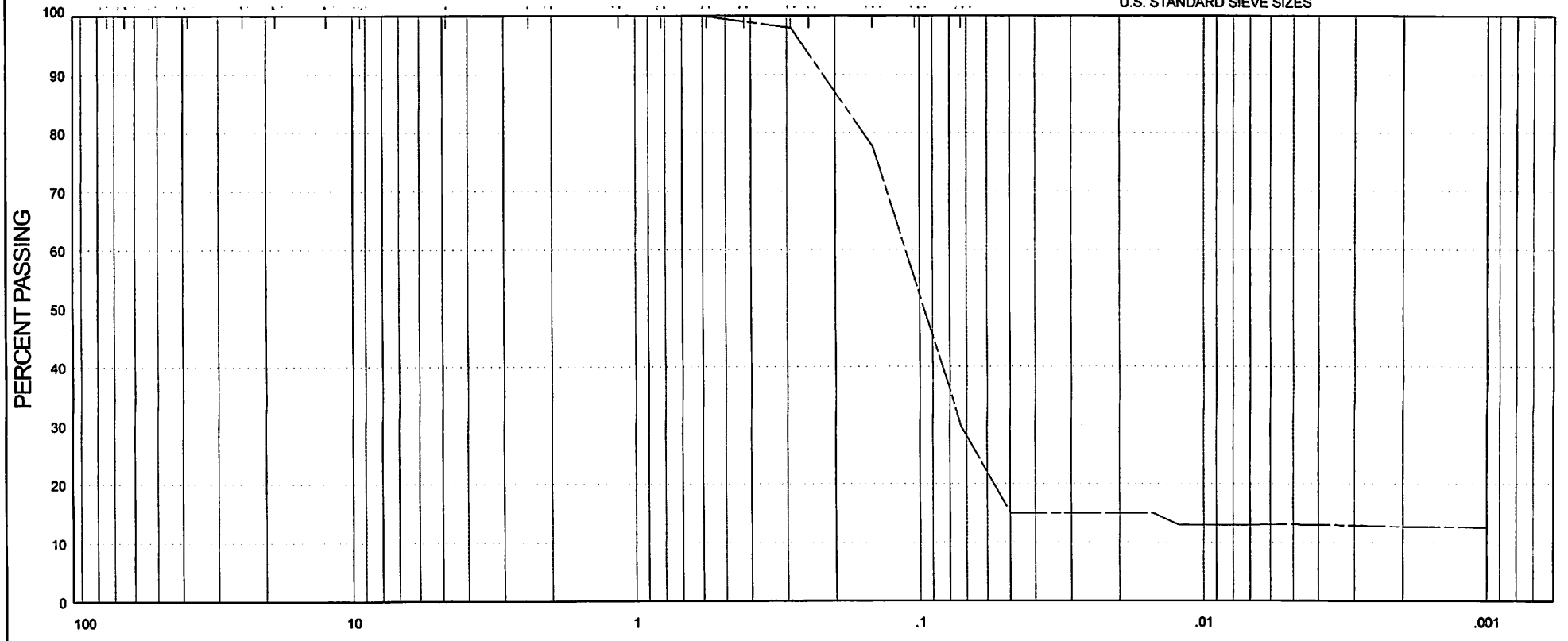
GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-9

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

UNIFIED SOIL CLASSIFICATION SYSTEM

U.S. STANDARD SIEVE SIZES



PROJECT: Proposed Greenhouse

LOCATION: 2148 Highway 3, Delhi, ON

TEST PIT N°: 3

SAMPLE N°: 1

DEPTH: 0.2 - 1.5m±

ELEVATION: 232.7 - 231.4m±

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:

SAND, some silt, some clay (SM)

PLASTIC PROPERTIES

LIQUID LIMIT	% = -
PLASTIC LIMIT	% = -
PLASTICITY INDEX	% = -
MOISTURE CONTENT	% = 16.1

ENCLOSURE N° 11

JLP SERVICES INC.

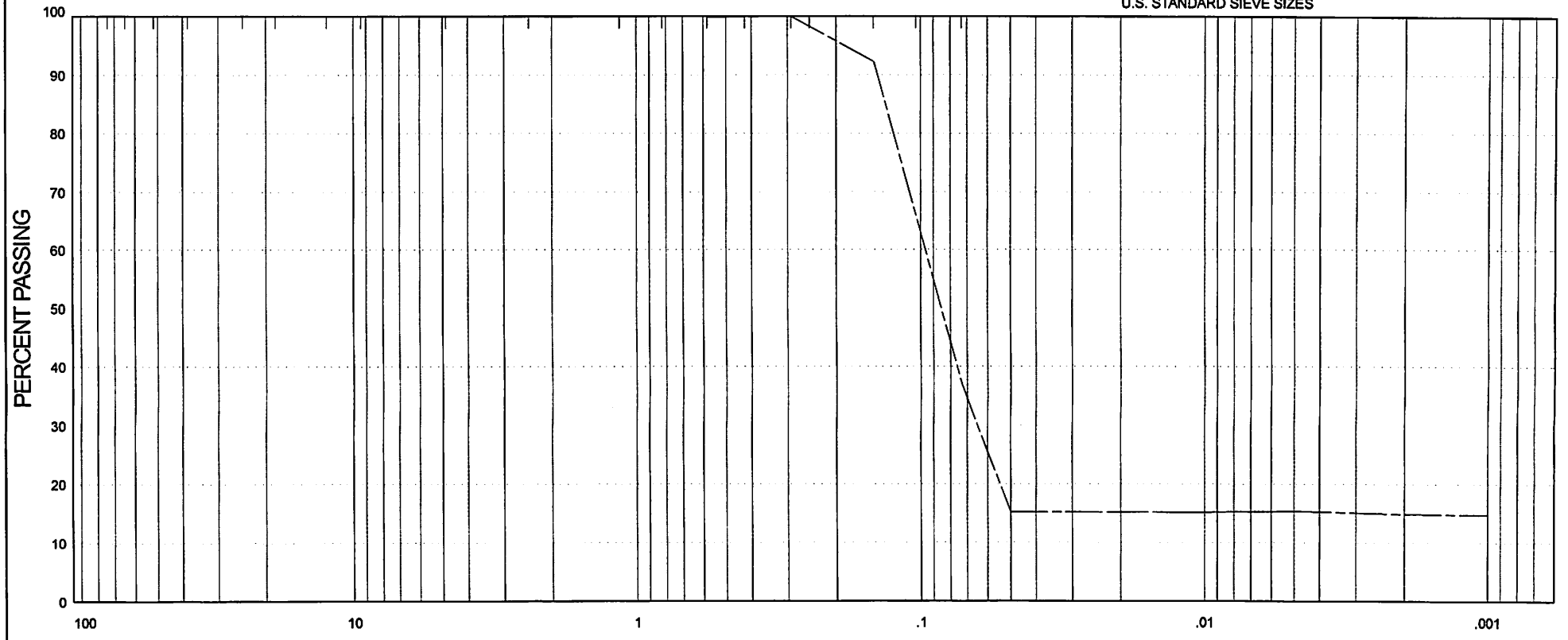
GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-8

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

UNIFIED SOIL CLASSIFICATION SYSTEM

U.S. STANDARD SIEVE SIZES



Grain Size in Millimeters

PROJECT: Proposed Greenhouse

LOCATION: 2148 Highway 3, Delhi, ON

TEST PIT N°: 4

SAMPLE N°: 1

DEPTH: 0.2 - 1.5m±

ELEVATION: 231.4 - 230.1m±

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:

SILTY SAND, some clay (SM)

PLASTIC PROPERTIES

LIQUID LIMIT	% = -
PLASTIC LIMIT	% = -
PLASTICITY INDEX	% = -
MOISTURE CONTENT	% = 22.1

ENCLOSURE N° 12

JLP SERVICES INC.

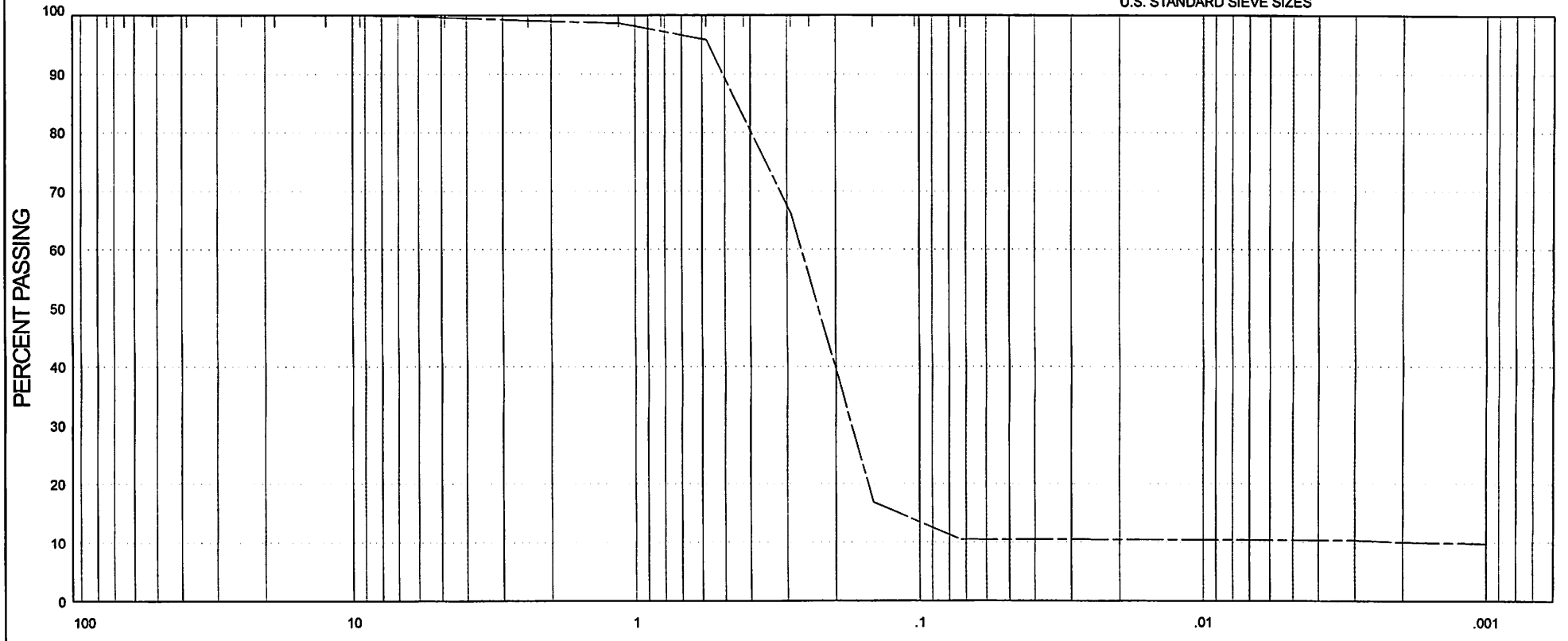
GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-8

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

UNIFIED SOIL CLASSIFICATION SYSTEM

U.S. STANDARD SIEVE SIZES



PROJECT: Proposed Greenhouse

LOCATION: 2148 Highway 3, Delhi, ON

TEST PIT N°: 6

SAMPLE N°: 1

DEPTH: 0.2 - 1.5m±

ELEVATION: 231.8 - 230.5m±

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:

SAND, trace clay (SW-SP)

PLASTIC PROPERTIES

LIQUID LIMIT	% = -
PLASTIC LIMIT	% = -
PLASTICITY INDEX	% = -
MOISTURE CONTENT	% = 7.9

ENCLOSURE N° 13

JLP SERVICES INC.

Appendix A – Limitations and Use of Report

REPORT TERMS AND CONDITIONS

NOTICE: THE FOLLOWING PROVISIONS SET FORTH IMPORTANT QUALIFICATIONS AND LIMITATIONS ON THE FINDINGS AND RECOMMENDATIONS IN THE REPORT AS WELL AS THE USE OF, AND RELIANCE ON, THE REPORT.

1. **DEFINITIONS**. The following capitalized terms have the following meanings:

(a) "**Additional Investigations**" means investigations that JLP has indicated to the Client should be undertaken to take into account any Out-of-Scope Requirements, but that are not otherwise specifically within the scope of investigations conducted for the purpose of the Report.

(b) "**Applicable Laws**" means and includes without limitation all applicable provincial laws, regulations, guidelines, policies, standards, protocols, and objectives administered by the Ministry of the Environment and Climate Change or any other duly-constituted governmental authority, all as in force as of the date of the Report.

(c) "**Client**" means the Client as referred to in the Report.

(d) "**Client Information**" means the information, representations, and instructions provided by the Client, the Client's representatives, and/or others and upon which the Report is based, in whole or in part.

(e) "**Findings**" means the evaluations and conclusions set forth in the Report.

(f) "**JLP**" means JLP Services Inc.

(g) "**Out-of-Scope Requirements**" means special concerns or requirements of the Client in respect of the subject matter of the Report.

(h) "**Recommendations**" mean the findings and recommendations referred to in the Report, taking into account any Out-of-Scope Requirements that were disclosed to JLP prior to the date of the Report.

(i) "**Report**" means the report to which these Terms and Conditions are attached and form part.

(j) "**Report Documents**" means the underlying documents, records, data, and files, in any medium whatsoever, generated in connection with the preparation of the Report, including without limitation, the instructions and objectives communicated to JLP by the Client, communications between JLP and the Client, and other reports, proposals, or documents prepared by JLP for the Client in connection with the Site.

(k) "**Site**" means the site in respect of which the Report was prepared.

(l) "**Site Conditions**" means Site conditions known as a result of, or reasonably imputed by, the investigations that were undertaken as of the date of the Report.

2. **BASIS OF REPORT**. The Report is based on the Site Conditions. Any changes to the Site Conditions after the date of the Report that could or will affect the Site Conditions may or will have a corresponding effect on the Recommendations. The Report does not take into account any (a) Additional Investigations that were not undertaken, or (b) Out-of-Scope Requirements that were not communicated prior to completion of the investigations that were been undertaken as of the date of the Report. Where recommended field services are referred to, they are the minimum services necessary to determine compliance of construction with Applicable Laws, generally accepted industry-standard practices, and the Recommendations.

3. **RELIANCE & USE**. The Report has been prepared only for the Site and the related design, development, building, or building assessment objectives identified by the Client. The Findings and Recommendations are based on the Site Conditions and the Client Information. In preparing the Report, JLP has relied upon the Client Information and disclaims any responsibility for any inaccuracy, misstatement, omission, unintentional misrepresentation, or other deficiency contained in the Report as a result of such reliance. Unless specifically stated otherwise, the applicability and reliability of the Findings and the Recommendations expressed in the Report are only valid to the extent that (a) there has been no material change to or variation from any of the Client Information, (b) the Client Information contains no untrue statement of a material fact, or (c) the Client Information omits no statement of a material fact necessary in order to make the Client Information not misleading.

   The Report and the Findings and Recommendations are for the sole benefit of the Client. No other party may use or rely upon the Report in whole or in part without the prior written consent of JLP, which may be arbitrarily withheld or conditioned.

   RELIANCE UPON THE REPORT OR ANY OF THE DETERMINATIONS MADE HEREIN BY A THIRD PARTY WITHOUT JLP'S CONSENT IS PROHIBITED AND JLP MAKES NO REPRESENTATION, GUARANTEE, OR WARRANTY IN FAVOUR OF ANY THIRD PARTY WITH RESPECT TO THE REPORT WHATSOEVER. JLP FULLY DISCLAIMS, AND WILL HAVE NO LIABILITY FOR, ANY LOSS, DAMAGES, OR EXPENSES WHICH ANY THIRD PARTY MAY INCUR OR SUFFER AS A RESULT OF THE USE OF OR RELIANCE ON THIE REPORT WHERE JLP HAS NOT EXPRESSLY AUTHORIZED SAME. ANY THIRD PARTY WHO RELIES ON THE REPORT TO ANY EXTENT DOES SO AT SUCH PARTY'S OWN RISK AND COMPLETELY WAIVES ANY AND ALL CLAIMS AGAINST JLP IN CONNECTION WITH THE REPORT, REGARDLESS OF THE THEORY OF LAW (WHETHER IN CONTRACT, TORT, OR ANY THEORY OF LAW COMING INTO EXISTENCE HEREAFTER).

4. **STANDARD OF CARE**. The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances. No other warranty, expressed or implied, is made or intended in the Report. It is intended that the Findings and Recommendations are meant to assist in reducing the Client's risk associated with environmental impairment at the Site. The Report should not be considered risk mitigation.

5. **ENTIRE REPORT**. The Report also includes the Report Documents. In order to properly understand the Findings and Recommendations, reference must be made to the Report in its entirety. JLP is not responsible for use by any party of a part of the Report only.

6. **GOVERNING FORMAT**. Notwithstanding that JLP may have submitted an electronic version of the Report or any document forming part of the Report, only the signed and sealed physical copy of the Report shall be deemed to be the original and in the event of any dispute or discrepancy, the physical copy shall govern. JLP makes no representation about the compatibility of its electronic or digital file format with the Client's current or future software and/or hardware systems. The documents described herein are JLP's instruments of professional service and shall not be altered without the written consent of JLP.

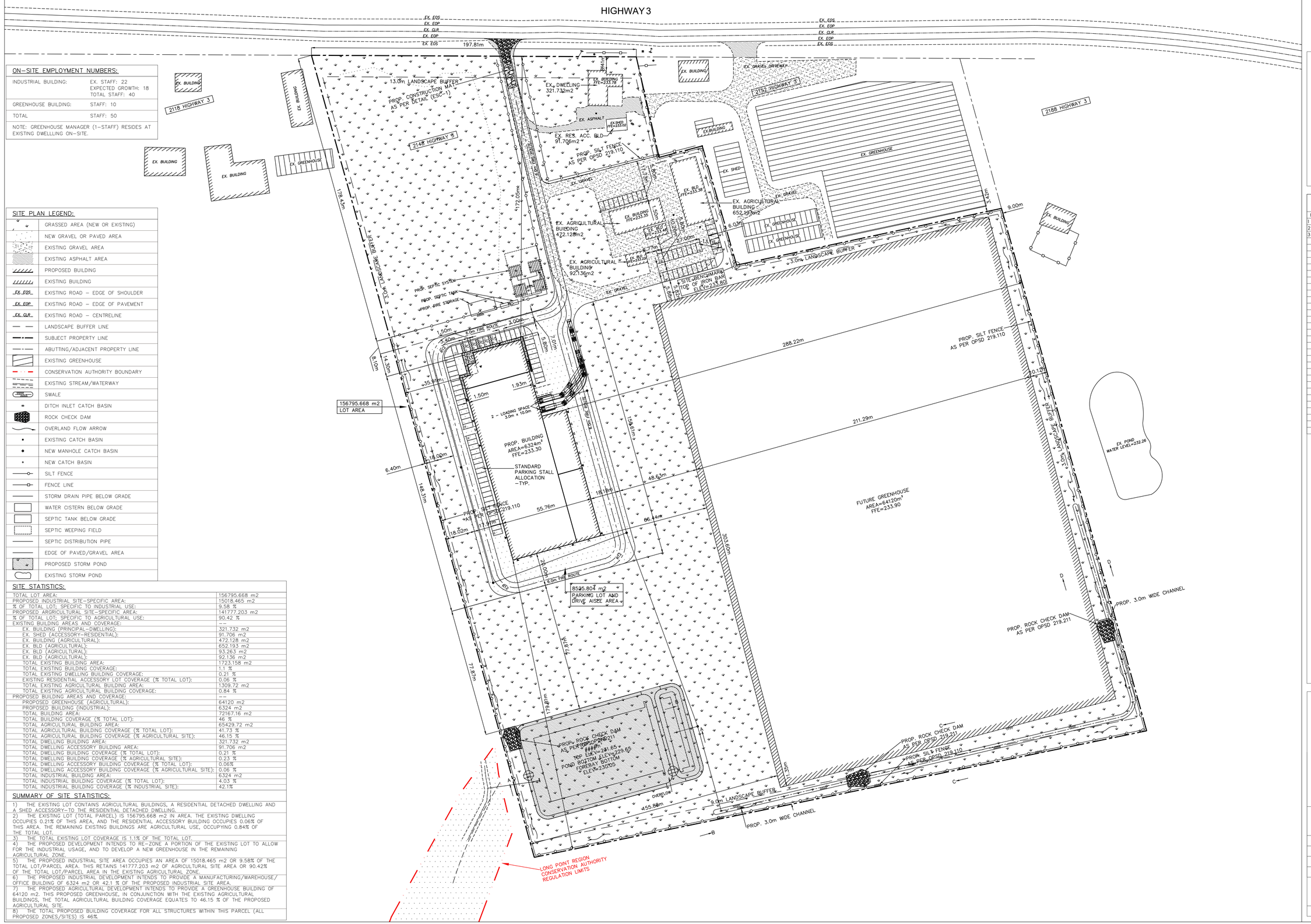
7. **GENERAL LIMITATIONS**.

   (a) Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

   (b) The Report contains no opinion or determination as to any matters governed by laws other than the laws of the Province of Ontario and the federal laws of Canada applicable therein as of the date hereof.

   (c) During any future development of the Site, conditions not observed during JLP's investigations may become apparent. If this occurs, JLP should be contacted to assess the situation and whether there is a need for additional testing.

Appendix C
Design Drawings



ON-SITE EMPLOYMENT NUMBERS:

INDUSTRIAL BUILDING:	EX. STAFF: 22 EXPECTED GROWTH: 18 TOTAL STAFF: 40
GREENHOUSE BUILDING:	STAFF: 10
TOTAL	STAFF: 50

NOTE: GREENHOUSE MANAGER (1-STAFF) RESIDES AT EXISTING DWELLING ON-SITE.

SITE PLAN LEGEND:

	GRASSED AREA (NEW OR EXISTING)
	NEW GRAVEL OR PAVED AREA
	EXISTING GRAVEL AREA
	EXISTING ASPHALT AREA
	PROPOSED BUILDING
	EXISTING BUILDING
EX. EOS	EXISTING ROAD - EDGE OF SHOULDER
EX. EOP	EXISTING ROAD - EDGE OF PAVEMENT
EX. CLR	EXISTING ROAD - CENTRELINE
	LANDSCAPE BUFFER LINE
	SUBJECT PROPERTY LINE
	ABUTTING/ADJACENT PROPERTY LINE
	EXISTING GREENHOUSE
	CONSERVATION AUTHORITY BOUNDARY
	EXISTING STREAM/WATERWAY
	SWALE
	DITCH INLET CATCH BASIN
	ROCK CHECK DAM
	OVERLAND FLOW ARROW
	EXISTING CATCH BASIN
	NEW MANHOLE CATCH BASIN
	NEW CATCH BASIN
	SILT FENCE
	FENCE LINE
	STORM DRAIN PIPE BELOW GRADE
	WATER CISTERN BELOW GRADE
	SEPTIC TANK BELOW GRADE
	SEPTIC WEEPING FIELD
	SEPTIC DISTRIBUTION PIPE
	EDGE OF PAVED/GRAVEL AREA
	PROPOSED STORM POND
	EXISTING STORM POND

SITE STATISTICS:

TOTAL LOT AREA:	156795.668 m2
PROPOSED INDUSTRIAL SITE-SPECIFIC AREA:	15018.465 m2
% OF TOTAL LOT, SPECIFIC TO INDUSTRIAL USE:	9.58 %
PROPOSED AGRICULTURAL SITE-SPECIFIC AREA:	141777.203 m2
% OF TOTAL LOT, SPECIFIC TO AGRICULTURAL USE:	90.42 %
EXISTING BUILDING AREAS AND COVERAGE:	--
EX. BUILDING (PRINCIPAL-DWELLING):	321.732 m2
EX. SHED (ACCESSORY-RESIDENTIAL):	91.706 m2
EX. BUILDING (AGRICULTURAL):	472.128 m2
EX. BLD (AGRICULTURAL):	652.193 m2
EX. BLD (AGRICULTURAL):	93.263 m2
EX. BLD (AGRICULTURAL):	92.136 m2
TOTAL EXISTING BUILDING AREA:	1723.158 m2
TOTAL EXISTING BUILDING COVERAGE:	1.1 %
TOTAL EXISTING DWELLING BUILDING COVERAGE:	0.21 %
EXISTING RESIDENTIAL ACCESSORY LOT COVERAGE (% TOTAL LOT):	0.06 %
TOTAL EXISTING AGRICULTURAL BUILDING AREA:	1309.72 m2
TOTAL EXISTING AGRICULTURAL BUILDING COVERAGE:	0.84 %
PROPOSED BUILDING AREAS AND COVERAGE:	--
PROPOSED GREENHOUSE (AGRICULTURAL):	64120 m2
PROPOSED BUILDING (INDUSTRIAL):	6324 m2
TOTAL BUILDING AREA:	72167.16 m2
TOTAL BUILDING COVERAGE (% TOTAL LOT):	46 %
TOTAL AGRICULTURAL BUILDING AREA:	65429.72 m2
TOTAL AGRICULTURAL BUILDING COVERAGE (% TOTAL LOT):	41.73 %
TOTAL AGRICULTURAL BUILDING COVERAGE (% AGRICULTURAL SITE):	46.15 %
TOTAL DWELLING BUILDING AREA:	321.732 m2
TOTAL DWELLING ACCESSORY BUILDING AREA:	91.706 m2
TOTAL DWELLING BUILDING COVERAGE (% TOTAL LOT):	0.21 %
TOTAL DWELLING BUILDING COVERAGE (% AGRICULTURAL SITE):	0.23 %
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% TOTAL LOT):	0.06%
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% AGRICULTURAL SITE):	0.06 %
TOTAL INDUSTRIAL BUILDING AREA:	6324 m2
TOTAL INDUSTRIAL BUILDING COVERAGE (% TOTAL LOT):	4.03 %
TOTAL INDUSTRIAL BUILDING COVERAGE (% INDUSTRIAL SITE):	42.1%

SUMMARY OF SITE STATISTICS:

1) THE EXISTING LOT CONTAINS AGRICULTURAL BUILDINGS, A RESIDENTIAL DETACHED DWELLING AND A SHED ACCESSORY-TO THE RESIDENTIAL DETACHED DWELLING.
2) THE EXISTING LOT (TOTAL PARCEL) IS 156795.668 m2 IN AREA. THE EXISTING DWELLING OCCUPIES 0.21% OF THIS AREA, AND THE RESIDENTIAL ACCESSORY BUILDING OCCUPIES 0.06% OF THIS AREA. THE REMAINING EXISTING BUILDINGS ARE AGRICULTURAL USE, OCCUPYING 0.84% OF THE TOTAL LOT.
3) THE TOTAL EXISTING LOT COVERAGE IS 1.1% OF THE TOTAL LOT.
4) THE PROPOSED DEVELOPMENT INTENDS TO RE-ZONE A PORTION OF THE EXISTING LOT TO ALLOW FOR THE INDUSTRIAL USAGE, AND TO DEVELOP A NEW GREENHOUSE IN THE REMAINING AGRICULTURAL ZONE.
5) THE PROPOSED INDUSTRIAL SITE AREA OCCUPIES AN AREA OF 15018.465 m2 OR 9.58% OF THE TOTAL LOT/PARCEL AREA. THIS RETAINS 141777.203 m2 OF AGRICULTURAL SITE AREA OR 90.42% OF THE TOTAL LOT/PARCEL AREA IN THE EXISTING AGRICULTURAL ZONE.
6) THE PROPOSED INDUSTRIAL DEVELOPMENT INTENDS TO PROVIDE A MANUFACTURING/WAREHOUSE/OFFICE BUILDING OF 6324 m2 OR 42.1 % OF THE PROPOSED INDUSTRIAL SITE AREA.
7) THE PROPOSED AGRICULTURAL DEVELOPMENT INTENDS TO PROVIDE A GREENHOUSE BUILDING OF 64120 m2. THIS PROPOSED GREENHOUSE, IN CONJUNCTION WITH THE EXISTING AGRICULTURAL BUILDINGS, THE TOTAL AGRICULTURAL BUILDING COVERAGE EQUATES TO 46.15 % OF THE PROPOSED AGRICULTURAL SITE.
8) THE TOTAL PROPOSED BUILDING COVERAGE FOR ALL STRUCTURES WITHIN THIS PARCEL (ALL PROPOSED ZONES/SITES) IS 46%.

CDN BUILDINGS

3-523 James Street
Delhi, ON
N4B 2C2

Office: 519 582 8222
Fax: 519 582 2098
Website: http://www.cdnbuildings.com

REVISION TABLE

NO.	DESCRIPTION	DATE
1	PRELIMINARY ISSUED FOR COORDINATION	2025/01/11
2	PRELIMINARY RE-ISSUED FOR COORDINATION	2025/02/04
3	PRELIMINARY RE-ISSUED FOR COORDINATION	2025/02/05

CDN BUILDINGS 8340137 CANADA INC.

2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

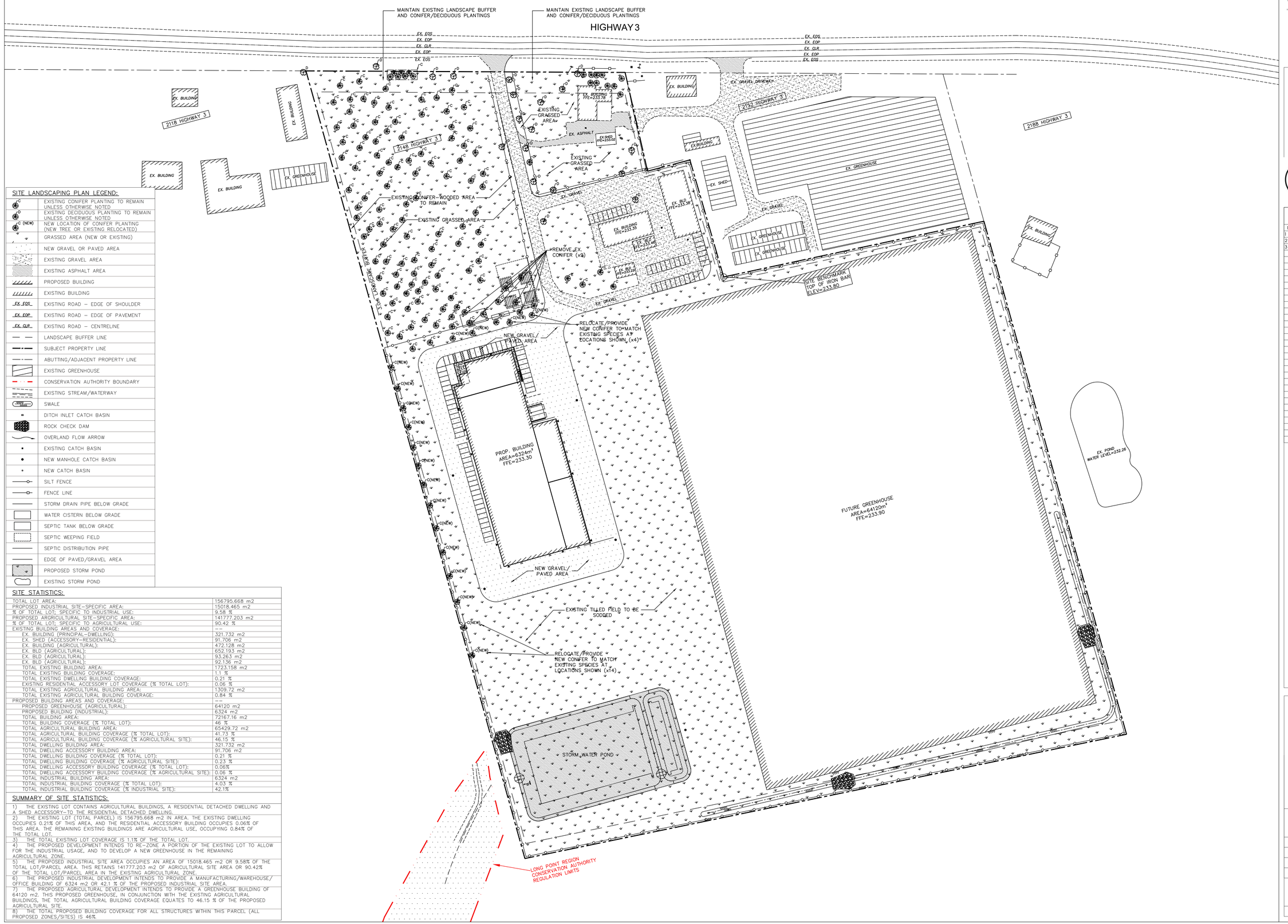
SITE PLAN

PROJECT NUMBER	22-798
DATE	2025/01/21
DRAWN BY	WR
CHECKED BY	AA

SP1.00

SCALE 1:1000

PRINTED ON:



SITE LANDSCAPING PLAN LEGEND:

C	EXISTING CONIFER PLANTING TO REMAIN UNLESS OTHERWISE NOTED
D	EXISTING DECIDUOUS PLANTING TO REMAIN UNLESS OTHERWISE NOTED
C (NEW)	NEW LOCATION OF CONIFER PLANTING (NEW TREE OR EXISTING RELOCATED)
	GRASSED AREA (NEW OR EXISTING)
	NEW GRAVEL OR PAVED AREA
	EXISTING GRAVEL AREA
	EXISTING ASPHALT AREA
	PROPOSED BUILDING
	EXISTING BUILDING
EX. EOS	EXISTING ROAD – EDGE OF SHOULDER
EX. EOP	EXISTING ROAD – EDGE OF PAVEMENT
EX. CLR	EXISTING ROAD – CENTRELINE
	LANDSCAPE BUFFER LINE
	SUBJECT PROPERTY LINE
	ABUTTING/ADJACENT PROPERTY LINE
	EXISTING GREENHOUSE
	CONSERVATION AUTHORITY BOUNDARY
	EXISTING STREAM/WATERWAY
SWALE	SWALE
	DITCH INLET CATCH BASIN
	ROCK CHECK DAM
	OVERLAND FLOW ARROW
	EXISTING CATCH BASIN
	NEW MANHOLE CATCH BASIN
	NEW CATCH BASIN
	SILT FENCE
	FENCE LINE
	STORM DRAIN PIPE BELOW GRADE
	WATER CISTERN BELOW GRADE
	SEPTIC TANK BELOW GRADE
	SEPTIC WEEPING FIELD
	SEPTIC DISTRIBUTION PIPE
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CDN BUILDINGS 8340137 CANADA INC.

2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

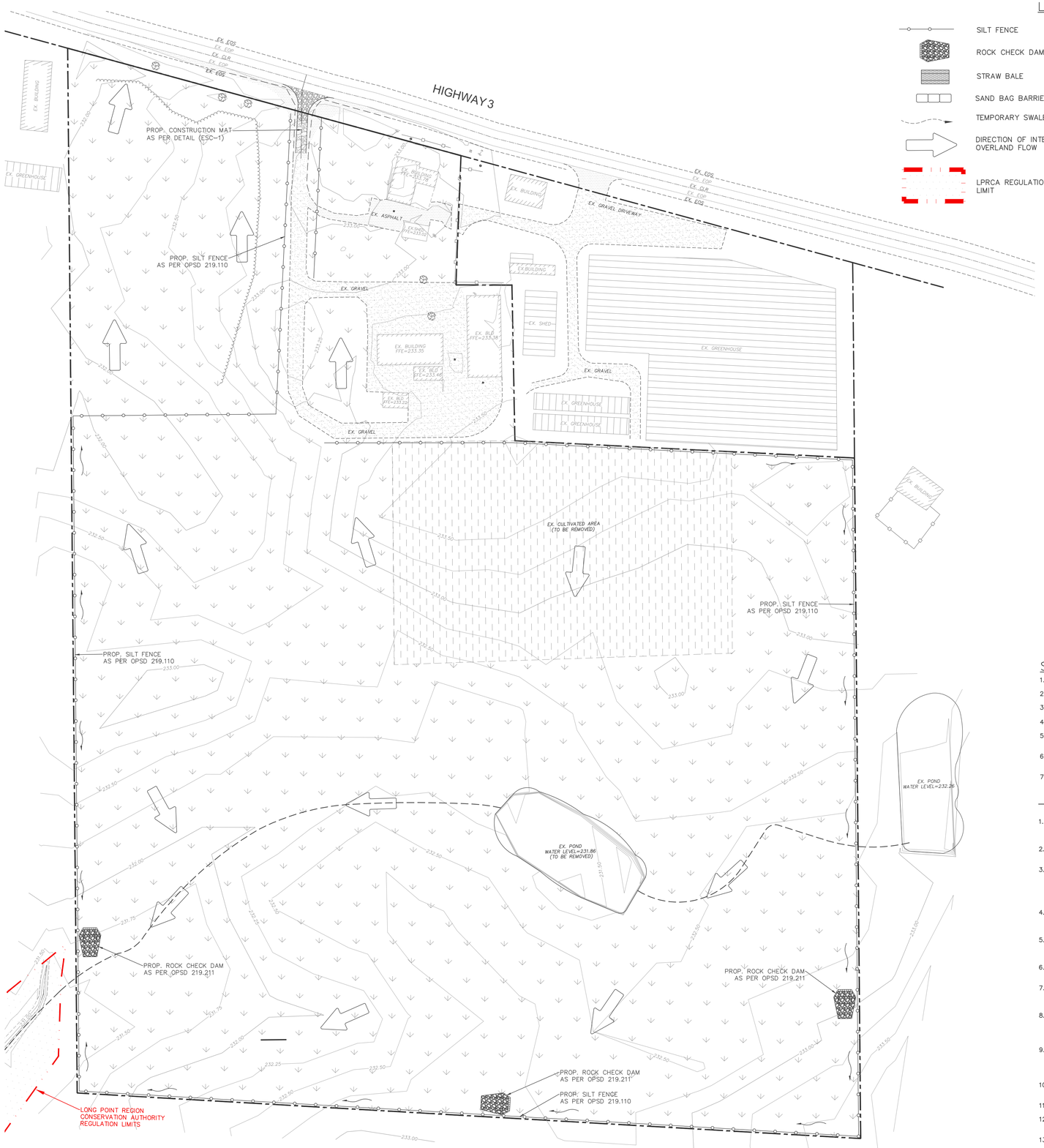
SITE LANDSCAPE PLAN

PROJECT NUMBER	22-798
DATE	2025/01/21
DRAWN BY	WR
CHECKED BY	AA

SP1.01

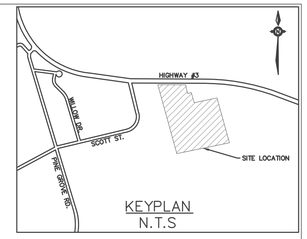
SCALE 1:1000

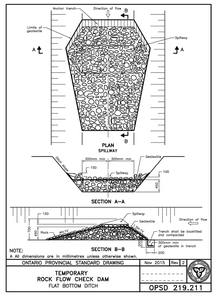
PRINTED ON:

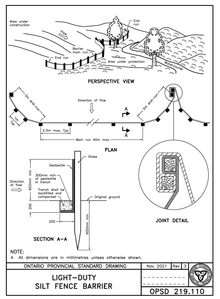


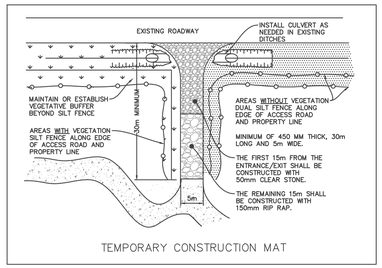
LEGEND

- SILT FENCE
- ROCK CHECK DAM
- STRAW BALE
- SAND BAG BARRIER
- TEMPORARY SWALE
- DIRECTION OF INTERIM OVERLAND FLOW
- LPRCA REGULATION LIMIT
- ASPHALT REMOVAL AREA
- CULTIVATED AREA
- TREED AREA
- DECIDUOUS TREE
- CONIFEROUS TREE









SEQUENCE OF CONSTRUCTION

1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ONSITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. COMMENCE WITH EARTH EXCAVATION AND SITE SERVICING (TO BE REMOVED FROM SITE – NO STOCKPILE).
5. EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.
7. ALL CONSTRUCTION VEHICLES TO ACCESS THE SITE VIA THE DESIGNATED CONSTRUCTION ENTRANCES AS SHOWN.

NOTES FOR SEDIMENT & EROSION CONTROL

1. DISTURBED AREAS THAT HAVE FAILED TO HAVE STABLE GROUND COVER ESTABLISHED BY OCTOBER 30TH SHALL BE PROTECTED WITH A SILTATION CONTROL FENCE OR STRAW MULCH ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION BECOMES ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
2. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30 M FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE ADMINISTRATOR.
3. SILT FENCE SHALL BE PUT IN PLACE PRIOR TO AND MAINTAINED DURING ALL GRADING. SILT FENCE SHALL COMPLY WITH OPSD 219.110 FOR LIGHT DUTY AND / OR OPSD 219.130 FOR HEAVY DUTY; UNLESS NOTED OTHERWISE. SILT FENCE TO BE INSPECTED PRIOR TO COMMENCEMENT OF EARTH GRADING ACTIVITIES. SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGED AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROLS TO BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN EVENT. INSTALLATION SHALL BE TO THE MANUFACTURER'S SUGGESTED SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK, AND AFTER EVERY RAINFALL EVENT.
5. MUD MATS WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE SHALL BE USED. MUD MATS TO BE 300mm IN DEPTH, 6.0m WIDE BY 20.0m LONG, FIRST 10.0m TO 150mmø CLEAR STONE WITH THE REMAINING 10.0m CONSISTING OF 50mmø CLEAR STONE; OR MEET MUNICIPAL STANDARDS WHERE IDENTIFIED.
6. CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 805, CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS ALL APPLICABLE MUNICIPAL STANDARDS.
7. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES SHOULD BE PRESENTED IN WRITING FOR APPROVAL OF THE SITE ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE CONSERVATION AUTHORITY.
8. THE TOPS OF ALL FILTER FABRIC MUST BE A MINIMUM OF 1.0 METRES ABOVE THE GROUND LEVEL AND ATTACHED TO THE FENCE WITH A CONTINUOUS STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOPED THROUGH THE FABRIC ON BOTH SIDES OF THE FENCE. FILTER FABRIC IS TO BE TERRAFIX 270R OR EQUIVALENT.
9. ALL DISTURBED GROUND LEFT INACTIVE SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONTROL MEASURES. THIS PERIOD OF INACTIVITY SHALL BE AT THE DISCRETION OF THE MUNICIPAL DIRECTOR OF ENGINEERING BUT SHALL NOT EXCEED (30) DAYS OR SUCH LONGER PERIOD DEEMED ADVISABLE BY THE MUNICIPAL DIRECTOR OF ENGINEERING.
10. CONTRACTOR SHALL INSTALL AND MAINTAIN CATCHBASIN SEDIMENT BARRIERS THROUGHOUT THE SITE DURING ALL CONSTRUCTION ACTIVITIES IN ORDER TO MITIGATE SEDIMENT ENTERING THE STORM STORM SEWERS.
11. NO FUEL TO BE STORED ON SITE. IN CASE OF A SPILL PLEASE CONTACT: MOECC SPILLS ACTION CENTER 1-800-268-6060.
12. SEDIMENT CONTROLS ARE TO REMAIN IN PLACE UNTIL WRITTEN DIRECTION IS RECEIVED FROM THE ENGINEER REGARDING THEIR REMOVAL.
13. EROSION AND SEDIMENT CONTROLS WILL BE INSPECTED ON AS PER MUNICIPAL REQUIREMENTS OR AFTER SIGNIFICANT RAINFALL EVENTS.

Gerrits ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
Tel.: 613.217.8246

www.gerreng.com

This drawing may have been reduced.

0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK; TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS, QUOTATION/TENDER, OR CONSTRUCTION.

Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

EROSION & SEDIMENT CONTROL PLAN

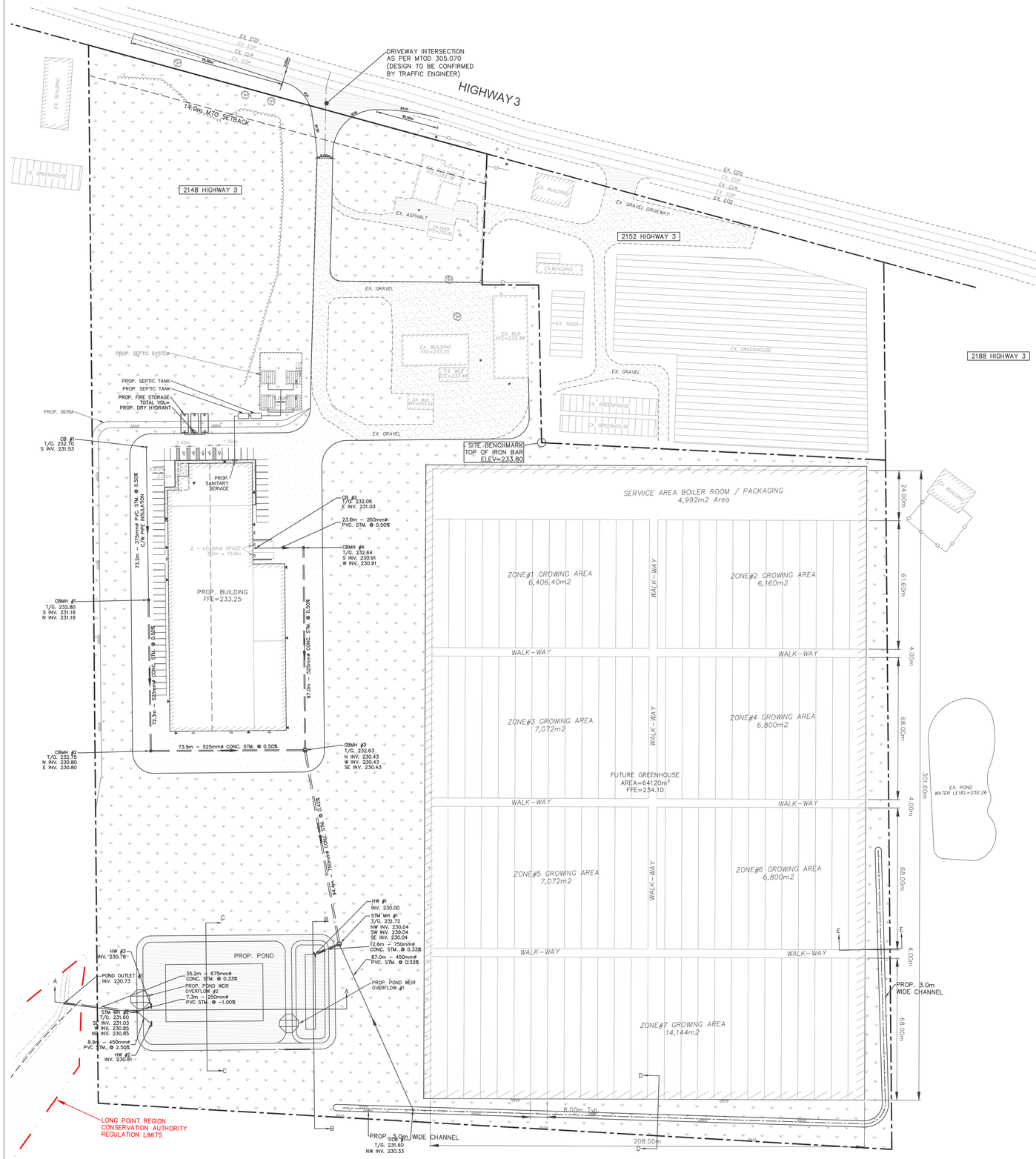
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

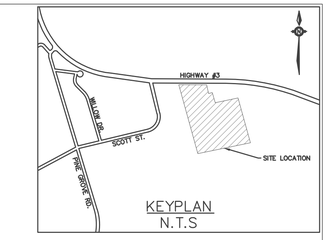
Orientation

Stamp

Drawing No.

ESC-1





KEYPLAN
N.T.S

LEGEND

- PRIVACY FENCE
- ACOUSTIC FENCE
- CHAIN LINK FENCE
- SILT FENCE
- GAS LINE
- HYDRO LINE
- BELL LINE
- EXISTING SANITARY MAINTENANCE HOLE
- PROPOSED SANITARY MAINTENANCE HOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING STORM MAINTENANCE HOLE
- PROPOSED STORM MAINTENANCE HOLE
- SERVICE CAP
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING VALVE BOX
- PROPOSED VALVE BOX
- PROPOSED SIGN
- EXISTING LIGHT POLE
- MANDOOR
- OVERHEAD DOOR
- FIRE DEPT CONNECTION
- LANDSCAPE AREA
- LIGHT DUTY ASPHALT AREA
- HEAVY DUTY ASPHALT AREA
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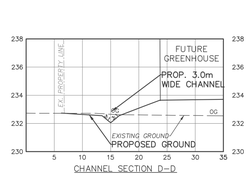

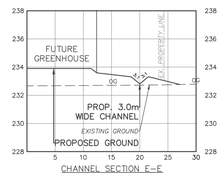

Gerrits ENGINEERING

Barrie, ON Tel.: 705.737.3303

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www.gerreng.com

This drawing has been created electronically.

Handwritten or manual revisions to the drawing are only valid when accompanied by the design engineer's initials.

Do not scale drawings.
Check and verify all dimensions and information on the drawings and report all errors or ommissions to the Consultant before proceeding with the work.

