

Attn: Alisha Cull
Planning and Realty Services Department
Norfolk County
Community and Development Services Division
12 Gilbertson Drive
Simcoe, ON
N3Y 3N3
519-426-5870
alisha.cull@norfolkcounty.ca



From: William Reed
CDN Buildings
523 James Street, Unit 3
Delhi, ON
N4B 2C2
519-582-8222
wr@cdnbuildings.com

Re: Site Plan Application SPPL2025233
2148 Highway 3 - Roll Number 3310.491.028.07800
Responses to September 16, 2025 Letter

Date: 8-Dec-25

Dear Alisha,

CDN Buildings acknowledges the letter sent to our offices in which you confirm the receipt of the full set of plans for the Site Plan Amendment Application. We note the agency comments provided and have issued responses. Please accept this letter and coordinated responses as a response matrix for this stage of the application.

Please refer to the chart on the following sheets for coordinated comment responses.

Please do not hesitate to contact us should any clarifications be required.

Sincerely,

A handwritten signature in black ink that reads "W. Reed".

William Reed

| COMMENT RESPONSE MATRIX | | | |
|---|--|--|----------------------|
| DEPARTMENT | COMMENT | RESPONSE | REFERENCE |
| Planning and Realty Services Department | Scale | Complete - added | A1.01 |
| | North Arrow | Complete - added | A1.01 |
| | Legal Description | Legal Description not shown on site plan but provided in response letter as follows: WDM CON 14 PT LOT 23 RP 37R3879 PARTS 3 AND 4 REG 40.47AC FR D | This document |
| | Development Name | Complete - added | A1.01 |
| | Owner name, address, and telephone number | Complete - added | A1.01 |
| | Existing easement | No existing Easements | This document |
| | Zoning compliance table - required vs. proposed | Complete - added | A1.01 |
| | Updated parking space totals - required vs. proposed | Already provided "Parking Requirements" Table on site plan sheet. | A1.01 |
| | Mark entrances to parking areas with arrows | Complete - added | A1.01 |
| | All setbacks of buildings and structures to property lines | Complete - added | A1.01 |
| | Septic system setbacks from lot lines and existing and proposed structures | Complete - added | A1.01 |
| | Location of well and setbacks from lot lines and existing and proposed structures | Refer to Notes and details, Site Servicing Plan, and Site Grading Plan, for the location of the well complete with 15m setback shown. | ND-1 SS-1 SG-1 |
| | Refuse disposal and storage areas (if indoors, need notation on plan) | Complete - added | A1.01 |
| | Snow storage locations | Complete - added | A1.01 |
| | Any proposed landscaping, existing trees, etc. | Complete - grassed area and existing treed area extents noted. | A1.01 |
| | Any proposed fencing | None applicable | |
| | Light standards and wall mounted lights with note that lighting will be dark sky compliant | Complete - Lighting photometrics plan provided. | E-100 |
| | Any proposed signage | Complete - No parking signs added | A1.01 |
| | Please include a response matrix outlining how the comments have been addressed | Complete - Please refer to this document | This document |

Continued on next sheet

| COMMENT RESPONSE MATRIX | | | |
|-------------------------|---|--|---|
| DEPARTMENT | COMMENT | RESPONSE | REFERENCE |
| Building Department | 1) Industrial building will require a standpipe system. [OBC 3.5.7.8, NFPA 14] | Complete - Provided. Refer to civil drawings and fire protection drawings. Refer to architectural drawings for building matrix. | A0.01 |
| | 1a) Location of fire department connection on industrial building is required | Complete - Provided on Site Plan, Site Servicing Plan, and Site Grading Plan | A1.01 SS-1 SG-1 |
| | 1b) Fire water capacity to be included in functional servicing report. [NFPA 14] | Complete - Provided in FSR document. | FSR Section 3.3, Page 6 |
| | 1c) Fire water mains to be indicated on civil drawing(if applicable) [OBC 7.2.11.1] | Complete - Provided on Site Servicing Plan and Pond Plan. | SS-1 PND-1 |
| | 1d) Location of pump house to be indicated on the civil drawings (if applicable) [OBC 3.2.5.18, NFPA 20] | Complete - Provided on Site Plan, Site Servicing plan, Site Grading Plan, Pond Plan, and Post Development Stormwater Drainage Plan | A1.01 SS-1 SG-1 PND-1 SWM-2 |
| | 2) Industrial building as designed will require a sprinkler system - interconnected floor space [OBC 3.2.5.12, nfpa 13, 3.2.8.2.] | Complete - provided. Refer to Architectural drawings for the building matrix, refer to civil plans for the servicing of the sprinkler system, refer to FSR for fire flows, and refer to fire protection drawings for system design/drawings/details. | A0.01 SS-1 PND-1 |
| | 2a) Location of fire department connection on industrial building is required [OBC 3.2.5.15] | Complete - Provided on Site Plan, Site Servicing Plan, and Site Grading Plan | A1.01 SS-1 SG-1 |
| | 2b) Fire water capacity to be included in functional servicing report [NFPA 13] | Complete - Provided in FSR document. | FSR Section 3.3, Page 6 |
| | 2c) Fire mains to be indicated on civil drawing (if applicable) [OBC 7.2.11.1] | Complete - Provided on Site Servicing Plan and Pond Plan. | SS-1 PND-1 |
| | 2d) Location of pump house to be indicated on civil drawings (if applicable) [OBC 3.2.5.18, NFPA 20] | Complete - Provided on Site Plan, Site Servicing plan, Site Grading Plan, Pond Plan, and Post Development Stormwater Drainage Plan | A1.01 SS-1 SG-1 PND-1 SWM-2 |