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CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

SITE SERVICING PLAN

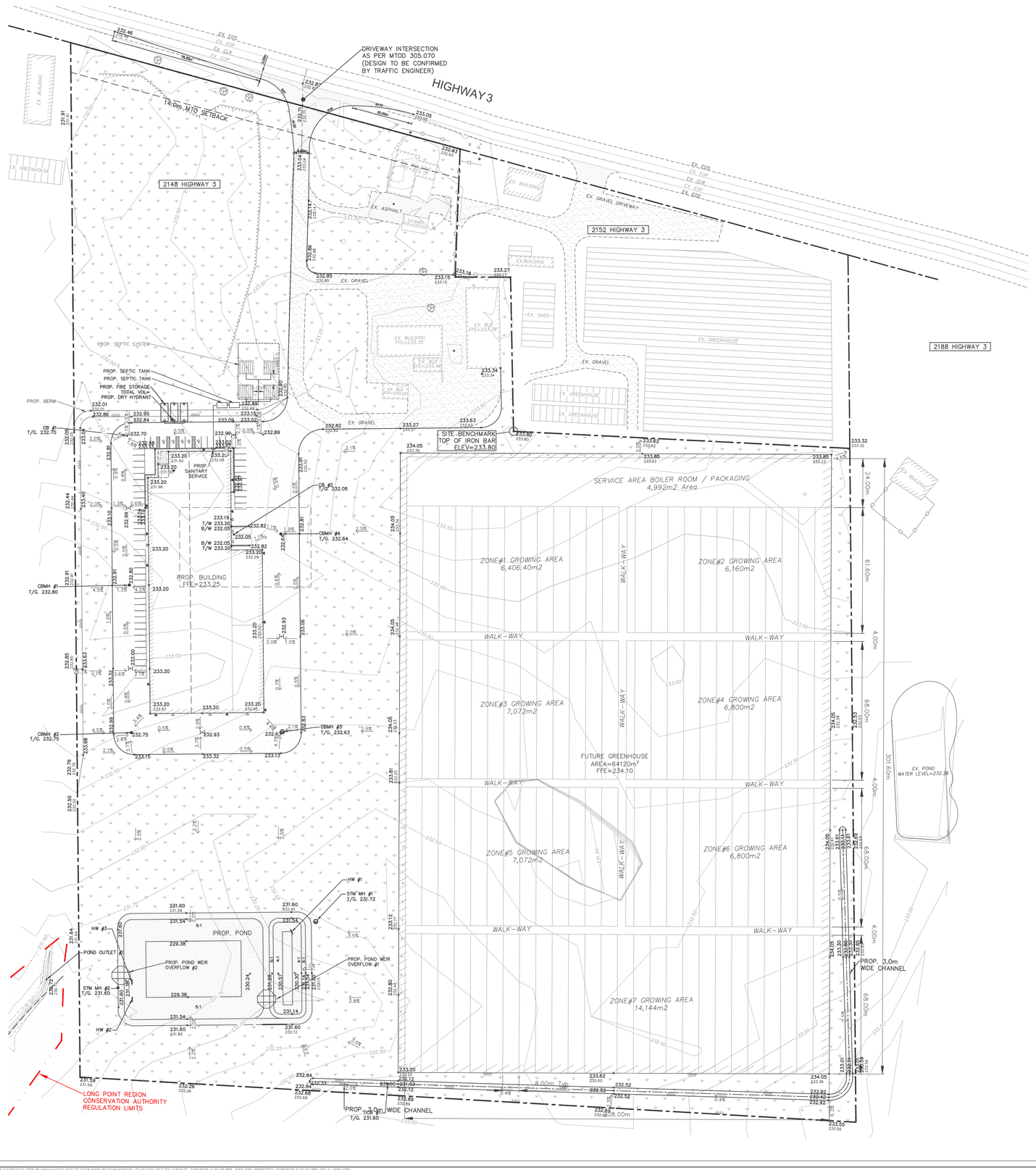
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

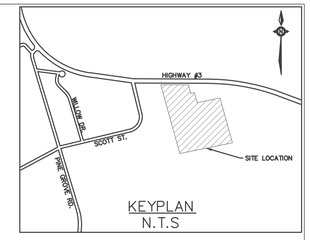
Orientation

Stamp

Drawing No.

SS-1





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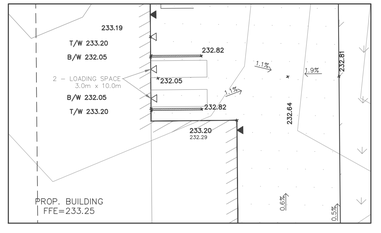

Gerrits ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
Tel.: 613.217.8246

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No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS, QUOTATION/TENDER, OR CONSTRUCTION.

Client

CDN BUILDINGS
523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI
2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

SITE GRADING PLAN

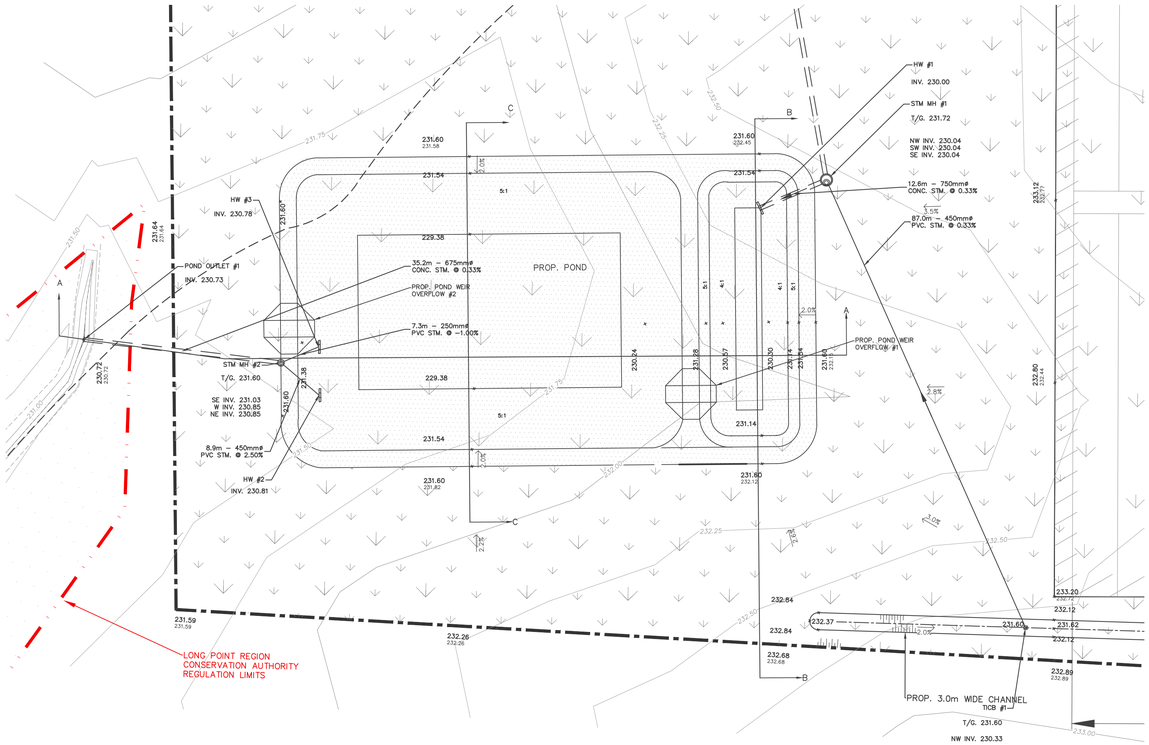
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

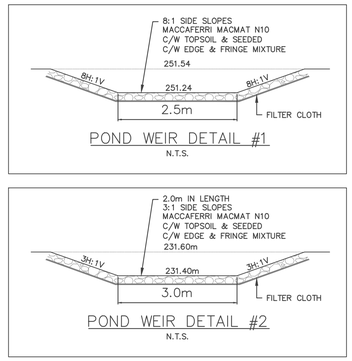
Orientation

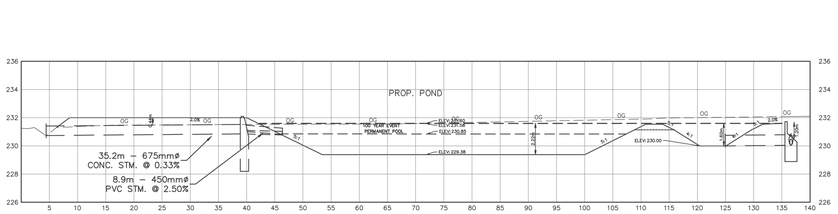
Stamp

Drawing No.

SG-1







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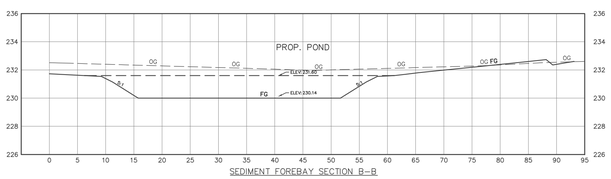

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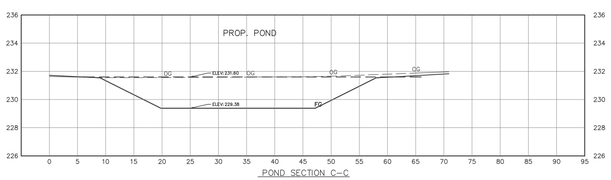

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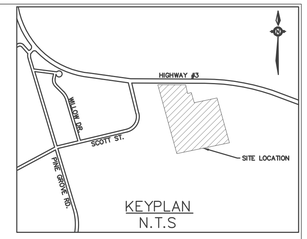

LEGEND

- PRIVACY FENCE
- ACOUSTIC FENCE
- CHAIN LINK FENCE
- SILT FENCE
- GAS LINE
- HYDRO LINE
- BELL LINE
- EXISTING SANITARY MAINTENANCE HOLE
- PROPOSED SANITARY MAINTENANCE HOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING STORM MAINTENANCE HOLE
- PROPOSED STORM MAINTENANCE HOLE
- SERVICE CAP
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING VALVE BOX
- PROPOSED VALVE BOX
- PROPOSED SIGN
- EXISTING LIGHT POLE
- MANDOOR
- OVERHEAD DOOR
- FIRE DEPT CONNECTION
- LANDSCAPE AREA
- LIGHT DUTY ASPHALT AREA
- HEAVY DUTY ASPHALT AREA
- GRAVEL AREA

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0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
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2.	MTO SUBMISSION	25/02/28
3.	-	--/--/--

BENCHMARK; TOP OF IRON BAR, EAST CORNER OF LOT ELEVATION OF 233.80

Issued For:

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

POND PLAN

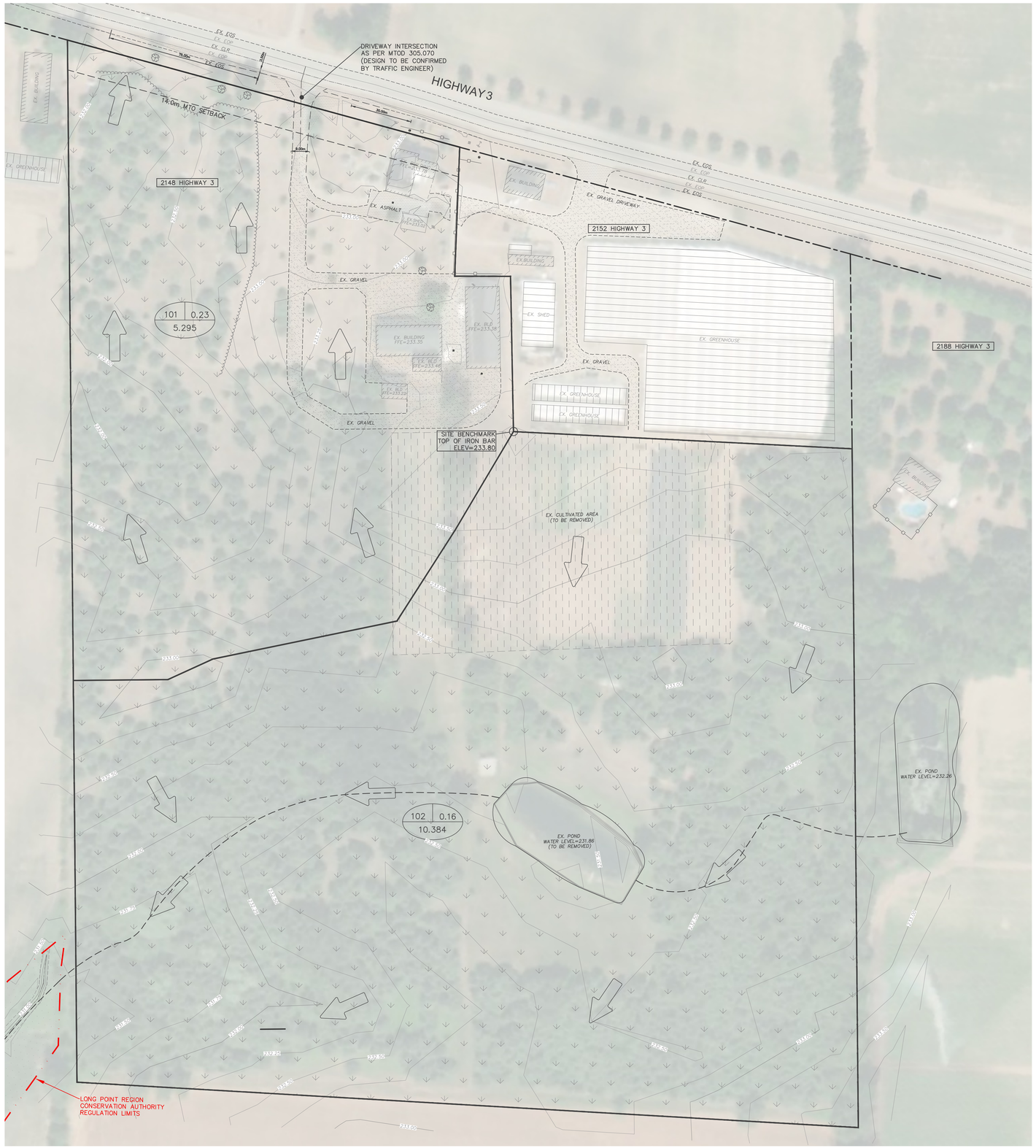
Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:500	Drawn by: RM	Approved by: JDM

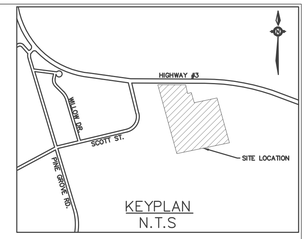
Orientation

Stamp

Drawing No.

PND-1





LEGEND

ID X/P–1 0.75 5.55 AREA (ha) — RUNOFF COEFFICIENT

CATCHMENT BOUNDARY

OVERLAND FLOW

LPRCA REGULATION LIMIT

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No.	Issuance Description	YY/MM/DD
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BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT
ELEVATION OF 233.80

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

PRE–DEVELOPMENT STORMWATER DRAINAGE PLAN

Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

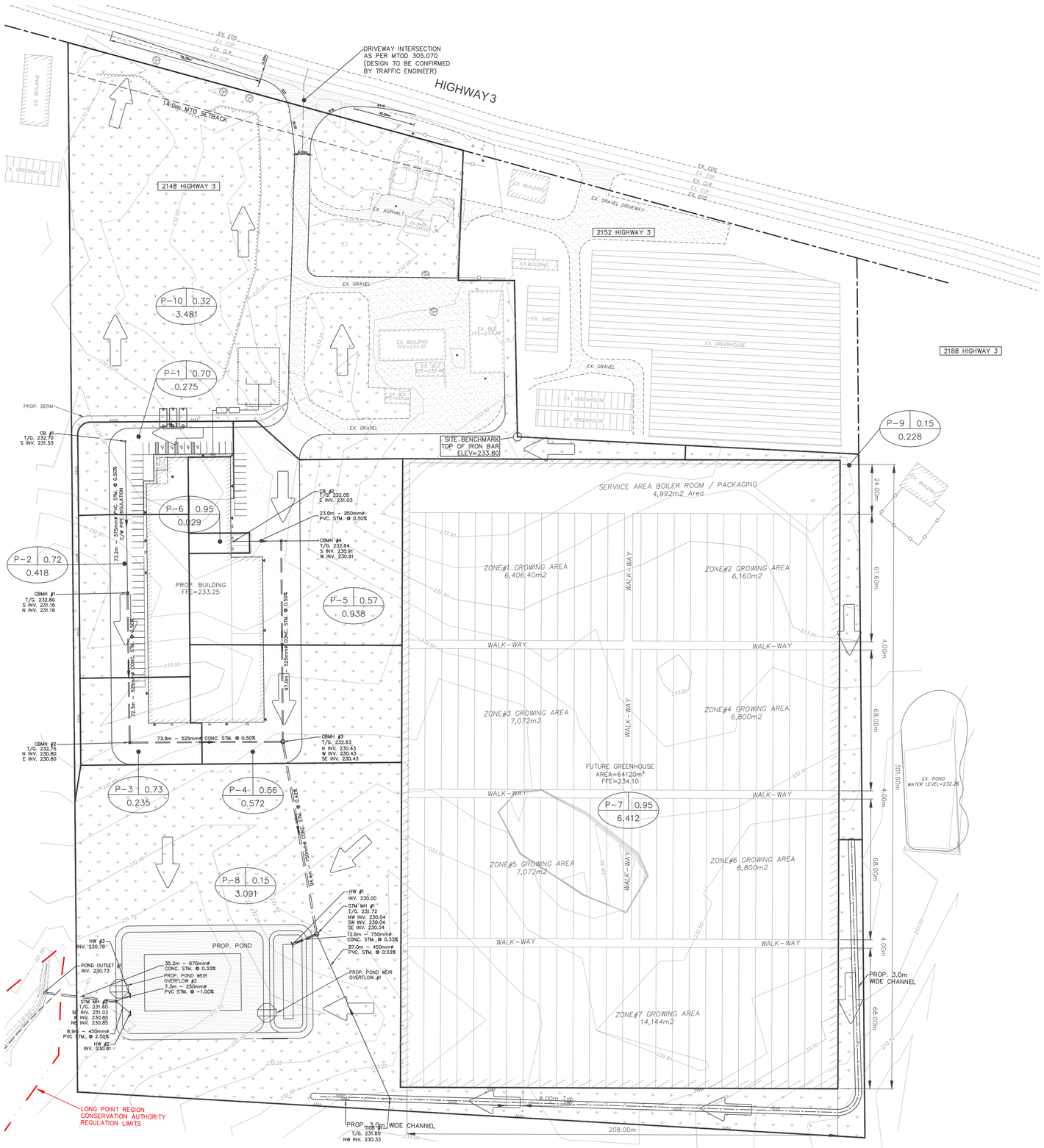
Orientation

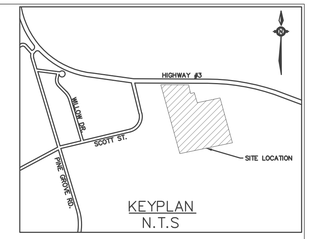
Stamp

Drawing No.

SWM-1

SAVED: X:\11000\1121 CDN Buildings\1121-012-22 2148 HWY #3 Delhi\DWGS_Civil\1121-012-22 LAYOUT, 2/28/2025 4:40:26 PM , KFILION PRINTED: 2/28/2025 4:42:24 PM, SWM-1, KFILION





LEGEND

ID X/P-1 0.75 5.55 AREA (ha) — RUNOFF COEFFICIENT

CATCHMENT BOUNDARY

OVERLAND FLOW

LPRCA REGULATION LIMIT

0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:

POST DEVELOPMENT STORMWATER DRAINAGE PLAN

Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

Orientation

Stamp

Drawing No.

SWM-2

MINISTRY OF TRANSPORTATION

Ontario

Highway Corridor Management Entrance Permit

EN-2025-31L-00000036 V1

ISSUED TO

PROPERTY OWNER: 1000105029 ONTARIO INC
APPLICANT/TENANT:

LOCATION OF WORK

HIGHWAY: 3

STREET ADDRESS: N/A

GPS CO-ORDINATES: Start: 42.827767, -80.471486 **End:** N/A

LOT/SECTION: LOT 23 **CON:** CON 14 **GEOGRAPHIC TOWNSHIP:** WINDHAM **LOT/BLOCK:** 23 **PLAN NO:** 37R-3879 Parts 3 and 4
MUNICIPALITY: NORFOLK COUNTY **REFERENCE PLAN PART:** 23 **REFERENCE PLAN NO:** 23

PERMIT DETAILS

TYPE OF ENTRANCE: Commercial Entrance **PURPOSE OF APPLICATION:** Alter existing entrance
TYPE OF SURFACE FINISH FROM PRIVATE PROPERTY LIMIT TO EDGE OF HIGHWAY PAVEMENT: Paved
DESCRIPTION: To modify existing entrance at 2148 Highway 3, Delhi to MTOD Standard 305.070. See Information File. Entrance located on the south side of Highway 3, approximately 312 m east of Scott Street, Delhi. Issued in conjunction with Building and Land Use Permit Application 2025-00003052.

EFFECTIVE DATE: April 28, 2025
EXPIRY DATE: N/A

Authorized Signatory

THIS PERMIT IS ISSUED UNDER THE AUTHORITY VESTED IN THE MINISTER BY THE PUBLIC TRANSPORTATION AND HIGHWAY IMPROVEMENT ACT AND THE REGULATIONS PURSUANT THERETO AND IN SUBJECT TO THE CONDITIONS ATTACHED TO THE PERMIT, INCLUDING ANY AGREEMENT APPLICABLE TO THE SIGN AUTHORIZED BY THE PERMIT

MINISTRY OF TRANSPORTATION

Ontario

Highway Corridor Management Building and Land Use Permit

BL-2025-31L-00000069 V1

ISSUED TO

PROPERTY OWNER: 1000105029 ONTARIO INC
APPLICANT/TENANT:

LOCATION OF WORK

HIGHWAY: 3

STREET ADDRESS: N/A

GPS CO-ORDINATES: Start: 42.827202, -80.471544 **End:** N/A

LOT/SECTION: LOT 23 **CON:** CON 14 **GEOGRAPHIC TOWNSHIP:** WINDHAM **LOT/BLOCK:** 23 **PLAN NO:** 37R-3879 Parts 3 and 4
MUNICIPALITY: NORFOLK COUNTY **REFERENCE PLAN PART:** 23 **REFERENCE PLAN NO:** 23

PERMIT DETAILS

USE OF FACILITY: Commercial Building/Land Use **PURPOSE OF APPLICATION:** Construct

TYPE OF FACILITY: Building

DESCRIPTION: To construct an 6,324 m² fabrication shop for greenhouse manufacturing at 2148 Highway 3, Delhi as per drawings prepared by CDN Buildings, signed by A.A.L. Ayoub dated April 7, 2025. See Information File. Property located in the south side of Highway 3, approximately 300 m east of Scott Street, Delhi. Any future development at this site will require MTO review/approval & permits.

EFFECTIVE DATE: April 28, 2025
EXPIRY DATE: N/A

Authorized Signatory

THIS PERMIT IS ISSUED UNDER THE AUTHORITY VESTED IN THE MINISTER BY THE PUBLIC TRANSPORTATION AND HIGHWAY IMPROVEMENT ACT AND THE REGULATIONS PURSUANT THERETO AND IN SUBJECT TO THE CONDITIONS ATTACHED TO THE PERMIT, INCLUDING ANY AGREEMENT APPLICABLE TO THE SIGN AUTHORIZED BY THE PERMIT

Highway Corridor Management Permit Conditions

Permit Number: BL-2025-31L-00000069
Permit Version: 1
Date Approved: April 28, 2025

The permit is subject to the following conditions:

1. In addition to the conditions of this permit, the registered property owner must meet all of the requirements of the local municipality and any other agency having jurisdiction.
2. The work for which this permit is issued must commence within 6 months of the date that the permit is issued, or the permit shall be void and cancelled by the Ministry.
3. All work authorized by this permit shall be carried out in accordance with the approved plans, specifications and agreements and subject to the approval of the Ministry. The registered property owner must bear all expenses related thereto.
4. Vegetation on the right of way must not be cut or trimmed without the written permission of the Ministry. Any cutting or trimming permitted must only be done under the supervision of the Ministry or its authorized agent at the expense of the registered property owner. Any cutting or trimming of vegetation adjacent to the highway right-of-way requires the permission of the land owner.
5. The registered property owner shall ensure that the operation of the highway is not interfered with, and that the right-of-way remains free of debris, earth or other materials.
6. If there is an expiry date on this permit and a further term is required, a request shall be made to the Ministry before the expiry date. An extension may be approved, approved with additional conditions, or denied by the Ministry.
7. If during the life of this permit any Acts are passed or regulations adopted which affect the rights herein granted, the said Acts and regulations shall be applicable to this permit from the date on which they come into force.
8. The registered property owner holds harmless the Ministry for all damages and liabilities caused as a result of the works undertaken pursuant to this permit.
9. This permit may be cancelled at any time for breach of the regulations or conditions of this permit, or for such other reasons as the Ministry at its sole discretion deems proper. When a permit is cancelled for any reason, the registered property owner shall not be entitled to any compensation or damages by reason of or arising from the cancellation of the permit.
10. The use of the land or building(s) shall only be for the use stated on this permit. The use of the land or building(s) for any other purposes may result in the cancellation of this permit. A change in the use of the land or building(s) requires a new permit.
11. All future development on this site requries MTO permits and approvals, including the "future greenhouse" indicated on the site plan drawings.
12. No interconnectivity to the adjacent property (PIN 501670311) is permitted.
13. Use of property shall not exceed traffic volumes defined in TIS, dated September 13, 2024. Any use in contravention of the TIS and permit conditions may result in the cancellation of this permit, and require new MTO permit approvals and conditions.
14. Issued in conjunction with Entrance Permit Application 2025-00003053.

Ministry of Transportation

Highway Corridor Management Section - London Office
659 EXETER RD
LONDON, ON
N6E 1L3

Ontario

April 28, 2025

1000105029 Ontario Inc
523 JAMES ST S, UNIT 3
DELHI, ON
N4B 2C2

Dear WILLIAM D:

Re: BL-2025-31L-00000069 V1

Please find attached your Building and land Use Permit, which has been issued in accordance with the ***PUBLIC TRANSPORTATION AND HIGHWAY IMPROVEMENT ACT, R.S.O. 1990, P50.***

It is the responsibility of the permit holder to ensure that all employed/contracted personnel performing the work are aware of and adhere to all conditions of the permit.

If you have any questions or require further assistance, please contact the undersigned.

Sincerely,

Maureen McIver
Corridor Management Officer

659 EXETER RD
LONDON, ON
N6E 1L3

Attach.

Ontario

Highway Corridor Management Section - London Office
659 Exeter Rd
London, ON
Maureen.McIver@ontario.ca / 226-980-7195

Highway Corridor Management Billing Statement

Invoice to:
CRA Business Number: 749241006
1000105029 Ontario Inc
WILLIAM D DENDEKKER
523 James St S, Unit 3
Delhi, ON
N4B 2C2

Pay Online at www.hcms.mto.gov.on.ca

Statement Number:	2025000661-0428
Payment Access Code:	qnUN3JqD
Statement Date:	Apr 28, 2025
Amount Due:	**$18,339.60**
Due Date:	**May 28, 2025**

Permit Number	Description	Transaction	Total
BL-2025-31L-00000069	Application #: 2025-00003052 Permit Type: Commercial Building & Land Use Lat: 42.827202 Long: -80.471544	Fee Amount HST AMOUNT DUE	$18,339.60 EXEMPT $18,339.60

Payment Conditions

1. Please pay to avoid cancellation of your permit and statement.
2. An interest charge will be applied on any amount not received by the Due Date. Interest will be charged at a rate of **0.1%** per month until receipt of all unpaid charges.
3. A service fee of **$35.00** will be added for NSF cheques.

Pay Online at www.hcms.mto.gov.on.ca

Payment via Cheque must be payable to the Minister of Finance.

You will be required to enter the Statement Number and the Payment Access code provided at the bottom of this statement. If you would like to discuss other payment arrangements, please contact your corridor management officer at the top of the statement.

Total Fees	$18,339.60
Total Interest	$0.00
Total HST	$0.00
Less: Cancellations	$0.00
Less: Total Waived	$0.00
Less: Total Paid to Date	$0.00
Amount Due	**$18,339.60**

Statement Number:	**2025000661-0428**
Payment Access Code:	**qnUN3JqD**

GENERAL NOTES - EXTERIORS

1. Readings shown are based on a total LLF of 0.81, 0.84, 0.87, 0.90 as indicated in the luminaire schedule at 0.0' (0.0m) AFG (at grade). Data references the extrapolated performance projections in a 25c ambient based on 10,000 hrs of LED testing (per IESNA LM-80-08 and projected per IESNA TM-21-11).

2. Please refer to the fixture labels for product type and mounting heights.

3. Product information can be obtained at https://www.acuitybrands.com/ or through your local agency.

4. Grid spacing is 3.05m x 3.05m on center.

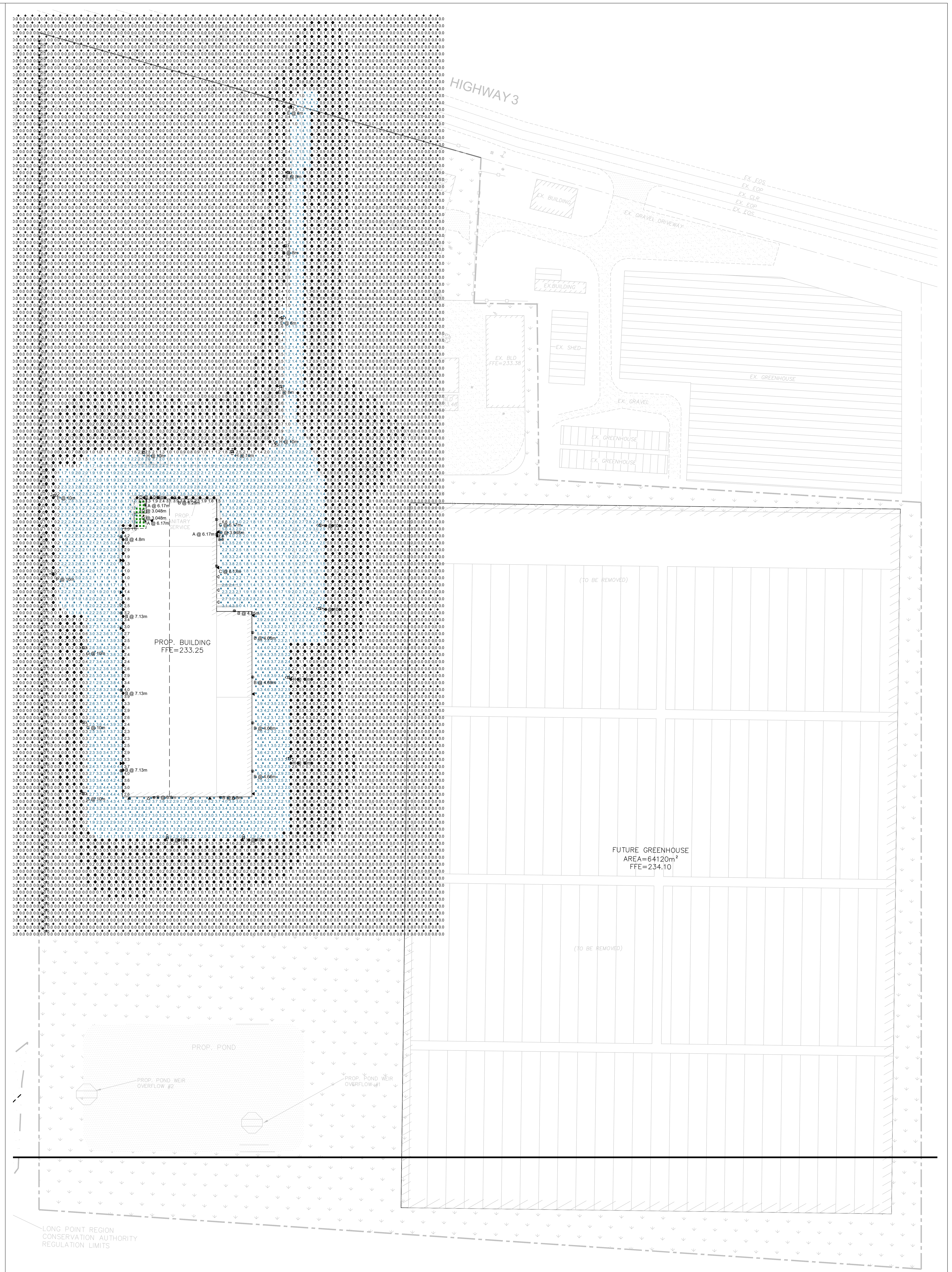
5. Note: pole and wall pack locations are based on provided plans or approximations using Google Earth.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ABOVE STAIR LANDING 2 (NORTH)	□	2.9 fc	2.9 fc	2.8 fc	1.0:1	1.0:1
PARKING LOT AND DRIVE AISLE	□	2.5 fc	6.6 fc	1.0 fc	6.6:1	2.5:1
PROPERTY LINE	×	0.0 fc	0.1 fc	0.0 fc	N/A	N/A
SPILL LIGHT SUMMARY	+	0.5 fc	6.6 fc	0.0 fc	N/A	N/A
UNDER STAIRCASE 1 (SOUTH)	◇	4.3 fc	6.3 fc	2.7 fc	2.3:1	1.6:1
UNDER STAIRCASE 2 (NORTH)	⋇	6.8 fc	7.2 fc	6.5 fc	1.1:1	1.0:1
ABOVE STAIR LANDING 1 (SOUTH)	⋇	3.0 fc	4.0 fc	1.8 fc	2.2:1	1.7:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Filename	Lumens per Lamp	LLF	Wattage	Distribution
	A	3	Lithonia Lighting	WDGE2 LED P2 40K 70CRI T2M	WDGE2 LED WITH P2 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 2 MEDIUM OPTIC	WDGE2_LED_P2_40K_70CRI_T2M.ies	2326	0.84	18.9815	TYPE III, MEDIUM, BUG RATING: B1 - U0 - G1
	B	12	Lithonia Lighting	WDGE3 LED P1 70CRI R3 40K	WDGE3 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 70CRI, TYPE 3 OPTIC	WDGE3_LED_P1_70CRI_R3_40K.ies	7523	0.87	51.1717	TYPE III, SHORT, BUG RATING: B1 - U0 - G2
	C	2	Lithonia Lighting	WDGE3 LED P4 70CRI RFT 40K	WDGE3 LED WITH P4 - PERFORMANCE PACKAGE, 4000K, 70CRI, FORWARD THROW OPTIC	WDGE3_LED_P4_70CRI_RFT_40K.ies	12277	0.87	87.8914	TYPE IV, SHORT, BUG RATING: B2 - U0 - G2
	D	4	Luminaire LED	ARV13 15W 40K OP. Adjusted LLF to reflect 15W.	Luminaire LED, Inc. - Round ceiling surface mount luminaire. Product ID: ARV13-25W-4000K OP Brown painted aluminum cast housing with linear prismatic white plastic bowl lens. 144 LEDs mounted in circular array on white PCB mounted on white painted base plate. One AC Electronics LEDs driver. Model: AC-25CD700AUZ. Operating at 120 Vac and 60 Hz with dimming disconnected.	ARV13 25W 40K OP.ies	17	0.58	27.5	DIRECT, SC-0=1.25, SC-90=1.25
	E	5	Lithonia Lighting	DSX0 LED P5 40K 70CRI T2M HS	D-Series Size 0 Area Luminaire P5 Performance Package 4000K CCT 70 CRI Type 2 Medium Houseside Shield	DSX0_LED_P5_40K_70CRI_T2M_HS.ies	10370	0.81	90.12	TYPE III, MEDIUM, BUG RATING: B1 - U0 - G3
	F	2	Lithonia Lighting	DSX1 LED P9 40K 70CRI BLC4	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 4 Extreme Backlight Control	DSX1_LED_P9_40K_70CRI_BLC4.ies	25547	0.81	277.07	TYPE IV, SHORT, BUG RATING: B0 - U0 - G5
	G	3	Lithonia Lighting	DSX1 LED P9 40K 70CRI BLC3	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 3 Extreme Backlight Control	DSX1_LED_P9_40K_70CRI_BLC3.ies	24735	0.81	277.07	TYPE III, SHORT, BUG RATING: B0 - U0 - G4
	H	9	Lithonia Lighting	DSX1 LED P9 40K 70CRI T4M HS	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 4 Medium Houseside Shield	DSX1_LED_P9_40K_70CRI_T4M_HS.ies	29689	0.81	277.0702	TYPE IV, MEDIUM, BUG RATING: B3 - U0 - G5



1 ELECTRICAL SITE PLAN
SCALE: 1:1000

Gerrits
ENGINEERING

Barrie, ON
Tel.: 705.737.3303

Kingston, ON
Tel.: 613.217.8246

www.gerreng.com

0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"

No.	Issuance Description	YY/MM/DD
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2.	-	-
3.	-	-
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5.	-	-

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Client

CDN BUILDINGS

523 James Street, Unit 3, Delhi, ON N4B 2C2

Project

HWY #3 DEHLI

2148 Highway 3, Felhi, ON N4B 2W4 Norfolk County

Drawing:

LIGHTING PHOTOMETRICS

Project No. 1121-012-22	Designed by: MG	Checked by: CP	
Time Stamp:	Drawn by: MG	Approved by: CP	
Orientation	Stamp		

Drawing No.

E-100

CDN Buildings

2148 Highway 3, Delhi

Norfolk County

APPLICATION FOR

ZONING BY-LAW AMENDMENT

PREPARED BY

INNOVATIVE PLANNING SOLUTIONS

647 WELHAM ROAD, UNIT 9A

BARRIE, ONTARIO L4N 0B7

TEL: (705) 812-3281

FAX: (705) 812-3438

May 2025

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APPENDIX 2:	Draft Zoning By-law Amendment Text & Schedule	

1.0 INTRODUCTION

Innovative Planning Solutions has been retained by CDN Buildings to prepare the following Planning Justification Report in support of applications for Zoning By-law Amendment (ZBA) on lands legally described as Windham Concession 14 Part Lot 23, municipally known as 2148 Highway 3, Delhi, in Norfolk County. The property Roll Number is 49102807800.

The intent of this application is to support the construction of a new greenhouse, envisioned as a strawberry growing operation, and a facility which will be used to manufacture greenhouses by the applicant.

The proposed development is subject to site plan control and therefore a subsequent application for Site Plan Approval (SPA) will be submitted. The subject application for a Zoning By-law Amendment is required to permit the proposed uses and development plan through site-specific exceptions to the current 'Agricultural' (A) zone. The proposal aligns with land use permissions of the property's Agricultural Municipal Official Plan designation.

The following report will review applicable policies found within the documents noted below to justify this development under good planning principles:

- Provincial Planning Statement, 2024
- OMAFRA Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas
- Norfolk County Official Plan
- Norfolk County Zoning Bylaw 1-Z-2014

2.0 SITE DESCRIPTION AND SURROUNDING LAND USES

The subject property is located approximately 1.5 kilometres south of the Delhi settlement area, and approximately 0.45 kilometres east of the Hamlet of Gilbertville. The property is irregular in shape, with an area of approximately 16 ha, and approximately 200 m of frontage on the south side of Highway 3 (MTO jurisdiction). **Figure 1** shows the location of the subject property. **Figure 2** shows the surrounding land uses.

The property is currently designated 'Agricultural' per Land Use Schedule B-17 in the Norfolk County Official Plan, as can be seen in **Figure 3**. Schedule A-4 of the Norfolk County Zoning By-law 1-Z-2014 zones the property 'Agricultural' (A), as shown in **Figure 4.** A review of Norfolk County web mapping indicates that the property features Canada Land Inventory Class 2 prime agricultural soils. Topography of the property is relatively flat. The property falls within the Long Point Region Watershed; however, it is outside of any area regulated by the Long Point Region Conservation Authority (LPRCA), as can be seen in **Figure 5.**

Existing structures on the northern portion of the property include a single-detached dwelling, two barns and two sheds. The barns and sheds are used for storage of building materials. These structures are to remain on the property. The site is currently serviced with private on-site water (well) and private on-site sewage (septic). A vacant agricultural field is present in the southwest portion of the property, and until recently was used for cash crops. The field contains trees and sporadic vegetation and was historically used as a Christmas tree farm. A pond feature is present in the southeastern portion of the property and was formerly used for irrigation.

Surrounding uses in the immediate area are as follows:

North: Highway 3, north of which is a farmhouse, agricultural buildings and cropland, zoned 'Agricultural' (A).

East: A single-detached dwelling, the North Creek Gardens Garden Centre, and cropland, zoned 'Agricultural' (A).

South: Agricultural croplands, zoned 'Agricultural' (A).

West: A single-detached dwelling, agricultural buildings and cropland, zoned 'Agricultural' (A) with special provisions and 'Hazard Land' (HL).

LEGEND

Subject Lands

Figure 1
Site Overview

Source: Norfolk Interactive Map

Drawn By: CD | File: 24-1366

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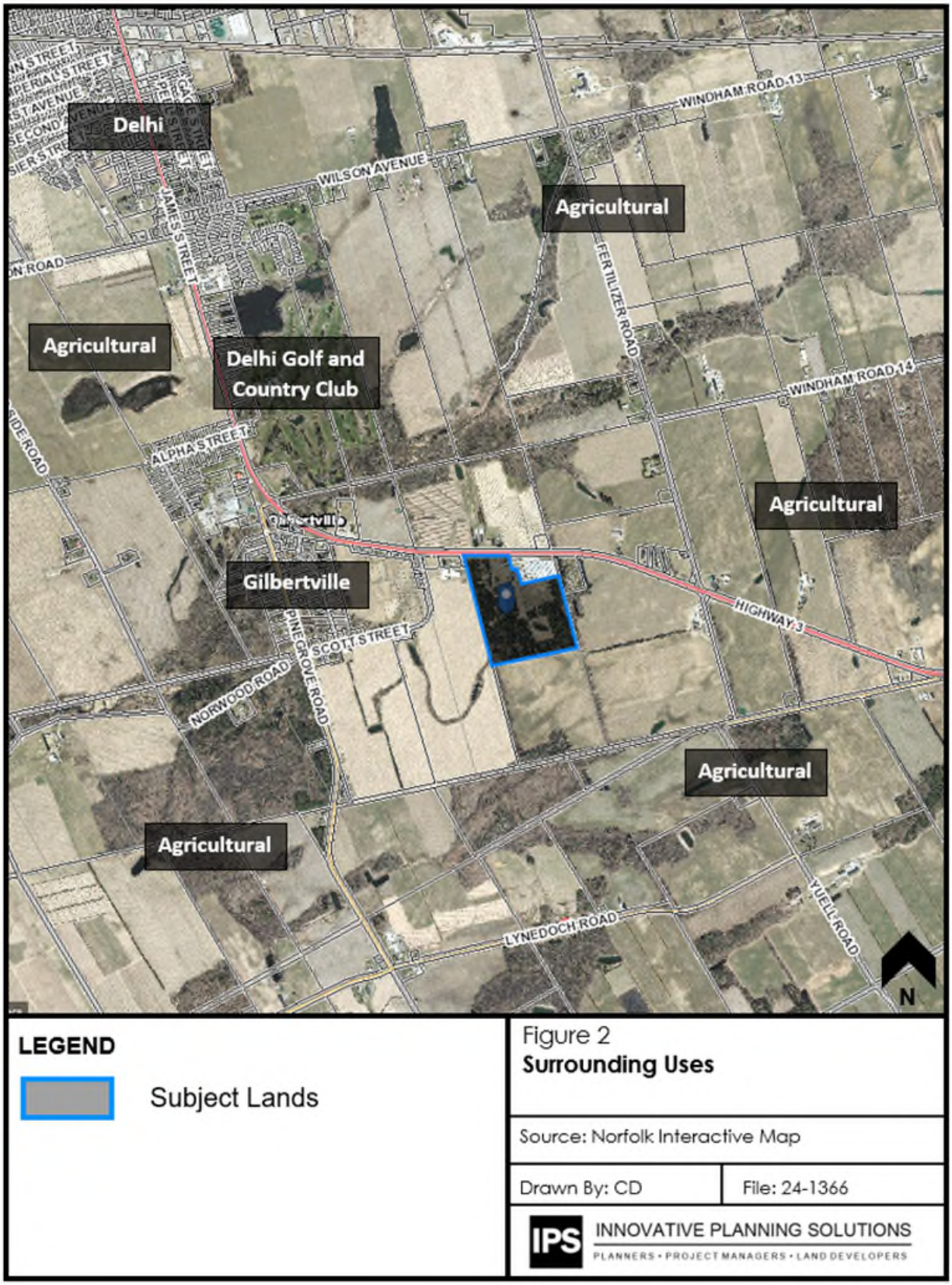
Delhi
WINDHAM ROAD 13
WILSON AVENUE
Agricultural
JAMES STREET
FERTILIZER ROAD
Agricultural
Delhi Golf and Country Club
WINDHAM ROAD 14
ALPHA STREET
Agricultural
Gilbertville
HIGHWAY 3
SCOTT STREET
PINE GROVE ROAD
NORWOOD ROAD
Agricultural
Agricultural
LYNEDOCH ROAD
YUELL ROAD
N
LEGEND
Subject Lands
Figure 2
Surrounding Uses
Source: Norfolk Interactive Map
Drawn By: CD
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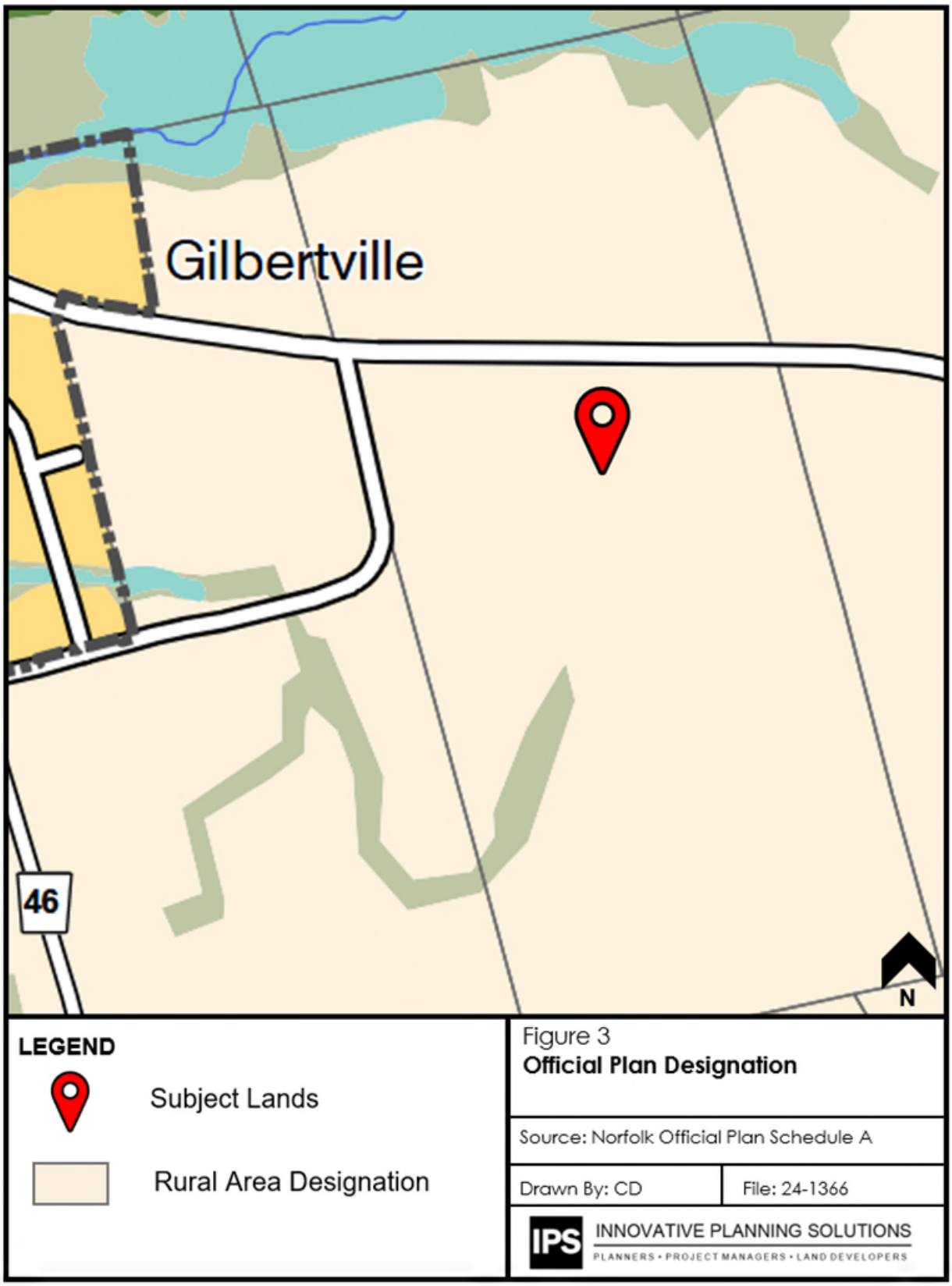
Gilbertville
46
N
LEGEND
Subject Lands
Rural Area Designation
Figure 3
Official Plan Designation
Source: Norfolk Official Plan Schedule A
Drawn By: CD
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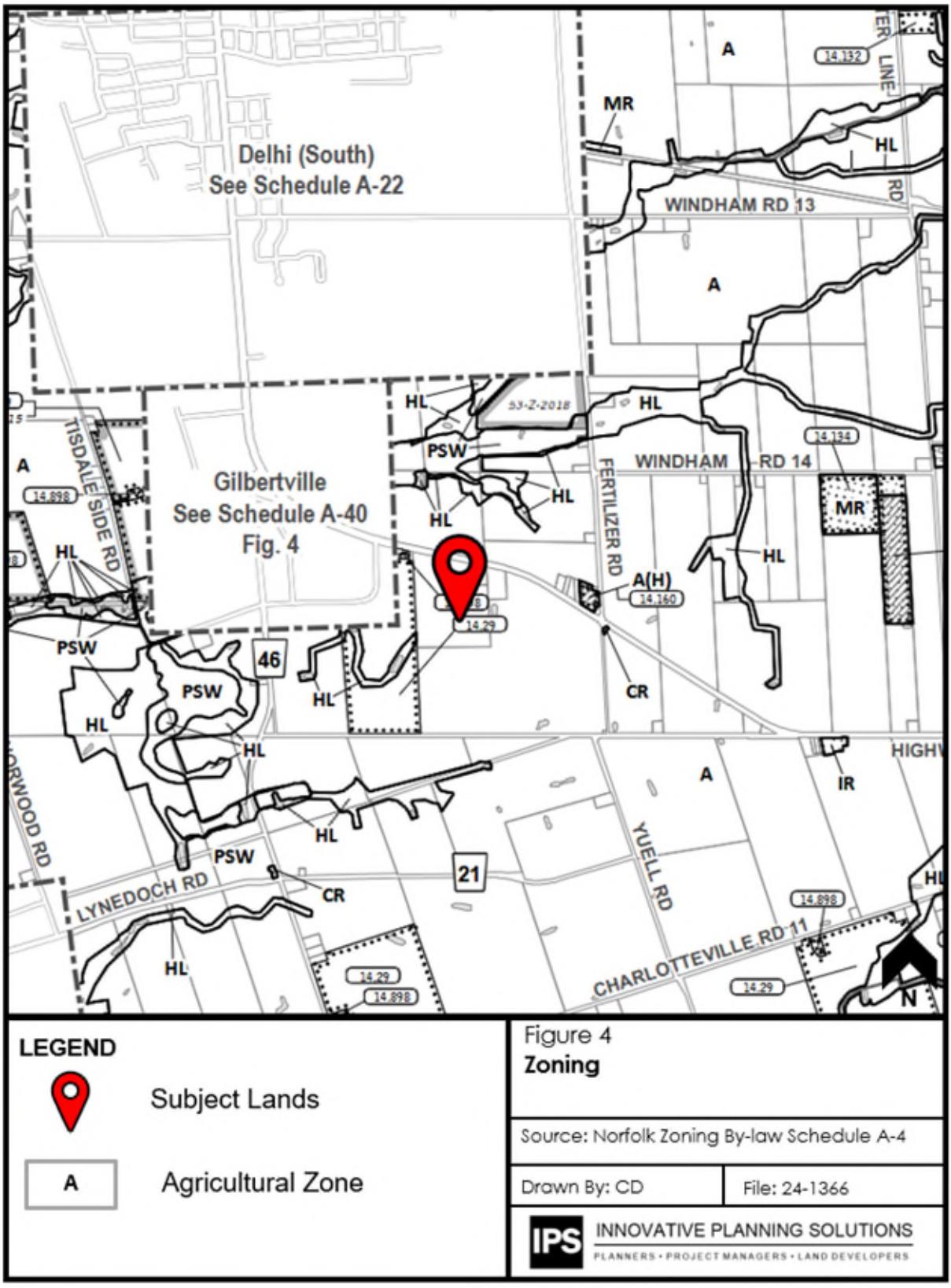
Delhi (South)
See Schedule A-22
Gilbertville
See Schedule A-40
Fig. 4
WINDHAM RD 13
WINDHAM RD 14
TISDALE SIDE RD
FERTILIZER RD
LYNEDOCH RD
CHARLOTTEVILLE RD 11
YUELL RD
NORWOOD RD
53-Z-2018
A
A(H)
MR
HL
PSW
CR
IR
46
21
14.132
14.134
14.160
14.898
14.29
LEGEND
Subject Lands
A
Agricultural Zone
Figure 4
Zoning
Source: Norfolk Zoning By-law Schedule A-4
Drawn By: CD
File: 24-1366
INNOVATIVE PLANNING SOLUTIONS
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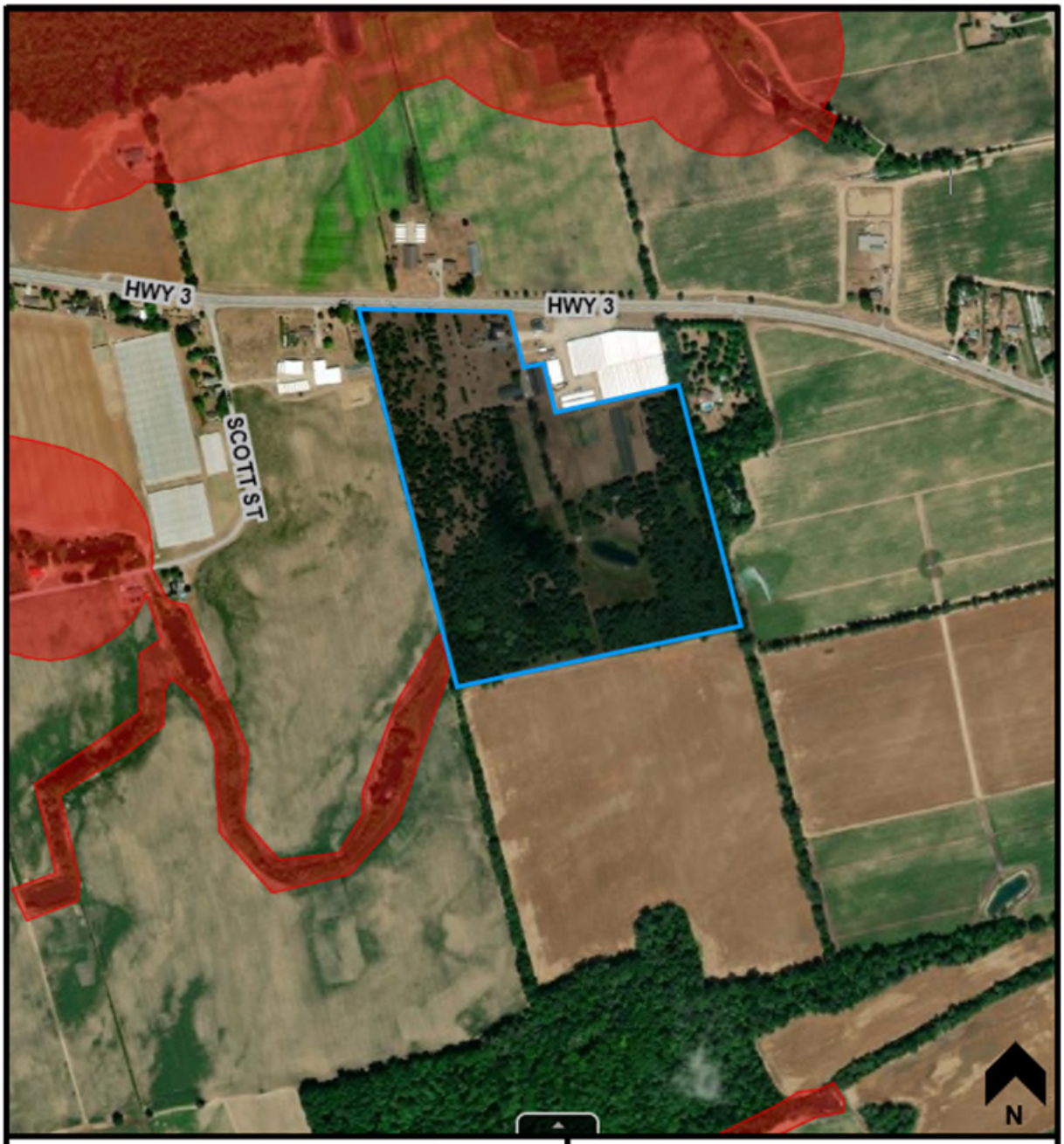

LEGEND

Subject Lands

LPRCA Regulated Area

Figure 5
LPRCA Regulated Extent

Source: LPRCA Regulated Area Mapping

Drawn By: CD | File: 24-1366

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3.0 DESCRIPTION OF DEVELOPMENT: ZONING BY-LAW AMENDMENT (ZBA) APPLICATION

The applicant, CDN Buildings, proposes the construction of one 64,120.32m2 (0.6.4 ha) greenhouse, and one 3,623.21m2 (0.36 ha) building to serve as a greenhouse manufacturing facility.

The proposed greenhouse is envisioned as a strawberry growing operation, which would occupy the eastern half of the property. The existing pond on the property would be removed and a new stormwater management pond would be constructed in the southwest corner of the property.

The proposed greenhouse manufacturing facility (facility) is envisioned as an agricultural-related use. The facility and its associated parking lot would be located towards the western side of the property. The majority of the facility would be dedicated to greenhouse production, with some additional features / amenities such as an installer shop and maintenance shop, offices, washrooms and common areas for employees.

As greenhouse manufacturing facilities are not permitted as-of-right, the application proposes to rezone the property from 'Agricultural (A)' to 'Agricultural Exception (A-SP__)' with site-specific provisions for a greenhouse manufacturing facility (Agricultural-related Use), and an increase into the maximum building height.

Agricultural-related use is defined by both the *Provincial Planning Statement* (2024) and *Publication 851: Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas released by the Ministry of Agriculture, Food, and Rural Affairs*, which state:

"*Agricultural-related Uses means those farm-related commercial and farm-related industrial uses that are directly related to farm operations in the area, support agriculture, benefit from being in close proximity to farm operations, and provide direct products and/or services to farm operations as a primary activity*."

The proposed satisfies these criteria, as it is a farm-related commercial/ industrial use (manufacturing of agricultural materials), that is directly related to farm operations in the area (including the proposed strawberry farm), which benefits from being in close proximity to farm operations and provides direct products to farm operations as the primary activity. The proposed is also compatible with, and does not hinder, surrounding agricultural operations.

Agricultural-related Uses contribute to the economic viability of farms and help with succession planning while supporting rural economic development. The Provincial government recognizes this value and therefore permits Agricultural-related Uses in prime agricultural areas provided they meet all of the criteria provided above.

A Site Plan illustrating the above has been prepared and a copy is provided under **Appendix 1.** The existing dwelling, barns and sheds are intended to remain on the property.

4.0 PRE-CONSULTATION AND SUBMISSION MATERIALS

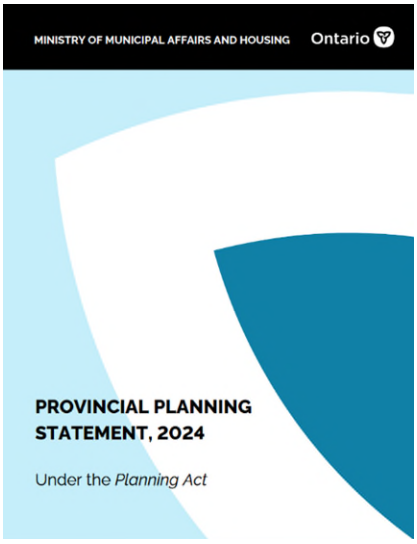
Pre-consultation with Staff from Norfolk County took place in April of 2023. A formal comments package including submission checklist was provided. As confirmed required through the pre-consultation process, the following supporting materials are submitted under separate cover, in addition to this Report:

- Site Plan Drawing
- Concept Plan Incl. Zoning Table
- Building Elevations
- Draft ZBA Text and Schedule
- ZBA Application Form and Fee
- Photometrics Plan
- Lot Grading Plan
- Siltation and Erosion Control Plan
- Servicing Plan
- Functional Servicing Report
- Stormwater Management Report
- Geotechnical Report
- Traffic Impact Study

5.0 PLANNING AND POLICY ANALYSIS

The following section will review applicable planning guidelines and policies relevant to the proposed Agricultural-related Uses.

5.1 PROVINCIAL PLANNING STATEMENT (2024)



Section 3(1) of *The Planning Act* provides the province with authority to issue policy statements which relate to matters of provincial interest.

The Provincial Planning Statement, 2024 (PPS) articulates the provincial interests with regards to land use planning and development policy. It provides a policy-led planning system that: "*sets the policy foundation for regulating the development and use of land province-wide, helping achieve the provincial goal of meeting the needs of a fast-growing province while enhancing the quality of life for all Ontarians.*" (PPS. pg. 2).

This Report has reviewed the following PPS policies in relation to the proposed ZBA, and concurrent SPA application and considers the following matters relevant to the Proposed Development.

In the PPS, Prime Agricultural Area is defined as: "*areas where prime agricultural lands predominate. This includes areas of prime agricultural lands (specialty crop areas and/or Canada Land Inventory Class 1, 2, and 3 lands) and associated Canada Land Inventory Class 4 through 7 lands, and additional areas with a local concentration of farms which exhibit characteristics of ongoing agriculture. Prime agricultural areas may be identified by a planning authority based on provincial guidance or informed by mapping obtained from the Ontario Ministry of Agriculture, Food and Agribusiness and the Ontario Ministry of Rural Affairs or any successor to those ministries.*"

The Subject Lands are located within the boundaries of a Prime Agricultural Area according to Municipal and Provincial mapping. As a result, the following PPS sections apply.

Section 2.5 Rural Areas in Municipalities

Section 2.5.1: "*Healthy, integrated and viable rural areas should be supported by:*

e) promoting diversification of the economic base and employment opportunities through goods and services, including value-added products and the sustainable management or use of resources

h) providing opportunities for economic activities in prime agricultural areas, in accordance with policy 4.3."

Consistent with the PPS, the proposal provides an opportunity for economic diversification and employment opportunities in rural areas, including in Prime Agricultural Areas. See the analysis provided for the policies of Section 4.3 below.

Section 4.3: Agriculture

Section 4.3.1.1 General Policies: Planning authorities are required to use an agricultural system approach, based on provincial guidance, to maintain and enhance a geographically continuous agricultural land base and support and foster the long-term economic prosperity and productive capacity of the agri-food network."

The proposal will increase the economic prosperity and productive capacity of the Subject Lands by allowing for an agricultural-related use and greenhouse to be added to the subject lands. As the farmlands are not currently being utilized, the addition of the greenhouse and associated manufacturing facility will provide two businesses, agricultural and agricultural-related, significantly increasing the economic prosperity for the landowner. Further, the proposal will align the subject lands with this policy by allowing the existing lands, zoned and designated for agricultural uses, to be utilized for agricultural uses again via the proposed greenhouse. As a result, the proposal is aligned with the General Policies for agricultural lands.

4.3.2.1: "*In prime agricultural areas, permitted uses and activities are: agricultural uses, agriculture-related uses and on-farm diversified uses based on provincial guidance.*

Proposed agriculture-related uses and on-farm diversified uses shall be compatible with, and shall not hinder, surrounding agricultural operations. Criteria for these uses may be based on provincial guidance or municipal approaches, as set out in municipal planning documents, which achieve the same objectives."

In the PPS, Agriculture-related Uses are defined as: "*those farm-related commercial and farm-related industrial uses that are directly related to farm operations in the area, support agriculture, benefit from being in close proximity to farm operations, and provide direct products and/or services to farm operations as a primary activity*"

The proposal is consistent with Section 4.3.2.1 of the PPS as an Agricultural-related Use, as:

- it is compatible with, and does not hinder, surrounding agricultural operations;
- It is directly related to farm operations in the area;
- It supports agriculture;
- It benefits from being in close proximity to farm operations, and;
- And provides direct products to farm operations as a primary activity.

It provides the opportunity to support the proposed strawberry growing operation as well as surrounding agricultural operations and beyond which may use greenhouses in order to grow new or existing crops.

Based on a review of the above, the Proposed Development is consistent with the policies of the Provincial Planning Statement, 2024.

5.2 OMAFRA GUIDELINES: PERMITTED USES IN PRIME AGRICULTURAL AREAS

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has published a document titled 'Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas'. The Guide assists municipalities, decision makers and farmers interpret policies in the Provincial Policy Statement (PPS) on permitted uses in prime agricultural areas.

Section 2.2 of the Guide states that Agricultural-related Uses can include a variety of uses provided they follow the criteria under Section 2.2.1.

Section 2.2.1 provides several criteria which must be met in order to qualify as an Agricultural-related Use. Each criterion will be listed, and a response given, demonstrating conformity.

1. Farm-related commercial and farm-related industrial use

Comment: The proposed use is considered a farm-related industrial use and thus meets this criterion. The production of greenhouses is farm related as it will add direct value to farmers and their agricultural commodities by providing extended growing seasons for a variety of agricultural crops, including higher value crops such as fruits. This will provide the agricultural community with opportunities to diversify the existing crops offered, or to produce higher value crops in the same area. As a result, the greenhouses being manufactured are intended to support the agricultural community directly.

2. Shall be compatible with, and shall not hinder, surrounding agricultural operations.

   The Agricultural-related use operations should meet all of the following:

   - Ensure surrounding agricultural operations are able to pursue their agricultural practices without impairment or inconvenience.

     Comment: surrounding agricultural operations, including the agricultural operation on the same lot, will not be impaired or inconvenienced, as the proposed is not anticipated to create any negative impacts on surrounding

farming operations. The proposed development may result in positive impacts to the surrounding area and agricultural operations by providing convenient access to a greenhouse manufacturer with potential benefits such as longer growing seasons for high value products.

- Uses should be appropriate to available rural services (e.g., do not require the level of road access, water and wastewater servicing, utilities, fire protection and other public services typically found in settlement areas).

  Comment: the proposed facility is appropriate for available rural services, as the facility will have low demand for rural services such as water and wastewater. Further, the existing road systems have been deemed sufficient for the proposed uses as per the Traffic Report completed by JD Northcote Engineering dated June 26th, 2024, revised September 13th, 2024.

- Maintain the agricultural/rural character of the area (in keeping with the principles of these guidelines and PPS Policy 1.1.4). Compatibility may be achieved by:

  – re-using existing buildings or locating businesses within existing buildings unless an alternative location reduces overall impacts on agriculture in the area

Comment: The subject lands do not provide the ability to utilize any existing buildings, as they consist of two barns, two sheds, and a single detached dwelling. None of these buildings are suitable for the proposed use. However, the proposed location of the agricultural related use was carefully selected to reduce impacts to the overall agricultural area through careful consideration of the manufacturing facilities location. The greenhouse manufacturing facility is not anticipated to have any impacts on the surrounding area.

– designing new structures to fit in aesthetically with the agricultural area

– minimizing outdoor storage and lighting

Comment: No outdoor storage is proposed, and lighting will be minimal meeting dark sky policies through the subsequent SPA process

– avoiding major modification of land and removal of natural heritage features

Comment: No natural heritage features exist on the subject lands as they were farmed as a Christmas tree farm in the past. Though the lands will be modified, it is for the net benefit of the site, including a net increase in active agricultural lands, as the lands are not being farmed in their current state.

– visually screening uses from neighbours and roadways

Comment: Through SPA process, additional screening will be provided to buffer the use from the highway and neighbours.

– limiting the use of signage and ensuring that any signage fits with the character of the area

Comment: Signage will adhere to sign regulations of the municipality, further details on the relevant signage will be determined at a later stage.

- Meet all applicable provincial air emission, noise, water and wastewater standards and receive all relevant environmental approvals

Comment: This will be achieved through the SPA process.

- The cumulative impact of multiple uses in prime agricultural areas should be limited and not undermine the agricultural nature of the area

Comment: The proposed facility is not anticipated to undermine the agricultural nature of the area; to the contrary, the development has the potential to result in positive impacts on the surrounding uses and area. The facility will improve upon the existing on-site conditions, which currently consist of lands which are not actively being farmed. Through the proposal, agricultural use will return to the lands, improve the conditions of the surrounding areas by providing a greenhouse supplier in the area to serve the farming community and helping to foster a community of a diversified agricultural uses. This will support area farmers to plant and grow higher-value crops, or diversify their existing crops, and thereby enhancing their sources of income, improving their economic resiliency.

The proposed facility is positioned near the southwest corner of the property. The majority of the property will be used for agricultural purposes, and the application does not take agricultural land out of production. In fact, the proposed facility will generate additional revenue which will support and supplement the income from the proposed strawberry growing operation. The use proposed are compatible dry uses which require limited servicing which is not disruptive to agriculture. Thus, the proposed uses can be considered compatible with / do not hinder surrounding agricultural operations.

3. Directly related to farm operations in the area

Comment: The proposed uses will be directly related to farms in the area, including the proposed strawberry farm on the same property. "In the area" is not based on a set distance or on municipal boundaries. It is based on how far farmers will reasonably travel for the agriculture-related products or services. The surrounding farm operations, as well

as other farms located within the Prime Agricultural area can be serviced by the proposed greenhouse manufacturing operation. As a result, the proposed meets this criterion.

4. Supports Agriculture

Comment: the proposed development supports surrounding agricultural operations by providing a product that allows and encourages local farms to diversify into higher-value fruits and vegetables. This allows for agricultural production to increase as a result of the ability to extend the growing season.

5. Provides direct products and/or services to farm operations as a primary activity.

Comment: The proposed will manufacture greenhouses, which will be directly sold to farm operators as the primary activity.

6. Benefits from being in close proximity to farm operations

Comment: The location of the proposed use is justified, as the proposed facility will provide services directly to surrounding farmers, which directly benefit from the proximity of the proposed greenhouse manufacturer. This will assist in lower costs attributable to shipping and handling and will allow for ease of transportation and potential repairs. Being in proximity to farm operations allows for convenient showcasing of the products offered to support agricultural operations as well.

5.2.1 Minimum Distance Separation Review

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has published Minimum Distance Separation (MDS) guidelines. The document details the MDS Formulae, as defined in the Provincial Planning Statement, as a land use planning tool intended to prevent land use conflicts and minimize nuisance complaints from odour originating from livestock facilities. The following section reviews relevant guidelines, demonstrating the proposal's conformity with the MDS formulae.

Implementation Guideline #10: *MDS I Setbacks for Zoning Bylaw Amendments and Official Plan Amendments*

An MDS I setback is required for all proposed amendments to rezone or redesignate land to permit development in prime agricultural areas presently zoned or designated for agricultural use. This includes amendments to allow site-specific exceptions which add a non-agricultural use as a permitted use on a lot.

> **Comment:** While the proposed is considered a non-agricultural use, it is considered an agricultural-related use, and Guideline #14 (below) supersedes this requirement.

Implementation Guideline #14: *Uses Located on the Same Lot*

An MDS I setback is not required to be met for proposed development, dwelling, agriculture related use, or on-farm diversified use from an existing livestock facility or anaerobic digester located on the same lot as the proposal.

> **Comment:** The proposed greenhouse production facility is classified as an agricultural-related use. As such, an MDS I setback is not required.

Implementation Guideline #33: *Type A Land Uses (Less Sensitive)*

For the purposes of MDS I, proposed Type A land uses are characterized by a lower density of human occupancy, habitation, or activity such as industrial uses outside a settlement area.

> **Comment:** The proposed uses will not include human habitation. Additionally, the proposed facility is generally considered a farm related industrial use and as such are considered less sensitive Type A uses.

Implementation Guideline #35: *MDS Setbacks for Agriculture-Related Uses and On-Farm Diversified Uses*

MDS I setbacks will generally not be needed for land use planning applications which propose agriculture-related uses and on-farm diversified uses. However, some proposed agriculture-related uses and on-farm diversified uses may exhibit characteristics that could lead to potential conflicts. Therefore, it may be appropriate for municipalities to require an MDS I setback to permit certain types of these uses.

Typically, this subset of uses may be characterized by a higher density of human occupancy or activity or will be uses that may generate significant visitation by the broader public to an agricultural area.

> **Comment:** The applications propose the introduction of agricultural- related use which will not include human habitation and will see periodic visitation from area residents. These uses are compatible and non-sensitive and therefore MDS I setbacks are not necessary or required.

Surrounding land uses and geographic context can also play a role in determining the suitability of applying MDS I setbacks to proposed agriculture-related uses, on-farm diversified uses, and agricultural uses.

> **Comment:** The proposed uses will be located at the southwest side of the property with a buffer between the proposed and the surrounding existing agricultural uses. No negative interactions are expected.

For these reasons, and in keeping with the intent of this MDS Document, municipalities may choose to require an MDS I setback for proposals, including lot creation, to permit

certain types of agriculture-related uses or Agricultural-related Uses. In these circumstances, agriculture-related uses and Agricultural-related Uses shall be considered as less sensitive, Type A land uses.

Municipalities shall include specific provisions in their comprehensive Zoning By-law to clearly indicate the types of agriculture-related uses and Agricultural-related Uses that will be required to meet MDS I setbacks. Otherwise, MDS I setbacks will not be required for these types of uses. Municipalities are strongly encouraged to develop policies in their official plans and provisions in their comprehensive Zoning By-laws to provide consistent direction on this issue.

> **Comment:** A review of The Town's Official Plan and Zoning By-law indicate there are no MDS policy directives involving agriculturally related uses. For these and all other reasons outlined above, MDS setbacks are not considered necessary or required.

For the above stated reasons, the subject applications are consistent with the OMAFRA guidelines.

5.4 NORFOLK COUNTY OFFICIAL PLAN

The Norfolk County Official Plan directs future growth, development and change in the County to the year 2036. It provides a policy framework to guide economic, environmental, and social decisions which have land use implications. The property is currently designated 'Rural Area' per Land Use Schedule A-4 in the Norfolk County Official Plan. This Section analyses applicable policies of County's Official Plan against the development proposal.

1.3 Basis for the Official Plan

k) This Plan promotes and protects the agricultural character and economy of the County by providing for the continued viability of agricultural areas, the agricultural industry, and agricultural communities. This Plan supports agricultural practices and provides opportunities for farmers to supplement their incomes through diverse on-farm activities that are secondary to farm operations. This will be accomplished in part through the minimization of land use conflicts and the prevention of non-agricultural urban uses outside of the Urban Areas. Furthermore, the Plan seeks to minimize the expansion of urban uses, and the establishment of non-agricultural uses in prime agricultural areas

> **Comment**: The proposed is supported by Policy 1.3 k) of the Official Plan, as it "supports agricultural practices and provides opportunities for farmers to supplement their incomes through diverse on-farm activities that are secondary to farm operations". While the Plan seeks to minimize the establishment of non-agricultural uses in prime agricultural areas, the proposed uses are considered agriculturally-related uses and are supported by Provincial policy and guidelines.

4.4 Promoting Agriculture

It is the policy of this Plan to promote the further development of Norfolk County's agricultural industry and to provide support to local farmers. To support this policy, the County may undertake the following measures:

d) Encourage the development of agriculture-related activities that store, distribute, process, mill, or sell farm produce or which repair farm machinery or directly sell supplies to farmers

f) Encourage the establishment of services that support the agricultural community at locations that best serve agricultural operations.

> **Comment**: The proposed facility is supported by the policies in Section 4.4 *Supporting Agriculture* of the Official Plan, as the proposed is an agriculture-related activity which sells a product directly to farmers and supports the agricultural community. The proposed use benefits from close proximity to rural communities, as it is related to the production of greenhouse structures. Greenhouses promote extended crop growth seasons, and the ability to provide direct sales to farmers. It is also noted that this form of operations benefits from close proximity to the agricultural community rather than being situated within a settlement area. This promotes the business operation in a convenient, direct sales approach for improved marketability to customers.

Section 6.7.1 of the Official Plan is the Agricultural Land subsection. It outlines the County's goals to preserve and foster, as one of its primary objectives, a thriving agricultural industry and the associated rural lifestyle. It also states a certain degree of rural non-farm growth provides benefits to the community, though the extent of such development should be limited. Section states: b) *Unless otherwise designated, use of prime agricultural land shall be subject to the policies of Section 7.2 (Agricultural Designation) of this Plan. New non-agriculturally related uses on prime agricultural land shall not be permitted, unless otherwise specifically permitted by this Plan.* The analysis of Section 7.2 is provided below.

Section 7.2.1 of the Official Plan identifies the uses permitted in the Agricultural designation. Section 7.2.1 (a) states that "*The primary use of land shall be for the growing of crops, including biomass, nursery and horticultural crops, the raising of livestock, the raising of other animals for food, fur and fibre, including poultry and fish, aquaculture, apiaries and maple syrup production and agro-forestry.*"

> **Comment**: The proposed strawberry greenhouse is an agricultural use, and strawberries are a horticulture crop. As such, the proposed strawberry greenhouse is permitted by the property's Agricultural designation. This is the primary use of the property, which will be much larger in size and scale than the proposed secondary use of a greenhouse manufacturing plant. As a result, the proposed meets the criteria detailed in Section 7.2.1 (a).

Provided they do not conflict with existing farm operations, Section 7.2.1 (h)iv) also permits agriculture-related commercial and industrial operations, subject to the Agricultural land use designation policies of Section 7.2.2(d) when such uses are clearly supportive of and directly related to agricultural operations.

> **Comment**: The proposed greenhouse manufacturing facility is supportive of and directly related to agricultural operations as it will produce a product which is necessary and fundamental for agricultural production.

The criteria of Section 7.2.2 (d) have been reviewed relative to the proposed greenhouse manufacturing facility and responses are provided below.

i) the use must be justified on the basis of being required near to the farm operation;

> **Comment**: The location of the proposed use is justified, as the proposed facility will provide services directly to surrounding farmers, which directly benefit from the proximity of the proposed greenhouse manufacturer. This will assist in lower costs attributable to shipping and handling and will allow for ease of transportation and potential repairs. Being in proximity to farm operations allows for convenient showcasing of the products offered to support agricultural operations as well.
>
> The proposed facility will add value to the surrounding farming operations by allowing farmers to grow more sensitive and high-value plants, such as fruits, through convenient access to greenhouse buildings. This extends the growing season, and allows high-value crops to be grown, which can diversify the existing crop farms revenue, allowing farming operations to have more sustainable profits.

The location of the proposed use is justified, as the proposed facility will provide services directly to surrounding farmers, which directly benefit from the proximity of the proposed greenhouse manufacturer. This will assist in lower costs attributable to shipping and handling and will allow for ease of transportation and potential repairs. Being in proximity to farm operations allows for convenient showcasing of the products offered to support agricultural operations as well.

The proposed use could be considered an inefficient use of land if it were located in a settlement area, as it primarily provides greenhouses to farming operations, including the proposed farming operation on the site itself and doesn't rely on or require the use of services otherwise available in settlement areas such as full municipal servicing.

ii) the proposed use is directly related to farm operations in the area and provides direct products and/or services to farm operations as a primary activity;

Comment: As established in Sections 5.1 through 5.2 of this report, the proposed facility will provide direct products and services to farm operation as the primary activity.

iii) the proposed use shall be compatible with and not hinder surrounding agricultural operations;

Comment: As noted previously in Section 5.2 *OMAFRA Guidelines: Permitted Uses in Prime Agricultural Areas* of this report, the proposed greenhouse manufacturing facility will not impair or inconvenience the surrounding agricultural operations, is appropriate for the site, and will allow for a net increase in agricultural areas.

iv) the proposed use shall be appropriate to available rural services, such as road access, private water and wastewater services, utilities, fire protection and other public services;

Comment: As noted previously in Section 5.2 OMAFRA Guidelines: Permitted Uses in Prime Agricultural Areas of this report, the proposed greenhouse manufacturing facility is appropriate for available rural services, as the proposed will have low demand for rural services such as water and wastewater. Further, the existing road systems have been demonstrated as sufficient for the use as per the Traffic Report completed by JD Northcote Engineering.

v) the proposed use maintains the agricultural character of the area;

Comment: The proposed greenhouse manufacturing facility will be limited to a relatively small portion of a much larger property and set back in excess of 170 metres from Highway 3. Manufacturing activities will be limited to the confines of the building itself. Therefore, the facility will maintain the agricultural character of the area through architectural features that mirror the rural community, see the rending provided in the application submission package.

vi) the proposed use meets all applicable provincial emission, noise, water and wastewater standards and receives all relevant environmental approvals;

Comment: All provincial standards will be complied with, and the submission is supported by the required technical studies as part of the SPA process and/or building permit process.

vii) the cumulative impact of multiple agriculture-related uses in prime agricultural areas should be limited and not undermine the agricultural nature of the area;

Comment: This criterion is addressed under Section 5.2 (2) of this Report above and not repeated here.

viii) the location of the proposed use shall provide for minimum sight distances from the access points in either direction along a County road;

Comment: A Traffic Impact Study performed by JD Engineering accompanies this submission, and it includes a sight distance analysis of the proposed entrance. Landscaping elements will be added to buffer the proposed from the road and abutting properties. Further details regarding the landscaped buffers will be provided within the SPA submission.

ix) the proposed use shall be located and designed to mitigate potential adverse impacts, including noise impacts, on adjacent residential and other incompatible uses by buffering measures such as landscaping, berming and building setback and layout;

Comment: The proposed facility is buffered from agricultural and rural residential uses to the east by the proposed strawberry greenhouse. It also maintains setbacks of over 170 metres from Highway 3, over 36 metres from the west property line and 192 metres from the south property line. Landscape buffers are also provided; collectively, potential adverse impacts are mitigated.

x) the proposed use shall not be permitted in Provincially Significant Wetlands or Hazard Lands identified on Schedules "B" or Table 1 of Section 3.5(Natural Heritage Systems) to this Plan;

Comment: The property does not contain provincially significant wetlands or woodlands. Historically, it was used as a Christmas tree farm. Additionally, the property does not contain any hazard lands, and is outside of the Long Point Region Conservation Authority (LPRCA) regulated area. As a result, these policies do not apply.

xi) the proposed use shall not be permitted in or on adjacent land to the Natural Heritage Features identified on Schedule "C" and/or Tables 1 and 2 or on Schedule "G" and Table 6 of the Lakeshore Special Policy Area Secondary Plan, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, in accordance with the policies of Section 3.5 (Natural Heritage Systems) and Section 11 (Lakeshore Special Policy Area Secondary Plan) of this Plan;

Comment: As the property was historically used as a Christmas tree farm, on November 27, 2023, it was communicated to the applicant by the County that the property does not contain significant woodland and the requirement for EIS was waived. Additionally, the lands are not located adjacent to any natural heritage features, nor are they within the Secondary Plan area. As a result, these policies do not apply.

xii) the proposed use shall be subject to a Zoning By-law Amendment;

Comment: An application for Zoning By-law Amendment has been submitted.

xiii) the proposed use shall be subject to site plan control, where warranted and as appropriate, in accordance with the policies of Section 9.6.5 (Site Plan Control) of this Plan.

Comment: An SPA application will be submitted in the future to address the site plan control requirement.

Based on the above the proposed applications conform to the Official Plan.

6.0 ZONING BY-LAW AMENDMENT APPLICATION

The property is currently zoned 'Agricultural' (A) under the Norfolk County Zoning By-law 1-Z-2014. To facilitate the above, this application proposes to rezone the property from 'Agricultural (A)' to 'Agricultural Exception (A-SP__)' with site-specific provisions for a greenhouse manufacturing facility (Agricultural-related Use) and an increase in building height. Please refer to **Appendix 2** for a copy of the Draft Zoning By-law Amendment and Schedule.

Table 1 below compares the proposed agricultural related use with the zoning requirements provided in Section 12.1.2 Zone Provisions of the Norfolk County Zoning By-law (1-Z-2014).

Table 1			
Agricultural Zone (A)	**Required**	**Existing**	**Provided**
Minimum Lot Area	400,000 m2	156,795 m2 Existing lot of record	15,018 m2 Proposed Industrial Site-specific area (9.58% of total) 141,777 m2 for agricultural (90.42%)
Minimum Lot Frontage	30.0 m	197.81 m	197.81 m
Lot Coverage	N/A	Existing building-1 – Principal Dwelling 321.732 m2 Existing building 2 - shed = 91.706 m2 m Existing building 4 - agricultural = 652.93 m2 Existing building 5 – agricultural = 93.263 m2 Existing building 6 – agricultural = 92.136 m2 Total: 1723.158 m2	Manufacturing use = 6,324 m2 Greenhouse use = 64,120 m2
Interior Side Yard East	3.0 m	Existing building 1 - Dwelling = 10.23 m Existing building 2 - Shed = 14.5 m Existing building 3 - agricultural = 33.51 m Existing building 4 - agricultural = 5.55 m Existing building 5 – agricultural = 33.50 m	Manufacturing use = 288.2 m Greenhouse use = 3.42 m (north) 9m (east)

		Existing Building 6 - agricultural = 49.94 m	
Interior Side Yard West	3.0 m	Existing building 1 - Dwelling = >3 m Existing building 2 - Shed = >3 m Existing building 3 - agricultural = >3 m Existing building 4 - agricultural = >3 m Existing Building 5 - agricultural = >3 m Existing Building 6 - agricultural = >3 m	Manufacturing use = 18.00 m Greenhouse use = 155.8 m
Rear Yard	9.0 m	Existing building 1 - Dwelling = >9 m Existing building 2- Shed = >9 m Existing building 3 - agricultural = >9 m Existing building 4 - agricultural = >9 m Existing Building 5 - agricultural = >9 m Existing Building 6 - agricultural = >9 m	Manufacturing use = 179.8 m Greenhouse use = 11.3 m
Building Height	11.0 m	Existing building 1 - Dwelling = <11 m Existing building 2 - Shed = <11 m	**Proposed Greenhouse Manufacturing building = 12.580 m** Greenhouse use = <11 m

		Existing building 3 - agricultural = <11 m Existing building 4 - agricultural = <11 m Existing Building 5 - agricultural = <11 m Existing Building 6 - agricultural = <11 m	
Parking Standards			
Parking Spaces (3.0 m x 5.8 m) (Min.)	Manufacturing facility (Industrial Establishment) = 1 space per 90m2) = 6,324m2 / 90 = 71 spaces Agricultural use (strawberry greenhouse) 64,120m2 = N/A for parking requirement Total required parking = 73	Existing building 1 - Dwelling = 2 Driveway, existing Existing building 2 - Shed = N/A Existing building 3 - agricultural = N/A Existing building 4 - agricultural = N/A Existing Building 5 - agricultural = N/A Existing Building 6 - agricultural = N/A	Total parking provided = 96 spaces
Barrier Free Parking (Section 4.3.3)	4	N/A	5
Loading Spaces	N/A	N/A	2

As noted in the table above, 2 special provisions are requested in order to accommodate the proposed development.

The first special provision is requested under Section 12.1.1 Permitted Uses, in order to permit the proposed greenhouse manufacturing facility as an agricultural-related use. As discussed in Section 5.0 through 5.4 of this Report, the proposed will have negligible impacts on the site and surrounding area. Defining the proposed greenhouse manufacturing facility as an Agricultural Related Use would meet the general intent of the Zoning By-law, by allowing an existing agricultural lot to be utilized in conjunction with an agricultural use (i.e., strawberry production) that will provide goods directly to farmers and the agricultural community. As noted within this Report, the proposed agricultural related use of a greenhouse manufacturing facility is an appropriate use for these lands and the surrounding community while remaining compatible with the area and supporting the economic viability of farming operations and providing a positive impact to the agricultural community.

The second special provision under Section 12.1.2 of the By-law is for maximum building height relating to the proposed greenhouse manufacturing building. The proposed building is 12.580 meters (rounded up to 13m) in height from the tallest point or ridge of the roof to grade, where 11 meters is the maximum. The building is significantly set back from the road, and from surrounding uses. As a result, the impacts of this 2-meter height increase will be negligible. Further, the height increase is required for the buildings design, as the design includes a gable roof which is in keeping with the agricultural character of the area. As a result of the gable roof, the vast majority of the building is well below the 11-meter limit, at around ~9.144 meters or 30 feet. Additional vegetative screening abutting the road as well as along the west property line can assist in visual buffering of the building, reducing overall building height impacts from view. As a result, we believe the proposed 13m maximum height is justified.

Based on our review of applicable legislation in conjunction with the proposed development of an agricultural related use (Greenhouse manufacturing facility) together with identified site-specific provisions, we believe the proposed development does not contradict the intent of the Zoning By-law and represents a value-added use to the subject lands.

7.0 SUMMARY AND CONCLUSION

The proposed Zoning By-law Amendment application seeks to facilitate the development of a greenhouse and an agricultural-related use in the form of a greenhouse manufacturing facility on an existing agricultural site.

The existing site was previously a Christmas tree farm, with no lands on the site being used for farming in its current state, despite the Agricultural designation in the County Official Plan and Agricultural zoning of the site. The proposed ZBA aims to rezone the property from the existing 'Agricultural' zone to the 'Agricultural Exception (A-SP__)' zone to permit a greenhouse manufacturing facility use, and increased building height. The proposed uses will serve the surrounding community while supplementing the farmer's income, securing the continued viability of the farm operation over the long-term. No agricultural cropland will be taken out of production, and the use will contribute to, and be compatible with, surrounding agricultural uses.

The proposed use meets Provincial criteria for Agricultural-related Uses, while also achieving compliance with the municipal policies & guidelines.

Further, permitting the proposed development will provide both visual and economic benefits to the subject lands and greater community by providing supplemental income, ensuring the long-standing agricultural site does not sit vacant, or deteriorate.

The justification for the approval of this application is based on consistency and/or conformity with the goals and objectives of the Provincial Planning Statement, OMAFRA Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas, Norfolk County Official Plan, and Norfolk County Zoning Bylaw 1-Z-2014. For these reasons, it is our professional opinion that the application represents a value-added use within an agricultural area and is considered good planning.

Respectfully submitted,

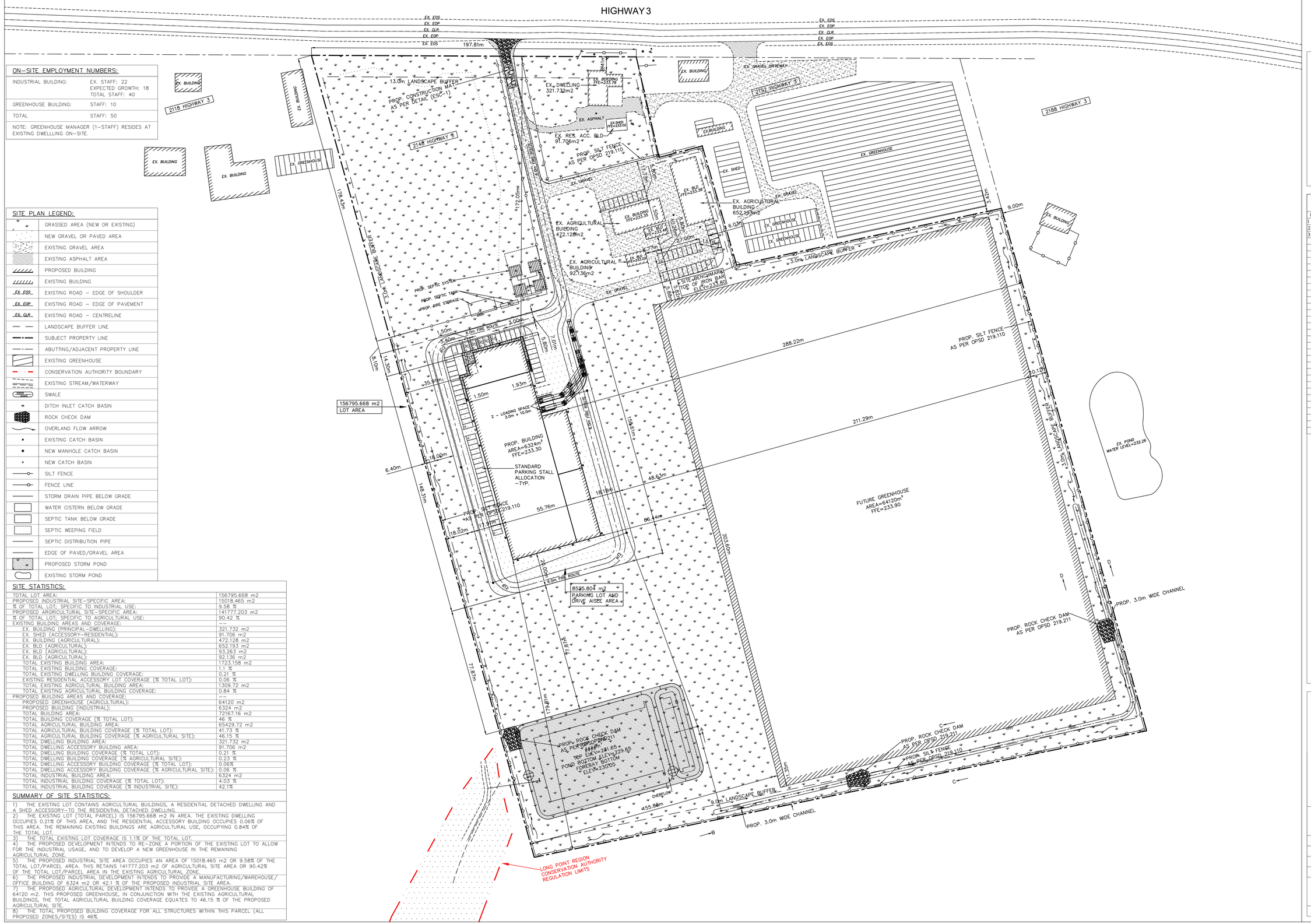
Innovative Planning Solutions



Greg Barker, BAA	Nick Skerratt,	Cynthia Daffern,
Partner	*Senior Planner*	*Planner*

Appendix 1:

SITE PLAN DRAWING



ON-SITE EMPLOYMENT NUMBERS:

INDUSTRIAL BUILDING:	EX. STAFF: 22 EXPECTED GROWTH: 18 TOTAL STAFF: 40
GREENHOUSE BUILDING:	STAFF: 10
TOTAL	STAFF: 50

NOTE: GREENHOUSE MANAGER (1-STAFF) RESIDES AT EXISTING DWELLING ON-SITE.

SITE PLAN LEGEND:

	GRASSED AREA (NEW OR EXISTING)
	NEW GRAVEL OR PAVED AREA
	EXISTING GRAVEL AREA
	EXISTING ASPHALT AREA
	PROPOSED BUILDING
	EXISTING BUILDING
EX. EOS	EXISTING ROAD - EDGE OF SHOULDER
EX. EOP	EXISTING ROAD - EDGE OF PAVEMENT
EX. CLR	EXISTING ROAD - CENTRELINE
	LANDSCAPE BUFFER LINE
	SUBJECT PROPERTY LINE
	ABUTTING/ADJACENT PROPERTY LINE
	EXISTING GREENHOUSE
	CONSERVATION AUTHORITY BOUNDARY
	EXISTING STREAM/WATERWAY
	SWALE
	DITCH INLET CATCH BASIN
	ROCK CHECK DAM
	OVERLAND FLOW ARROW
	EXISTING CATCH BASIN
	NEW MANHOLE CATCH BASIN
	NEW CATCH BASIN
	SILT FENCE
	FENCE LINE
	STORM DRAIN PIPE BELOW GRADE
	WATER CISTERN BELOW GRADE
	SEPTIC TANK BELOW GRADE
	SEPTIC WEEPING FIELD
	SEPTIC DISTRIBUTION PIPE
	EDGE OF PAVED/GRAVEL AREA
	PROPOSED STORM POND
	EXISTING STORM POND

SITE STATISTICS:

TOTAL LOT AREA:	156795.668 m2
PROPOSED INDUSTRIAL SITE-SPECIFIC AREA:	15018.465 m2
% OF TOTAL LOT, SPECIFIC TO INDUSTRIAL USE:	9.58 %
PROPOSED AGRICULTURAL SITE-SPECIFIC AREA:	141777.203 m2
% OF TOTAL LOT, SPECIFIC TO AGRICULTURAL USE:	90.42 %
EXISTING BUILDING AREAS AND COVERAGE:	--
EX. BUILDING (PRINCIPAL-DWELLING):	321.732 m2
EX. SHED (ACCESSORY-RESIDENTIAL):	91.706 m2
EX. BUILDING (AGRICULTURAL):	472.128 m2
EX. BLD (AGRICULTURAL):	652.193 m2
EX. BLD (AGRICULTURAL):	93.263 m2
EX. BLD (AGRICULTURAL):	92.136 m2
TOTAL EXISTING BUILDING AREA:	1723.158 m2
TOTAL EXISTING BUILDING COVERAGE:	1.1 %
TOTAL EXISTING DWELLING BUILDING COVERAGE:	0.21 %
EXISTING RESIDENTIAL ACCESSORY LOT COVERAGE (% TOTAL LOT):	0.06 %
TOTAL EXISTING AGRICULTURAL BUILDING AREA:	1309.72 m2
TOTAL EXISTING AGRICULTURAL BUILDING COVERAGE:	0.84 %
PROPOSED BUILDING AREAS AND COVERAGE:	--
PROPOSED GREENHOUSE (AGRICULTURAL):	64120 m2
PROPOSED BUILDING (INDUSTRIAL):	6324 m2
TOTAL BUILDING AREA:	72167.16 m2
TOTAL BUILDING COVERAGE (% TOTAL LOT):	46 %
TOTAL AGRICULTURAL BUILDING AREA:	65429.72 m2
TOTAL AGRICULTURAL BUILDING COVERAGE (% TOTAL LOT):	41.73 %
TOTAL AGRICULTURAL BUILDING COVERAGE (% AGRICULTURAL SITE):	46.15 %
TOTAL DWELLING BUILDING AREA:	321.732 m2
TOTAL DWELLING ACCESSORY BUILDING AREA:	91.706 m2
TOTAL DWELLING BUILDING COVERAGE (% TOTAL LOT):	0.21 %
TOTAL DWELLING BUILDING COVERAGE (% AGRICULTURAL SITE):	0.23 %
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% TOTAL LOT):	0.06%
TOTAL DWELLING ACCESSORY BUILDING COVERAGE (% AGRICULTURAL SITE):	0.06 %
TOTAL INDUSTRIAL BUILDING AREA:	6324 m2
TOTAL INDUSTRIAL BUILDING COVERAGE (% TOTAL LOT):	4.03 %
TOTAL INDUSTRIAL BUILDING COVERAGE (% INDUSTRIAL SITE):	42.1%

SUMMARY OF SITE STATISTICS:

1) THE EXISTING LOT CONTAINS AGRICULTURAL BUILDINGS, A RESIDENTIAL DETACHED DWELLING AND A SHED ACCESSORY-TO THE RESIDENTIAL DETACHED DWELLING.
2) THE EXISTING LOT (TOTAL PARCEL) IS 156795.668 m2 IN AREA. THE EXISTING DWELLING OCCUPIES 0.21% OF THIS AREA, AND THE RESIDENTIAL ACCESSORY BUILDING OCCUPIES 0.06% OF THIS AREA. THE REMAINING EXISTING BUILDINGS ARE AGRICULTURAL USE, OCCUPYING 0.84% OF THE TOTAL LOT.
3) THE TOTAL EXISTING LOT COVERAGE IS 1.1% OF THE TOTAL LOT.
4) THE PROPOSED DEVELOPMENT INTENDS TO RE-ZONE A PORTION OF THE EXISTING LOT TO ALLOW FOR THE INDUSTRIAL USAGE, AND TO DEVELOP A NEW GREENHOUSE IN THE REMAINING AGRICULTURAL ZONE.
5) THE PROPOSED INDUSTRIAL SITE AREA OCCUPIES AN AREA OF 15018.465 m2 OR 9.58% OF THE TOTAL LOT/PARCEL AREA. THIS RETAINS 141777.203 m2 OF AGRICULTURAL SITE AREA OR 90.42% OF THE TOTAL LOT/PARCEL AREA IN THE EXISTING AGRICULTURAL ZONE.
6) THE PROPOSED INDUSTRIAL DEVELOPMENT INTENDS TO PROVIDE A MANUFACTURING/WAREHOUSE/OFFICE BUILDING OF 6324 m2 OR 42.1 % OF THE PROPOSED INDUSTRIAL SITE AREA.
7) THE PROPOSED AGRICULTURAL DEVELOPMENT INTENDS TO PROVIDE A GREENHOUSE BUILDING OF 64120 m2. THIS PROPOSED GREENHOUSE, IN CONJUNCTION WITH THE EXISTING AGRICULTURAL BUILDINGS, THE TOTAL AGRICULTURAL BUILDING COVERAGE EQUATES TO 46.15 % OF THE PROPOSED AGRICULTURAL SITE.
8) THE TOTAL PROPOSED BUILDING COVERAGE FOR ALL STRUCTURES WITHIN THIS PARCEL (ALL PROPOSED ZONES/SITES) IS 46%.

CDN BUILDINGS

3-523 James Street
Delhi, ON
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Fax: 519 582 2098
Website: http://www.cdnbuildings.com

REVISION TABLE

NO.	DESCRIPTION	DATE
1	PRELIMINARY ISSUED FOR COORDINATION	2025/01/11
2	PRELIMINARY RE-ISSUED FOR COORDINATION	2025/02/04
3	PRELIMINARY RE-ISSUED FOR COORDINATION	2025/02/05

CDN BUILDINGS 8340137 CANADA INC.

2148 HIGHWAY #3
DELHI, ONTARIO
N4B 2C2

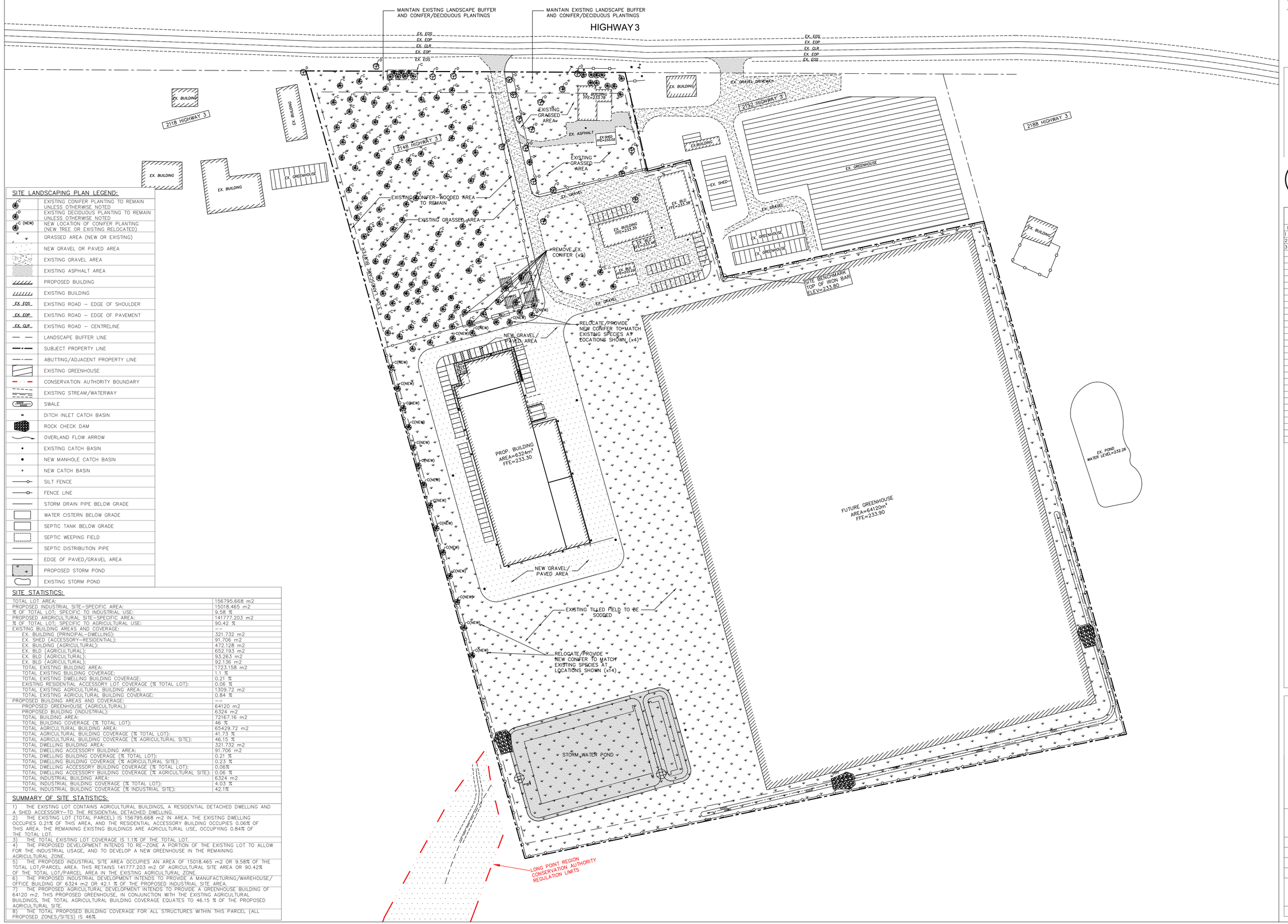
SITE PLAN

PROJECT NUMBER	22-798
DATE	2025/01/21
DRAWN BY	WR
CHECKED BY	AA

SP1.00

SCALE 1:1000

PRINTED ON:



SITE LANDSCAPING PLAN LEGEND:

C	EXISTING CONIFER PLANTING TO REMAIN UNLESS OTHERWISE NOTED
D	EXISTING DECIDUOUS PLANTING TO REMAIN UNLESS OTHERWISE NOTED
C (NEW)	NEW LOCATION OF CONIFER PLANTING (NEW TREE OR EXISTING RELOCATED)
	GRASSED AREA (NEW OR EXISTING)
	NEW GRAVEL OR PAVED AREA
	EXISTING GRAVEL AREA
	EXISTING ASPHALT AREA
	PROPOSED BUILDING
	EXISTING BUILDING
EX. EOS	EXISTING ROAD – EDGE OF SHOULDER
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	CONSERVATION AUTHORITY BOUNDARY
	EXISTING STREAM/WATERWAY
SWALE	SWALE
	DITCH INLET CATCH BASIN
	ROCK CHECK DAM
	OVERLAND FLOW ARROW
	EXISTING CATCH BASIN
	NEW MANHOLE CATCH BASIN
	NEW CATCH BASIN
	SILT FENCE
	FENCE LINE
	STORM DRAIN PIPE BELOW GRADE
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CDN BUILDINGS 8340137 CANADA INC.

2148 HIGHWAY #3
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N4B 2C2

SITE LANDSCAPE PLAN

PROJECT NUMBER	22-798
DATE	2025/01/21
DRAWN BY	WR
CHECKED BY	AA

SP1.01

SCALE 1:1000

PRINTED ON:

Appendix 2:

DRAFT ZONING BY-LAW AMENDMENT TEXT AND SCHEDULE

THE CORPORATION OF NORFOLK COUNTY

ZONING BY-LAW NUMBER _____-2025

"A By-law of Norfolk County to amend Zoning By-Law 1-Z-2014 by rezoning lands legally described as Windham Concession 14 Part Lot 23 and municipally known as 2148 Highway 3, Norfolk County, from the 'Agricultural (A)' zone, to the 'Agricultural Exception (A-SP__)' zone as depicted on Schedule A attached hereto"

WHEREAS By-law No. 1-Z-2014 was enacted to regulate land use in Norfolk County.

AND WHEREAS it is deemed necessary to amend the said by-law by rezoning certain lands for the addition of certain provisions;

AND WHEREAS by motion 25-PD-001 the Council of The Corporation of Norfolk County deems it expedient to pass such a by-law;

NOW THEREFORE the Council of Norfolk County hereby enacts as follows:

1. **THAT** the "Schedule A Urban Centre" to By-law 1-Z-2014 is herby further amended by rezoning those lands legally described as Windham Concession 14 Part Lot 23 , former Township on Monck and municipally known as 2148 Highway 3, Norfolk County from the ''Agricultural (A)' zone, to the 'Agricultural Exception (A-SP__)' zone, as shown on Schedule "A" attached hereto.

2. **THAT** Schedule 'A' attached hereto forms part of the By-law 1-Z-2014 as amended;

3. THAT Section 14: Special Provisions is hereby amended by the addition of the following:

   14.990 On lands legally described as Windham Concession 14 Part Lot 23 and municipally known as 2148 Highway 3, In addition to the uses permitted in the A Zone, a greenhouse manufacturing facility shall also be permitted. In lieu of the corresponding provisions in the A Zone, the following shall apply:

   - Maximum building height shall be 13 meters

4. **THAT** all other provisions of the Zoning By-law 1-Z-2014, as amended, shall apply.

5. **THAT** this By-law shall come into force and take effect on the date of passing thereof, subject to the provisions of Section 34 of The Planning Act, R.S.O., 1990, as amended.

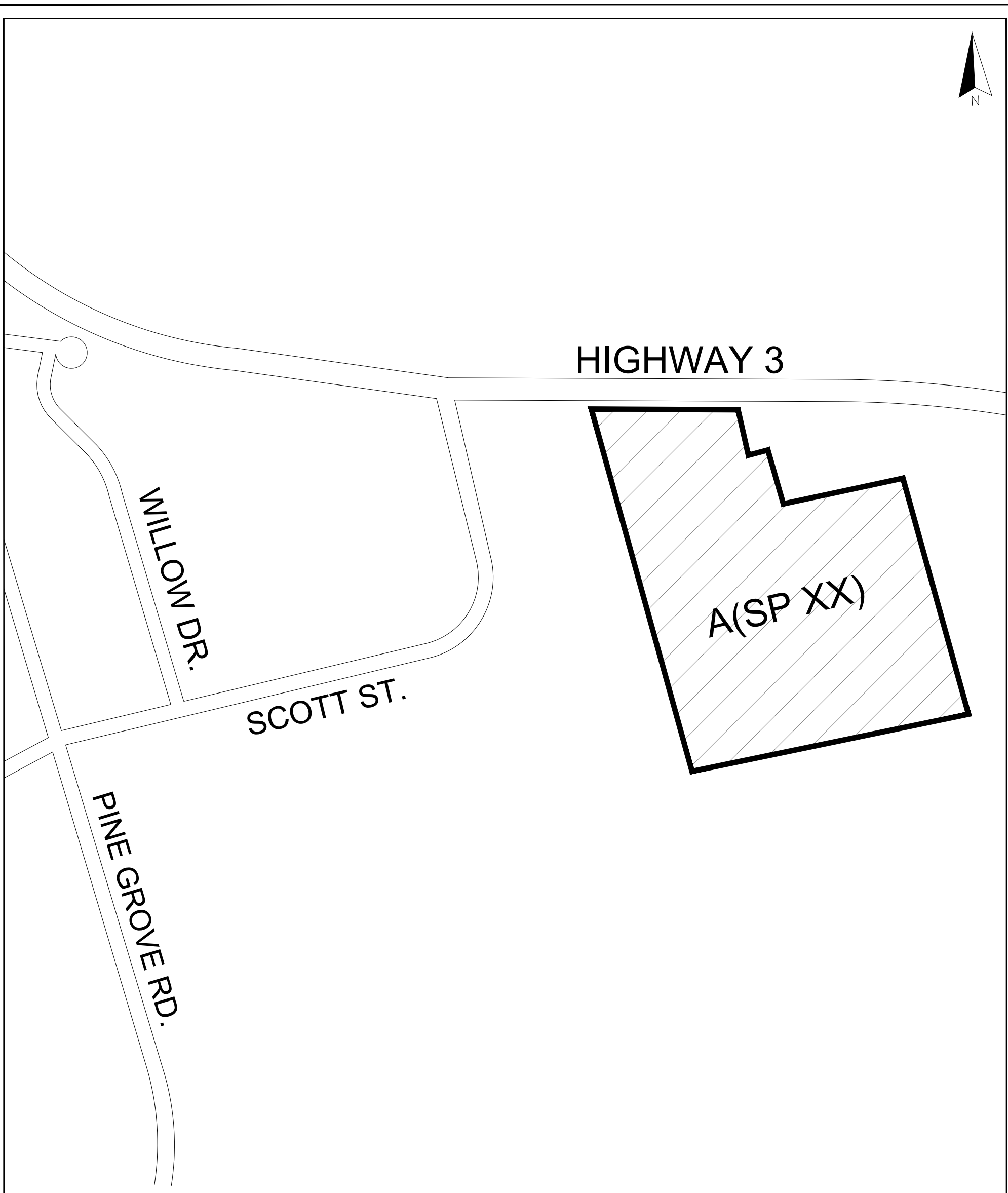
BY-LAW READ A **FIRST, SECOND** AND **THIRD** TIME AND PASSED THIS ____ DAY OF _____, 2025.

_____

Mayor

_____

Clerk



LEGEND

SUBJECT LANDS
(±15.68 ha)

LANDS TO BE REZONED FROM 'Agriculture Zone' TO 'Agriculture Site Specific (SP- XX) zone

SCHEDULE "A"
ZONING BY-LAW AMENDMENT

2148 Highway, Delhi, Ontario

Scale

0 5 10 15 20 25m

Source: City of Barrie Comprehensive Zoning By-Law 2009-141
Note: Information shown is approximate and subject to change.

IPS INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com
CELEBRATING 20 YEARS

Date: 2025-01-30	Drawn By: A.G.
File: 24-1366	Checked: N.S.

ONTARIO BUILDING CODE SUPPLEMENTARY STANDARD SB-10
PROJECT INFORMATION

Project: CDN Buildings Office & Shop	Location: 2148 Highway #3, Delhi, Ontario N4B 2C2
Building Permit Application No.:	Date: May 20, 2025

Architectural Designer Information*	Mechanical Designer Information*	Electrical Designer Information*
Rafik Nassif		
Name	Name	Name
20 Rivermede Rd., Unit 101		
Address	Address	Address
Concord ON		
City Province	City Province	City Province
Signature Date(YY/MM/DD)	Signature Date(YY/MM/DD)	Signature Date(YY/MM/DD)

*IF MORE DESIGNERS ARE INVOLVED, PROVIDE ADDITIONAL COPIES OF THIS FORM.

THIS CHECKLIST IS A CONVENIENCE DOCUMENT ONLY AND IS BASED ON THE ENERGY EFFICIENCY REQUIREMENTS DESCRIBED IN THE ONTARIO BUILDING CODE SUPPLEMENTARY STANDARD SB-10 DIVISION 3. THIS CHECKLIST IS NOT A SUBSTITUTE FOR COMPLYING WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE. WHILE CARE HAS BEEN TAKEN TO ENSURE ACCURACY OF THIS CHECKLIST, DESIGNERS AND BUILDING OFFICIALS MUST REFER TO THE ACTUAL WORDING AND REQUIREMENTS OF THE ONTARIO BUILDING CODE (O.REG. 350/06 AND AMENDMENTS UP TO AMENDING O.REG. 315/12).

THIS CHECKLIST IS MADE AVAILABLE FOR CODE USERS BY THE MINISTRY OF MUNICIPAL AFFAIRS AND HOUSING. USERS SHOULD ALWAYS CONSULT WITH THE AUTHORITY HAVING JURISDICTION, IF THE CHECKLIST IS GOING TO BE SUBMITTED TO THAT AUTHORITY. THE MINISTRY OF MUNICIPAL AFFAIRS AND HOUSING DOES NOT ASSUME RESPONSIBILITY FOR ERRORS OR OVERSIGHTS RESULTING FROM THE INFORMATION CONTAINED HEREIN.

PLEASE FILL IN THE ACTUAL VALUES INSTALLED AND CHECK BOXES AS THEY APPLY.

OBC SB-10 COMPLIANCE SUMMARY

Energy Efficiency Design:

There are three energy compliance options to meet the requirements of OBC SB-10 Division 3. Please select the compliance option selected for this project. The energy efficiency of all buildings must be designed to:

Compliance Path		Forms to Complete
(A) Achieve the energy efficiency levels attained by conforming to the ASHRAE 90.1-2013, "Energy Standard for Buildings Except Low-Rise Residential Buildings" and Chapter 2 of SB-10 (Division 3). ***This compliance path includes both prescriptive and performance path options. Please proceed to Form A.***	■ YES	FORM A
(B) Achieve the energy efficiency levels attained by conforming to the National Energy Code of Canada for Buildings 2015 and Chapter 3 of SB-10 (Division 3). ***This compliance path includes both prescriptive and performance path options. Please proceed to Form B.***	□ YES	NECB
(C) Section 7 "Energy Efficiency" of 2014 ANSI/ASHRAE/USGBC/IES 189.1, excluding Sections 7.2.b, 7.4.7.3, 7.4.8 and 7.5	□ YES	

ONTARIO BUILDING CODE SUPPLEMENTARY STANDARD SB-10
PROJECT INFORMATION – ADDITIONAL DESIGNER SIGNATURES

Project:	Location:
Building Permit Application No.:	Date:

Designer Information (Other)*:	**Designer Information (Other)*:**	**Designer Information (Other)*:**
Specialty	Specialty	Specialty
Name	Name	Name
Address	Address	Address
City Province	City Province	City Province
Signature Date(YY/MM/DD)	Signature Date(YY/MM/DD)	Signature Date(YY/MM/DD)

*AS APPLICABLE TO SB-10 2017 PROVISIONS AND REQUIREMENTS.

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OBC SB-10 AND ASHRAE 90.1 - 2013 – COMPLIANCE SUMMARY — Form A

Project: CDN Buildings Office & Shop	Location of Project: 2148 Highway #3, Delhi, Ontario N4B 2C2
Building Permit Application No.:	Climatic Zone (*SB-10 Division 3 Section 1.3*): Zone 5

ASHRAE 90.1 – 2013 COMPLIANCE AS MODIFIED BY OBC SB-10 DIVISION 3

The building design complies with the mandatory provisions of the following sections regardless of the compliance path:

ASHRAE 90.1-2013 Standard Section	Compliance Column	Form
5.4 BUILDING ENVELOPE AND SB-10 DIVISION 3	■ YES	FORM 5.4
6.4 HEATING, VENTILATING AND AIR CONDITIONING	□ YES	FORM 6.3 or FORM 6.4
7.4 SERVICE WATER HEATING SYSTEMS AND EQUIPMENT	□ YES	FORM 7.4
8.4 POWER	□ YES	FORM 8.4
9.4 LIGHTING	□ YES	FORM 9.4
10.4 OTHER EQUIPMENT AND SB-10 DIVISION 3	□ YES	FORM 10.4

METHOD OF COMPLIANCE

Building Design must comply with either the Prescriptive Requirements or the Energy Cost Budget Method. Indicate which method was selected.

Compliance Method	Compliance Column	Form
PRESCRIPTIVE COMPLIANCE	■ YES	COMPLETE SECTION A-1
ENERGY COST BUDGET METHOD	□ YES	COMPLETE SECTION A-2

A-1: PRESCRIPTIVE COMPLIANCE – ASHRAE 90.1-2013 AND OBC SB-10

The building design complies with the Prescriptive Compliance requirements of the following sections:

Standard Section Reference		Compliance Column	Form
Sec 5 BUILDING ENVELOPE	Prescriptive Requirements (5.5 of 90.1) Building Envelope Trade-Off (5.6 of 90.1)	▣ YES □ YES	FORM 5.5 or FORM 5.6
Sec 6 HVAC SYSTEMS	Simplified Approach for HVAC Systems Mandatory + Prescriptive Path Option	□ YES □ YES	FORM 6.3 or FORM 6.4
Sec 7 SERVICE WATER HEATING	Prescriptive Path Option	□ YES	FORM 7.4
Sec 9 LIGHTING	Prescriptive Requirements	□ YES	FORM 9.5

A-2: ENERGY COST BUDGET METHOD – ASHRAE 90.1-2013 AND OBC SB-10

	Compliance Column	Form
The building design complies with the provisions of Section 11 of ASHRAE 90.1-2013, based on Division 3 of SB-10.	□ YES	FORM 11

SECTION 5.4 MANDATORY PROVISIONS	
Building insulation has been designed to comply with section 5.4.1 of ASHRAE 90.1-2013 as modified by Chapter 2 of OBC SB-10.	■ YES
Building fenestration and doors have been designed to comply with section 5.4.2 of ASHRAE 90.1-2013 as modified by Chapter 2 of OBC SB-10.	■ YES
Building air leakage has been designed to comply with section 5.4.3 of ASHRAE 90.1-2013 as modified by Chapter 2 of OBC SB-10.	■ YES

ASHRAE 90.1-2013 & SB-10 – SECTION 5.5 – PRESCRIPTIVE ENVELOPE OPTION Form 5.5-1

Section 5.5 Overall Building Design Requirements	
The building design must comply with the following general requirements. If any of these requirements are not met, the prescriptive path cannot be pursued. Consider the building envelope trade-off compliance or the Energy Cost Budget Method Described in Chapter 11 of ASHRAE 90.1-2013:	
Gross Wall Area: 3128 m² *Vertical Fenestration Area*: 155 m² *Vertical fenestration area* is less than 40% of the *gross wall area*	■ YES
Gross Roof Area: 6446 m² *Skylight Area*: 0 m² *Total skylight area does not exceed 3% of the gross roof area*	■ YES
Where the main entrance is located on the south orientation and the south-oriented wall area is larger than west-oriented wall area, and where the south-oriented wall area is larger than east-oriented wall area, per ASHRAE 90.1-2013 5.5.4.5, either: (a) total east and west vertical fenestration areas are each less than 25% of total vertical fenestration area for the whole building, or (b) east and west area-weighted SHGC is less than area-weighted SHGC for total fenestration Exception (from ASHRAE 90.1-2013 Section 5.5.4.5): _____	□ YES ■ N/A □ YES ■ N/A
Where electric space heating provides more than 10 per cent of the heating capacity, the building envelope shall comply with the requirements of Table SB 5.5-7 of SB-10, regardless of its climatic location	■ YES □ N/A
For Climate Zone 5, minimum skylight fenestration area conforms to the requirements of ASHRAE 90.1-2013 5.5.4.2.3.	■ YES □ N/A
Identify SB-10 Table used for maximum U-Factors or minimum RSI-Values : SB 5.5-5	

Complete the table on Form 5.5-2 to show compliance for all envelope components. Attach as many copies of this form as required to ensure that all envelope components are represented.

For all opaque surfaces, compliance must be demonstrated by meeting either:

1. *The minimum R-values of insulation added in framing cavities and continuous insulation as specified in Tables SB5.5-5 to SB5.5-7.*
2. *The maximum U-factor, C-factor, or F-factor for the entire assembly as specified in Tables SB5.5-5 to SB5.5-7. U-factor is to be determined from tables in Appendix A of ASHRAE 90.1-2013 or through calculation methods described in ASHRAE 90.1-2013 Appendix Section A9.*

For all fenestration products, compliance with U-factors, SHGC and VT must be determined for the overall fenestration product.

1. *Fenestration shall have a U-factor and SHGC not greater than those specified in SB-10 Tables SB5.5-5 to SB5.5-7.*
2. *Where automatic daylighting controls are required in accordance with Section 9.4.1.1(e) or (f), fenestration shall have a ratio of VT divided by SHGC not less than that specified in Tables SB5.5-5 through SB5.5-7 for the appropriate fenestration area.*
3. *U-factor to be determined through CSA or NFRC rating or by using ASHRAE 90.1-2013 Appendix A default values.*

ASHRAE 90.1-2013 & SB-10 – SECTION 5.5 – PRESCRIPTIVE ENVELOPE OPTION Form 5.5-2

Please complete the following table to include information on all walls, roofs, doors, and floors used in the design.

OPAQUE BUILDING ENVELOPE COMPONENTS

Opaque Element - Description(1)	Space Conditioning Category (2)	Class of Construction (3)	Criteria Max. U-Value(4) or Min RSI	Design U-Value(4) or RSI	Area Weighted Avg. Used(5)?
ROOF	■ NR □ R □ SH	METAL BUILDING	R-25 + R-11 Ls	R-25 + R-12.5 ci	□ Y ■ N
ROOF	□ NR □ R ■ SH	METAL BUILDING	R-10 + R-19	R-10 + R-19	□ Y ■ N
WALL ABOVE GRADE	■ NR □ R □ SH	METAL BUILDING	R-13 + R-19 ci	R-13 + R-20 ci	□ Y ■ N
WALL ABOVE GRADE	□ NR □ R ■ SH	METAL BUILDING	R-13 + R-6.3 ci	R-13 + R-7.5 ci	□ Y ■ N
SLAB ON GRADE	■ NR □ R □ SH	HEATED	R-10 full slab	R-10 full slab	□ Y ■ N
SLAB ON GRADE	□ NR □ R ■ SH	HEATED	R-10 for 48 in.	R-10 for 48 in.	□ Y ■ N
OPAQUE DOORS	■ NR □ R □ SH	SWINGING	U-0.45		□ Y ■ N
OPAQUE DOORS	□ NR □ R ■ SH	SWINGING	U-0.63		□ Y ■ N
	□ NR □ R □ SH				□ Y □ N
	□ NR □ R □ SH				□ Y □ N

Please complete the following table to include information on all fenestration products used in the design.

FENESTRATION ENVELOPE COMPONENTS

Fenestration - Description(1)	Space Conditioning Category (2)	Class of Construction (3)	U-Value(4)		SHGC(6)		VT/SHGC		Area Weighted Average Used(5)?
			Crit.	Des.	Crit.	Des.	Crit.	Des.	
WINDOWS	■ NR □ R □ SH	METAL FRAMING: FIXED	U-0.38	U-0.38	0.40	0.40	1.10	1.10	□ Y ■ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N
	□ NR □ R □ SH								□ Y □ N

(1) Indicate if Element is a Wall, Roof, Floor, Door, Window or Skylight and a Tag or Description (eg Wall – W1).
(2) Select from Non-residential (NR), Residential (R), or Semiheated (SH).
(3) Select from the subclasses of roofs, walls, floors, doors and fenestration provided in Tables SB5.5-5 to SB5.5-7 (eg. Steel Framed for walls). Note that curtain wall systems are considered a steel framed wall.
(4) F-Factors can be used for floors and C-Factors for below Grade Walls as applicable.
(5) Elements of the same type, space category, and class of construction can be averaged using area weighting to show compliance only if U-Values are used.
(6) Design SHGC may be higher than the criteria if one of the exceptions from ASHRAE 90.1-2013 5.5.4.4.1 or 5.5.4.4.2 is applicable. Please use the space below to identify the fenestration elements (if any) which an exception for SHGC is being claimed.
(7) Design VT/SHGC ratio may be lower than the criteria if one of the exceptions from ASHRAE 90.1-2013 5.5.4.6 is applicable. Please use the space below to identify the fenestration elements (if any) which an exception for VT/SHGC is being claimed.

SHGC and VT/SHGC EXCEPTIONS

Fenestration Element	SHGC or VT/SHGC exception from ASHRAE 90.1-2013 5.5.4.4.1, 5.5.4.4.2, or 5.5.4.6

ASHRAE 90.1-2013 & SB-10 – SECTION 5.5 –BUILDING ENVELOPE TRADE-OFF OPTION Form 5.6

Note that this option may only be pursued using the procedure described in ASHRAE 90.1-2013 Section 5.6 as modified by the requirements of Chapter 2 of SB-10

Calculated EPF for proposed building*: _____
Calculated EPF for budget building*: _____

Envelope performance factor (EPF) for proposed building is less than or equal to the envelope performance factor of the budget building.	□ YES
All components of the building envelope shown on architectural drawings or installed in existing buildings have been separately described and modeled in the proposed building design, with exception for envelope assemblies that cover less than 5% of the total area of its corresponding assembly type, and whose area can be included with another similar assembly (based on thermal properties and orientation) as noted in Section 5.6.1.1.	□ YES
A software program* incorporating the requirements of ASHRAE 90.1-2013 as modified by SB-10 has been used to calculate the EPF. A report from this software is attached. Name of software: _____	□ YES

**Note that the EPF must be calculated by a simulation program which includes the requirements of ASHRAE 90.1-2013 as modified by SB-10.*

ASHRAE 90.1-2013 & SB-10- SECTION 6.3 HVAC SIMPLIFIED APPROACH Form 6.3

If simplified HVAC method is used complete this form, otherwise proceed to Form 6.4.

Number of Stories:	Gross floor area: m²

Reference		Standard Compliance
6.3.1	The building is 2 stories or less in height and has a gross floor area less than 2,300 m².	□ YES
6.3.2	All of the requirements in Section 6.3 as outlined below must be met by each HVAC system in the facility.	
6.3.2.a	System serves a single HVAC zone.	□ YES
6.3.2.b	The equipment meets the variable flow requirements of Section 6.5.3.2.1.	□ YES □ N/A
6.3.2.c	If a cooling is installed, it is provided by a unitary packaged or split-system air conditioner that is either air-cooled or evaporatively cooled and meets the efficiency requirements shown in Tables 6.8.1-1, 6.8.1-2, and 6.8.1-4.	□ YES □ N/A
6.3.2.d	The system has an air economizer with outside airflow capacity and controls as required per Section 6.5.1., unless exempt.	□ YES □ N/A
6.3.2.e	Heating is provided by a unitary packaged or split-system heat pump, a fuel-fired furnace, an electric resistance heater or a baseboard system connected to a boiler. All heating equipment meets the efficiency requirements shown in Table 6.8.1-2, 6.8.1-4, 6.8.1-5, and 6.8.1-6 as modified by SB-10 Table SB 6.8.1-2017.	□ YES □ N/A
6.3.2.f	System meets the exhaust air energy recovery requirements of Section 6.5.6.1 as modified by SB-10, unless exempt.	□ YES □ N/A
6.3.2.g	The system is controlled by a manual changeover or dual setpoint thermostat.	□ YES
6.3.2.h	Heat pumps equipped with auxiliary internal electric resistance heaters (if any) have controls to prevent supplemental heater operation when the heating load can be met by the heat pump alone, unless exempt.	□ YES □ N/A
6.3.2.i	The system controls do not permit reheat or any other form of simultaneous heating and cooling for humidity control.	□ YES □ N/A
6.3.2.j	Systems are provided with a time switch that (1) can start and stop the system under different schedules for seven different day-types per week; (2) is capable of retaining programming and time setting during a loss of power for a period of at least 10 h; (3) includes an accessible manual override that allows temporary operation of the system for up to 2 h; (4) is capable of temperature setback down to 13° C during off hours; and (5) is capable of temperature setup to 32° C during off hours unless exempt.	□ YES □ N/A
6.3.2.k	Piping is insulated in accordance with values given in Table 6.8.3A and 6.8.3B. Insulation exposed to weather is suitable for outdoor service (i.e. protected by aluminum, sheet metal, etc. or painted with a coating that is water retardant and provides shielding from solar radiation).	□ YES □ N/A
6.3.2.l	Ductwork and plenums are insulated in accordance with Tables 6.8.2A and 6.8.2B and sealed in accordance with Section 6.4.4.2.1.	□ YES □ N/A
6.3.2.m	Specifications call for ducted air systems to be balanced.	□ YES □ N/A
6.3.2.n	Outdoor air intake and exhaust systems meet the controls requirements of Section 6.4.3.4.	□ YES □ N/A
6.3.2.o	Where separate heating and cooling equipment serve the same temperature zone, thermostats are interlocked to prevent simultaneous heating and cooling.	□ YES □ N/A
6.3.2.p	Systems with a design supply air capacity greater than 5,000 L/s have optimum start controls.	□ YES □ N/A
6.3.2.q	In spaces larger than 50m² and with design occupancy ≥ 25 people per 100m², the system complies with the demand control ventilation requirements in Section 6.4.3.8, unless exempt.	□ YES □ N/A
6.3.2.r	The system complies with the door switch requirements of Section 6.5.10.	□ YES □ N/A

SECTION 6 HVAC – 6.4 MANDATORY PROVISIONS AND 6.5 PRESCRIPTIVE REQUIREMENTS Form 6.4		
Reference		Standard Compliance
	Mandatory Provisions – Complete only if simplified HVAC method is not used.	
6.4.1	Equipment shown in 6.8.1-1 through 6.8.1-13 meets the minimum performance (as modified by SB-10 Table SB 6.8.1-2017) at the specified rating conditions in accordance with the test procedures in the tables or those in SB-10 Section 6.4.1.A.	□ YES
6.4.2.1	Load calculations for heating and cooling systems are done as per ASHRAE Standard 183-2007 for selection of all equipment and systems.	□ YES
6.4.2.2	Pressure drop through each device and pipe segment in the critical circuit at design conditions has been calculated in accordance with generally accepted engineering standards and handbooks.	□ YES
6.4.3	Mandatory controls requirements are met by all the equipment in the building as outlined in Section 6.4.3.	□ YES
6.4.4.1	Ductwork, piping, and equipment insulation meets the requirements of Section 6.4.4.1.	□ YES
6.4.4.2	Construction documents specify sealing and pressure testing of ductworks and plenums as per Section 6.4.4.2.	□ YES
6.4.5	Site-assembled or site-constructed walk-in coolers and freezers shall conform to the requirements of Section 6.4.5.	□ YES
6.4.6	All refrigerated display cases shall conform to the requirements of Section 6.4.6., including Section 6.4.1.1 and Tables 6.8.1-1 through 6.8.1-13 as modified by SB-10.	□ YES
	Prescriptive Requirements – Complete this section if not using Energy Cost Budget Method.	
6.5.1	Each cooling system that has a fan employs either airside or waterside economizer unless exempt.	□ YES □ N/A
6.5.1.1	Airside economizers are capable of modulating outdoor air dampers to provide up to 100% design airflow for cooling and the system provides relief capacity for such airflow.	□ YES □ N/A
6.5.1.2.1	Waterside economizers are capable of cooling supply air up to 100% of the expected system cooling load at the conditions listed under Section 6.5.1.2.1, unless exempt.	□ YES □ N/A
6.5.1.2.2	Waterside economizer systems with pressure drop greater than 45kPa are isolated from main cooling loop to reduce pumping input in the normal cooling mode.	□ YES □ N/A
6.5.1.3	Economizer systems incorporate integrated economizer controls per ASHRAE 90.1-2013 6.5.1.3	□ YES □ N/A
6.5.1.4	Economizer operation does not increase the building heating energy use during normal operation, except as allowed under ASHRAE 90.1-2013 6.5.1.4	□ YES □ N/A
6.5.1.5	Systems with hydronic cooling and humidification systems designed to maintain inside humidity at a dew-point temperature greater than 2°C use a water economizer if required by ASHRAE 90.1-2013 6.5.1.	□ YES □ N/A
6.5.2	Simultaneous heating and cooling is limited with compliant zone, hydronic system, dehumidification, and humidification controls as per Section 6.5.2.	□ YES □ N/A
6.5.3	Cooling system fan controls comply with the requirements of 6.5.3.2 and 6.5.3.3.	□ YES □ N/A
6.5.3.1	Fan systems exceeding 4kW nameplate power have fan power limitations 10% below limitations specified in ASHRAE 90.1-2013 Table 6.5.3.1.1-1 and Section 6.5.3.1.2.	□ YES □ N/A
6.5.4.1	Boiler systems with design input of ≥ 293 kW comply with the turndown ratio specified in Table 6.5.4.1.	□ YES □ N/A
6.5.4.2	Pumping systems greater than 7.5 kW employ compliant variable flow controls, unless exempt	
6.5.4.3	Chilled water plants with more than one chiller and boiler plants with more than one boiler reduce loop water flow automatically whenever a chiller or boiler is shut down and isolated.	□ YES □ N/A
6.5.4.4	Hydronic systems exceeding design capacity of 88 kW include controls to reset supply water temperature based on building loads or outdoor air temperature, unless exempt.	□ YES □ N/A
6.5.4.5	Hydronic heat pumps and unitary air-conditioners include automatic water shutoff when the compressor is off (unless units are employing water economizer) and those having total pump system power greater than 3.7 kW have variable speed control.	□ YES □ N/A
6.5.4.6	Chilled water and condenser water pipe is sized according to Table 6.5.4.6.	□ YES □ N/A
6.5.5	Open-circuit cooling towers have fans meeting the energy efficiency requirements of Section 6.5.5.3 and have flow turndown in compliance with 6.5.5.4.	□ YES □ N/A

SECTION 6 HVAC – 6.4 MANDATORY PROVISIONS AND 6.5 PRESCRIPTIVE REQUIREMENTS		Form 6.4
6.5.5.2	All heat rejection equipment provide fan controls that comply with Section 6.5.5.2, with variable speed drives on fan motors ≥ 5.6 kW.	□ YES □ N/A
6.5.6.1	Exhaust air energy recovery is provided for fan systems meeting the conditions listed on Table 6.5.6.1. Energy recovery is at least 55% effective and bypass is available to permit air economizer operation as per Section 6.5.1.1.	□ YES □ N/A
6.5.6.2	Condenser heat recovery system for heating or preheating hot water is provided, unless exempt.	□ YES □ N/A
6.5.7.1	Kitchen exhaust systems are designed as per Section 6.5.7.1.	□ YES □ N/A
6.5.7.1.5	Specifications call for performance testing of kitchen exhaust systems.	□ YES □ N/A
6.5.7.2	Laboratory fume hoods with a total exhaust system flow > 2,360 L/S comply with the variable air volume control requirements of 6.5.7.2.	□ YES □ N/A
6.5.8.1	Heating of unenclosed spaces is done by radiant heating, except loading docks with air curtains.	□ YES □ N/A
6.5.9	Cooling equipment with hot-gas bypass controls is designed with multiple steps of unloading or continuous capacity modulation, with capacity limits as indicated in Table 6.5.9 for VAV systems. Constant volume units do not have hot gas bypass.	□ YES □ N/A
6.5.10	All conditioned spaces with a door to the exterior have door switches interlocked with heating and cooling controls per Section 6.5.10, unless exempt.	□ YES □ N/A
6.5.11	Refrigeration systems that are comprised of refrigerated display cases, walk-in coolers, or walk-in freezers connected to remote compressors, remote condensers, or remote condensing units meet the requirements of Sections 6.5.11.1 through 6.5.11.2.	□ YES □ N/A

SECTION 7 SERVICE WATER HEATING – 7.4 MANDATORY PROVISIONS AND 7.5 PRESCRIPTIVE REQUIREMENTS		
Reference	Item	Standard Compliance
7.4.1	Load calculations for heating and cooling systems are done in accordance with manufacturer's published sizing guidelines or generally accepted engineering standards and handbooks for selection of all equipment and systems.	□ YES
7.4.2	All equipment used solely for the following purposes meets or exceeds the efficiency requirements and testing criteria of Table 7.8, as modified by SB-10 7.4.2.A, unless exempt.: • heating potable water • pool heaters • hot water storage tanks Exemptions:	□ YES □ N/A
7.4.3	The following service hot water piping is insulated to levels shown in Table 6.8.3-1: a. Recirculating system piping, including piping of a circulating tank type water heater. b. The first 2.4m of outlet piping for a constant temperature non-recirculating storage system. c. Inlet pipe between storage tank and heat trap in a non-recirculating storage system. d. Pipes that are externally heated (e.g. heat tracing).	□ YES □ N/A
7.4.4.1	All water-heating systems have temperature controls that are adjustable down to 49°C or lower. • Exception: Equipment that must be protected from corrosion, as per manufacturer's installation instructions.	□ YES □ N/A
7.4.4.2	Systems designed with pipe heating systems such as heat trace have temperature or time controls to disable during extended periods without hot water demand.	□ YES □ N/A
7.4.4.3	Public lavatories have outlet temperature controls that limit the discharge temperature to 43°C.	□ YES □ N/A
7.4.4.4	Tanks with remote heaters have circulation pump controls to limit operation of circulation pumps to a maximum of five minutes after the end of the heating cycle.	□ YES □ N/A
7.4.5.1	Pool heaters have readily accessible ON/OFF switch without adjusting the thermostat setting. Gas-fired heaters do not have standing pilot lights.	□ YES □ N/A
7.4.5.2	Per SB-10 7.4.5.2, heated exterior public pools and public spas shall be equipped with pool covers, unless over 60% of their energy for heating (computed over an annual operating season) is derived from site-recovered or site-solar energy.	□ YES □ N/A
7.4.5.3	Pool heaters and circulation pumps have time switches, unless exempt.	□ YES □ N/A
7.4.6	Heat traps are provided to all vertical risers serving storage water heaters and storage tanks.	□ YES □ N/A
	Prescriptive Requirement – Complete this section if not using Energy Cost Budget Method.	
7.5	Boiler systems that provide space heating as well as service water heating meet the conditions of Sections 7.5.1 and 7.5.2.	□ YES □ N/A
7.5.3	Gas service hot-water systems with a total installed gas water-heating input capacity of 293 kW or greater, shall have a minimum input capacity-weighted average thermal efficiency of 90%, unless exempt.	□ YES □ N/A

ASHRAE 90.1 & SB-10- SECTION 8,9 &10 POWER, LIGHTING AND OTHER EQUIPMENT

SECTION 8 POWER – 8.4 MANDATORY PROVISIONS		Form 8.4
Reference	Item	Standard Compliance
8.4.1	Feeder conductors and branch conductors are sized as per Section 8.4.1.	□ YES
8.4.2	At least 50% of all 125 volt 15- and 20-Ampere receptacles (installed in conference rooms, rooms used primarily for printing and/or copying functions, breakrooms, classrooms, and individual workstations), and at least 25% of branch circuit feeders (installed for modular furniture not shown on the construction documents), are provided with automatic receptacle controls that function on a) time-of-day schedule or b) occupant sensor or c) occupancy signal from another control or alarm system, with exceptions as listed, as modified by SB-10.	□ YES □ N/A
8.4.3	Unless exempted, measurement devices are shown in design documents to monitor the total electrical energy, as well as the electrical energy use separately for HVAC systems, interior lighting, exterior lighting, and receptacle circuits. For buildings with tenants, these systems are separately monitored for the total building and (excluding shared systems) for each individual tenant. Data recording and storage capabilities meet the requirements of 8.4.3.2.	□ YES □ N/A
8.4.4	Low Voltage Dry-Type Distribution Transformers meet nominal efficiencies shown in Table 8.4.4, unless exempt.	□ YES □ N/A

SECTION 9 LIGHTING– MANDATORY PROVISIONS CHECKLIST		Detailed Form 9.4-1
Reference	Item	Standard Compliance
9.4.1.1	For each space in the building, all of the lighting control functions indicated in ASHRAE 90.1-2013 Table 9.6.1, for the appropriate space type in column A, have been implemented, as described by Section 9.4.1.1: a. Local Control b. Restricted to manual ON c. Restricted to partial automatic ON d. Bilevel lighting control e. Automatic daylight responsive controls for sidelighting f. Automatic daylight responsive controls for toplighting g. Automatic partial OFF (full OFF complies) h. Automatic full OFF i. Scheduled shutoff	□ YES
9.4.1.2	Lighting for parking garages is controlled by automatic shutoff controls meeting the requirements outlined in Section 9.4.1.2.	□ YES □ N/A
	Lighting for parking garages is controlled by one or more devices that reduce lighting power of each luminaire by at least 30% when there is no activity within a zone for at most 30 minutes. Each lighting zone for this requirement cannot exceed 334 m^2, except daylight transition zones and ramps without parking.	□ YES □ N/A
	Daylight transition zones in parking garages are controlled separately. These are automatically controlled to reduce by at least 50% from sunset to sunrise.	□ YES □ N/A
	Parking garage luminaires within 6m of perimeter walls that have a net opening-to-wall ratio of at least 40% automatically reduce power in response to daylight, except daylight transition zones and ramps without parking.	□ YES □ N/A
9.4.1.3	Additional control is provided to the special applications listed in Section 9.4.1.3	□ YES □ N/A
9.4.1.4	Exterior lights are shut off by an automatic photosensor when available daylight is sufficient, unless exempt.	□ YES □ N/A
	All building façade and landscape lighting is automatically shut off overnight as per 9.4.1.4.	□ YES
	Exterior lighting not for façade or landscape, including for signage, is automatically controlled to reduce lighting power by at least 30% overnight or during inactive periods as per 9.4.1.4. (Uncovered parking areas are exempt per SB-10)	□ YES
9.4.2	Exterior building lighting power complies with ASHRAE 90.1-2013 9.4.2 as modified by SB-10. Form 9.4.2 may be used to demonstrate compliance.	□ YES
9.4.3	Third party functional testing of all lighting control devices and systems is specified in the construction documents.	□ YES

SECTION 9.4 LIGHTING – EXTERIOR LIGHTING POWER MANDATORY COMPLIANCE		Form 9.4-2
Reference		Standard Compliance
9.4.3	Exterior Lighting Zone _____ (Table SB 9.4.2-2–2017) **Total Installed Exterior Lighting Power _____ W ≤ value of exterior LPA _____W *** List any exemptions that apply:	□ YES □ N/A

***** Calculation worksheet (FORM 9.4-3) is required.

SECTION 9.5 LIGHTING – INSTALLED LIGHTING POWER PRESCRIPTIVE COMPLIANCE		Form 9.5-1
	Prescriptive Requirements – Complete if not using Energy Cost Budget Method	
Reference		Standard Compliance
9.5 **9.6**	**9.5 INTERIOR LIGHTING POWER ALLOWANCE BY BUILDING TYPE** Calculation of Interior Lighting Power Allowance (ILPA) by Building Type based on Table SB 9.5.1–2017 * Building Type _____ Gross Lighted Area _____ m^2 Lighting Power Density _____ W/m^2 **Total Installed Interior Lighting Power _____ W ≤ value of Interior LPA _____ W ***	□ YES □ N/A
	9.6 INTERIOR LIGHTING POWER ALLOWANCE BY SPACE FUNCTION Calculation of Interior Lighting Power Allowance (ILPA) for each space based on Table SB 9.6.1–2017 * **Total Installed Interior Lighting Power _____ W ≤ value of Interior LPA _____ W *** List any exemptions that apply:	□ YES □ N/A

***** Calculation worksheet (FORM 9.5-2) is required.

ASHRAE 90.1 & SB-10 - SECTION 9 – LIGHTING COMPLIANCE WORKSHEET FORM 9.4-3

Project:	Designer Name:

Exterior Building Lighting Power Allowance - refer to Table SB 9.4.2-2–2017			
Location / Application	Allowance	Area or Length (m² or m)	Tradable Power Allowance
Exterior Lighting Zone		Base Site Allowance	
		Tradable Power Allowance	

Exterior Installed Lighting Power				
ID	Luminaire description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Number of Luminaires	Watts/ Luminaire	Total Watts
		Total Exterior Lighting Power		

* If additional space is required to provide further information, please attach a separate sheet(s) of paper.
** If trade-offs or exceptions are used attach calculations.

ASHRAE 90.1 & SB-10 - SECTION 9 – LIGHTING COMPLIANCE WORKSHEET FORM 9.5-2

Project:	Designer Name:

Interior Power Allowance (Building Area Method) -refer to Table SB 9.5.1–2017			
Building Type	Lighting Power Density Allowance (W/m²)	Gross Lighted Floor Area (m²)	Lighting Power Allowance (W) (LPDxGLFA)
		Total Power Allowance	

Interior Lighting Power Allowance (Space by Space Method) - refer to Table SB 9.6.1–2017				
Building Type	Common/Specific Space Type	Lighting Power Density Allowance (W/m²)	Space Area (m²)	Lighting Power Allowance (W)
			Total Power Allowance	

Interior Connected Lighting Power				
Space ID	Luminaire Description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Number of Luminaires	Watts/ Luminaire	Total Watts
			Total Interior Lighting Power	

* If additional space is required to provide further information, please attach a separate sheet(s) of paper.
** If additional interior lighting power, trade-offs or exceptions are used attach calculations.

SECTION 10 OTHER EQUIPMENT - MANDATORY PROVISIONS		Form 10.4
Reference	Item	Standard Compliance
10.4.1	Electric motors are in compliance with Table SB-10 Table 10.4.1.A where applicable; otherwise, they comply with ASHRAE 90.1-2013 Tables 10.8-1, 10.8-2, 10.8-3 and 10.8-6, as applicable.	□ YES
10.4.2	Service water pressure booster pumps have pressure sensors to vary pump speed and/or start and stop pumps.	□ YES □ N/A
	No devices are installed to reduce the pressure of all of the water supplied by any booster system or pump, except for safety devices.	□ YES □ N/A
	Booster pumps shut off when there is no service water flow.	□ YES □ N/A
10.4.3	All elevator cab lighting systems have efficacy of not less than 35 lumens per Watt.	□ YES □ N/A
	Elevator cab ventilation fans for elevators without air conditioning consume less than 0.7 W·s/L at maximum speed.	□ YES □ N/A
	Cab interior light and ventilation is de-energized when elevators are stopped and unoccupied with doors closed for over 15 minutes.	□ YES □ N/A
10.4.4	Escalators and moving walks automatically slow to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	□ YES □ N/A
10.4.5	The building is designed to facilitate future installation of means to measure and monitor energy use by each energy type described in Section 10.4.5.1, per SB-10 10.4.5.3.	□ YES □ N/A

ASHRAE 90.1-2013 & SB-10 ENERGY COST BUDGET (ECB) COMPLIANCE REPORT — FORM 11

Project:	Designer Name:

Occupancies	**Floor Area**
□ Assembly	_____
□ Health/Institutional	_____
□ Hotel/Motel	_____
□ Light Manufacturing	_____
□ Multifamily	_____
□ Office	_____
□ Restaurant	_____
□ Retail	_____
□ School	_____
□ Warehouse	_____
□ Other	_____
Total	_____

□ **Proposed Building Description**

_____
_____
_____
_____
_____
_____

Annual Consumption Summary[1]	**Reference Building Energy**		**Proposed Building Energy**	**Units**
Space Heating				
Space Cooling				
HVAC Fans				
Pumps				
Service Hot Water				
Interior Lighting				
Other _____				
Other _____				
Total Annual Energy				
Total Annual Energy Cost	$	>	$	
Total Annual CO2e Emissions		>		
Peak Electric Demand*		>		

***OR** Building components specified in SB-10 Division 3 Chapter 1 Clause 1.1.2.3(5) comply with the prescriptive requirements of ASHRAE 90.1-2013 □ YES

Reference and Proposed Building Energy Consumptions are calculated by:

Please specify modelling software: _____

HVAC System Descriptions	Energy Efficiency Features in Proposed Building Design[2]
Reference Building Design _____ _____ _____ _____	_____ _____ _____ _____ _____
Proposed Building Design _____ _____ _____ _____	_____ _____ _____ _____ _____
Building is in compliance with mandatory requirements of sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4.	□ YES

Compliance Result

The design detailed in the above referenced plans complies with the mandatory requirements of the ASHRAE 90.1-2013 Standard and the additional requirements of Supplementary Standard SB-10. The calculated proposed building energy cost (design energy cost), CO_2 emissions and peak electric demand do not exceed the calculated reference building energy cost (energy cost budget) CO_2 emissions and peak electric demand. Therefore, this design **DOES COMPLY** with the ASHRAE 90.1-2013 ECB compliance methodology and the additional requirements of Supplementary Standard SB-10.

Individual certifying authenticity of the data provided in this analysis:

Signature:	Name/Title:

Notes: (1) Verify with building official whether full modelling report is required to be submitted
(2) Explain major energy saving features utilized to achieve modelled savings

2148 Highway 3, Delhi
County of Norfolk

Traffic Impact Study for
CDN Buildings

Type of Document:
Final Report

Project Number:
JDE – 23062

Date Submitted:
June 26th, 2024
September 13th, 2024 (Revised)

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Legal Notification

This report was prepared by **JD Northcote Engineering Inc.** for the account of **CDN Buildings.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **JD Northcote Engineering Inc.** accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions based on this project.

Executive Summary

This report summarizes the traffic impact study for the proposed industrial development of a site municipally known as 2148 Highway 3, located on the south side of Highway 3, east of Scott Street in Norfolk County [County]. The report assesses the impact of traffic related to the development on the adjacent roadway and provides recommendations to accommodate this traffic in a safe and efficient manner.

The proposed development includes a relocation and expansion of the existing CDN industrial building (65,066 sq. ft. GFA) from its existing location at 525 James Street, in the community of Delhi. The proposed development also includes a 690,182 sq. ft. commercial greenhouse. The Subject Site currently includes a single-detached residential building, existing shed and three existing garage structures that will remain.

The proposed development will include one full-movement access driveways [Site Access] onto Highway 3, in the location of the existing driveway to the residential building. The property currently connects to the existing property to the west [North Creek Gardens], which has a separate private driveway access onto Highway 3. As part of the proposed development the connection between the two properties will be closed.

The scope of this analysis includes a review of the following intersections:

a. Highway 3 / Scott Street
b. Highway 3 / Site Access

Conclusions

1. The proposed development is expected to generate 50 AM and 54 PM new peak hour trips in the study area.
2. Detailed turning movement and pedestrian counts were completed for the intersection of Highway 3 / Scott Street; James Street / 525 James Street North Access; and James Street / 525 James Street South Access Tuesday, December 12th, 2023.
3. An intersection operational analysis was completed at the study area intersections, using the existing (2024) and background (2027, 2032 and 2037) traffic volumes, without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area roads and intersections.
5. An intersection operation analysis was completed under total (2027, 2032 and 2037) traffic volumes with the proposed development operational at the study area intersections. No additional geometric lane improvements or traffic signal improvements are recommended within the study area.
6. The proposed Site Access will operate efficiently with one-way stop control for northbound movements. A single lane for ingress and egress movements at Site Access will provide the necessary capacity to convey the traffic volume generated by the proposed development.
7. The location of the proposed Site Access driveway is considered appropriate for the intended use.

8. The sight distance available for the proposed Site Access driveway meets the minimum sight stopping and intersection sight distance and are suitable for the intended use.
9. In summary the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

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1 Introduction

1.1 Background

CDN Buildings [The Developer] includes a relocation and expansion of the existing CDN industrial building (65,066 sq. ft. GFA) from its existing location at 525 James Street, in the community of Delhi. The proposed development also includes a 690,182 sq. ft. commercial greenhouse. The Subject Site currently includes a single-detached residential building, existing shed and three existing garage structures that will remain.

The proposed development will include one full-movement access driveways [Site Access] onto Highway 3, in the location of the existing driveway to the residential building. The property currently connects to the existing property to the west [North Creek Gardens], which has a separate private driveway access onto Highway 3. As part of the proposed development the connection between the two properties will be closed.

The Developer has retained **JD Engineering Inc.** [JD Engineering] to prepare this traffic impact study in support of the proposed development.

1.2 Study Area

Figure 1 illustrates the location of the Subject Site and study area intersections, in relation to the surrounding area. The Site Plan provided by **Gerrits Engineering** is included in **Appendix A.**

The Subject Site is bound by the Highway 3 to the north, Scott Street to the west, Fertilizer Road to the east.

Based on our correspondence with the client, the following intersections will be analysed as part of the study:

a. Highway 3 / Scott Street
b. Highway 3 / Site Access

.

Figure 1 – Proposed Site Location and Study Area

1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Consult with the County and the Ontario Ministry of Transportation [MTO] to address any traffic-related issues or concerns they have with the proposed development;
- Determine existing traffic volumes and circulation patterns;
- Estimate future traffic volumes if the proposed development was not constructed, including the impact of additional proposed developments in the area;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete level-of-service [LOS] analysis of horizon year (without the proposed development) traffic conditions and identify operational deficiencies;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete LOS analysis of horizon year (with the proposed development) traffic conditions and identify additional operational deficiencies;
- Identify improvement options to address operational deficiencies;
- Review the proposed configuration of the Site Access driveway; and
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

A review of the traffic operation for the existing (2024), build-out year (2027), 5-year post build-out horizon year (2032), and 10-year post build-out horizon year (2037) has been selected for analysis. The weekday morning [AM] and weekday afternoon [PM] peak hours have been selected as the analysis periods for this study.

2 Information Gathering

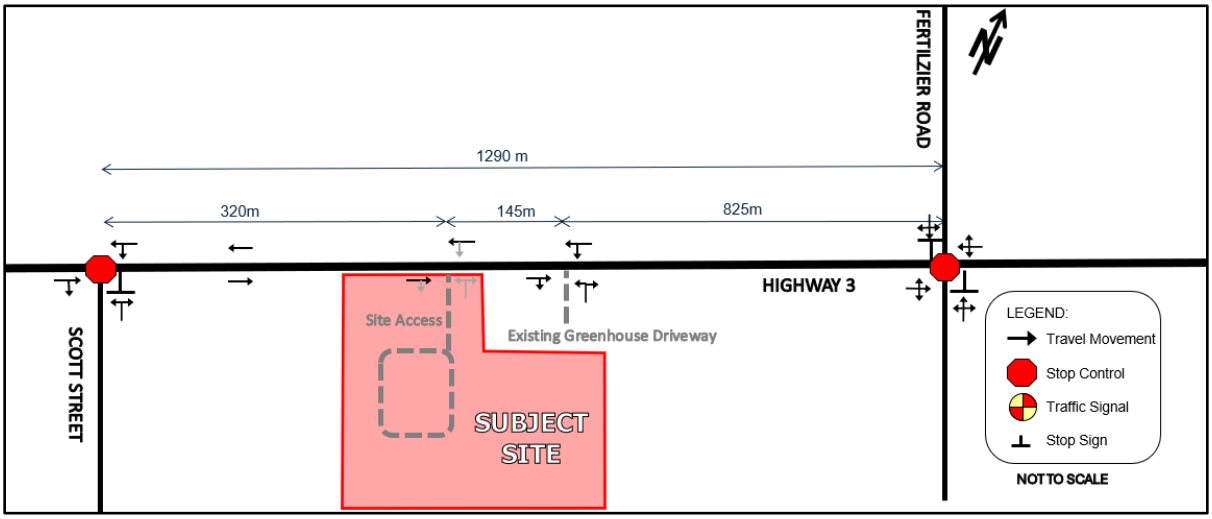
2.1 Street and Intersection Characteristics

Highway 3 is a Class 2B Arterial highway with a two-lane rural cross-section in the study area, providing one lane of travel per direction. The road is oriented east-west through the study area. The road has a posted speed limit of 80km/h within the study area and is under the jurisdiction of MTO.

Scott Street is classified as a municipal (local) road as per the Norfolk County Official Plan. The road is oriented north-south through the study area and has a two-lane rural cross-section, providing one lane of travel per direction. It has a posted speed limit of 50km/h and is under the jurisdiction of the County.

The existing intersection spacing and lane configuration within the study area is illustrated in **Figure 2.**

Figure 2 – Existing Intersection Lane Configuration within Study Area



2.2 Local Transportation Infrastructure Improvements

Based on the Norfolk County Official Plan (2023), there are no notable road improvements in the study area that will have a potential impact on local transportation capacity.

2.3 Transit Access

According to the Ride Norfolk transit map, there is no transit service available within the study area. The nearest transit service is located at the Delhi Golf Course area, which is approximately 2.8 kilometers north of the Subject Site.

2.4 Other Developments within Study Area

In review of the Town's development information and through discussions with County, the following developments have been noted for consideration with respect to impacts on the local traffic volumes and infrastructure capacity:

Geranium Development

The Geranium Development is approximately 55.32 hectares in area, with frontages along James Street, Wilson Avenue, Tisdale Drive, and St. Michael's Street. The Geranium Development is currently occupied by the Delhi Golf and Country Club, which provides 18 golf holes, a driving range, and restaurant/clubhouse/event space. The Geranium Development is on a site municipally known as 905 James Street and 76 Wilson Avenue and abuts the Delhi Urban Area and near the Gilbertville Settlement Area in Norfolk County. The Geranium Development includes 475 townhouse units, 120 semi-detached dwelling units, 129 common element condominium units and one retirement home with 150 units.

Ryder Subdivision

The Ryder Subdivision is located northwest of the James Street / Dalton Road intersection. The Ryder Subdivision will consist of 123 single detached dwellings and 248 townhouses.

Figure 3 shows the location of the above noted adjacent developments in relation to the Subject Site.

Appendix B contains the excerpts from the development applications for the above-noted adjacent development.

Figure 3– Adjacent Development Location

2.4.1 Traffic Generation for Adjacent Developments

The traffic generated for adjacent developments have been estimated based on the data provided in the Institute of Transportation Engineers [ITE] Trip Generation Manual (11th Edition) [ITE Trip Generation Manual]. The following ITE land use has been applied to estimate the traffic from the mentioned adjacent developments:

2.4.1.1 Geranium Development

The estimated trip generation and distribution from the *Geranium Development* is illustrated below in **Table 1**.

The study area does not have Transportation Tomorrow Survey Data and traffic impact studies are not available for the above-noted developments. Consequently, engineering judgement has been used to estimate the distribution of traffic. Based on the greater area, there are four main travel routes in and out of the community of Delhi:

1. **West** via Highway 3 towards the Tillsonburg area (and further to London);
2. **North** via County Road 59 towards the Woodstock area;
3. **Northeast** via County Roads 4/24 towards Brantford (and further to Hamilton); and
4. **South/East** via Highway 3 towards Simcoe (and further to Niagara).

Key commuter cities include Hamilton to the northeast, Cambridge/Kitchener to the north, Brantford to the north, and London to the west. There is minimal commuter traffic to the east that would use Highway 3, adjacent to our site. For the purpose of this analysis, it is conservatively assumed that 25% of the commuter traffic from the adjacent developments will use Highway 3, adjacent to the Subject Site.

Table 1- Estimated Traffic Generation and Distribution of *Geranium Property*

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Townhouse ITE Land Use: 215	475 units	57	171	228	160	111	271
Semi-Detached Housing ITE Land Use: 210	120 units	21	63	84	71	42	113
Common Element Condominium ITE Land Use: 222	129 units	9	26	35	26	15	41
Retirement home ITE Land Use:251	150 units	12	24	36	27	18	45
Total Trip Generation		**99**	**284**	**383**	**284**	**186**	**470**
Trip Distribution (25% via Highway 3 adjacent to Subject Site)		**25**	**71**	**96**	**71**	**47**	**118**

*Approximately 50% of the development are assumed to be occupied by horizon year 2027 and 100% occupied from horizon year 2032 onwards.

Figure 4 illustrates the traffic assignment by *Geranium Development* in the AM and PM peak hour.

2.4.1.2 Ryder Subdivision

The estimated trip generation and distribution from the *Ryder Subdivision* is illustrated below in **Table 2**. The distribution assumption used in the Geranium Development has also been applied to the Ryder Subdivision.

Table 2 – Estimated Traffic Generation and Distribution of the *Ryder Subdivision*

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Detached Family Housing ITE Land Use:210	123 units	22	64	86	73	43	116
Townhouse ITE Land Use:215	248 units	30	89	119	83	58	141
Total Trip Generation		**52**	**153**	**205**	**156**	**101**	**257**
Trip Distribution (25% via Highway 3 adjacent to Subject Site)		**13**	**38**	**51**	**39**	**25**	**64**

*Approximately 50% of the development are assumed to be occupied by horizon year 2027 and 100% occupied from horizon year 2032 onwards.

Figure 5 illustrates the traffic assignment by the *Ryder Subdivision,* in the AM and PM peak hour.

Figure 4 – Geranium Property - 2032 Traffic Assignment

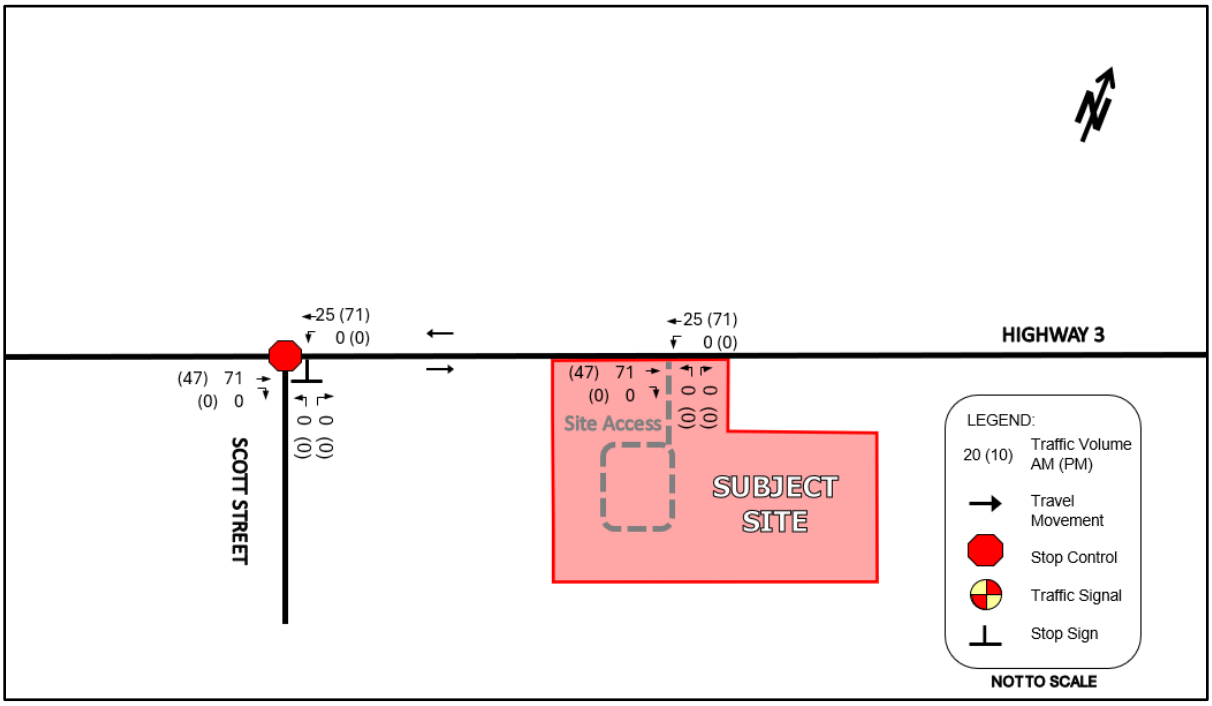
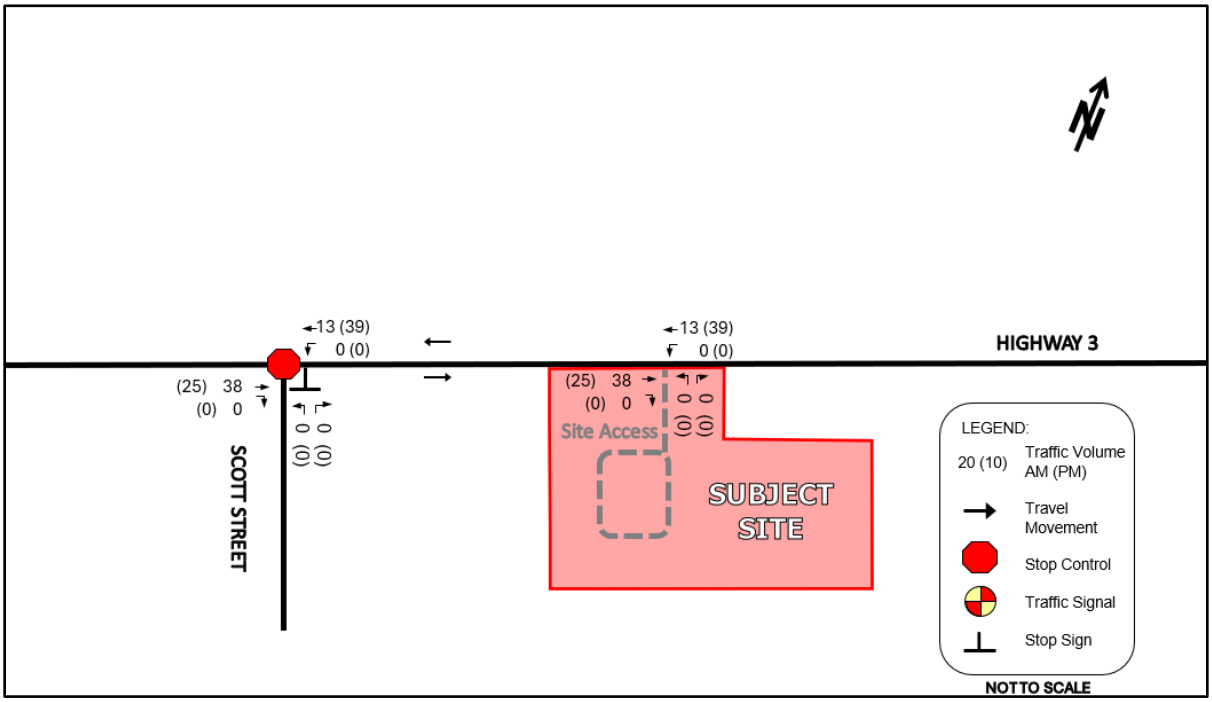


Figure 5 – Ryder Subdivision – 2032 Traffic Assignment



2.5 Background Traffic Growth

2.5.1 Population and Employment Growth

According to the 2021 Canadian Census, the enumerated population of Delhi, Norfolk County, was 5,344, representing an 5.42% increase from 2016. In 2016, the population was recorded at 5,069. This growth rate of 1.1% annually reflects Delhi's status as one of the fastest growing communities in Norfolk County.

2.5.2 Historic Traffic Growth

Based on the historical Average Annual Daily Traffic (AADT) data published by the MTO for the years 2014 to 2019, it is evident that AADT did not increase but instead declined by 0.2% over this period. **Table 3** below displays the annual growth rates derived from the MTO data for 2014 to 2019. Additionally, a seasonal factor of 123% (or 1.23) was calculated from the historical data.

Table 3-Historic Growth Rate from MTO data (2014-2019)

Year	Road Type	AADT	SADT	SAWDT	WADT	AADT growth	SADT growth	SAWDT growth	WADT growth
2014	IC	6600	7300	7250	5850				
2015	IC	6600	7300	7250	5850	0.0%	0.0%	0.0%	0.0%
2016	IC	6600	7300	7250	5850	0.0%	0.0%	0.0%	0.0%
2017	IC	6600	7250	7300	6000	0.0%	-0.7%	0.7%	2.6%
2018	IC	6600	7250	7300	5950	0.0%	0.0%	0.0%	-0.8%
2019	IC	6550	7200	7250	5900	-0.8%	-0.7%	-0.7%	-0.8%
AVERAGE		**6,592**	**7,267**	**7,267**	**5,900**	**-0.2%**	**-0.3%**	**0.0%**	**0.2%**

SADT/AADT	**110%**	(Summer vs Average)
SAWDT/WADT	**123%**	(Summer vs Winter)
SADT/SAWDT	**100%**	(no increase with addition of weekend traffic)

2.5.3 Background Traffic Growth and Seasonal Factor Assumption

Based on the historical Average Annual Daily Traffic (AADT) data published by MTO for the years 2014 to 2019, and following discussions with MTO, a background traffic growth rate of 2% was applied to Highway 3. This growth rate exceeds both the historic population growth for the area and the historical traffic growth on Highway 3.

Based on the development on Scott Street and the local road network, no background traffic growth has been applied on Scott Street.

Additionally, a seasonal factor of 1.22 has been applied to the December 2023 traffic counts for both Scott Street and Highway 3, as per discussions with MTO.

2.6 Traffic Counts

Detailed turning movements traffic and pedestrian counts were commissioned by JD Engineering for the Manitoba Street & Douglas Drive intersection. MTO RAQS Qualified AccuTraffic completed the counts on behalf of JD Engineering. **Table 4** summarizes the traffic count data collection information.

Table 4 - Traffic Count Data

Intersection (N-S Street / E-W Street)	Count Date	AM Peak Hour	PM Peak Hour	Source
Highway 3 & Scott Street	Tuesday, December 12th 2023	07:30 – 08:30	16:30 – 17:30	JD Eng.*
James Street & 525 Street North Access	Tuesday, December 12th 2023	07:45 – 08:45	16:00 – 17:00	JD Eng.*
James Street & 525 Street South Access	Tuesday, December 12th 2023	07:45 – 08:45	16:00 – 17:00	JD Eng.*

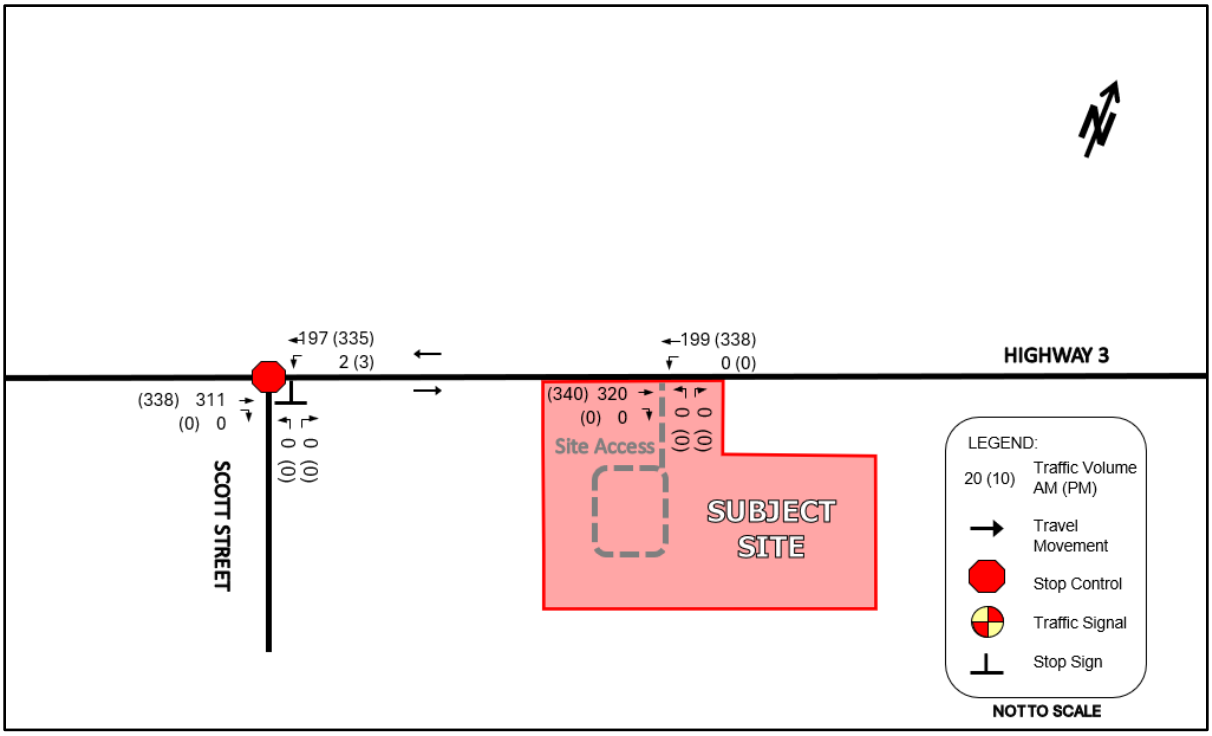
*Traffic counts were completed by Accu-Traffic Inc. on behalf of JD Engineering.

Detailed traffic count data can be found in **Appendix C**. The peak hours of traffic generation for the study area intersections generally aligned with the anticipated peak hour of traffic generation by the proposed development. Heavy vehicle percentages and pedestrian crossings from the traffic count data have also been included in the Synchro analysis.

2.7 Existing Traffic Volumes (2024)

The existing (2024) AM and PM peak hour traffic volumes in the study area are illustrated in **Figure 6**, established based on the conducted traffic counts.

Figure 6 - Existing (2024) Traffic Volumes



2.8 Horizon Year Traffic Volumes

The background (2027, 2032 and 2037) horizon year traffic volumes are illustrated in **Figure 7** through **Figure 9**. The background volumes are based on the existing (2024) traffic volumes, adjusted to reflect the annual background growth rate of 2% in addition to the noted adjacent development traffic volumes (outlined in Section 2.4) and also adjusted using a seasonal factor of 1.22.

Figure 7- Background (2027) Traffic Volumes

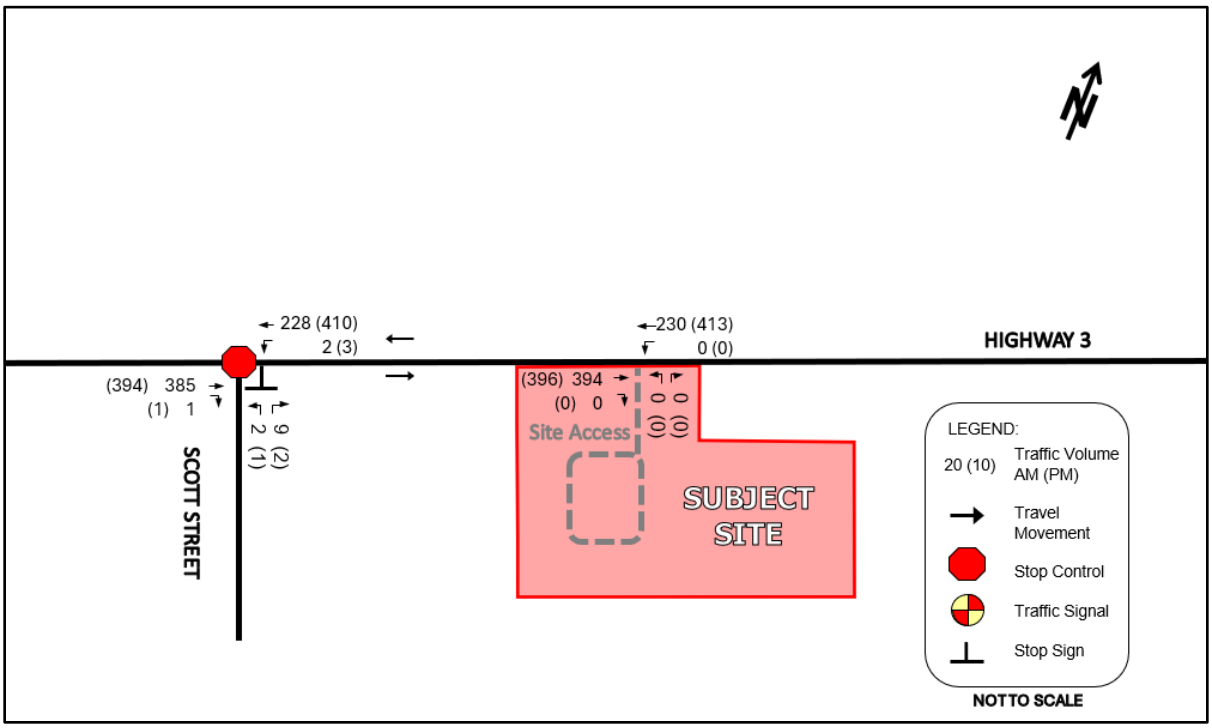


Figure 8 - Background (2032) Traffic Volumes

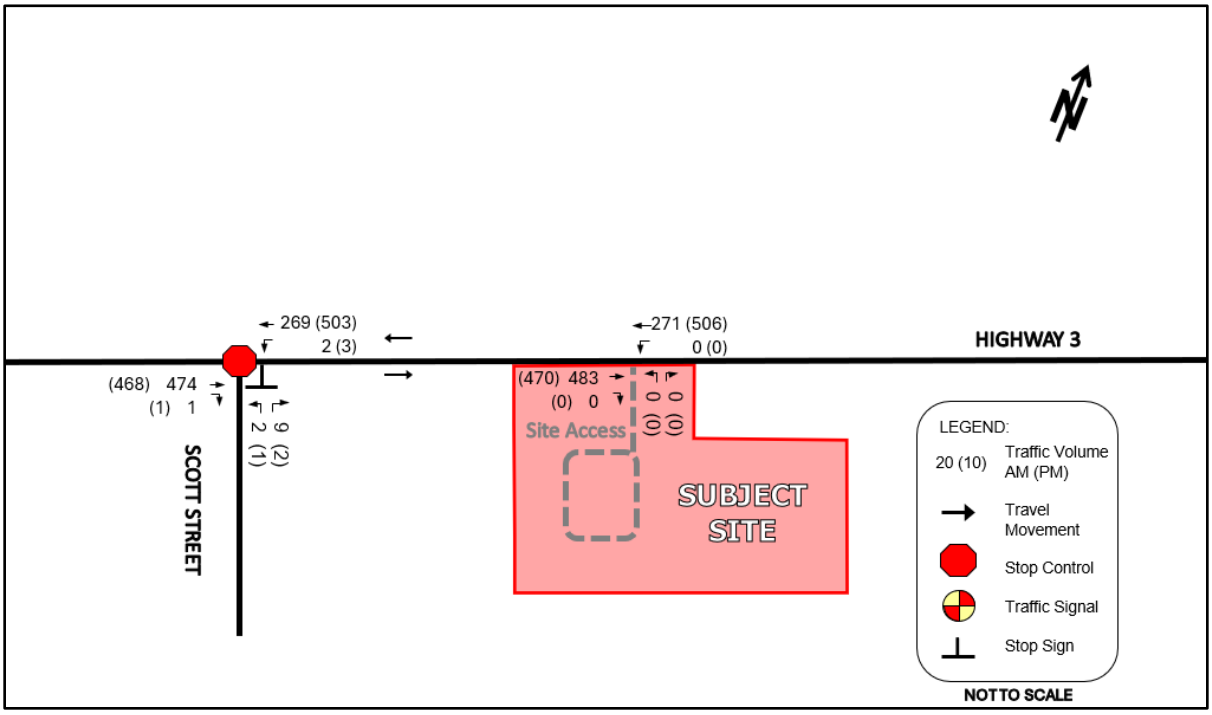
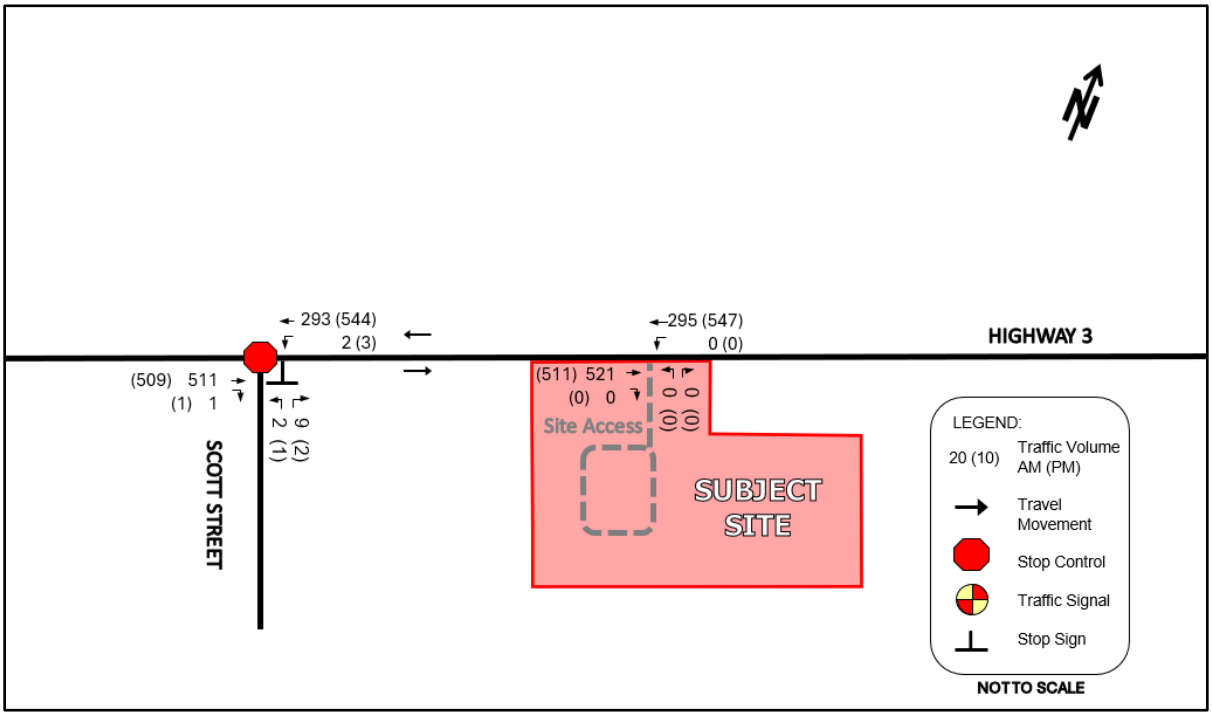


Figure 9 - Background (2037) Traffic Volumes



3 Intersection Operation without Proposed Development

3.1 Intersection Capacity Analysis Criteria

Intersection performance was measured using the traffic analysis software, Synchro 11, a deterministic model that employs Highway Capacity Manual and Intersection Capacity Utilization methodologies for analysing intersection operations. These procedures are accepted by provincial and municipal agencies throughout North America.

Synchro 11 enables the study area to be graphically defined in terms of streets and intersections, along with their geometric and traffic control characteristics. The user is able to evaluate both signalized and unsignalized intersections in relation to each other, thus not only providing level of service for the individual intersections, but also enabling an assessment of the impact the various intersections in a network have on each other in terms of spacing, traffic congestion, delay, and queuing.

The intersection operations were also evaluated in terms of the LOS. LOS is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e. less than 10 seconds per vehicle) and LOS F represents very high delay (i.e. greater than 50 seconds per vehicle for a stop sign controlled intersection and greater than 80 seconds per vehicle for a signalized intersection).

The LOS criteria for signalized and stop sign-controlled intersections are shown in **Table 5**. A description of traffic performance characteristics is included for each LOS.

Table 5 – Level of Service Criteria for Intersections

LOS	LOS Description	Control Delay (seconds per vehicle)	
		Signalized Intersections	**Stop Controlled Intersections**
A	Very low delay; most vehicles do not stop (**Excellent**)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (**Very Good**)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping **(Good**)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (**Satisfactory**)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of **acceptable** delay	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (**Unacceptable**)	greater than 80.0	greater than 50.0

3.2 Existing (2024) Intersection Operation

The results of the LOS analysis under existing (2024) traffic volumes during the AM and PM peak hours can be found below in **Table 6**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 6 - Existing (2024) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.20	0.3	A	-	-	0.22	0.1	A	-	-
EB	0.20	0.0	A	-	-	0.22	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.02	10.6	B	-	-	0.01	11.7	B	-	-

The results of the LOS analysis indicate that all movements at the study area intersections are operating within the typical design limits. No infrastructure improvements are recommended within the study area.

A review of the need for an auxiliary right turn lane at the Highway3 / Scott Street Intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott intersection based on the criteria outlined in Appendix 9A of the MTO Design Supplement [MTO DS]. Based on the above

noted criteria, the Existing 2024 PM Peak Hour traffic volume plots below the warrant curve. Therefore, a left turn lane is warranted in the intersection (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signal is not warranted at the Highway 3 / Scott St intersection.

3.3 Background (2027) Intersection Operation

The results of the LOS analysis under background (2027) traffic volumes during the AM and PM peak hours can be found below in **Table 7**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 7 - Background (2027) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.25	0.2	A	-	-	0.25	0.1	A	-	-
EB	0.25	0.0	A	-	-	0.25	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.02	11.3	B	-	-	0.01	12.7	B	-	-

The results of the LOS analysis indicate that all movements at the study area intersections are operating within the typical design limits. No infrastructure improvements are recommended within the study area.

A review of the need for an auxiliary right turn lane at the Highway3 / Scott Street Intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movement at the Highway 3 / Scott intersection, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Background 2027 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in this intersection (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott St intersection.

3.4 Background (2032) Intersection Operation

The results of the LOS analysis under background (2032) traffic volumes during the AM and PM peak hours can be found below in **Table 8**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 8 - Background (2032) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.30	0.2	A	-	-	0.30	0.1	A	-	-
EB	0.30	0.0	A	-	-	0.30	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.02	12.2	B	-	-	0.01	14.2	B	-	-

The results of the LOS analysis indicate that all movements at the study area intersections are operating within the typical design limits. No infrastructure improvements are recommended within the study area.

A review of the need for an auxiliary right turn lane at the Highway3 / Scott Street Intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott intersection, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Background 2032 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in this intersection (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott St intersection.

3.5 Background (2037) Intersection Operation

The results of the LOS analysis under background (2037) traffic volumes during the AM and PM peak hours can be found below in **Table 9**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 9 - Background (2037) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.33	0.2	A	-	-	0.33	0.1	A	-	-
EB	0.33	0.0	A	-	-	0.33	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.03	12.7	B	-	-	0.01	15.1	C	-	-

The results of the LOS analysis indicate that all movements at the study area intersections are operating within the typical design limits. No infrastructure improvements are recommended within the study area.

A review of the need for an auxiliary right turn lane at the Highway3 / Scott Street Intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott intersection, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Background 2037 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in this intersection (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott St intersection.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for the proposed industrial building was estimated based on a review of the existing business operations at the 525 James Street Site. The proposed industrial building will replace the existing facility at the 525 James Street Site and allow for further expansion of the business. Traffic counts were completed at the north access and south access at the 525 James Street Site on December 12, 2023. The CDN Building Operations only occupy a portion of the building, however a number of the other units are vacant. There is one unit that is occupied by a mortgage broker, however the traffic generation for this space is relatively limited. Consequently, it was conservatively assumed that all traffic entering and exiting from the North Access and South Access was related to the existing CDN Business Operations. Traffic generation calculations are provided in **Appendix E**. The AM, MID and PM peak hour traffic data from the 525 James Street Site is illustrated in the first row of the table.

The existing site employs 22 staff members (across manufacturing and office roles); however, the client anticipates an annual increase of approximately 3 staff members per year over the next 6-

years, ultimately reaching a total of 40 staff. As illustrated in the second row, it is conservatively assumed that the traffic generation for the proposed development will double with the increase from 22 to 40 staff members.

The greenhouse facility is going to be a wholesale greenhouse farm that will be producing strawberries, it be supplying one or two wholesale buyers who will pick-up twice a week from the greenhouse with a 48' refer van truck. There will be greenhouse staff of approx. six people, including one manager and five workers. The greenhouse manager already lives on site in the house out front. The five workers will be doing planting, crop maintenance, harvesting and packaging. Work hours will be from 07:00 to 16:30 Monday to Friday and periodically one to two staff will work from 08:00 to 12:00 on Saturday's. It is anticipated that there will be two to three deliveries per day and one pickup every other day. For the purpose of the analysis, we have conservatively assumed a total of 10 staff for the greenhouse facility which will all arrive in the AM peak hour and leave in the PM peak hour. We have assumed that half the staff will leave and return at noon for lunch. We have conservatively assumed that there will be four deliveries entering and existing in the AM peak hour and PM peak hour.

In order to check the above-noted assumptions, a review of the traffic generation for the proposed development using the ITE trip generation methodology was also completed. Traffic generation calculations are provided in **Appendix E**. Applying the Manufacturing Land-Use (ITE #140) resulted in a similar traffic generation for the industrial building; however, it resulted in a very high estimated traffic generation for the greenhouse facility, which we know will not occur. An alternative approach was considered using the Wholesale Nursery Land-Use (ITE #818) for the greenhouse facility. This approach resulted in an even higher traffic generation, which we know will not occur.

Based on this review, the first principles approach provides the best estimate for the traffic generation for the proposed development.

As noted in Section 2.5.2, a seasonal factor was applied to the traffic counts in the study area to reflect the change in traffic volume observed on Highway 3. The manufacturing component of the proposed development is not a seasonal business; therefore, a seasonal factor has not been applied to the traffic data from the 525 James Street Site.

As noted above, there are no notable weekend operations for the proposed manufacturing facility or the greenhouse facility, consequently, a Saturday analysis has not been included for this project.

A summary of the estimated trip generation for the proposed development is illustrated below in **Table 10.**

Table 10 – Estimated Traffic Generation of Proposed Development

Land Use	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Existing CDN Operations	11	5	16	3	15	18
Projected Growth of CDN Operations	11	5	16	3	15	18
Greenhouse Facility	14	4	18	4	14	18
Total Trip Generated	**36**	**14**	**50**	**10**	**44**	**54**

To be conservative, no transportation modal split reduction has been applied to the above-noted traffic generation calculation.

4.2 Traffic Assignment

For the purposes of this study, it has been assumed that all traffic generated by the proposed development will be new traffic and would not be in the study area if the development was not constructed.

As there is currently no Transportation Tomorrow Survey data is available for the study area; consequently, the traffic distribution for the proposed development was estimated based on the distribution of existing traffic on Highway 3 and a review of the travel routes in and out of the community of Delhi:

1. **West** via Highway 3 towards the Tillsonburg area (and further to London);
2. **North** via County Road 59 towards the Woodstock area;
3. **Northeast** via County Roads 4/24 towards Brantford (and further to Hamilton); and
4. **South/East** via Highway 3 towards Simcoe (and further to Niagara).

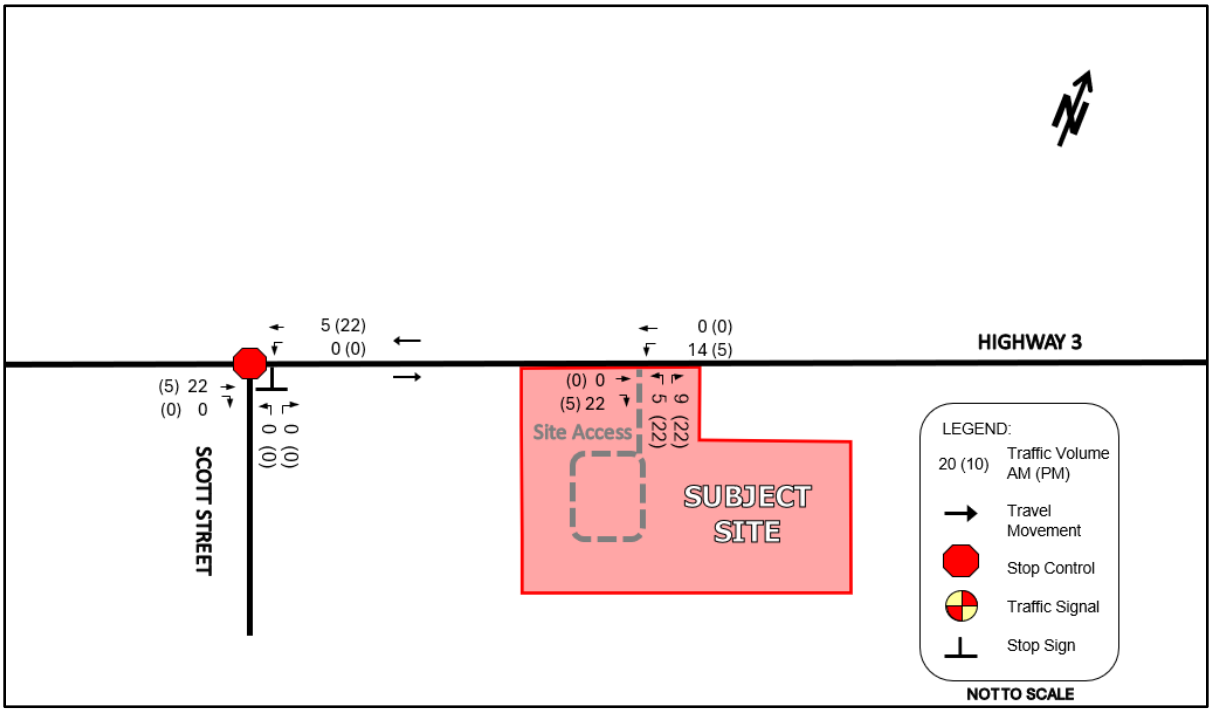
Table 11 illustrates the estimated traffic distribution of the subject site.

Table 11 – Proposed Development Traffic Distribution Summary

Travel Direction (to/from)	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
East	38%	62%	50%	50%
West	62%	38%	50%	50%
TOTAL	**100%**	**100%**	**100%**	**100%**

The traffic distribution patterns noted above were used to calculate the traffic assignment for the proposed development during the AM and PM peak hours. This assignment is illustrated in **Figure 10**.

Figure 10 - Traffic Assignment for Proposed Development



4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2027, 2032, and 2037) horizon year traffic volume, the proposed development traffic was added to the background (2027, 2032, and 2037) traffic volumes. The resulting total (2027, 2032 and 2037) horizon year traffic volumes for the AM and PM peak hour are illustrated in **Figure 11**, **Figure 12,** and **Figure 13** respectively.

Figure 11 - Total (2027) Traffic Volumes

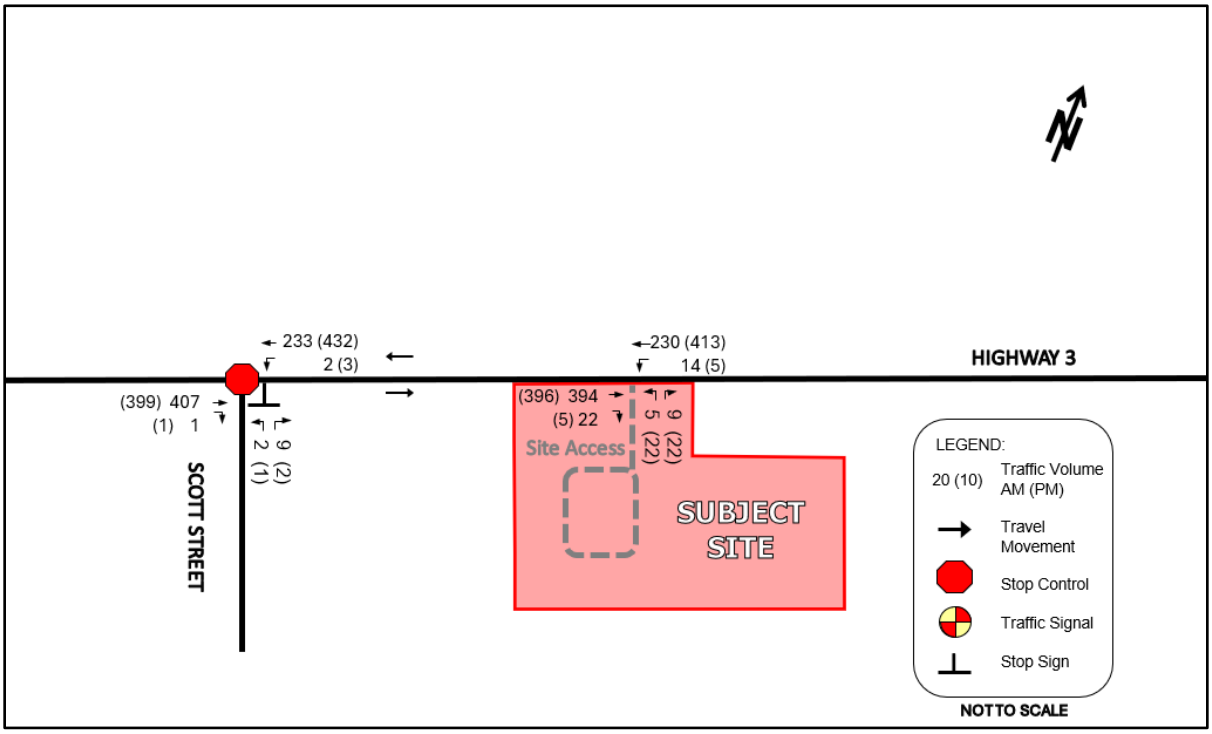


Figure 12 - Total (2032) Traffic Volumes

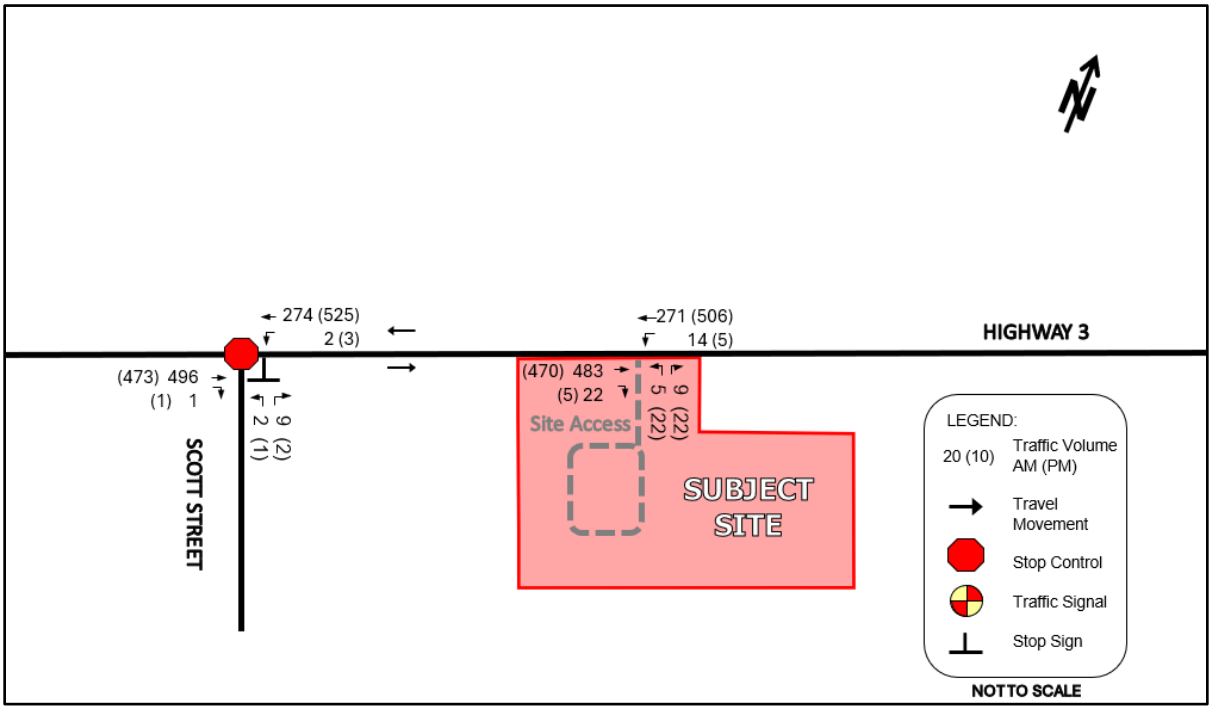
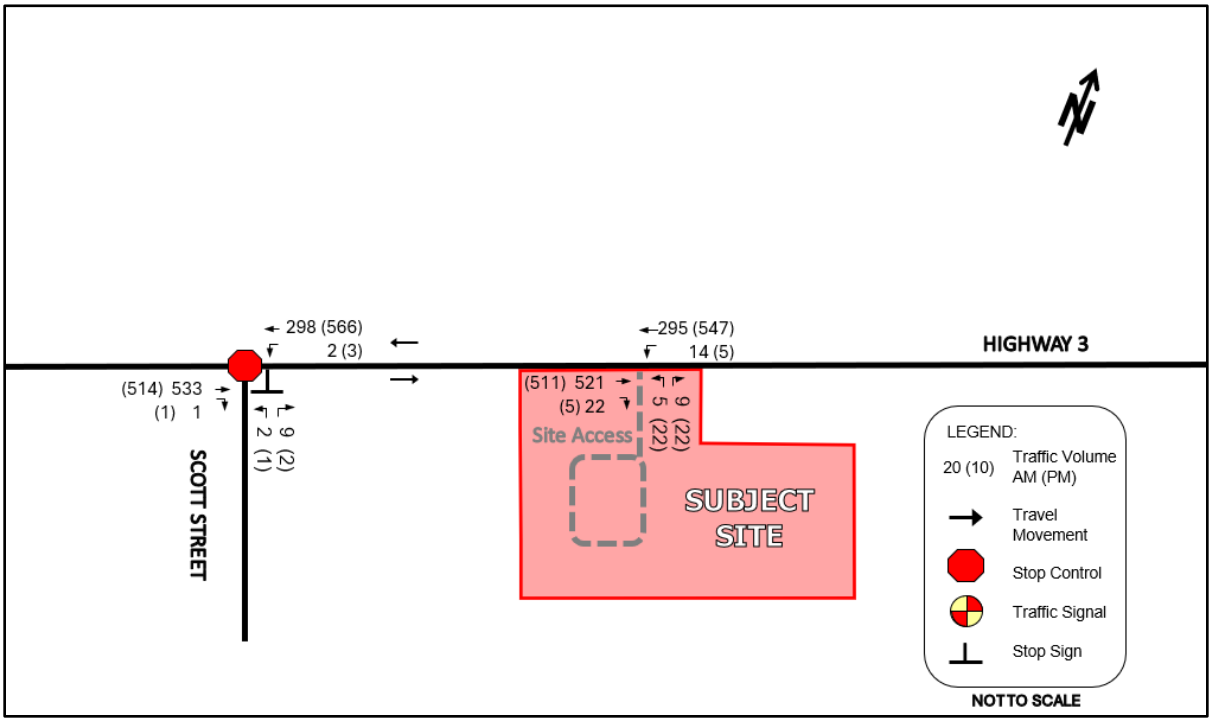


Figure 13 - Total (2037) Traffic Volumes



5 Intersection Operation with Proposed Development

5.1 Total (2027) Intersection Operation

The results of the LOS analysis under total (2027) traffic volumes during the AM and PM peak hours can be found below in **Table 12**. Existing intersection geometry and traffic control have been utilized for this scenario. Stop control has been assumed for the Site Access egress movement. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 12 - Total (2027) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.26	0.2	A	-	-	0.26	0.1	A	-	-
EB	0.26	0.0	A	-	-	0.26	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.02	11.5	B	-	-	0.01	12.9	B	-	-
Highway 3/ Site Access (unsignalized)	0.27	0.5	A	-	-	0.26	0.8	A	-	-
EB	0.27	0.0	A	-	-	0.26	0.0	A	-	-
WB	0.01	0.6	A	-	-	0.00	0.1	A	-	-
NB	0.03	12.2	B	-	-	0.12	14.8	B	-	-

The results of the LOS analysis indicate that all movements at the study area intersections are operating within the typical design limits.

A review of the need for an auxiliary right turn lane at Highway 3 / Scott Street intersection and Site Access was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott Street intersection and Site Access, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Total 2027 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott Street intersection and Site Access intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in these intersections (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott St intersection and Site access (results are provided in **Appendix F**).

The additional traffic generated by the proposed development can be accommodated by the existing road network. No infrastructure improvements are recommended within the study area.

5.2 Total (2032) Intersection Operation

The results of the LOS analysis under total (2032) traffic volumes during the AM and PM peak hours can be found below in **Table 13**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 13 - Total (2032) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.32	0.2	A	-	-	0.30	0.1	A	-	-
EB	0.32	0.0	A	-	-	0.30	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.02	12.5	B	-	-	0.01	14.4	B	-	-
Highway 3/ Site Access (unsignalized)	0.32	0.4	A	-	-	0.30	0.8	A	-	-
EB	0.32	0.0	A	-	-	0.30	0.0	A	-	-
WB	0.01	0.6	A	-	-	0.00	0.1	A	-	-
NB	0.03	13.4	B	-	-	0.14	17.4	C	-	-

The results of the LOS analysis indicate that the study area intersection movements are operating within the typical design limits.

A review of the need for an auxiliary right turn lane at Highway 3 / Scott St intersection and Site access was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott Street intersection and Site Access, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Total 2027 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott Street intersection and Site Access intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in these intersections (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott Street intersection and Site Access (results are provided in **Appendix F**).

The additional traffic generated by the proposed development can be accommodated by the existing road network. No infrastructure improvements are recommended within the study area.

5.3 Total (2037) Intersection Operation

The results of the LOS analysis under total (2037) traffic volumes during the AM and PM peak hours can be found below in **Table 14**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 14 - Total (2037) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Highway 3 / Scott Street (unsignalized)	0.34	0.2	A	-	-	0.33	0.1	A	-	-
EB	0.34	0.0	A	-	-	0.33	0.0	A	-	-
WB	0.00	0.1	A	-	-	0.00	0.1	A	-	-
NB	0.03	13.0	B	-	-	0.01	15.4	C	-	-
Highway 3/ Site Access (unsignalized)	0.35	0.4	A	-	-	0.33	0.8	A	-	-
EB	0.35	0.0	A	-	-	0.33	0.0	A	-	-
WB	0.02	0.5	A	-	-	0.00	0.1	A	-	-
NB	0.04	14.1	B	-	-	0.16	19.0	C	-	-

The results of the LOS analysis indicate that the study area intersection movements are operating within the typical design limits.

A review of the need for an auxiliary right turn lane at Highway 3 / Scott St intersection and Site access was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

An analysis was completed for left turn movements at the Highway 3 / Scott Street intersection and Site Access, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the above noted criteria, the Total 2027 PM Peak Hour traffic volume plots above the warrant curve. Since the volume of left turn movements is very low (less than 2.5% of advancing volume) and the traffic operation at the Highway 3 / Scott Street intersection and Site Access intersection show that there is significant excess capacity in the westbound direction, a westbound left turn lane is not warranted in these intersections (results are provided in **Appendix G**).

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 3 / Scott Street intersection and Site Access (results are provided in **Appendix F**).

The additional traffic generated by the proposed development can be accommodated by the existing road network. No infrastructure improvements are recommended within the study area.

5.4 Site Access & Intersection Spacing

The Site Access will operate efficiently as full-movement access driveways, with one-way stop control for northbound movements. A single southbound and northbound lane at the Site Access will provide the necessary capacity to service the proposed development.

The proposed spacing between the Site Access and Scott Street is 320 metres and the spacing between the Site Access and Fertilizer Road is 825 metres. Highway 3 is classified as a Provincial Arterial and designated as a Controlled Access Highway. In accordance with MTO's Highway Corridor Management Manual, any new or intensified commercial entrance must be located 1,600 metres from the nearest intersection or commercial access. The proposed location of the Site Access does not meet this criterion; however, the above-noted spacing is greater than the suggested minimum corner clearance requirements for a driveway as identified in the TAC Guidelines Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 20 metres for unsignalized condition.

The proposed spacing between the Site Access and the Existing Greenhouse Access is 145 metres, which is less than the above-noted the MTO Highway Management Corridor Manual requirement; however, it is greater than the suggested minimum corner clearance requirements for a driveway as identified in the TAC Guidelines Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 20 metres for unsignalized condition.

The proposed spacing between the Site Access and the existing residential driveway to the west is 120 metres, which is less than the above-noted MTO Highway Management Corridor Manual requirement; however, it is greater than the suggested minimum corner clearance requirements for a driveway as identified in the TAC Guidelines Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 20 metres for unsignalized condition.

Based on the results of the traffic impact study, traffic operations at the adjacent intersections and driveways will not impact traffic operations or traffic safety at the Site Access. The Site Access will convey a relatively low volume of traffic and there is no potential for the need for traffic signals at the Site Access. The proposed location of the Site Access is acceptable for the intended use.

5.5 Sight Distance Review

A review of the available sight distance for the proposed Site Access was completed as part of this analysis.

The sight distance east and west of the Site Access is greater than the minimum stopping sight distance requirements as identified in the Transportation Association of Canada *Design Guide for Canadian Roads* (2017) [TAC Guidelines] for a design speed of 100km/h (185 metres).

The sight distance west of Site Access is approximately 320 meters whereas east of Site Access is approximately 970 meters. The available sight distance is considered acceptable.

Consequently, there are no issues with the sight distance for the proposed Site Access driveway.

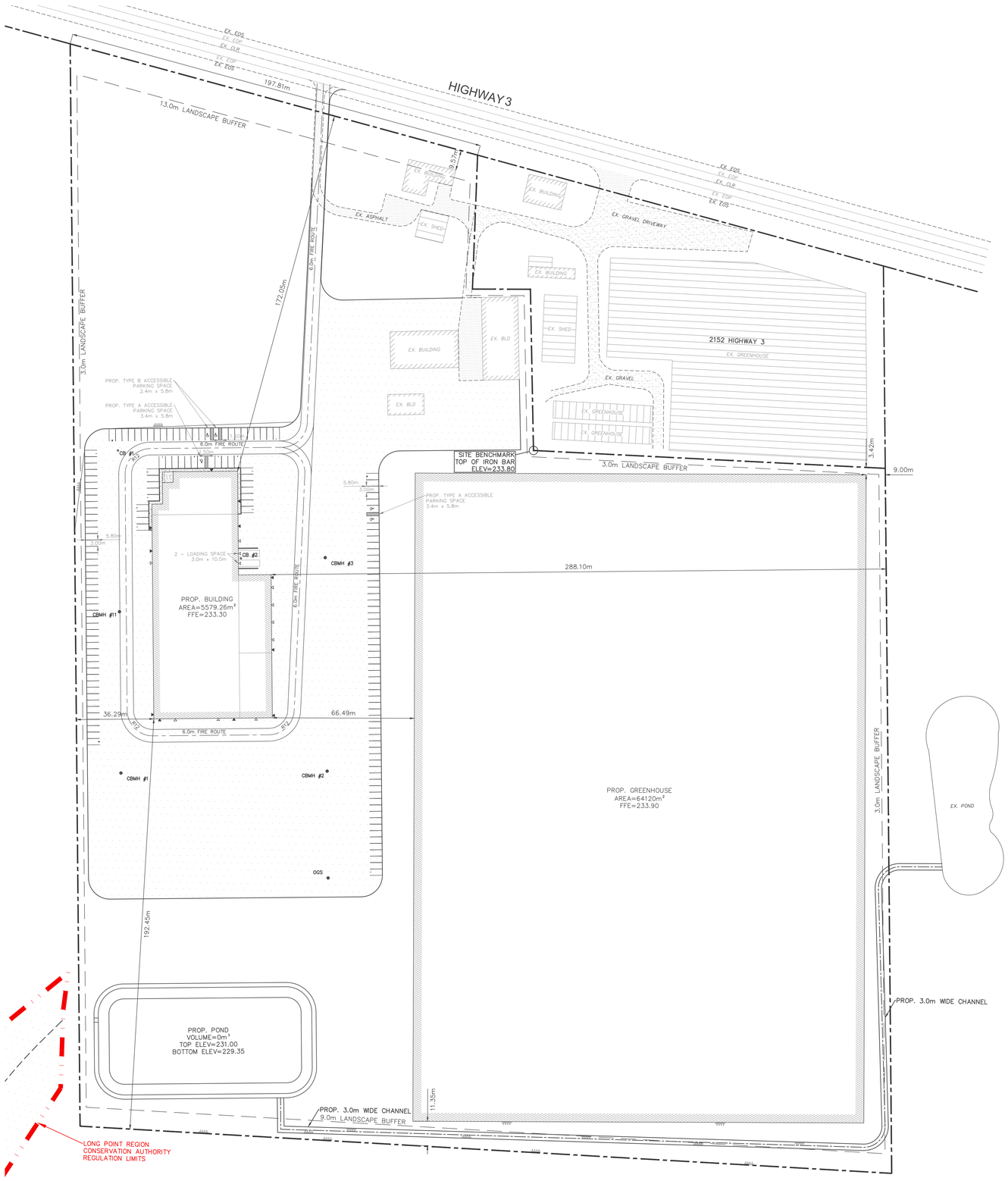
6 Summary

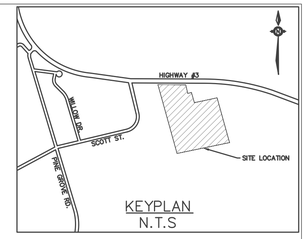
CDN Buildings retained **JD Engineering** to prepare this traffic impact study for the proposed development includes an expansion to the existing greenhouse and CDN industrial building moving from its existing location at 525 James Street are moving to the subject site (2148 Highway 3, Delhi) at Norfolk County. The existing CDN building has a Gross Floor Area (GFA) of 650,066 sq. ft., while the new warehouse has a GFA of 690,182 sq. ft. This chapter summarizes the conclusions and recommendations from the study.

1. The proposed development is expected to generate 50 AM and 54 PM new peak hour trips in the study area.
2. Detailed turning movement and pedestrian counts were completed for the intersection of Highway 3 / Scott Street; James Street / 525 James Street North Access; and James Street / 525 James Street South Access Tuesday, December 12th, 2023.
3. An intersection operational analysis was completed at the study area intersections, using the existing (2024) and background (2027, 2032 and 2037) traffic volumes, without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area roads and intersections.

5. An intersection operation analysis was completed under total (2027, 2032 and 2037) traffic volumes with the proposed development operational at the study area intersections. No additional geometric lane improvements or traffic signal improvements are recommended within the study area.
6. The proposed Site Access will operate efficiently with one-way stop control for northbound movements. A single lane for ingress and egress movements at Site Access will provide the necessary capacity to convey the traffic volume generated by the proposed development.
7. The location of the proposed Site Access driveway is considered appropriate for the intended use.
8. The sight distance available for the proposed Site Access driveway meets the minimum sight stopping and intersection sight distance and are suitable for the intended use.
9. In summary the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Appendix A –
Site Plan





KEYPLAN
N.T.S

LEGEND

- PRIVACY FENCE
- ACOUSTIC FENCE
- CHAIN LINK FENCE
- SILT FENCE
- GAS LINE
- HYDRO LINE
- BELL LINE
- EXISTING SANITARY MAINTENANCE HOLE
- PROPOSED SANITARY MAINTENANCE HOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING STORM MAINTENANCE HOLE
- PROPOSED STORM MAINTENANCE HOLE
- SERVICE CAP
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING VALVE BOX
- PROPOSED VALVE BOX
- PROPOSED SIGN
- EXISTING LIGHT POLE
- MANDOOR
- OVERHEAD DOOR
- FIRE DEPT CONNECTION
- LANDSCAPE AREA
- LIGHT DUTY ASPHALT AREA
- HEAVY DUTY ASPHALT AREA
- GRAVEL AREA

2148 Highway #3, Dehli, ON N4B 2W4			
Agricultural Zone (A)		Required	Provided
Minimum Lot Area		400000m²	156795m²
Minimum Lot Frontage		30.00m	197.81m
Front Yard		13.00m	172.05m
Interior Side Yard	East	3.00m	288.10m
Interior Side Yard	West	3.00m	36.29m
Rear Yard		9.00m	11.35m
Building Height		11.0m	< 11.0m
G.F.A. (Max.)		-------	69700m²
Parking Standards (min.)	3.0m X 5.8m	156	156
Barrier Free Parking		5	5
Loading Spaces	-	-	2

Occupancy Type	Calculation Requirement	GFA	Spaces Required
Office	1 space per 30m²	1363.00m²	45
Industrial Area	1 space per 90m²	4217.00m²	47
Greenhouse - Warehouse	1 space per 1000m²	64120.00m²	64
Barrier Free Spaces	134-166 Required Spaces		
	Type A - 3.4m x 5.8m		2
	Type B - 2.4m x 5.8m		3
Loading Spaces	N/A	N/A	N/A

Lot Area	156795.00m²
Existing Building Area	1810.00m²
Proposed Building Area	69700.00m²
Total GFA	71510.00m²
Hardscaped Area	33290.00m²

Gerrits ENGINEERING
222 Mapleview Drive West, Suite 300
Barrie, ON L4N 9E7 Canada
Tel.:705.737.3303
Fax.: F.705.737.1772
www.gerreng.com

No.	Issuance Description	YY/MM/DD
1.	CLIENT REVIEW	23/03/08
2.		

Issued For:
CLIENT REVIEW

Client
CDN BUILDINGS
523 James St., Unit 3, Delhi, ON N4B 2C2

Project
HWY #3 DELHI
2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing:
SITE PLAN

Project No.	1121-012-22	Designed by: RM	Checked by: KF
Scale:	1:1000	Drawn by: RM	Approved by: JDM

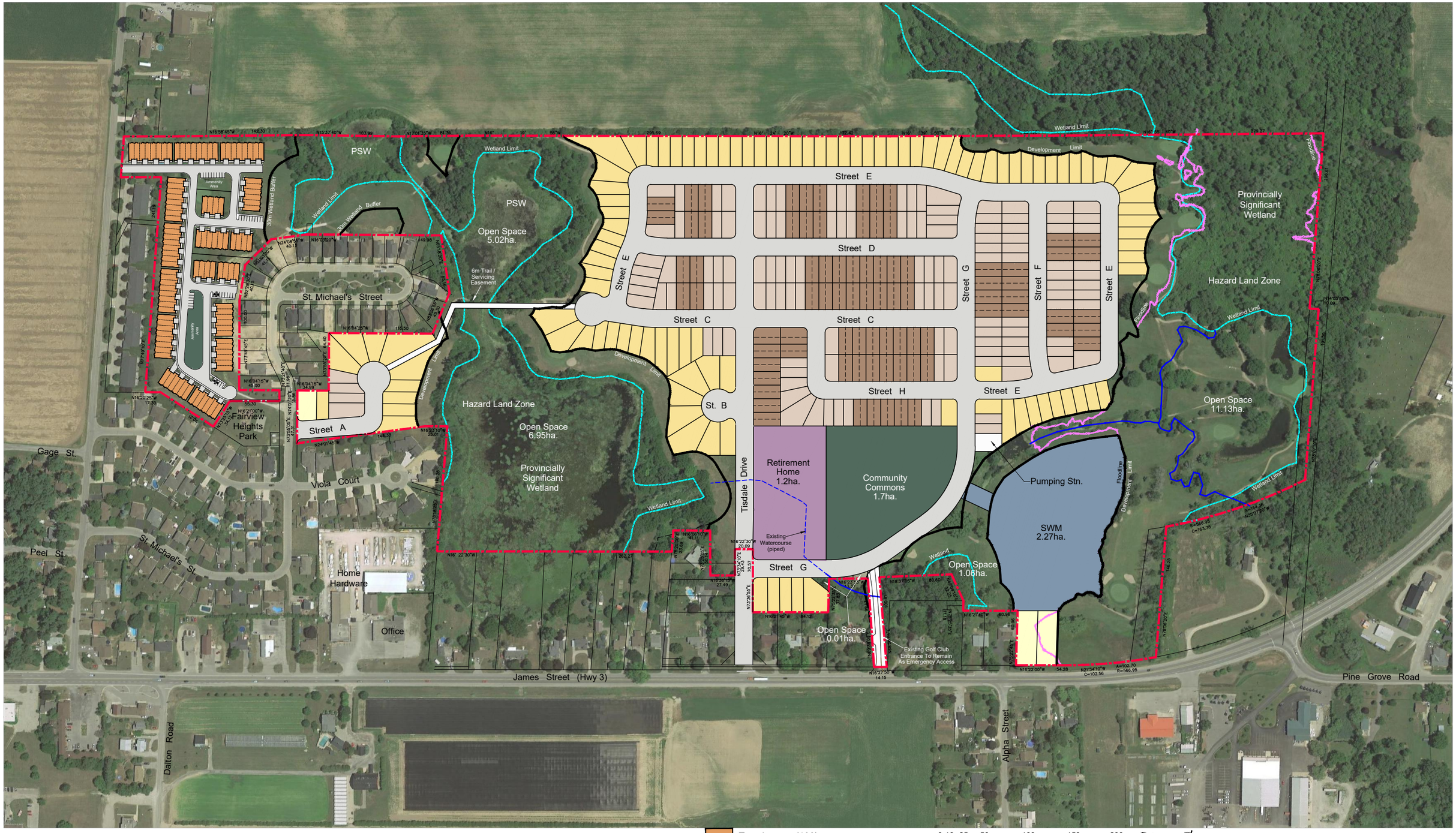
Orientation

Stamp

Drawing No.
A-100

SAVED: X:\11000\1121 CDN Buildings\1121-012-22 2148 HWY #3 Delhi\DWGS_Civil\1121-012-22 LAYOUT, 3/8/2023 11:22:37 AM , KFILION PRINTED: 3/8/2023 1:57:46 PM, A-100, KFILION

Appendix B –
Adjacent Development Excerpts



Delhi Development Inc.

DEVELOPMENT CONCEPT

Delhi Golf & Country Club

Site Area: 55.32ha. (136.7ac.)
Developable Area: 29.73ha. (73.4ac)
No. of Lots / Units: 664

- Townhouses (108)
- 25' Semi Detached Lots (166)
- 36' Lots (131)
- 44' Lots (106)
- 60' Lots (3)
- Retirement Home (150)

0 10 25 50 100 150 200
Metres

NOTE: This concept should be considered as a preliminary demonstration model that illustrates an 'order of magnitude' development scenario for the site and is subject to municipal planning approvals.

Scale 1:4,000 | January 30, 2023 | Project No.: 21208 | Drawn By: SL

GSP group

Attachment A - Report CD 23-90

Development Application Overview

Northeast corner of Croton Avenue and Dalton Road(Ryder Subdivision), Delhi

Application File Numbers: 28TPL2023316 & ZNPL2023320

Applicant: 1000011047 Ontario Inc.

Agent: G. Douglas Vallee Limited

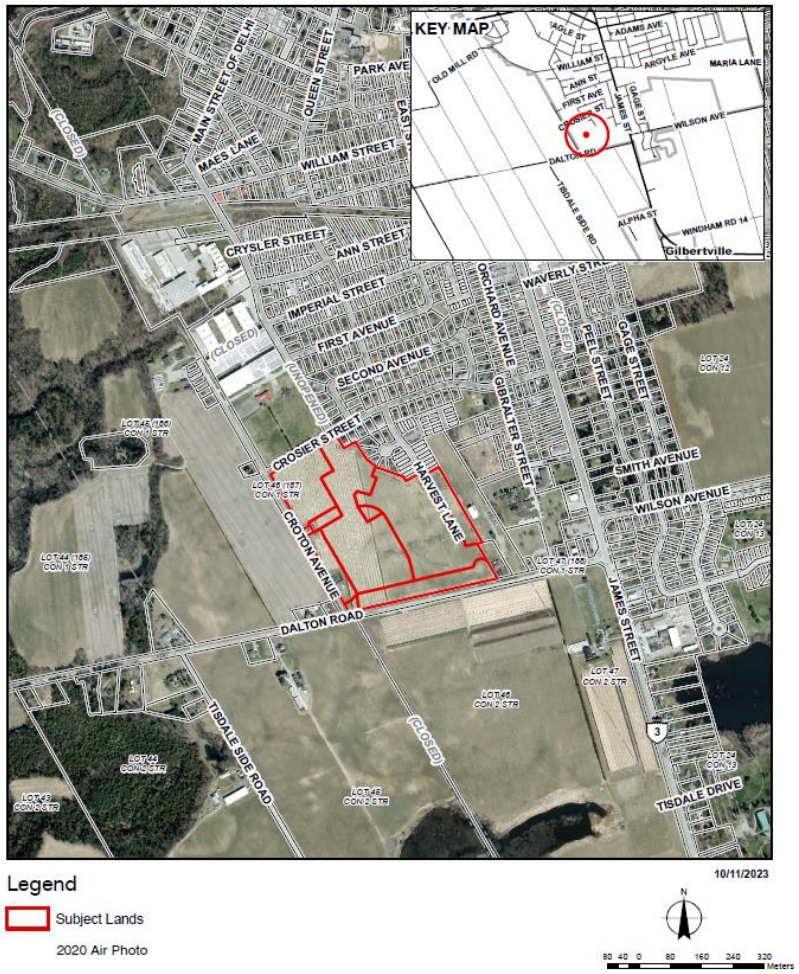
Statutory Public Hearing

Date: November 7th, 2023

Site Context

MAP A
CONTEXT MAP
Urban Area of DELHI

28TPL2023316
ZNPL2023320



Site Characteristics:

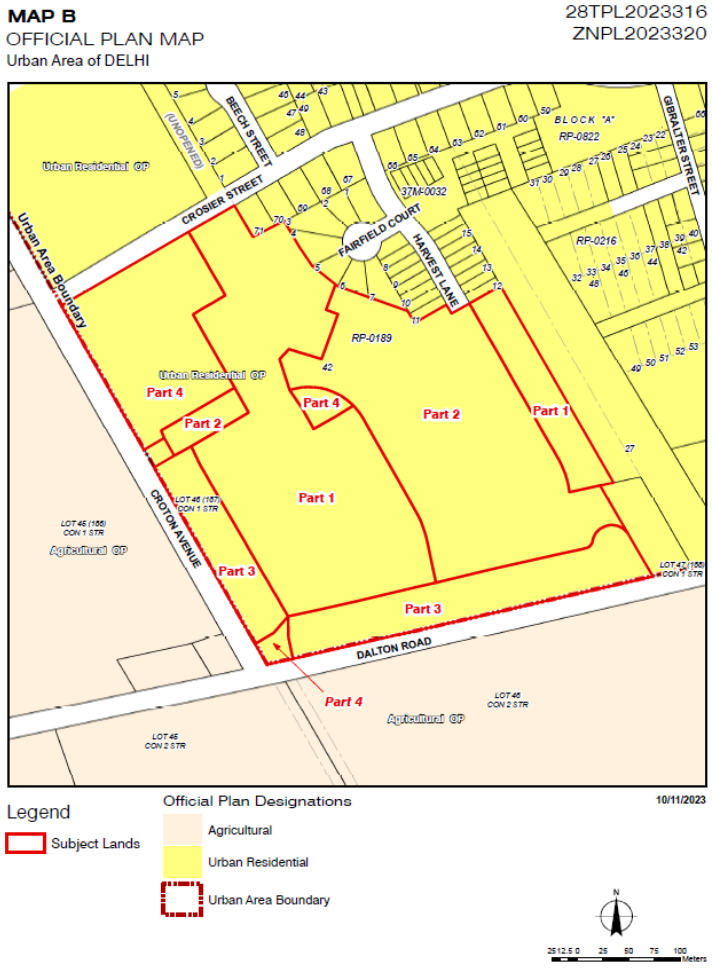
- 14.82 ha (36 acres)
- Located at the intersection of Croton Avenue and Dalton Road, Delhi
- Located within the Urban Area of Delhi.
- The subject lands are currently vacant.

Surrounding Land:

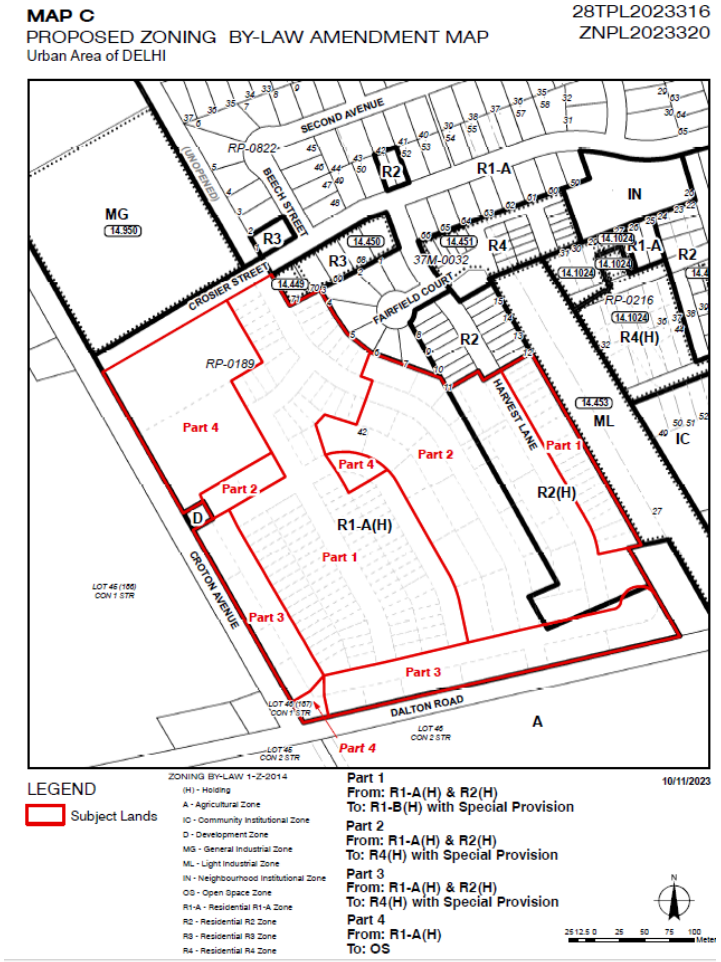
North: Residential
East: Residential, long term care, commercial
West: Agricultural, single detached dwellings
South: Agricultural**,** single detached dwellings

Site Context

Official Plan Map

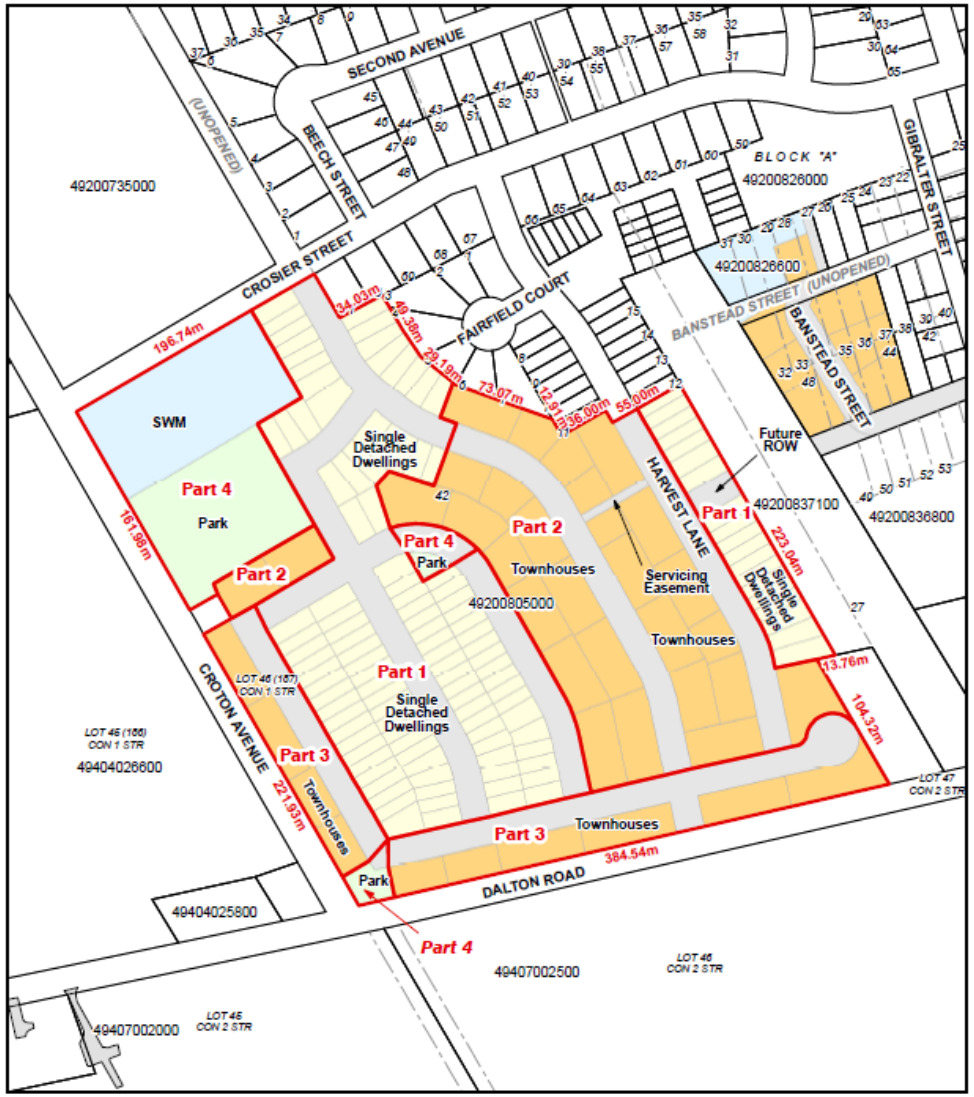


Proposed Zoning By-law Amendment Map



Development Proposal

Concept Plan



Key Features/Proposed Subdivision:

- Single Detached Dwelling: 123 lots
- Standard Street Townhouse: 183 units
- Dual-Frontage Townhouse: 65 Units

- Storm Water Management Pond: 1.03 ha (2.54 acres)
- Parkland: 1.02 ha (2.53 acres)
- Future Connection Block: 700sqm

Proposed Zoning Amendment

- **Part 1:** Change the existing zoning from Urban Residential Type 1 (R1-A) and Urban Residential Type 2 (R2) to Urban Residential Type 1 (R1-B) for Single Detached dwellings with a special provision for reduced lot area, lot frontage, and yard provisions.

- **Part 2:** Change the existing zoning from R1-A and R2 to Urban Residential Type 4 (R4) for Street Townhouses with a special provision for reduced lot area, lot frontage, and yard provisions.

- **Part 3:** Change the existing zoning from R1-A and R2 to R4 with a special provision to permit Dual Frontage Townhouses and for reduced lot area, lot frontage, and yard provisions.

- **Part 4:** Change the existing zoning from R1-A to Open Space (OS) to permit the establishment of a public park/open Space and stormwater management pond.

Preliminary Review

Technical Reports:

- Planning Justification Report (G. Douglas Vallee Limited, September 2023)
- Traffic Impact Study (Paradigm,September, 2023)
- Functional Servicing Report, (G. Douglas Vallee Limited, September 2023)
- Phasing Plan (G. Douglas Vallee Limited, September 2023)
- Zoning Map (G. Douglas Vallee Limited, September 2023)
- Draft Plan of Subdivision (G. Douglas Vallee Limited, September 2023)
- Concept Elevation Plan (Big Sky)

Technical Comments:

Technical Comments Pending.

Public Input:

No public comments received at this time.

Preliminary Considerations

Key Items		Preliminary Review
Housing		The subject lands are currently vacant. The applicant is proposing to construct an 371 residential lot subdivision consisting of single detached and townhouse dwellings. The overall density proposed is 25 UPH.
Parks		The proposed development incorporates a storm water management pond and park space for future local residents. The Parkland Dedication and/or cash-in-lieu of Parkland will be determined in accordance with the Parkland Dedication By-law 2016-126.
Traffic		No physical improvements are warranted by the report for this 371-unit development as traffic is considered with an acceptable level of service under existing and future time horizons to 2036.
Servicing		Allocation of water and sanitary services will not be confirmed or committed until a development agreement is processed and executed.
Parking		Further review will be needed to evaluate the reduced lots frontages to confirm enough on-street parking can be accommodated.

Next Steps & Recommendation

- Consideration of Public Hearing Input
- Review of all Technical Comments
- Recommendation Report

Public Hearing Committee Report Recommendation:

THAT staff Report CD 23-090 for development applications 28TPL2023316 and ZNPL2023320 be received for information;

AND FURTHER THAT any comments received as part of the statutory public meeting be considered in a future recommendation staff report.

Appendix C –
Traffic Count Data

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Norfolk
Site #: 2327300001
Intersection: Highway 3 & Scott St
TFR File #: 1
Count date: 12-Dec-23

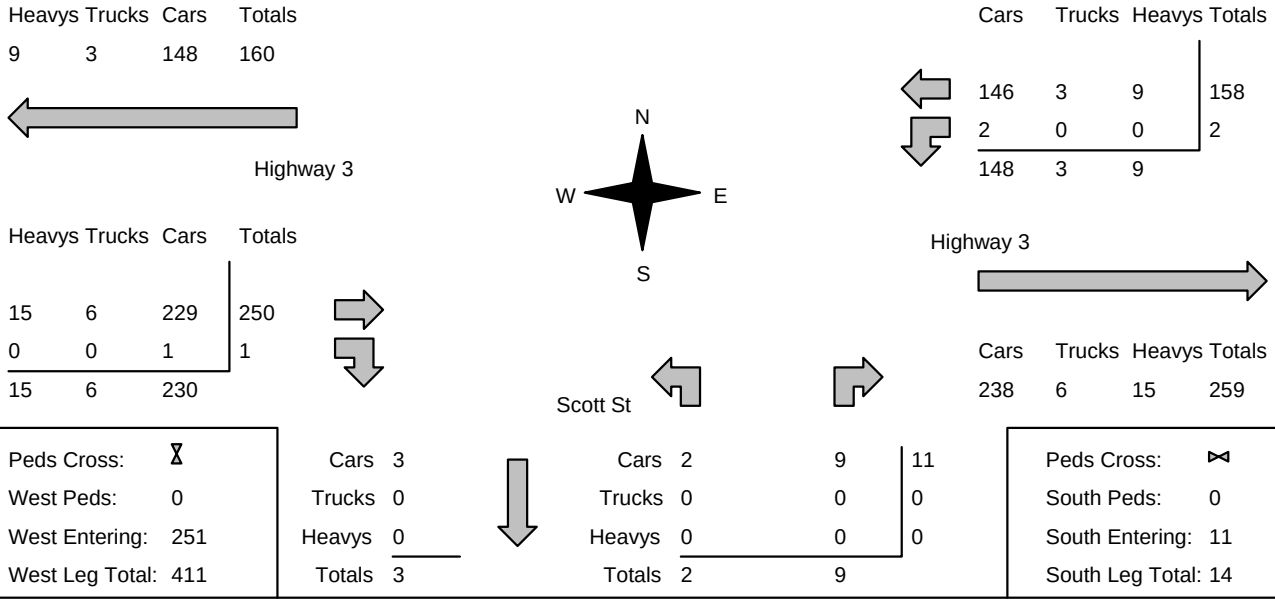
Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Highway 3 runs W/E

East Leg Total: 419
East Entering: 160
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 251
West Leg Total: 411

Cars 3
Trucks 0
Heavys 0
Totals 3

Cars 2 9 11
Trucks 0 0 0
Heavys 0 0 0
Totals 2 9

Peds Cross: ⋈
South Peds: 0
South Entering: 11
South Leg Total: 14

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:30:00
To: 13:30:00

Municipality: Norfolk
Site #: 2327300001
Intersection: Highway 3 & Scott St
TFR File #: 1
Count date: 12-Dec-23

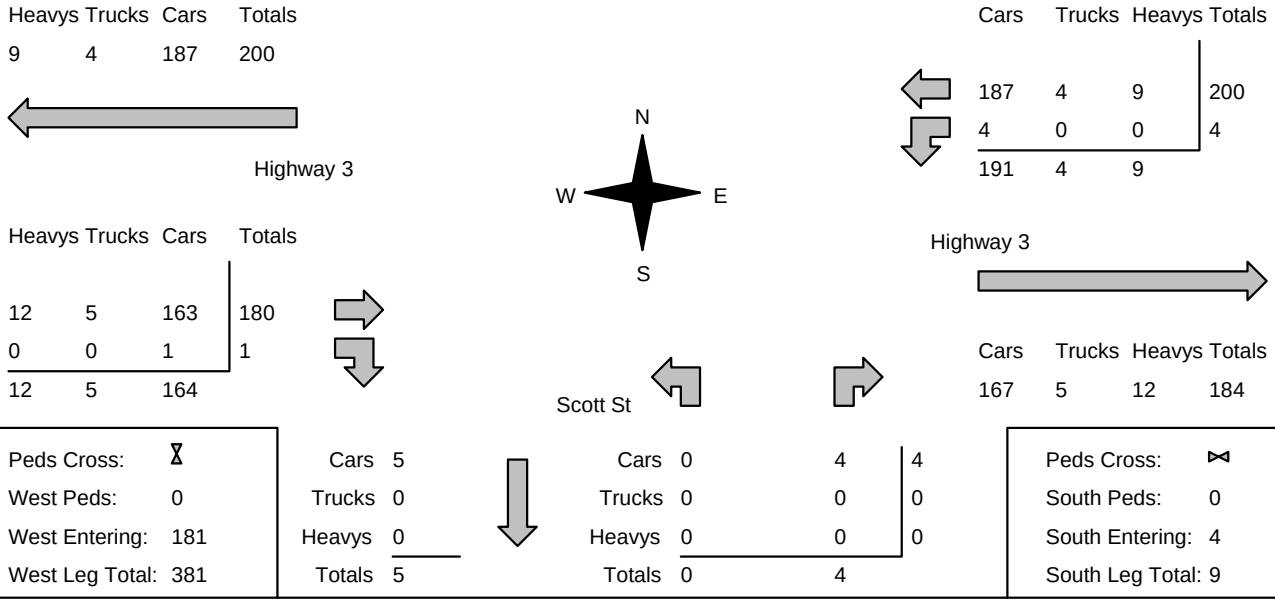
Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Highway 3 runs W/E

East Leg Total: 388
East Entering: 204
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 181
West Leg Total: 381

Cars 5
Trucks 0
Heavys 0
Totals 5

Cars 0 4 4
Trucks 0 0 0
Heavys 0 0 0
Totals 0 4

Peds Cross: ⋈
South Peds: 0
South Entering: 4
South Leg Total: 9

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Norfolk
Site #: 2327300001
Intersection: Highway 3 & Scott St
TFR File #: 1
Count date: 12-Dec-23

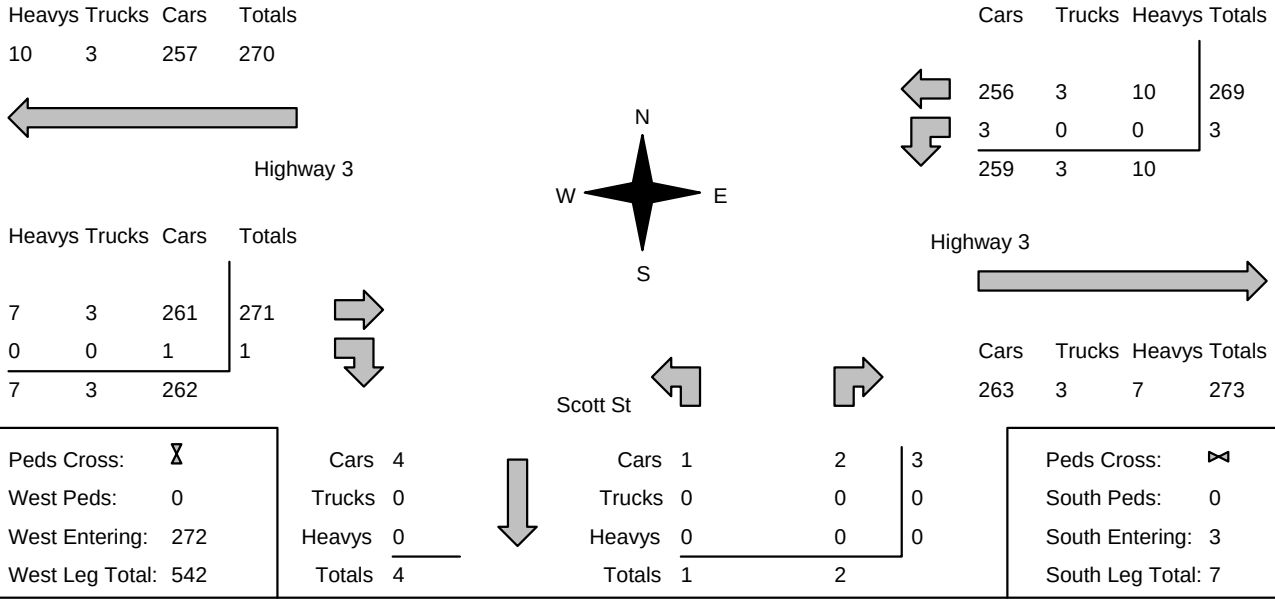
Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Highway 3 runs W/E

East Leg Total: 545
East Entering: 272
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 272
West Leg Total: 542

Cars 4
Trucks 0
Heavys 0
Totals 4

Cars 1 2 3
Trucks 0 0 0
Heavys 0 0 0
Totals 1 2

Peds Cross: ⋈
South Peds: 0
South Entering: 3
South Leg Total: 7

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

Municipality: Norfolk
Site #: 2327300001
Intersection: Highway 3 & Scott St
TFR File #: 1
Count date: 12-Dec-23

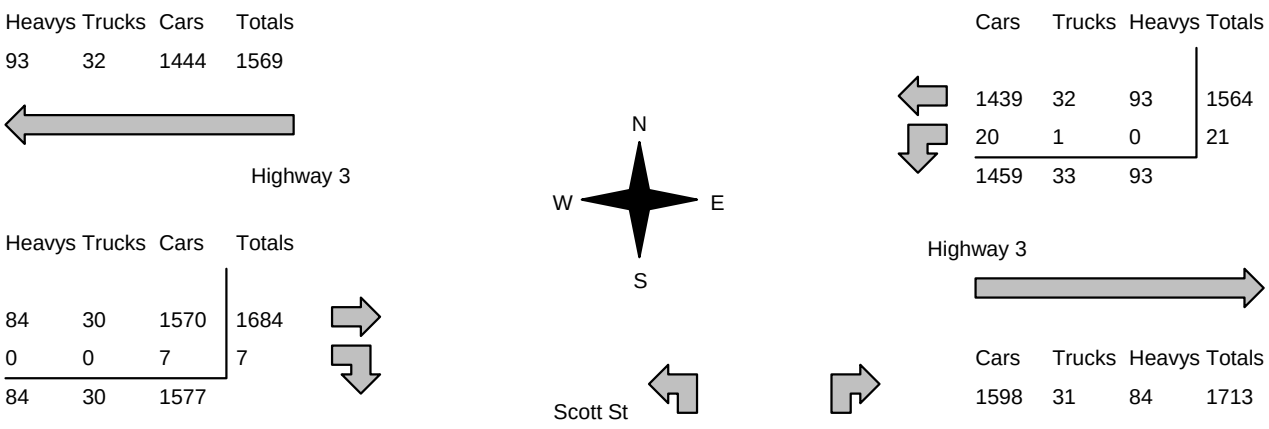
Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Highway 3 runs W/E

East Leg Total: 3298
East Entering: 1585
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 1691
West Leg Total: 3260

Cars 27
Trucks 1
Heavys 0
Totals 28

Cars 5 28 33
Trucks 0 1 1
Heavys 0 0 0
Totals 5 29

Peds Cross: ⋈
South Peds: 0
South Entering: 34
South Leg Total: 62

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: Highway 3 & Scott St | **Count Date:** 12-Dec-23 | **Municipality:** Norfolk

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	0	0	0	0

North/South Total Approaches: 34

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	2	0	5	7	0
9:00:00	0	0	6	6	0
11:00:00	0	0	0	0	0
12:00:00	1	0	1	2	0
13:00:00	0	0	4	4	0
14:00:00	1	0	3	4	0
16:00:00	0	0	0	0	0
17:00:00	0	0	3	3	0
18:00:00	1	0	2	3	0
19:00:00	0	0	5	5	0
S Totals:	5	0	29	34	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	146	0	146	0
9:00:00	3	163	0	166	0
11:00:00	0	0	0	0	0
12:00:00	2	188	0	190	0
13:00:00	1	169	0	170	0
14:00:00	3	191	0	194	0
16:00:00	0	0	0	0	0
17:00:00	3	249	0	252	0
18:00:00	5	284	0	289	0
19:00:00	4	174	0	178	0
Totals:	21	1564	0	1585	0

East/West Total Approaches: 3276

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	218	1	219	0
9:00:00	0	246	0	246	0
11:00:00	0	0	0	0	0
12:00:00	0	189	1	190	0
13:00:00	0	193	2	195	0
14:00:00	0	180	1	181	0
16:00:00	0	0	0	0	0
17:00:00	0	258	0	258	0
18:00:00	0	234	2	236	0
19:00:00	0	166	0	166	0
W Totals:	0	1684	7	1691	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	11:00	12:00	13:00	14:00	18:00
Crossing Values:	0	2	0	0	1	0	1	1

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	28	28	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0
7:30:00	0	0	65	37	0	0	0	0	3	2	0	0	0	0	5	3	0	0	0	0
7:45:00	0	0	101	36	0	0	0	0	3	0	0	0	0	0	8	3	0	0	0	0
8:00:00	0	0	133	32	0	0	0	0	3	0	0	0	0	0	10	2	0	0	0	0
8:15:00	1	1	173	40	0	0	0	0	5	2	0	0	0	0	13	3	0	0	0	0
8:30:00	2	1	211	38	0	0	0	0	6	1	0	0	0	0	14	1	0	0	0	0
8:45:00	2	0	239	28	0	0	0	0	7	1	0	0	0	0	18	4	0	0	0	0
9:00:00	3	1	277	38	0	0	0	0	10	3	0	0	0	0	22	4	0	0	0	0
9:15:00	3	0	277	0	0	0	0	0	10	0	0	0	0	0	22	0	0	0	0	0
11:00:00	3	0	277	0	0	0	0	0	10	0	0	0	0	0	22	0	0	0	0	0
11:15:00	4	1	321	44	0	0	0	0	12	2	0	0	0	0	25	3	0	0	0	0
11:30:00	5	1	360	39	0	0	0	0	12	0	0	0	0	0	29	4	0	0	0	0
11:45:00	5	0	410	50	0	0	0	0	13	1	0	0	0	0	32	3	0	0	0	0
12:00:00	5	0	446	36	0	0	0	0	16	3	0	0	0	0	35	3	0	0	0	0
12:15:00	5	0	477	31	0	0	0	0	16	0	0	0	0	0	39	4	0	0	0	0
12:30:00	5	0	508	31	0	0	0	0	18	2	0	0	0	0	39	0	0	0	0	0
12:45:00	5	0	552	44	0	0	0	0	19	1	0	0	0	0	41	2	0	0	0	0
13:00:00	6	1	602	50	0	0	0	0	20	1	0	0	0	0	44	3	0	0	0	0
13:15:00	7	1	650	48	0	0	0	0	21	1	0	0	0	0	45	1	0	0	0	0
13:30:00	9	2	695	45	0	0	0	0	22	1	0	0	0	0	48	3	0	0	0	0
13:45:00	9	0	738	43	0	0	0	0	23	1	0	0	0	0	51	3	0	0	0	0
14:00:00	9	0	780	42	0	0	0	0	24	1	0	0	0	0	53	2	0	0	0	0
14:15:00	9	0	780	0	0	0	0	0	24	0	0	0	0	0	53	0	0	0	0	0
16:00:00	9	0	780	0	0	0	0	0	24	0	0	0	0	0	53	0	0	0	0	0
16:15:00	9	0	847	67	0	0	1	1	25	1	0	0	0	0	61	8	0	0	0	0
16:30:00	10	1	904	57	0	0	1	0	25	0	0	0	0	0	61	0	0	0	0	0
16:45:00	11	1	952	48	0	0	1	0	26	1	0	0	0	0	63	2	0	0	0	0
17:00:00	11	0	1014	62	0	0	1	0	27	1	0	0	0	0	65	2	0	0	0	0
17:15:00	11	0	1091	77	0	0	1	0	27	0	0	0	0	0	68	3	0	0	0	0
17:30:00	13	2	1160	69	0	0	1	0	28	1	0	0	0	0	71	3	0	0	0	0
17:45:00	14	1	1228	68	0	0	1	0	28	0	0	0	0	0	75	4	0	0	0	0
18:00:00	16	2	1278	50	0	0	1	0	30	2	0	0	0	0	82	7	0	0	0	0
18:15:00	17	1	1315	37	0	0	1	0	31	1	0	0	0	0	85	3	0	0	0	0
18:30:00	17	0	1356	41	0	0	1	0	31	0	0	0	0	0	88	3	0	0	0	0
18:45:00	17	0	1397	41	0	0	1	0	31	0	0	0	0	0	89	1	0	0	0	0
19:00:00	20	3	1439	42	0	0	1	0	32	1	0	0	0	0	93	4	0	0	0	0
19:15:00	20	0	1439	0	0	0	1	0	32	0	0	0	0	0	93	0	0	0	0	0
19:15:15	20	0	1439	0	0	0	1	0	32	0	0	0	0	0	93	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	1	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	2	1	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	2	0	0	0	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	2	0	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	3	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	3	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	3	0	0	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	3	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	3	0	0	0	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	3	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	3	0	0	0	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	3	0	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	3	0	0	0	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	3	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	4	1	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	4	0	0	0	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15:00	4	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	4	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	4	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	4	0	0	0	19	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
16:45:00	4	0	0	0	20	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17:00:00	4	0	0	0	21	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17:15:00	5	1	0	0	21	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17:30:00	5	0	0	0	21	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17:45:00	5	0	0	0	22	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18:00:00	5	0	0	0	23	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18:15:00	5	0	0	0	25	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18:30:00	5	0	0	0	25	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18:45:00	5	0	0	0	27	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19:00:00	5	0	0	0	28	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19:15:00	5	0	0	0	28	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19:15:15	5	0	0	0	28	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	33	33	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0
7:30:00	0	0	79	46	0	0	0	0	1	0	0	0	0	0	4	2	0	0	0	0
7:45:00	0	0	151	72	1	1	0	0	3	2	0	0	0	0	5	1	0	0	0	0
8:00:00	0	0	203	52	1	0	0	0	5	2	0	0	0	0	10	5	0	0	0	0
8:15:00	0	0	248	45	1	0	0	0	5	0	0	0	0	0	13	3	0	0	0	0
8:30:00	0	0	308	60	1	0	0	0	7	2	0	0	0	0	19	6	0	0	0	0
8:45:00	0	0	382	74	1	0	0	0	7	0	0	0	0	0	23	4	0	0	0	0
9:00:00	0	0	430	48	1	0	0	0	8	1	0	0	0	0	26	3	0	0	0	0
9:15:00	0	0	430	0	1	0	0	0	8	0	0	0	0	0	26	0	0	0	0	0
11:00:00	0	0	430	0	1	0	0	0	8	0	0	0	0	0	26	0	0	0	0	0
11:15:00	0	0	479	49	2	1	0	0	11	3	0	0	0	0	29	3	0	0	0	0
11:30:00	0	0	520	41	2	0	0	0	13	2	0	0	0	0	32	3	0	0	0	0
11:45:00	0	0	559	39	2	0	0	0	15	2	0	0	0	0	36	4	0	0	0	0
12:00:00	0	0	600	41	2	0	0	0	15	0	0	0	0	0	38	2	0	0	0	0
12:15:00	0	0	646	46	3	1	0	0	17	2	0	0	0	0	42	4	0	0	0	0
12:30:00	0	0	683	37	3	0	0	0	17	0	0	0	0	0	45	3	0	0	0	0
12:45:00	0	0	730	47	4	1	0	0	17	0	0	0	0	0	50	5	0	0	0	0
13:00:00	0	0	775	45	4	0	0	0	20	3	0	0	0	0	51	1	0	0	0	0
13:15:00	0	0	816	41	4	0	0	0	20	0	0	0	0	0	52	1	0	0	0	0
13:30:00	0	0	846	30	4	0	0	0	22	2	0	0	0	0	57	5	0	0	0	0
13:45:00	0	0	890	44	4	0	0	0	23	1	0	0	0	0	61	4	0	0	0	0
14:00:00	0	0	934	44	5	1	0	0	24	1	0	0	0	0	68	7	0	0	0	0
14:15:00	0	0	934	0	5	0	0	0	24	0	0	0	0	0	68	0	0	0	0	0
16:00:00	0	0	934	0	5	0	0	0	24	0	0	0	0	0	68	0	0	0	0	0
16:15:00	0	0	985	51	5	0	0	0	25	1	0	0	0	0	70	2	0	0	0	0
16:30:00	0	0	1034	49	5	0	0	0	26	1	0	0	0	0	72	2	0	0	0	0
16:45:00	0	0	1109	75	5	0	0	0	27	1	0	0	0	0	75	3	0	0	0	0
17:00:00	0	0	1181	72	5	0	0	0	27	0	0	0	0	0	76	1	0	0	0	0
17:15:00	0	0	1243	62	6	1	0	0	28	1	0	0	0	0	78	2	0	0	0	0
17:30:00	0	0	1295	52	6	0	0	0	29	1	0	0	0	0	79	1	0	0	0	0
17:45:00	0	0	1349	54	7	1	0	0	30	1	0	0	0	0	80	1	0	0	0	0
18:00:00	0	0	1407	58	7	0	0	0	30	0	0	0	0	0	81	1	0	0	0	0
18:15:00	0	0	1461	54	7	0	0	0	30	0	0	0	0	0	83	2	0	0	0	0
18:30:00	0	0	1497	36	7	0	0	0	30	0	0	0	0	0	84	1	0	0	0	0
18:45:00	0	0	1539	42	7	0	0	0	30	0	0	0	0	0	84	0	0	0	0	0
19:00:00	0	0	1570	31	7	0	0	0	30	0	0	0	0	0	84	0	0	0	0	0
19:15:00	0	0	1570	0	7	0	0	0	30	0	0	0	0	0	84	0	0	0	0	0
19:15:15	0	0	1570	0	7	0	0	0	30	0	0	0	0	0	84	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Norfolk
Site #: 2327300003
Intersection: James St & 525 James St North Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

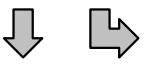
Major Road: James St runs N/S

North Leg Total: 674
North Entering: 371
North Peds: 0
Peds Cross: ⋈

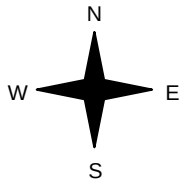
Heavys	21	0	21
Trucks	7	1	8
Cars	340	2	342
Totals	368	3	

Heavys	12
Trucks	3
Cars	288
Totals	303

East Leg Total: 6
East Entering: 2
East Peds: 6
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	0	0	0	0
	2	0	0	2
	2	0	0	



525 James St North Access

Cars	Trucks	Heavys	Totals
3	1	0	4

Cars	342		
Trucks	7		
Heavys	21		
Totals	370		

Cars	288	1	289
Trucks	3	0	3
Heavys	12	0	12
Totals	303	1	

Peds Cross: ⋈
South Peds: 1
South Entering: 304
South Leg Total: 674

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:30:00
To: 13:30:00

Municipality: Norfolk
Site #: 2327300003
Intersection: James St & 525 James St North Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

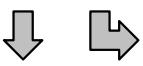
Major Road: James St runs N/S

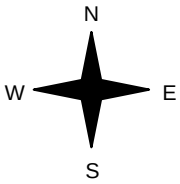
North Leg Total: 660
North Entering: 335
North Peds: 0
Peds Cross: ⋈

Heavys	17	1	18
Trucks	11	0	11
Cars	305	1	306
Totals	333	2	

Heavys	14
Trucks	9
Cars	302
Totals	325

East Leg Total: 6
East Entering: 3
East Peds: 1
Peds Cross: ⋈





	Cars	Trucks	Heavys	Totals
	1	0	1	2
	0	0	1	1
	1	0	2	

525 James St North Access

	Cars	Trucks	Heavys	Totals
	2	0	1	3

Cars	305	Cars	301	1	302
Trucks	11	Trucks	9	0	9
Heavys	18	Heavys	13	0	13
Totals	334	Totals	323	1	

Peds Cross: ⋈
South Peds: 0
South Entering: 324
South Leg Total: 658

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Municipality: Norfolk
Site #: 2327300003
Intersection: James St & 525 James St North Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

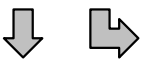
Major Road: James St runs N/S

North Leg Total: 839
North Entering: 458
North Peds: 0
Peds Cross: ⋈

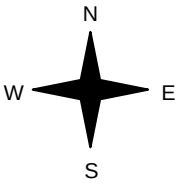
Heavys	13	0	13
Trucks	5	0	5
Cars	439	1	440
Totals	457	1	

Heavys	17
Trucks	5
Cars	359
Totals	381

East Leg Total: 10
East Entering: 8
East Peds: 6
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	5	0	1	6
	1	1	0	2
	6	1	1	



525 James St North Access

	Cars	Trucks	Heavys	Totals
	2	0	0	2

Cars	440	Cars	354	1	355
Trucks	6	Trucks	5	0	5
Heavys	13	Heavys	16	0	16
Totals	459	Totals	375	1	

Peds Cross: ⋈
South Peds: 2
South Entering: 376
South Leg Total: 835

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

Municipality: Norfolk
Site #: 2327300003
Intersection: James St & 525 James St North Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: James St runs N/S

North Leg Total: 5166
North Entering: 2683
North Peds: 0
Peds Cross: ⋈

Heavys	103	3	106
Trucks	65	2	67
Cars	2500	10	2510
Totals	2668	15	

Heavys	114	
Trucks	48	
Cars	2321	
Totals	2483	

East Leg Total: 52
East Entering: 30
East Peds: 29
Peds Cross: ⋈

James St

	Cars	Trucks	Heavys	Totals
	15	2	2	19
	8	2	1	11
	23	4	3	

N
W E
S

525 James St North Access

	Cars	Trucks	Heavys	Totals
	16	3	3	22

James St

Cars	2508		
Trucks	67		
Heavys	104		
Totals	2679		

Cars	2306	6	2312
Trucks	46	1	47
Heavys	112	0	112
Totals	2464	7	

Peds Cross: ⋈
South Peds: 11
South Entering: 2471
South Leg Total: 5150

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: James St & 525 James St North A | **Count Date:** 12-Dec-23 | **Municipality:** Norfolk

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	4	285	0	289	0
9:00:00	1	345	0	346	0
11:00:00	0	0	0	0	0
12:00:00	2	304	0	306	0
13:00:00	3	337	0	340	0
14:00:00	0	297	0	297	0
16:00:00	0	0	0	0	0
17:00:00	1	457	0	458	0
18:00:00	3	366	0	369	0
19:00:00	1	277	0	278	0
Totals:	15	2668	0	2683	0

North/South Total Approaches: 5154

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	252	4	256	1
9:00:00	0	305	0	305	1
11:00:00	0	0	0	0	0
12:00:00	0	276	0	276	5
13:00:00	0	305	1	306	2
14:00:00	0	302	0	302	0
16:00:00	0	0	0	0	0
17:00:00	0	375	1	376	2
18:00:00	0	389	1	390	0
19:00:00	0	260	0	260	0
S Totals:	0	2464	7	2471	11

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	3	0	2	5	2
9:00:00	2	0	0	2	6
11:00:00	0	0	0	0	0
12:00:00	0	0	1	1	6
13:00:00	1	0	3	4	3
14:00:00	0	0	0	0	2
16:00:00	0	0	0	0	0
17:00:00	2	0	6	8	6
18:00:00	3	0	6	9	2
19:00:00	0	0	1	1	2
Totals:	11	0	19	30	29

East/West Total Approaches: 30

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
W Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	11:00	12:00	13:00	17:00	18:00
Crossing Values:	0	4	3	0	5	3	4	3

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300003

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	35	35	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0
7:30:00	1	0	98	63	0	0	0	0	9	7	0	0	0	0	4	3	0	0	0	0
7:45:00	1	0	181	83	0	0	1	1	10	1	0	0	0	0	5	1	0	0	0	0
8:00:00	2	1	264	83	0	0	2	1	12	2	0	0	0	0	9	4	0	0	0	0
8:15:00	2	0	329	65	0	0	2	0	12	0	0	0	0	0	13	4	0	0	0	0
8:30:00	3	1	407	78	0	0	2	0	15	3	0	0	0	0	22	9	0	0	0	0
8:45:00	3	0	521	114	0	0	2	0	17	2	0	0	0	0	26	4	0	0	0	0
9:00:00	3	0	583	62	0	0	2	0	17	0	0	0	0	0	30	4	0	0	0	0
9:15:00	3	0	583	0	0	0	2	0	17	0	0	0	0	0	30	0	0	0	0	0
11:00:00	3	0	583	0	0	0	2	0	17	0	0	0	0	0	30	0	0	0	0	0
11:15:00	3	0	644	61	0	0	2	0	22	5	0	0	0	0	33	3	0	0	0	0
11:30:00	3	0	715	71	0	0	2	0	24	2	0	0	1	1	37	4	0	0	0	0
11:45:00	4	1	789	74	0	0	2	0	28	4	0	0	1	0	43	6	0	0	0	0
12:00:00	4	0	857	68	0	0	2	0	31	3	0	0	1	0	46	3	0	0	0	0
12:15:00	4	0	936	79	0	0	2	0	34	3	0	0	2	1	49	3	0	0	0	0
12:30:00	4	0	1002	66	0	0	2	0	35	1	0	0	2	0	53	4	0	0	0	0
12:45:00	5	1	1085	83	0	0	2	0	36	1	0	0	2	0	59	6	0	0	0	0
13:00:00	5	0	1170	85	0	0	2	0	40	4	0	0	3	1	61	2	0	0	0	0
13:15:00	5	0	1242	72	0	0	2	0	44	4	0	0	3	0	63	2	0	0	0	0
13:30:00	5	0	1307	65	0	0	2	0	46	2	0	0	3	0	70	7	0	0	0	0
13:45:00	5	0	1369	62	0	0	2	0	50	4	0	0	3	0	76	6	0	0	0	0
14:00:00	5	0	1435	66	0	0	2	0	52	2	0	0	3	0	81	5	0	0	0	0
14:15:00	5	0	1435	0	0	0	2	0	52	0	0	0	3	0	81	0	0	0	0	0
16:00:00	5	0	1435	0	0	0	2	0	52	0	0	0	3	0	81	0	0	0	0	0
16:15:00	5	0	1526	91	0	0	2	0	53	1	0	0	3	0	85	4	0	0	0	0
16:30:00	5	0	1625	99	0	0	2	0	54	1	0	0	3	0	90	5	0	0	0	0
16:45:00	6	1	1753	128	0	0	2	0	55	1	0	0	3	0	93	3	0	0	0	0
17:00:00	6	0	1874	121	0	0	2	0	57	2	0	0	3	0	94	1	0	0	0	0
17:15:00	9	3	1957	83	0	0	2	0	59	2	0	0	3	0	96	2	0	0	0	0
17:30:00	9	0	2047	90	0	0	2	0	59	0	0	0	3	0	98	2	0	0	0	0
17:45:00	9	0	2137	90	0	0	2	0	61	2	0	0	3	0	100	2	0	0	0	0
18:00:00	9	0	2229	92	0	0	2	0	62	1	0	0	3	0	100	0	0	0	0	0
18:15:00	9	0	2324	95	0	0	2	0	64	2	0	0	3	0	103	3	0	0	0	0
18:30:00	10	1	2401	77	0	0	2	0	64	0	0	0	3	0	103	0	0	0	0	0
18:45:00	10	0	2451	50	0	0	2	0	65	1	0	0	3	0	103	0	0	0	0	0
19:00:00	10	0	2500	49	0	0	2	0	65	0	0	0	3	0	103	0	0	0	0	0
19:15:00	10	0	2500	0	0	0	2	0	65	0	0	0	3	0	103	0	0	0	0	0
19:15:15	10	0	2500	0	0	0	2	0	65	0	0	0	3	0	103	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300003

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45:00	2	1	0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	2	1
8:00:00	2	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
8:15:00	2	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	3	1
8:30:00	4	2	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	6	3
8:45:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	2
9:00:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	0
9:15:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	0
11:00:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	0
11:15:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	0
11:30:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	8	0
11:45:00	4	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	11	3
12:00:00	4	0	0	0	1	0	1	0	0	0	2	1	0	0	0	0	0	0	14	3
12:15:00	4	0	0	0	2	1	1	0	0	0	2	0	0	0	0	0	0	0	15	1
12:30:00	4	0	0	0	2	0	1	0	0	0	2	0	0	0	0	0	0	0	16	1
12:45:00	4	0	0	0	2	0	1	0	0	0	2	0	1	1	0	0	0	0	17	1
13:00:00	4	0	0	0	3	1	1	0	0	0	2	0	1	0	0	0	1	1	17	0
13:15:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	17	0
13:30:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	17	0
13:45:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	19	2
14:00:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	19	0
14:15:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	19	0
16:00:00	4	0	0	0	3	0	1	0	0	0	2	0	1	0	0	0	1	0	19	0
16:15:00	4	0	0	0	3	0	2	1	0	0	2	0	1	0	0	0	1	0	21	2
16:30:00	4	0	0	0	6	3	2	0	0	0	2	0	1	0	0	0	1	0	22	1
16:45:00	5	1	0	0	8	2	2	0	0	0	2	0	1	0	0	0	1	0	24	2
17:00:00	5	0	0	0	8	0	2	0	0	0	2	0	1	0	0	0	2	1	25	1
17:15:00	6	1	0	0	13	5	2	0	0	0	2	0	1	0	0	0	2	0	26	1
17:30:00	8	2	0	0	14	1	2	0	0	0	2	0	1	0	0	0	2	0	27	1
17:45:00	8	0	0	0	14	0	2	0	0	0	2	0	1	0	0	0	2	0	27	0
18:00:00	8	0	0	0	14	0	2	0	0	0	2	0	1	0	0	0	2	0	27	0
18:15:00	8	0	0	0	14	0	2	0	0	0	2	0	1	0	0	0	2	0	28	1
18:30:00	8	0	0	0	14	0	2	0	0	0	2	0	1	0	0	0	2	0	28	0
18:45:00	8	0	0	0	15	1	2	0	0	0	2	0	1	0	0	0	2	0	29	1
19:00:00	8	0	0	0	15	0	2	0	0	0	2	0	1	0	0	0	2	0	29	0
19:15:00	8	0	0	0	15	0	2	0	0	0	2	0	1	0	0	0	2	0	29	0
19:15:15	8	0	0	0	15	0	2	0	0	0	2	0	1	0	0	0	2	0	29	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300003

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	50	50	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	1
7:30:00	0	0	111	61	0	0	0	0	0	0	1	1	0	0	5	3	0	0	1	0
7:45:00	0	0	169	58	2	2	0	0	1	1	1	0	0	0	9	4	0	0	1	0
8:00:00	0	0	239	70	3	1	0	0	2	1	1	0	0	0	11	2	0	0	1	0
8:15:00	0	0	313	74	3	0	0	0	2	0	1	0	0	0	17	6	0	0	1	0
8:30:00	0	0	393	80	3	0	0	0	3	1	1	0	0	0	18	1	0	0	2	1
8:45:00	0	0	457	64	3	0	0	0	4	1	1	0	0	0	21	3	0	0	2	0
9:00:00	0	0	524	67	3	0	0	0	7	3	1	0	0	0	26	5	0	0	2	0
9:15:00	0	0	524	0	3	0	0	0	7	0	1	0	0	0	26	0	0	0	2	0
11:00:00	0	0	524	0	3	0	0	0	7	0	1	0	0	0	26	0	0	0	2	0
11:15:00	0	0	594	70	3	0	0	0	10	3	1	0	0	0	28	2	0	0	2	0
11:30:00	0	0	656	62	3	0	0	0	12	2	1	0	0	0	31	3	0	0	2	0
11:45:00	0	0	721	65	3	0	0	0	15	3	1	0	0	0	36	5	0	0	4	2
12:00:00	0	0	775	54	3	0	0	0	17	2	1	0	0	0	41	5	0	0	7	3
12:15:00	0	0	852	77	3	0	0	0	19	2	1	0	0	0	48	7	0	0	7	0
12:30:00	0	0	908	56	3	0	0	0	20	1	1	0	0	0	49	1	0	0	9	2
12:45:00	0	0	986	78	4	1	0	0	23	3	1	0	0	0	51	2	0	0	9	0
13:00:00	0	0	1059	73	4	0	0	0	24	1	1	0	0	0	55	4	0	0	9	0
13:15:00	0	0	1135	76	4	0	0	0	27	3	1	0	0	0	57	2	0	0	9	0
13:30:00	0	0	1209	74	4	0	0	0	29	2	1	0	0	0	62	5	0	0	9	0
13:45:00	0	0	1272	63	4	0	0	0	29	0	1	0	0	0	65	3	0	0	9	0
14:00:00	0	0	1339	67	4	0	0	0	32	3	1	0	0	0	69	4	0	0	9	0
14:15:00	0	0	1339	0	4	0	0	0	32	0	1	0	0	0	69	0	0	0	9	0
16:00:00	0	0	1339	0	4	0	0	0	32	0	1	0	0	0	69	0	0	0	9	0
16:15:00	0	0	1441	102	4	0	0	0	33	1	1	0	0	0	77	8	0	0	9	0
16:30:00	0	0	1534	93	4	0	0	0	35	2	1	0	0	0	78	1	0	0	9	0
16:45:00	0	0	1608	74	5	1	0	0	36	1	1	0	0	0	83	5	0	0	10	1
17:00:00	0	0	1693	85	5	0	0	0	37	1	1	0	0	0	85	2	0	0	11	1
17:15:00	0	0	1797	104	6	1	0	0	37	0	1	0	0	0	88	3	0	0	11	0
17:30:00	0	0	1898	101	6	0	0	0	40	3	1	0	0	0	91	3	0	0	11	0
17:45:00	0	0	1985	87	6	0	0	0	40	0	1	0	0	0	95	4	0	0	11	0
18:00:00	0	0	2060	75	6	0	0	0	43	3	1	0	0	0	101	6	0	0	11	0
18:15:00	0	0	2120	60	6	0	0	0	44	1	1	0	0	0	105	4	0	0	11	0
18:30:00	0	0	2191	71	6	0	0	0	45	1	1	0	0	0	107	2	0	0	11	0
18:45:00	0	0	2252	61	6	0	0	0	45	0	1	0	0	0	108	1	0	0	11	0
19:00:00	0	0	2306	54	6	0	0	0	46	1	1	0	0	0	112	4	0	0	11	0
19:15:00	0	0	2306	0	6	0	0	0	46	0	1	0	0	0	112	0	0	0	11	0
19:15:15	0	0	2306	0	6	0	0	0	46	0	1	0	0	0	112	0	0	0	11	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300003

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Norfolk
Site #: 2327300004
Intersection: James St & 525 James St South Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

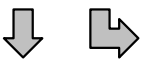
Major Road: James St runs N/S

North Leg Total: 678
North Entering: 373
North Peds: 0
Peds Cross: ⋈

Heavys	21	0	21
Trucks	7	0	7
Cars	339	6	345
Totals	367	6	

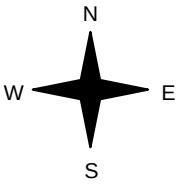
Heavys	12
Trucks	3
Cars	290
Totals	305

East Leg Total: 10
East Entering: 3
East Peds: 5
Peds Cross: ⋈



James St

Cars	Trucks	Heavys	Totals
1	0	0	1
2	0	0	2
3	0	0	



525 James St South Access

Cars	Trucks	Heavys	Totals
7	0	0	7

James St

Cars	341
Trucks	7
Heavys	21
Totals	369

Cars	289	1	290
Trucks	3	0	3
Heavys	12	0	12
Totals	304	1	

Peds Cross: ⋈
South Peds: 0
South Entering: 305
South Leg Total: 674

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:30:00
To: 13:30:00

Municipality: Norfolk
Site #: 2327300004
Intersection: James St & 525 James St South Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: James St runs N/S

North Leg Total: 655
North Entering: 332
North Peds: 0
Peds Cross: ⋈

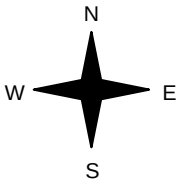
Heavys	18	0	18
Trucks	11	0	11
Cars	303	0	303
Totals	332	0	

Heavys	13
Trucks	9
Cars	301
Totals	323

East Leg Total: 1
East Entering: 1
East Peds: 1
Peds Cross: ⋈

James St

Cars	Trucks	Heavys	Totals
1	0	0	1
0	0	0	0
1	0	0	



525 James St South Access

Cars	Trucks	Heavys	Totals
0	0	0	0

James St

Cars	303		
Trucks	11		
Heavys	18		
Totals	332		

Cars	300	0	300
Trucks	9	0	9
Heavys	13	0	13
Totals	322	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 322
South Leg Total: 654

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Municipality: Norfolk
Site #: 2327300004
Intersection: James St & 525 James St South Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

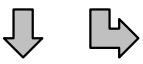
Major Road: James St runs N/S

North Leg Total: 836
North Entering: 457
North Peds: 0
Peds Cross: ⋈

Heavys	13	0	13
Trucks	6	0	6
Cars	437	1	438
Totals	456	1	

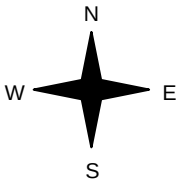
Heavys	16
Trucks	5
Cars	358
Totals	379

East Leg Total: 8
East Entering: 7
East Peds: 3
Peds Cross: ⋈



James St

Cars	Trucks	Heavys	Totals
5	0	0	5
2	0	0	2
7	0	0	



525 James St South Access

Cars	Trucks	Heavys	Totals
1	0	0	1

James St

Cars	439
Trucks	6
Heavys	13
Totals	458

Cars	353	0	353
Trucks	5	0	5
Heavys	16	0	16
Totals	374	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 374
South Leg Total: 832

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

Municipality: Norfolk
Site #: 2327300004
Intersection: James St & 525 James St South Ac
TFR File #: 1
Count date: 12-Dec-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: James St runs N/S

North Leg Total: 5152
North Entering: 2680
North Peds: 0
Peds Cross: ⋈

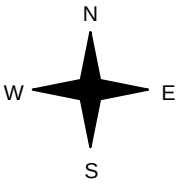
Heavys	104	0	104
Trucks	67	0	67
Cars	2499	10	2509
Totals	2670	10	

Heavys	112
Trucks	47
Cars	2313
Totals	2472

East Leg Total: 29
East Entering: 16
East Peds: 19
Peds Cross: ⋈

James St

	Cars	Trucks	Heavys	Totals
	10	0	0	10
	6	0	0	6
	16	0	0	



525 James St South Access

Cars	Trucks	Heavys	Totals
12	1	0	13

James St

Cars	2505	Cars	2303	2	2305
Trucks	67	Trucks	47	1	48
Heavys	104	Heavys	112	0	112
Totals	2676	Totals	2462	3	

Peds Cross: ⋈
South Peds: 6
South Entering: 2465
South Leg Total: 5141

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: James St & 525 James St South A | **Count Date:** 12-Dec-23 | **Municipality:** Norfolk

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*5*	*286*	*0*	*291*	*0*
9:00:00	*2*	*344*	*0*	*346*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*1*	*304*	*0*	*305*	*0*
13:00:00	*1*	*337*	*0*	*338*	*0*
14:00:00	*0*	*296*	*0*	*296*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*1*	*456*	*0*	*457*	*0*
18:00:00	*0*	*369*	*0*	*369*	*0*
19:00:00	*0*	*278*	*0*	*278*	*0*
Totals:	10	2670	0	2680	0

North/South Total Approaches: 5145

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*0*	*252*	*0*	*252*	*6*
9:00:00	*0*	*306*	*2*	*308*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*0*	*274*	*1*	*275*	*0*
13:00:00	*0*	*307*	*0*	*307*	*0*
14:00:00	*0*	*301*	*0*	*301*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*0*	*374*	*0*	*374*	*0*
18:00:00	*0*	*389*	*0*	*389*	*0*
19:00:00	*0*	*259*	*0*	*259*	*0*
S Totals:	0	2462	3	2465	6

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*2*	*0*	*0*	*2*	*0*
9:00:00	*1*	*0*	*1*	*2*	*6*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*0*	*0*	*0*	*0*	*2*
13:00:00	*0*	*0*	*2*	*2*	*3*
14:00:00	*0*	*0*	*0*	*0*	*1*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*2*	*0*	*5*	*7*	*3*
18:00:00	*1*	*0*	*1*	*2*	*2*
19:00:00	*0*	*0*	*1*	*1*	*2*
Totals:	6	0	10	16	19

East/West Total Approaches: 16

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*0*	*0*	*0*	*0*	*0*
9:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*0*	*0*	*0*	*0*	*0*
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*0*	*0*	*0*	*0*	*0*
18:00:00	*0*	*0*	*0*	*0*	*0*
19:00:00	*0*	*0*	*0*	*0*	*0*
W Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*7:00*	*8:00*	*9:00*	*11:00*	*12:00*	*13:00*	*17:00*	*18:00*
Crossing Values:	*0*	*8*	*1*	*0*	*0*	*0*	*2*	*1*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300004

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	35	35	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0
7:30:00	1	1	98	63	0	0	0	0	9	7	0	0	0	0	4	3	0	0	0	0
7:45:00	1	0	181	83	0	0	0	0	11	2	0	0	0	0	5	1	0	0	0	0
8:00:00	5	4	264	83	0	0	0	0	13	2	0	0	0	0	9	4	0	0	0	0
8:15:00	7	2	329	65	0	0	0	0	13	0	0	0	0	0	13	4	0	0	0	0
8:30:00	7	0	407	78	0	0	0	0	16	3	0	0	0	0	22	9	0	0	0	0
8:45:00	7	0	520	113	0	0	0	0	18	2	0	0	0	0	26	4	0	0	0	0
9:00:00	7	0	582	62	0	0	0	0	18	0	0	0	0	0	30	4	0	0	0	0
9:15:00	7	0	582	0	0	0	0	0	18	0	0	0	0	0	30	0	0	0	0	0
11:00:00	7	0	582	0	0	0	0	0	18	0	0	0	0	0	30	0	0	0	0	0
11:15:00	7	0	644	62	0	0	0	0	23	5	0	0	0	0	33	3	0	0	0	0
11:30:00	7	0	714	70	0	0	0	0	25	2	0	0	0	0	37	4	0	0	0	0
11:45:00	8	1	788	74	0	0	0	0	29	4	0	0	0	0	43	6	0	0	0	0
12:00:00	8	0	856	68	0	0	0	0	32	3	0	0	0	0	46	3	0	0	0	0
12:15:00	8	0	935	79	0	0	0	0	35	3	0	0	0	0	49	3	0	0	0	0
12:30:00	9	1	1001	66	0	0	0	0	36	1	0	0	0	0	53	4	0	0	0	0
12:45:00	9	0	1083	82	0	0	0	0	37	1	0	0	0	0	60	7	0	0	0	0
13:00:00	9	0	1168	85	0	0	0	0	41	4	0	0	0	0	62	2	0	0	0	0
13:15:00	9	0	1239	71	0	0	0	0	45	4	0	0	0	0	64	2	0	0	0	0
13:30:00	9	0	1304	65	0	0	0	0	47	2	0	0	0	0	71	7	0	0	0	0
13:45:00	9	0	1366	62	0	0	0	0	51	4	0	0	0	0	77	6	0	0	0	0
14:00:00	9	0	1432	66	0	0	0	0	53	2	0	0	0	0	82	5	0	0	0	0
14:15:00	9	0	1432	0	0	0	0	0	53	0	0	0	0	0	82	0	0	0	0	0
16:00:00	9	0	1432	0	0	0	0	0	53	0	0	0	0	0	82	0	0	0	0	0
16:15:00	10	1	1522	90	0	0	0	0	55	2	0	0	0	0	86	4	0	0	0	0
16:30:00	10	0	1621	99	0	0	0	0	56	1	0	0	0	0	91	5	0	0	0	0
16:45:00	10	0	1749	128	0	0	0	0	57	1	0	0	0	0	94	3	0	0	0	0
17:00:00	10	0	1869	120	0	0	0	0	59	2	0	0	0	0	95	1	0	0	0	0
17:15:00	10	0	1952	83	0	0	0	0	61	2	0	0	0	0	97	2	0	0	0	0
17:30:00	10	0	2044	92	0	0	0	0	61	0	0	0	0	0	99	2	0	0	0	0
17:45:00	10	0	2135	91	0	0	0	0	63	2	0	0	0	0	101	2	0	0	0	0
18:00:00	10	0	2227	92	0	0	0	0	64	1	0	0	0	0	101	0	0	0	0	0
18:15:00	10	0	2322	95	0	0	0	0	66	2	0	0	0	0	104	3	0	0	0	0
18:30:00	10	0	2399	77	0	0	0	0	66	0	0	0	0	0	104	0	0	0	0	0
18:45:00	10	0	2450	51	0	0	0	0	67	1	0	0	0	0	104	0	0	0	0	0
19:00:00	10	0	2499	49	0	0	0	0	67	0	0	0	0	0	104	0	0	0	0	0
19:15:00	10	0	2499	0	0	0	0	0	67	0	0	0	0	0	104	0	0	0	0	0
19:15:15	10	0	2499	0	0	0	0	0	67	0	0	0	0	0	104	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300004

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:30:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2
8:45:00	3	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5	2
9:00:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1
9:15:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
11:00:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
11:15:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
11:30:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
11:45:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1
12:00:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1
12:15:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1
12:30:00	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	10	1
12:45:00	3	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	11	1
13:00:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
13:15:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
13:30:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
13:45:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
14:00:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	12	1
14:15:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
16:00:00	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
16:15:00	3	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	12	0
16:30:00	5	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	13	1
16:45:00	5	0	0	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	13	0
17:00:00	5	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	15	2
17:15:00	5	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	16	1
17:30:00	5	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	17	1
17:45:00	6	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0
18:00:00	6	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0
18:15:00	6	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	18	1
18:30:00	6	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	18	0
18:45:00	6	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	19	1
19:00:00	6	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0
19:15:00	6	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0
19:15:15	6	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300004

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	49	49	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0
7:30:00	0	0	109	60	0	0	0	0	1	1	0	0	0	0	5	3	0	0	4	4
7:45:00	0	0	168	59	0	0	0	0	2	1	0	0	0	0	9	4	0	0	6	2
8:00:00	0	0	238	70	0	0	0	0	3	1	0	0	0	0	11	2	0	0	6	0
8:15:00	0	0	313	75	0	0	0	0	3	0	0	0	0	0	17	6	0	0	6	0
8:30:00	0	0	394	81	0	0	0	0	4	1	0	0	0	0	18	1	0	0	6	0
8:45:00	0	0	457	63	1	1	0	0	5	1	0	0	0	0	21	3	0	0	6	0
9:00:00	0	0	524	67	2	1	0	0	8	3	0	0	0	0	26	5	0	0	6	0
9:15:00	0	0	524	0	2	0	0	0	8	0	0	0	0	0	26	0	0	0	6	0
11:00:00	0	0	524	0	2	0	0	0	8	0	0	0	0	0	26	0	0	0	6	0
11:15:00	0	0	593	69	2	0	0	0	11	3	0	0	0	0	28	2	0	0	6	0
11:30:00	0	0	655	62	2	0	0	0	13	2	0	0	0	0	31	3	0	0	6	0
11:45:00	0	0	721	66	2	0	0	0	16	3	0	0	0	0	36	5	0	0	6	0
12:00:00	0	0	773	52	2	0	0	0	18	2	1	1	0	0	41	5	0	0	6	0
12:15:00	0	0	852	79	2	0	0	0	20	2	1	0	0	0	48	7	0	0	6	0
12:30:00	0	0	908	56	2	0	0	0	21	1	1	0	0	0	49	1	0	0	6	0
12:45:00	0	0	986	78	2	0	0	0	24	3	1	0	0	0	51	2	0	0	6	0
13:00:00	0	0	1059	73	2	0	0	0	25	1	1	0	0	0	55	4	0	0	6	0
13:15:00	0	0	1134	75	2	0	0	0	28	3	1	0	0	0	57	2	0	0	6	0
13:30:00	0	0	1208	74	2	0	0	0	30	2	1	0	0	0	62	5	0	0	6	0
13:45:00	0	0	1271	63	2	0	0	0	30	0	1	0	0	0	65	3	0	0	6	0
14:00:00	0	0	1338	67	2	0	0	0	33	3	1	0	0	0	69	4	0	0	6	0
14:15:00	0	0	1338	0	2	0	0	0	33	0	1	0	0	0	69	0	0	0	6	0
16:00:00	0	0	1338	0	2	0	0	0	33	0	1	0	0	0	69	0	0	0	6	0
16:15:00	0	0	1439	101	2	0	0	0	34	1	1	0	0	0	77	8	0	0	6	0
16:30:00	0	0	1532	93	2	0	0	0	36	2	1	0	0	0	78	1	0	0	6	0
16:45:00	0	0	1606	74	2	0	0	0	37	1	1	0	0	0	83	5	0	0	6	0
17:00:00	0	0	1691	85	2	0	0	0	38	1	1	0	0	0	85	2	0	0	6	0
17:15:00	0	0	1795	104	2	0	0	0	38	0	1	0	0	0	88	3	0	0	6	0
17:30:00	0	0	1896	101	2	0	0	0	41	3	1	0	0	0	91	3	0	0	6	0
17:45:00	0	0	1983	87	2	0	0	0	41	0	1	0	0	0	95	4	0	0	6	0
18:00:00	0	0	2058	75	2	0	0	0	44	3	1	0	0	0	101	6	0	0	6	0
18:15:00	0	0	2118	60	2	0	0	0	45	1	1	0	0	0	105	4	0	0	6	0
18:30:00	0	0	2189	71	2	0	0	0	46	1	1	0	0	0	107	2	0	0	6	0
18:45:00	0	0	2249	60	2	0	0	0	46	0	1	0	0	0	108	1	0	0	6	0
19:00:00	0	0	2303	54	2	0	0	0	47	1	1	0	0	0	112	4	0	0	6	0
19:15:00	0	0	2303	0	2	0	0	0	47	0	1	0	0	0	112	0	0	0	6	0
19:15:15	0	0	2303	0	2	0	0	0	47	0	1	0	0	0	112	0	0	0	6	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 12-Dec-23 Site #: 2327300004

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix D –
Synchro Analysis Output –

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	311	1	2	197	2	9
Future Volume (Veh/h)	311	1	2	197	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	338	1	2	214	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			339		556	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			339		556	338
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1220		491	704

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	339	216	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1220	656
Volume to Capacity	0.20	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	338	1	3	335	1	2
Future Volume (Veh/h)	338	1	3	335	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	367	1	3	364	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			368		738	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			368		738	368
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1191		384	678

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	368	367	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1191	540
Volume to Capacity	0.22	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	0.1	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	385	1	2	228	2	9
Future Volume (Veh/h)	385	1	2	228	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	418	1	2	248	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			419		670	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			419		670	418
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1140		421	635

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	419	250	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1140	585
Volume to Capacity	0.25	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.5
Control Delay (s)	0.0	0.1	11.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.3
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	394	1	3	410	1	2
Future Volume (Veh/h)	394	1	3	410	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	428	1	3	446	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			429		880	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			429		880	428
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1130		317	626

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	429	449	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1130	472
Volume to Capacity	0.25	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	0.1	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.7
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	1	2	269	2	9
Future Volume (Veh/h)	468	1	2	269	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	509	1	2	292	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			510		806	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			510		806	510
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	98
cM capacity (veh/h)			1055		351	564

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	510	294	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1055	512
Volume to Capacity	0.30	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.5
Control Delay (s)	0.0	0.1	12.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.2
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	1	3	503	1	2
Future Volume (Veh/h)	468	1	3	503	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	509	1	3	547	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			510		1062	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			510		1062	510
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1055		247	564

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	510	550	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1055	395
Volume to Capacity	0.30	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	0.1	14.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	14.2
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	511	1	2	293	2	9
Future Volume (Veh/h)	511	1	2	293	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	555	1	2	318	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			556		878	556
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			556		878	556
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	98
cM capacity (veh/h)			1015		318	531

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	556	320	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1015	478
Volume to Capacity	0.33	0.00	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.1	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.7
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	509	1	3	544	1	2
Future Volume (Veh/h)	509	1	3	544	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	553	1	3	591	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			554		1150	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			554		1150	554
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1016		218	532

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	554	594	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1016	360
Volume to Capacity	0.33	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	0.1	15.1
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	15.1
Approach LOS			C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	394	22	14	230	5	9
Future Volume (Veh/h)	394	22	14	230	5	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	428	24	15	250	5	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			452		720	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			452		720	440
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1109		389	617

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	452	265	15
Volume Left	0	15	5
Volume Right	24	0	10
cSH	1700	1109	516
Volume to Capacity	0.27	0.01	0.03
Queue Length 95th (m)	0.0	0.3	0.7
Control Delay (s)	0.0	0.6	12.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.6	12.2
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	407	1	2	233	2	9
Future Volume (Veh/h)	407	1	2	233	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	442	1	2	253	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			443		700	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			443		700	442
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1117		405	615

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	443	255	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1117	566
Volume to Capacity	0.26	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.5
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	396	5	5	413	22	22
Future Volume (Veh/h)	396	5	5	413	22	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	430	5	5	449	24	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			435		892	432
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			435		892	432
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		92	96
cM capacity (veh/h)			1125		311	623

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	435	454	48
Volume Left	0	5	24
Volume Right	5	0	24
cSH	1700	1125	415
Volume to Capacity	0.26	0.00	0.12
Queue Length 95th (m)	0.0	0.1	3.0
Control Delay (s)	0.0	0.1	14.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	14.8
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	399	1	3	432	1	2
Future Volume (Veh/h)	399	1	3	432	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	434	1	3	470	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			435		910	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			435		910	434
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1125		304	622

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	435	473	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1125	461
Volume to Capacity	0.26	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	0.1	12.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.9
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	483	22	14	271	5	9
Future Volume (Veh/h)	483	22	14	271	5	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	525	24	15	295	5	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			549		862	537
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			549		862	537
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1021		321	544

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	549	310	15
Volume Left	0	15	5
Volume Right	24	0	10
cSH	1700	1021	441
Volume to Capacity	0.32	0.01	0.03
Queue Length 95th (m)	0.0	0.3	0.8
Control Delay (s)	0.0	0.6	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.6	13.4
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	496	1	2	274	2	9
Future Volume (Veh/h)	496	1	2	274	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	539	1	2	298	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			540		842	540
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			540		842	540
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	98
cM capacity (veh/h)			1028		334	542

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	540	300	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	1028	491
Volume to Capacity	0.32	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.1	12.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.5
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	470	5	5	506	22	22
Future Volume (Veh/h)	470	5	5	506	22	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	511	5	5	550	24	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			516		1074	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			516		1074	514
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	96
cM capacity (veh/h)			1050		242	561

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	516	555	48
Volume Left	0	5	24
Volume Right	5	0	24
cSH	1700	1050	339
Volume to Capacity	0.30	0.00	0.14
Queue Length 95th (m)	0.0	0.1	3.7
Control Delay (s)	0.0	0.1	17.4
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	17.4
Approach LOS			C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	473	1	3	525	1	2
Future Volume (Veh/h)	473	1	3	525	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	514	1	3	571	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			515		1092	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			515		1092	514
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1051		237	560

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	515	574	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1051	385
Volume to Capacity	0.30	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	0.1	14.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	14.4
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	521	22	14	295	5	9
Future Volume (Veh/h)	521	22	14	295	5	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	566	24	15	321	5	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			590		929	578
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			590		929	578
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	98
cM capacity (veh/h)			985		293	516

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	590	336	15
Volume Left	0	15	5
Volume Right	24	0	10
cSH	1700	985	411
Volume to Capacity	0.35	0.02	0.04
Queue Length 95th (m)	0.0	0.4	0.9
Control Delay (s)	0.0	0.5	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	14.1
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	533	1	2	298	2	9
Future Volume (Veh/h)	533	1	2	298	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	579	1	2	324	2	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			580		908	580
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			580		908	580
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	98
cM capacity (veh/h)			994		305	515

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	580	326	12
Volume Left	0	2	2
Volume Right	1	0	10
cSH	1700	994	462
Volume to Capacity	0.34	0.00	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.1	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	13.0
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	511	5	5	547	22	22
Future Volume (Veh/h)	511	5	5	547	22	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	555	5	5	595	24	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			560		1162	558
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			560		1162	558
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	95
cM capacity (veh/h)			1011		214	530

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	560	600	48
Volume Left	0	5	24
Volume Right	5	0	24
cSH	1700	1011	305
Volume to Capacity	0.33	0.00	0.16
Queue Length 95th (m)	0.0	0.1	4.2
Control Delay (s)	0.0	0.1	19.0
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	19.0
Approach LOS			C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	514	1	3	566	1	2
Future Volume (Veh/h)	514	1	3	566	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	559	1	3	615	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			560		1180	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			560		1180	560
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1011		209	528

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	560	618	3
Volume Left	0	3	1
Volume Right	1	0	2
cSH	1700	1011	350
Volume to Capacity	0.33	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	0.1	15.4
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	15.4
Approach LOS			C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E –
Proposed Development Traffic Generation Calculations-

			First Principles Approach										ITE Trip Generation Approach (11th Ed)					
			AM			MID			PM					AM			PM		
			IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	ITE CODE	GFA (sq.ft)	IN	OUT	TOTAL	IN	OUT	TOTAL
Existing CDN Building																			
North Access			4	2	6	3	3	6	2	8	10								
South Access			7	3	10	0	1	1	1	7	8	ITE 140	65,066	336	106	442	149	332	481
		TOTAL	11	5	16	3	4	7	3	15	18								
Proposed CDN Building																			
2x existing operations			**22**	**10**	**32**	**6**	**8**	**14**	**6**	**30**	**36**			**336**	**106**	**442**	**149**	**332**	**481**
Greenhouse	Employees		10	0	10	5	5	10	0	10	10	ITE 818	690,182	832	832	1663	1809	1809	3617
	Deliveries		4	4	8	0	0	0	4	4	8	ITE 140	690,182	357	112	469	158	353	511
		TOTAL	**14**	**4**	**18**	**5**	**5**	**10**	**4**	**14**	**18**			**357**	**112**	**469**	**158**	**353**	**511**
Total Traffic Generation			**36**	**14**	**50**	**11**	**13**	**24**	**10**	**44**	**54**			**693**	**218**	**911**	**307**	**685**	**992**

Appendix F –
OTM Signal Justification Sheet

Justification No. 7 - 2037 Total Traffic (Critical Case)

Highway 3 / Site Access

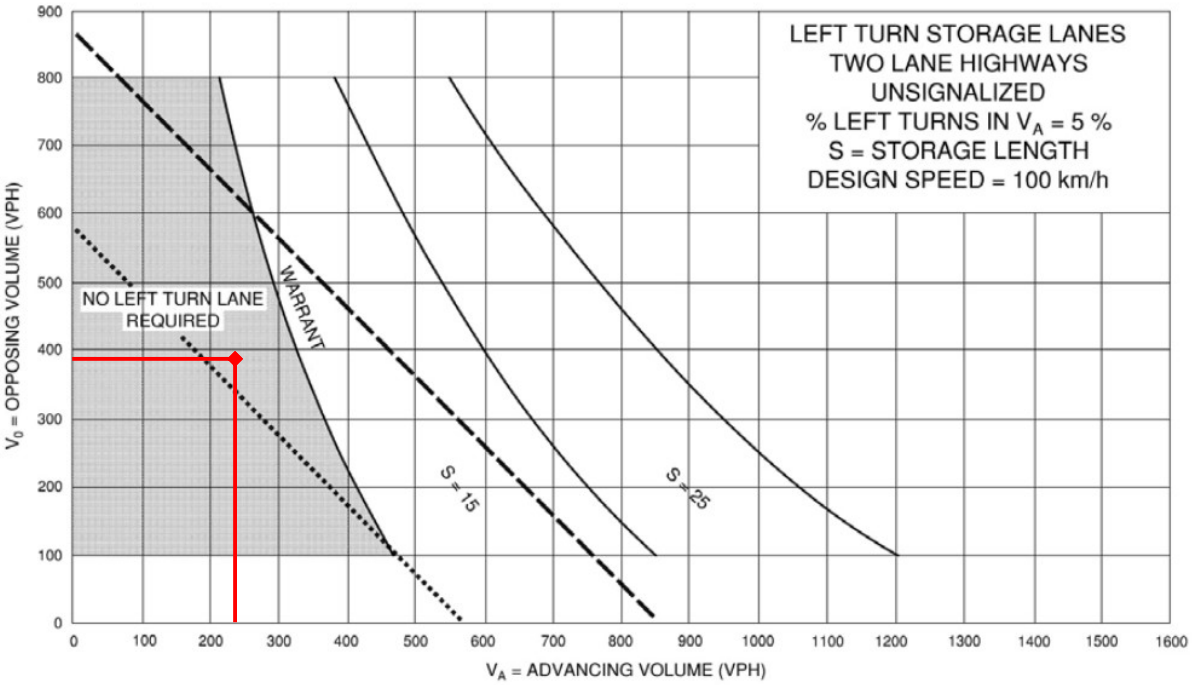
Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Free Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	494	103%	5%	NO	YES
	B. Vehicle volume, along minor streets (average hour)	180	15	8%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	473	99%	9%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	7	14%		NO	NO

Justification No. 7 - 2037 Total Traffic (Critical Case)

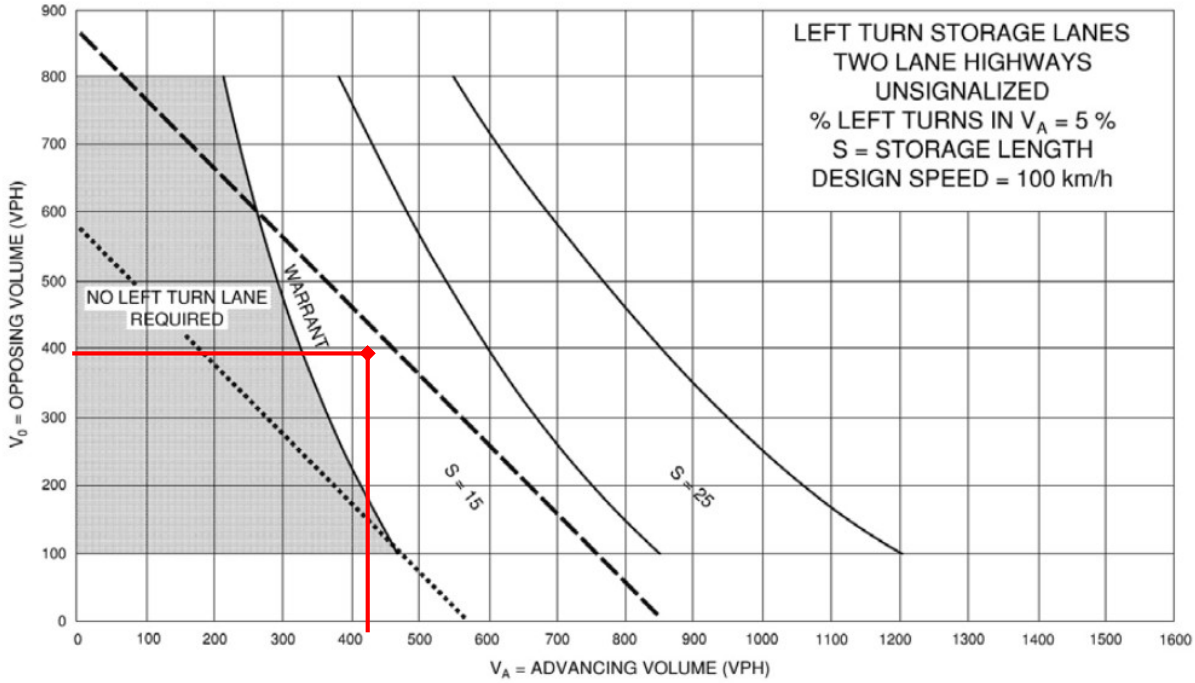
Highway 3 / Scott St

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Free Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	483	101%	2%	NO	YES
	B. Vehicle volume, along minor streets (average hour)	180	4	2%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	479	100%	1%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	1	2%		NO	NO

Appendix G –
Left Turn Warrant Analysis



Total 2027 AM Peak – WB on Highway 3 / Site Access



Total 2027 PM Peak – WB on Highway 3 / Site Access

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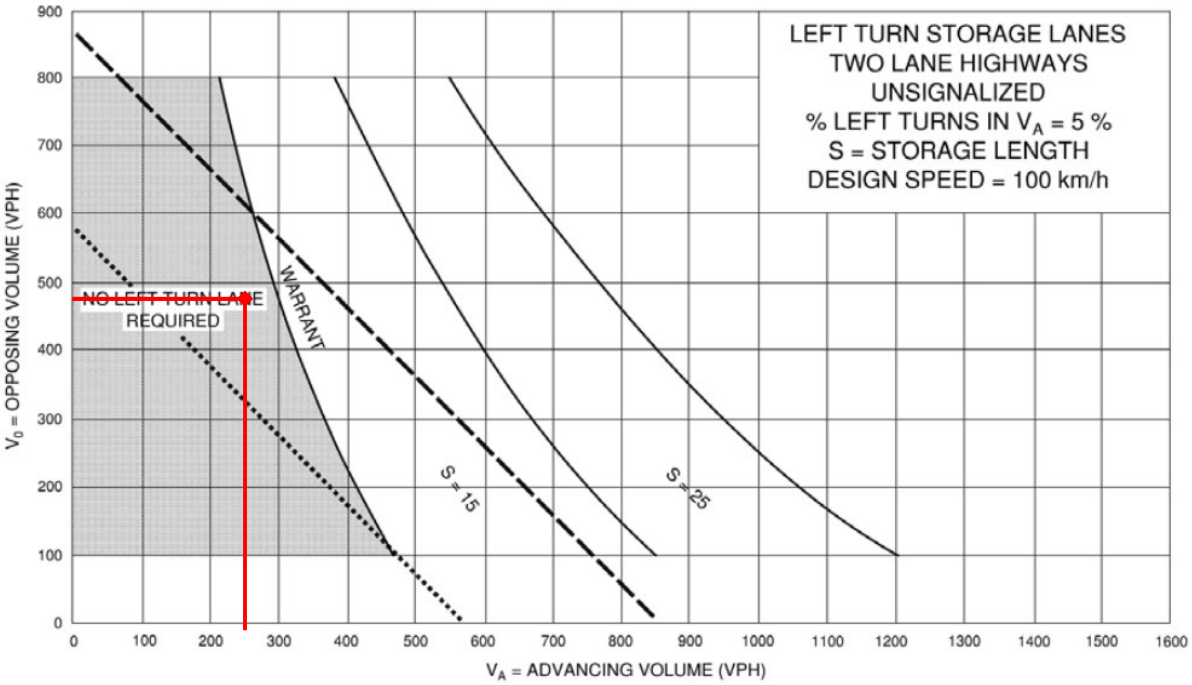
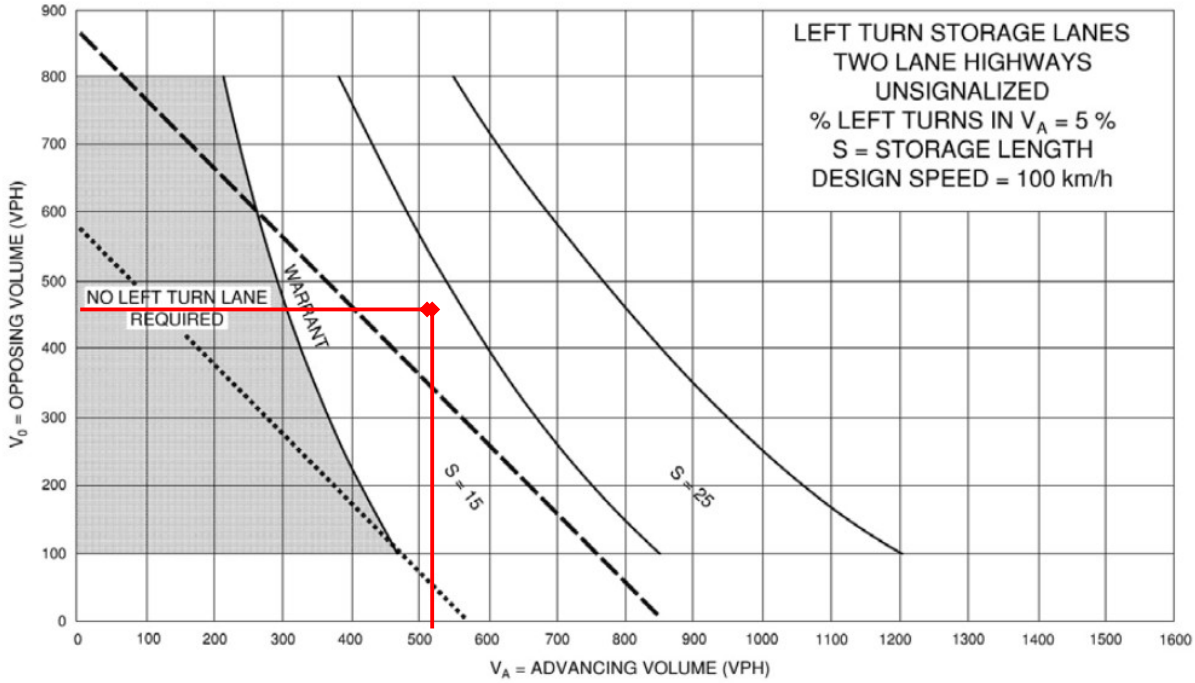


Total 2032 AM Peak – WB on Highway 3 / Site Access



Total 2032 PM Peak – WB on Highway 3 / Site Access

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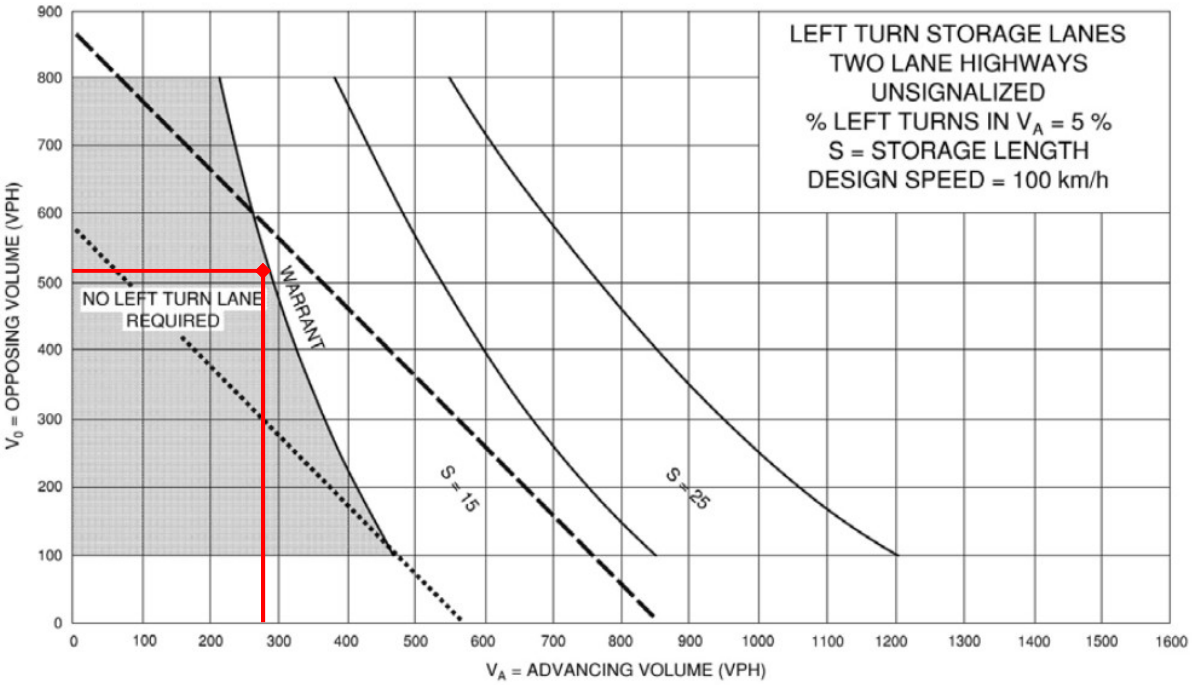
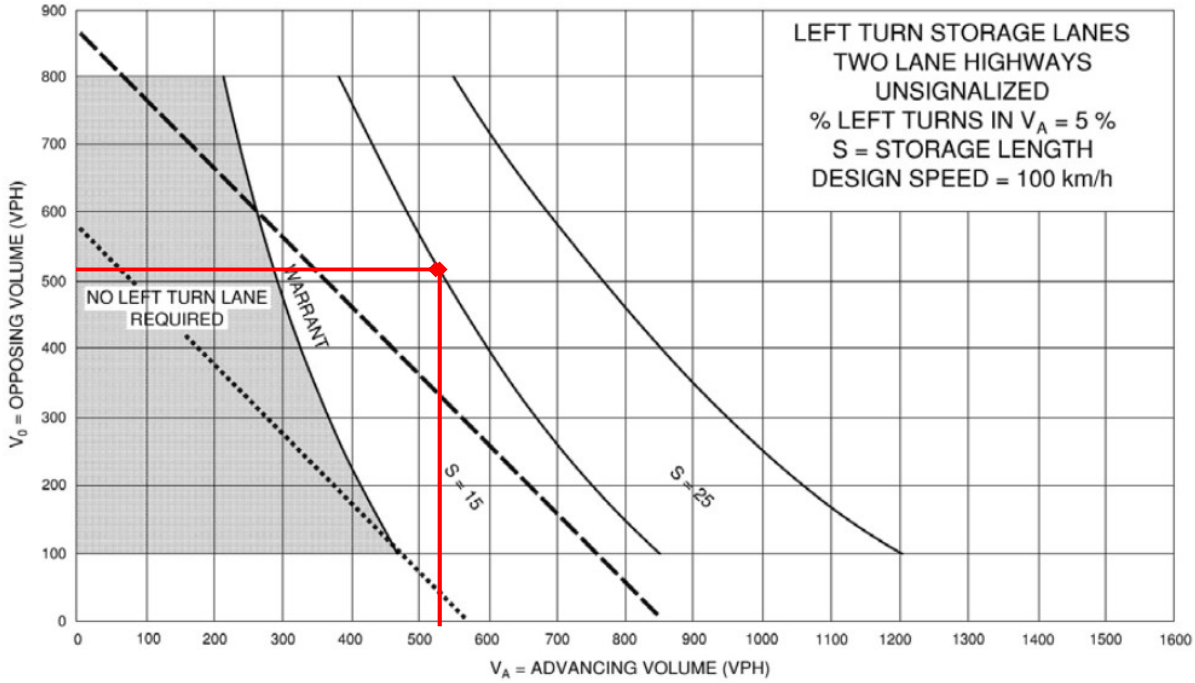


Total 2037 AM Peak – WB on Highway 3 / Site Access



Total 2037 PM Peak – WB on Highway 3 / Site Access

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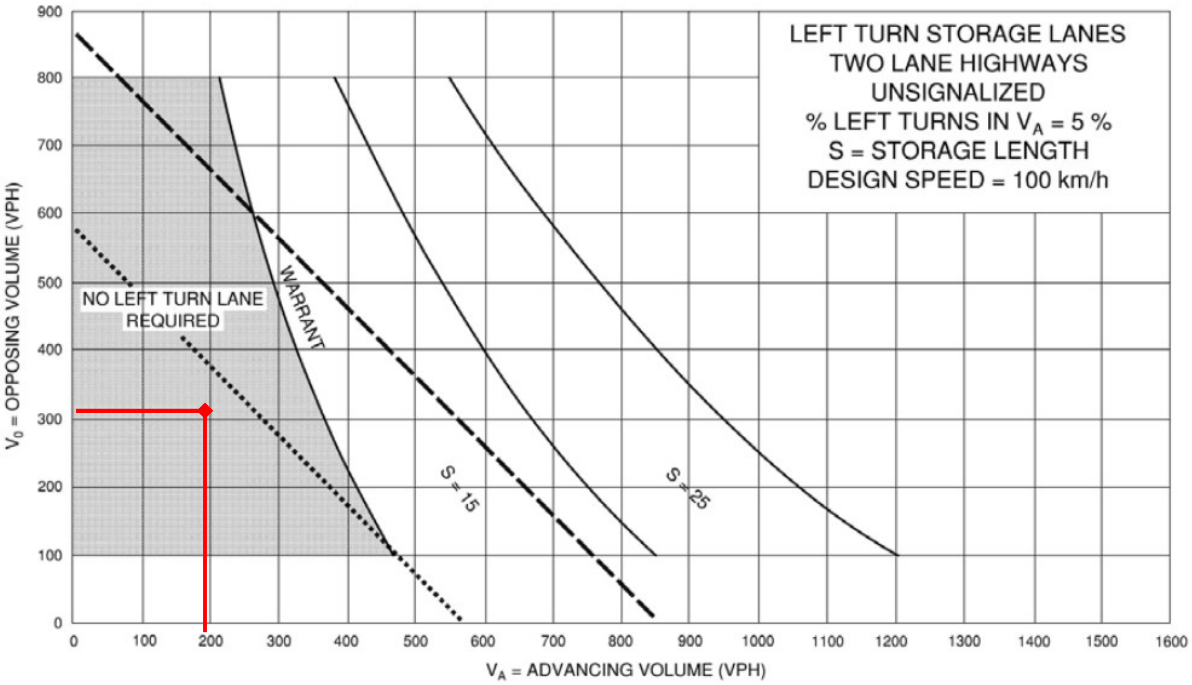
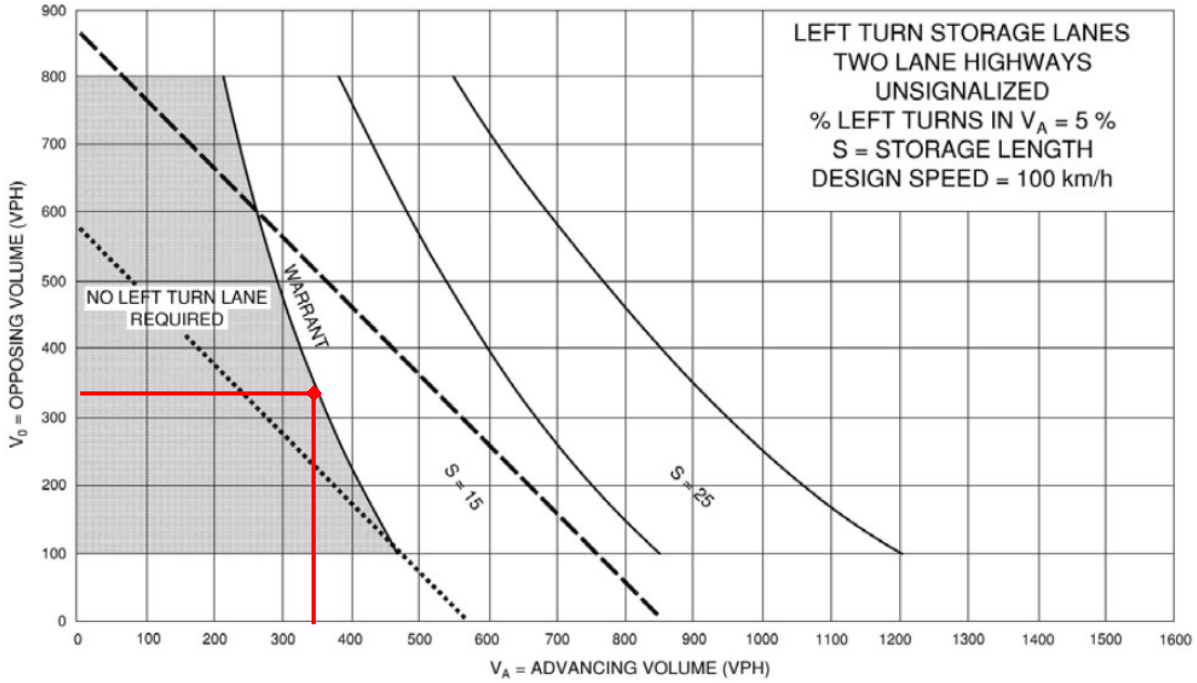


Existing 2024 AM Peak – WB on Highway 3 / Scott St



Existing 2024 PM Peak – WB on Highway 3 / Scott St

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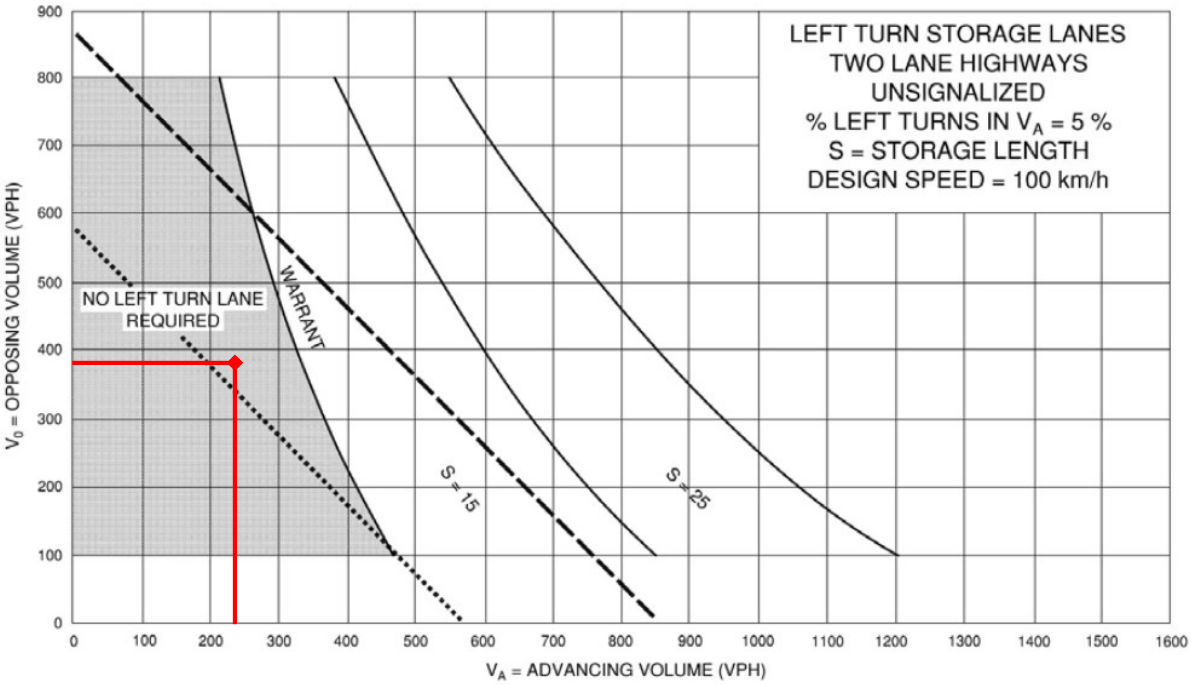
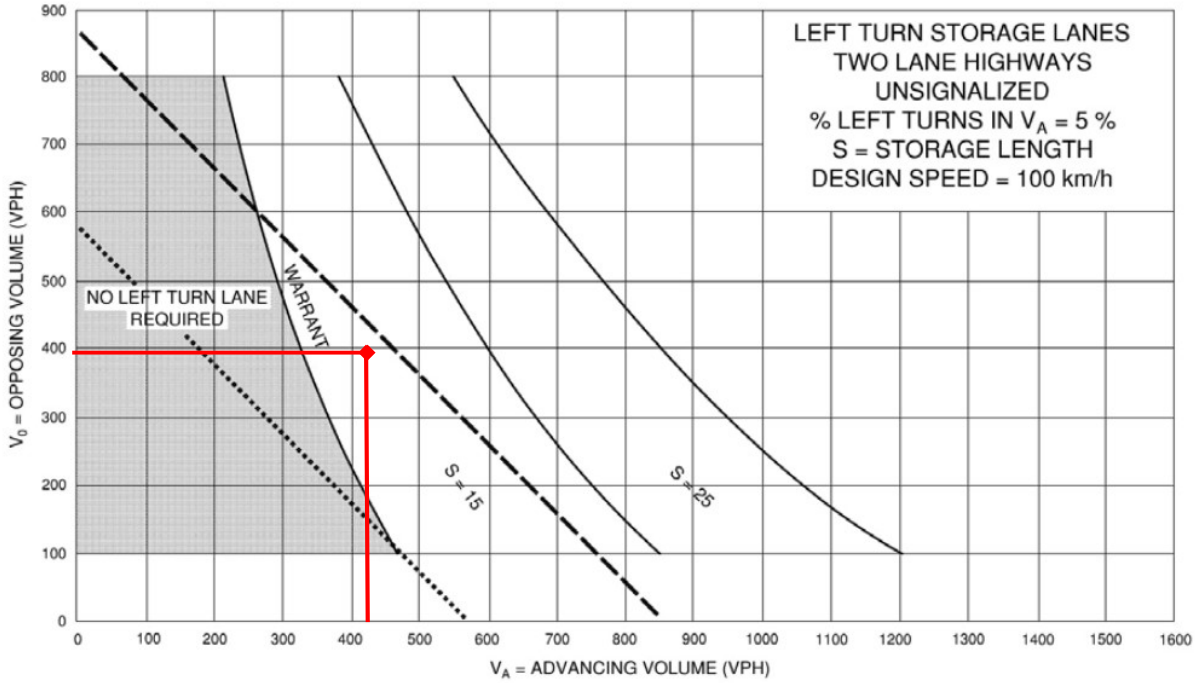


Background 2027 AM Peak – WB on Highway 3 / Scott St



Background 2027 PM Peak – WB on Highway 3 / Scott St

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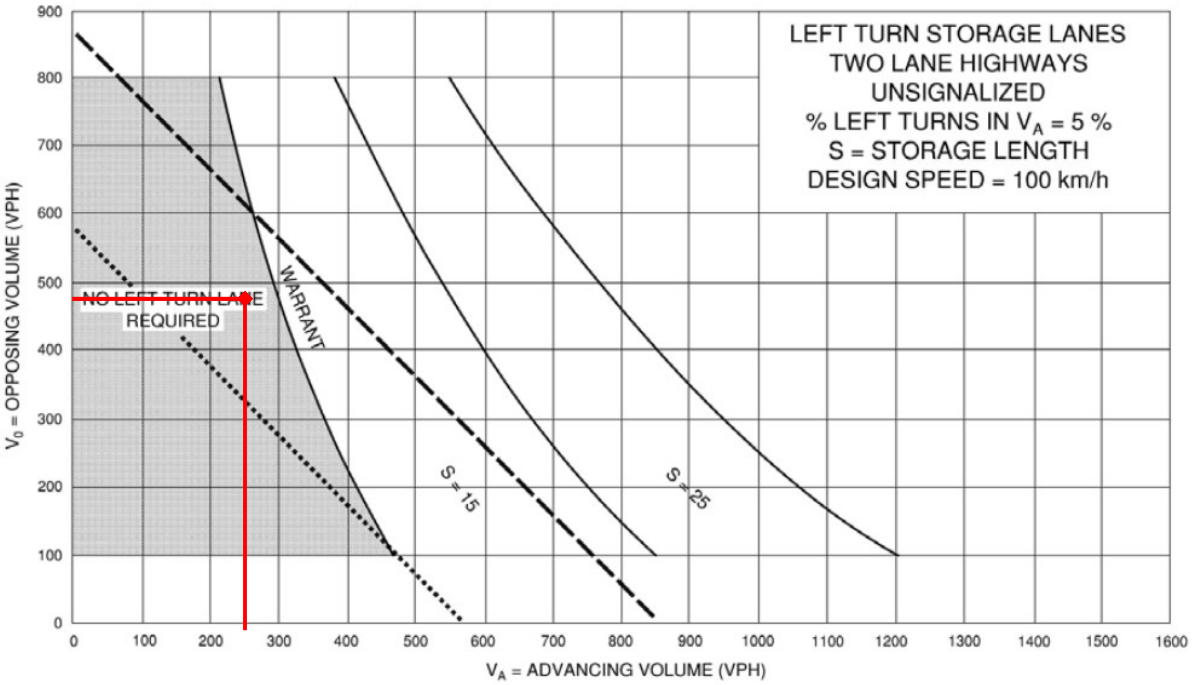
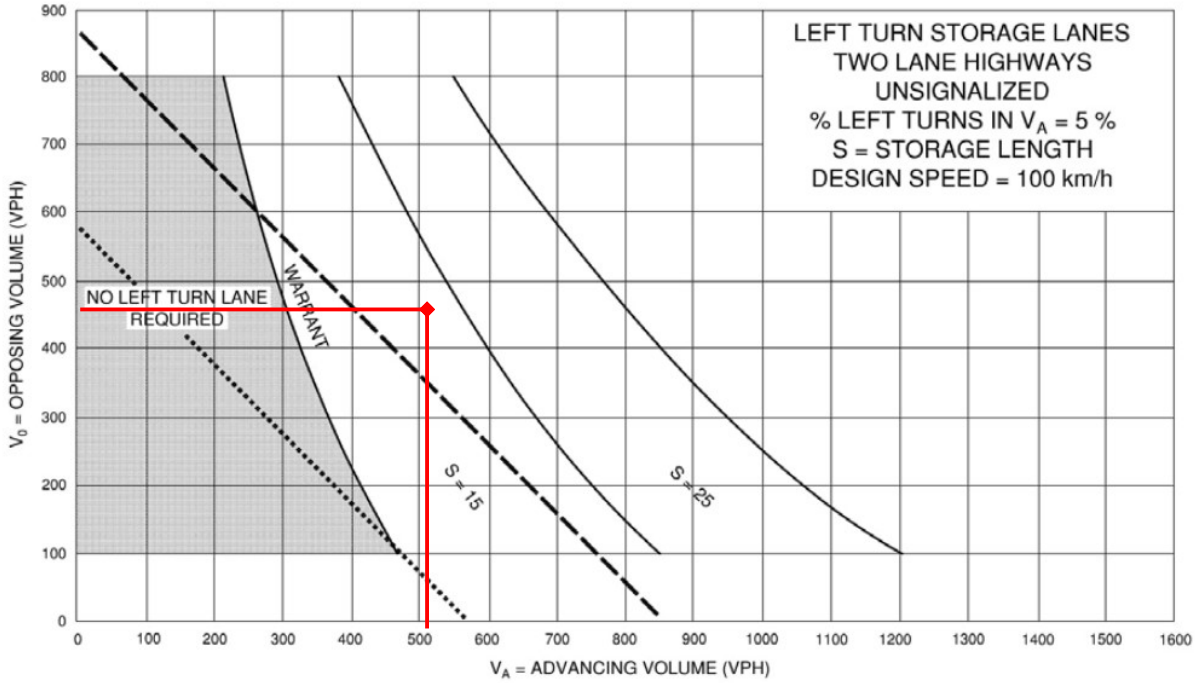


Background 2032 AM Peak – WB on Highway 3 / Scott St



Background 2032 PM Peak – WB on Highway 3 / Scott St

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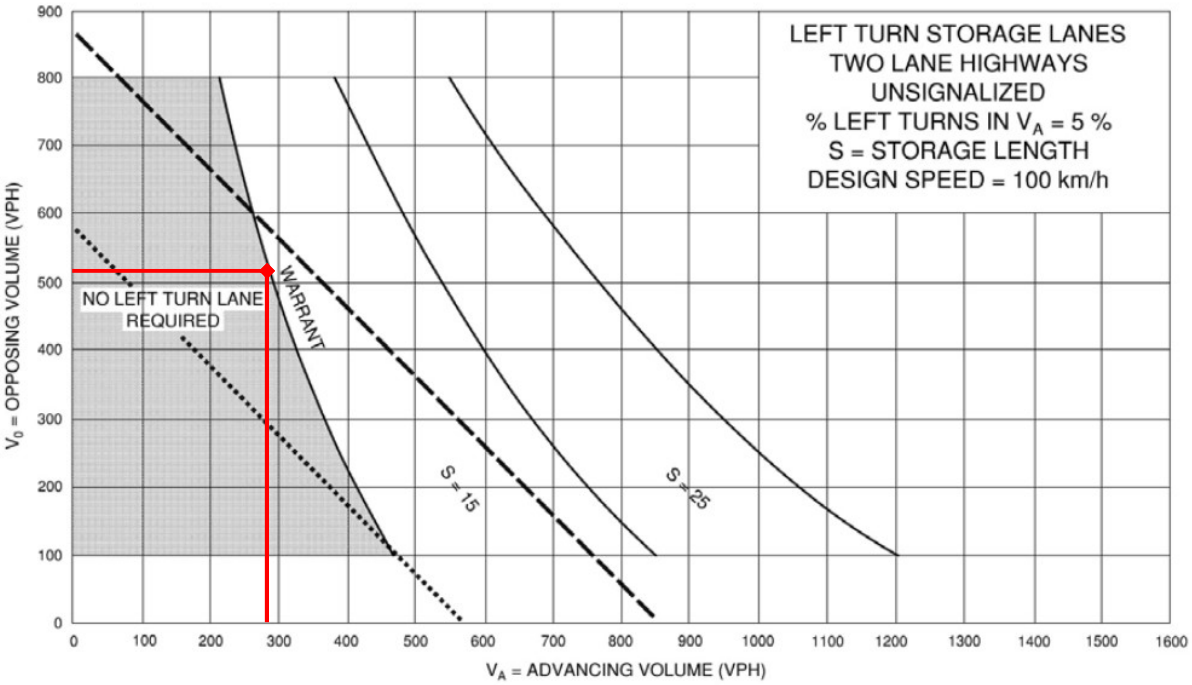
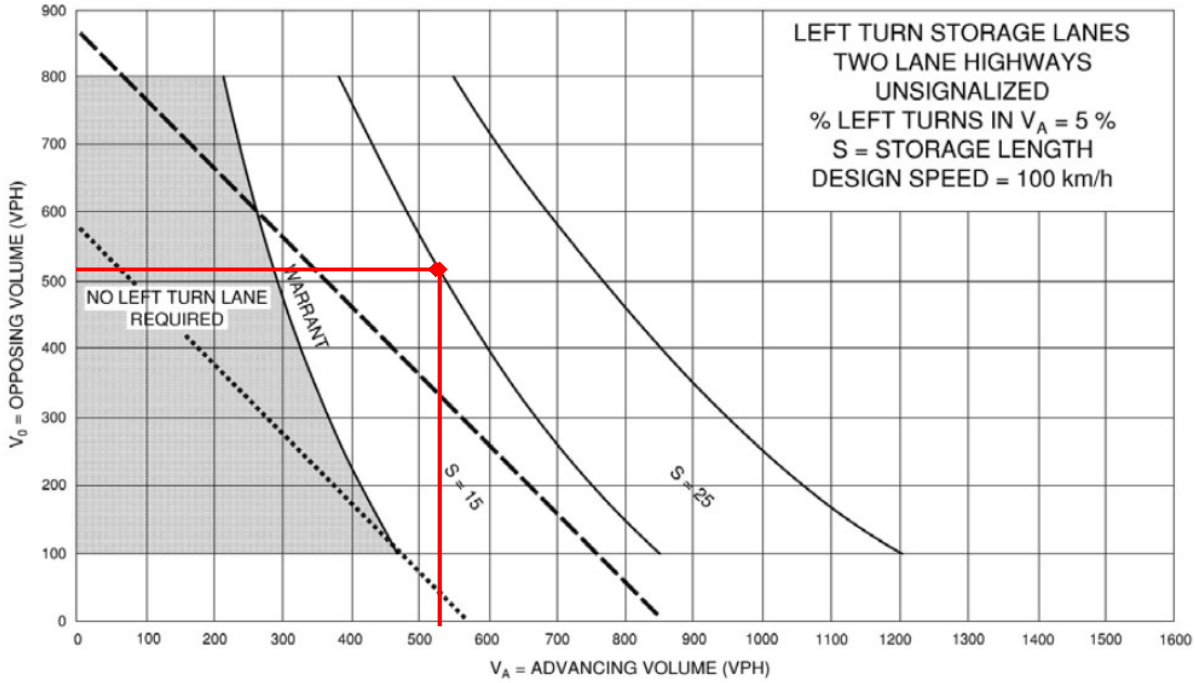


Background 2037 AM Peak – WB on Highway 3 / Scott St



Background 2037 PM Peak – WB on Highway 3 / Scott St

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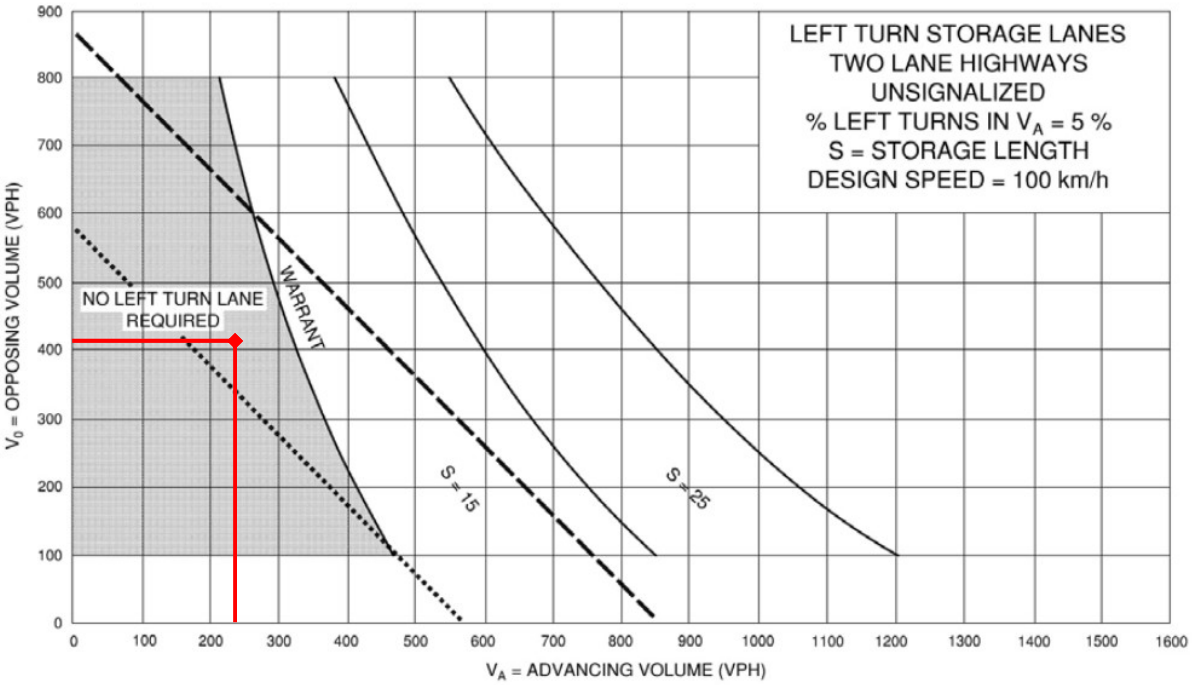
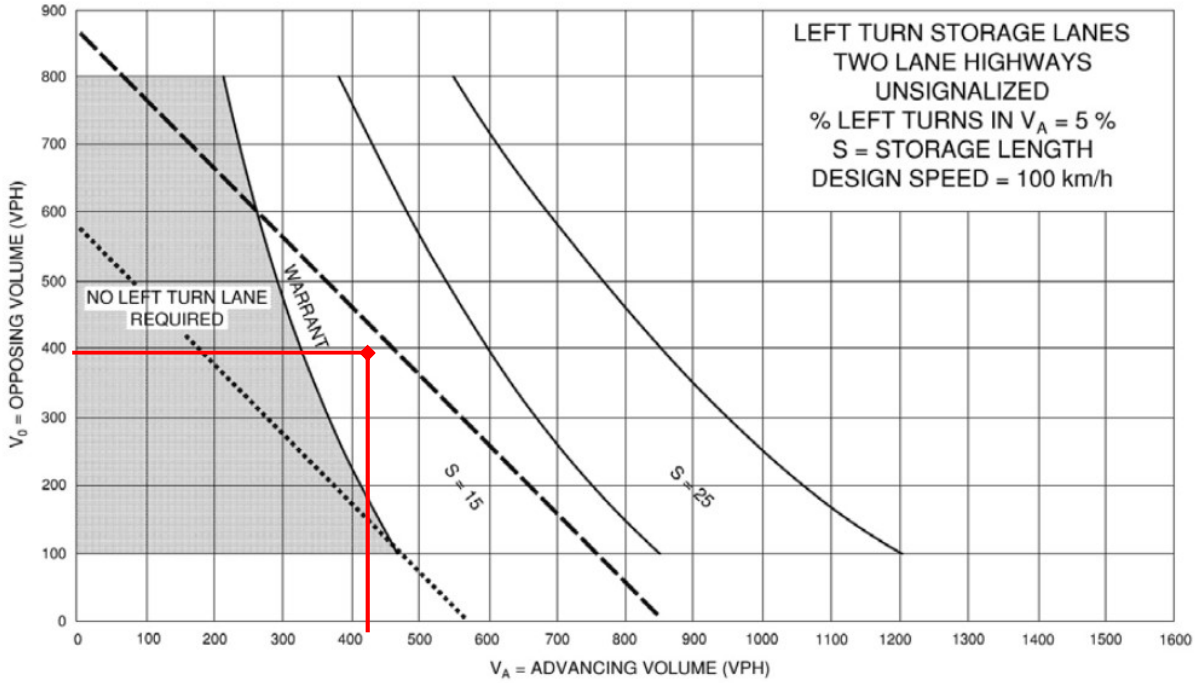


Total 2027 AM Peak – WB on Highway 3 / Scott St



Total 2027 PM Peak – WB on Highway 3 / Scott St

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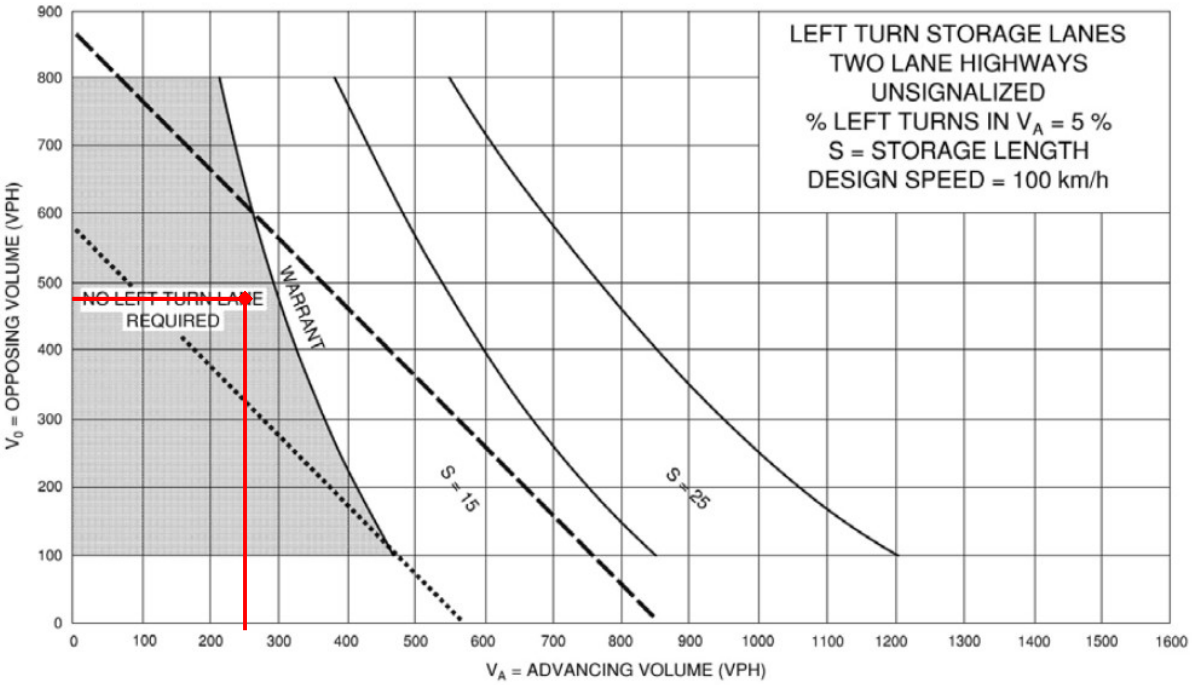
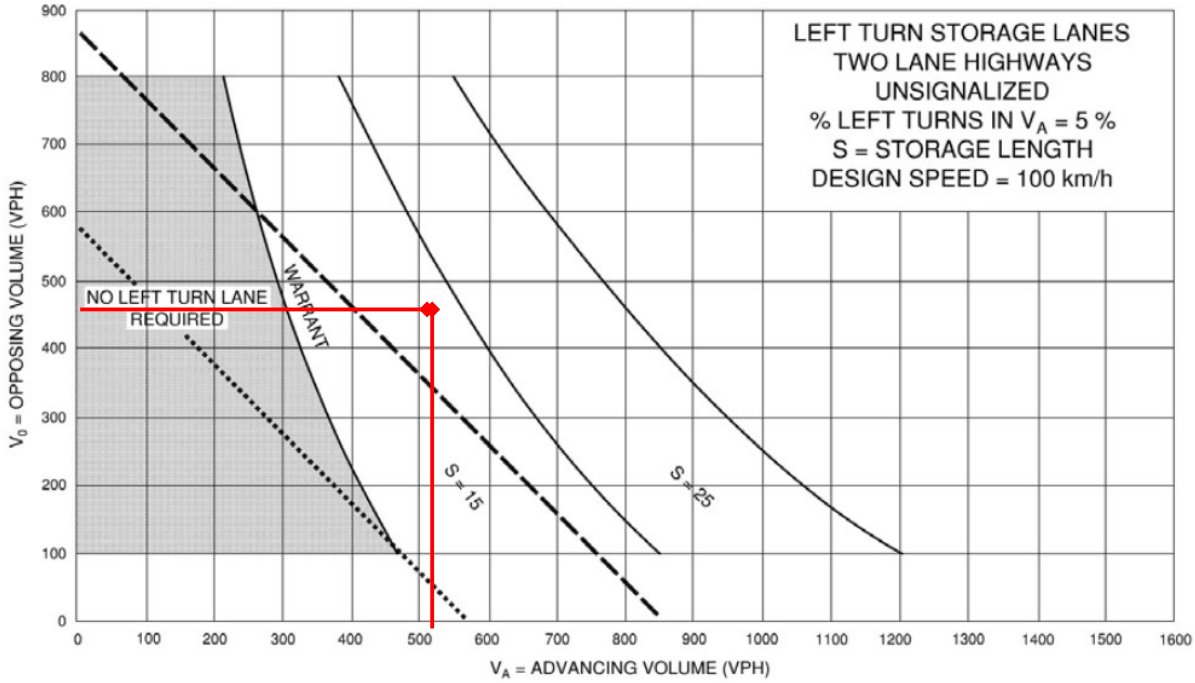


Total 2032 AM Peak – WB on Highway 3 / Scott St



Total 2032 PM Peak – WB on Highway 3 / Scott St

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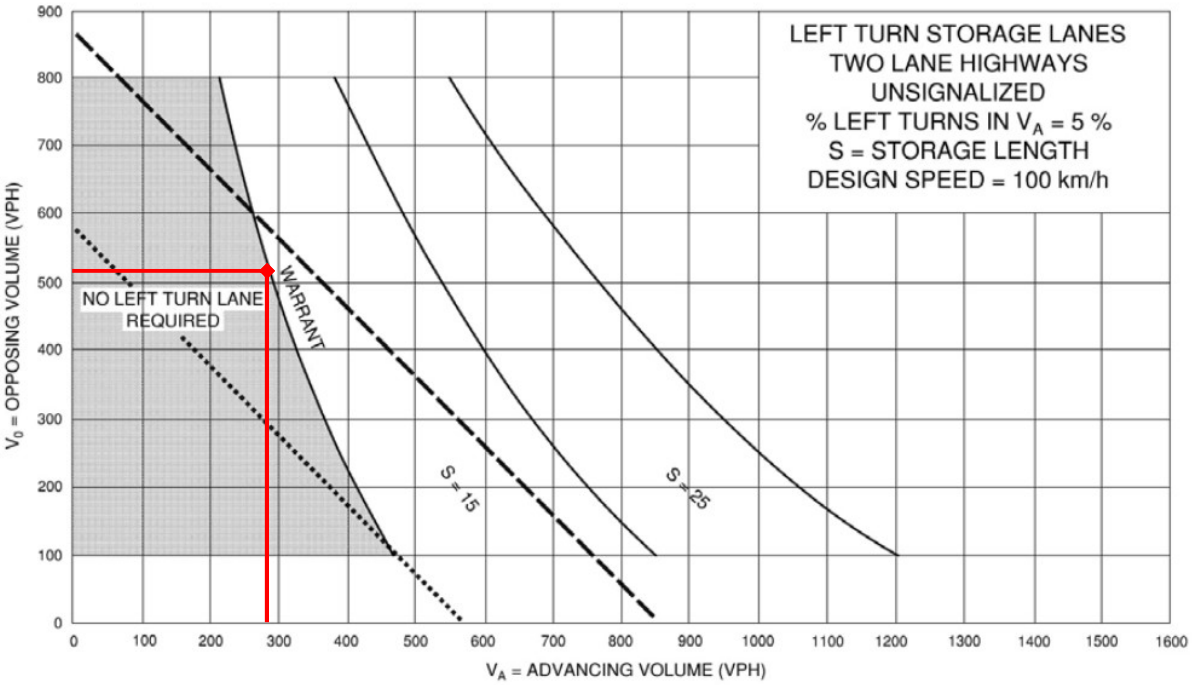
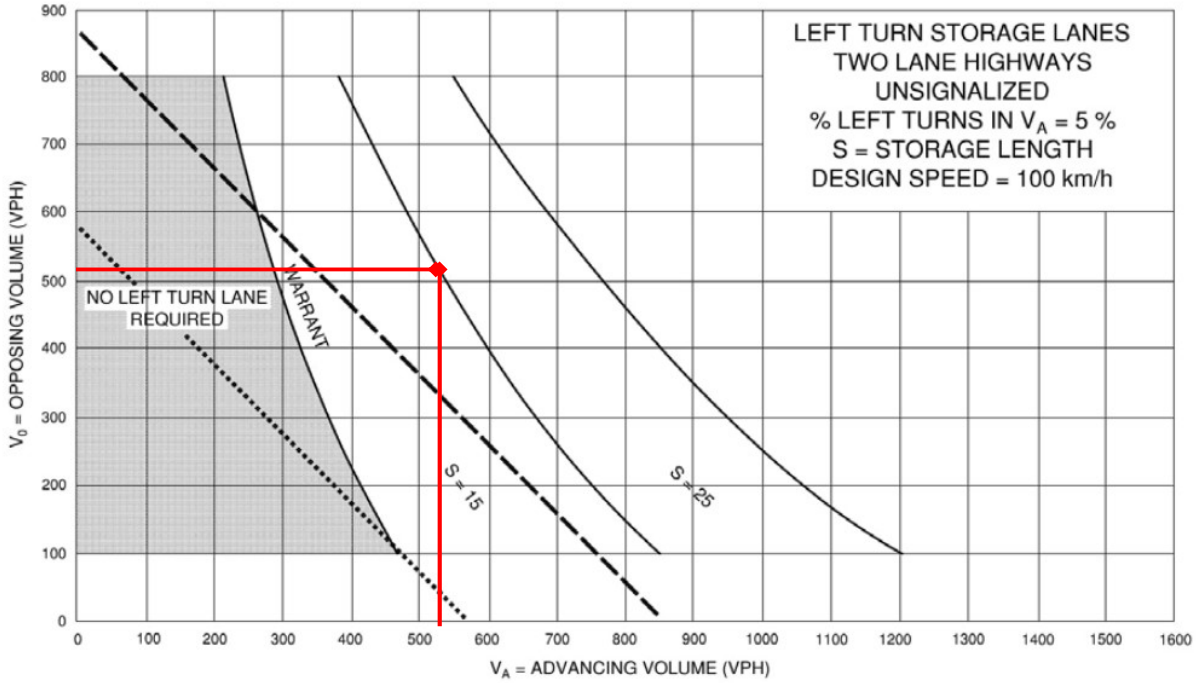


Total 2037 AM Peak – WB on Highway 3 / Scott St



Total 2037 PM Peak – WB on Highway 3 / Scott St

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