Continued on next sheet

| COMMENT RESPONSE MATRIX | | | |
|----------------------------|--|---|--|
| DEPARTMENT | COMMENT | RESPONSE | REFERENCE |
| Building Department | 3) Fire department access to farm building (greenhouse) is required. Access lane to be indicated on the civil drawings. [OBC 2.2.4.1.] | Complete - Provided on Site plan and Site Servicing Plan. | A1.01 SS-1 |
| | 4) Existing agricultural buildings being used as a contractors shop. A change of use/building permit is required to change the building from a farm building of low human occupancy to an industrial occupancy. [BCA 8/10] | Not Applicable - these buildings will be retained as farm buildings and will be accessory to the agricultural use. The industrial occupancies will be housed in the industrial building on-site. | This document |
| Ministry of Transportation | A new MTO Building and Land Use permit will be required for the greenhouse prior to any work on the site beginning. | Noted. - Will be applied for prior to any works on the greenhouse | This document |
| | Prior to applying for the MTO permit, the label "Future Greenhouse" should be changed to "Proposed Greenhouse". | Noted - Notation to change for the MTO application, when materials are ready to submit for MTO permit. | This document |
| | Any signage visible from Highway 3 will require an MTO sign permit. | Noted. - Any visible signage will be subject to MTO sign permit. | This document |
| Fire | Adequate fire access route to be provided | Complete - Provided on Site plan and Site Servicing Plan. | A1.01 SS-1 |
| | Ensure all OBC requirements are met in relation to fire protection and/or detection systems | Complete - Refer to architectural drawings and fire protection drawings. Civil requirements of the fire protection system are detailed on the Site Servicing Plan, Details, and Pond Plan. Refer to FSR for servicing requirements. | A0.01 A1.01 SS-1 PND-1 ND-1 FSR Section 3.3, Page 6 |
| | More information required for on-site water for sprinkler system - will there be a dry hydrant on-site? | Complete/Yes - refer to civil drawing package for Site servicing plan and notes and details sheet for details. | SS-1 PND-1 ND-1 |
| | If electric vehicle charging or battery-storage infrastructure will be provided please notify NCFD | None proposed - not applicable | This document |

Continued on next sheet

| COMMENT RESPONSE MATRIX | | | |
|-------------------------|---|---|----------------------------------|
| DEPARTMENT | COMMENT | RESPONSE | REFERENCE |
| Development Engineering | 1) Please include a response matrix in your next submission. | Complete - Please refer to this document | This document |
| | 2) Securities are to be provided in the amount of 10% of site works and 100% of works within the right-of-way. This is to be provided in a security schedule. A copy of Norfolk County's template can be provided upon request. | Complete - Securities Schedule provided. | Cost Estimate |
| | 2a) As-constructed drawings must be included as part of the securiteis. The minimum amount of \$1500 @100% will be required. | Complete - Noted. Refer to Gerrits Engineering Response Letter | Gerrits Response Letter, Page 3. |
| | b) Driveway apron to be included at 100% | Noted - refer to securities schedule | Cost Estimate |
| | 3) No Comments | Noted. | |
| | 4) Illustrate the connection between the pond's permanent pool supply and the onsite dry hydrants. | Complete - Provided on notes and details sheet. | ND-1 |
| | 5) Driveway entrance is to be paved from edge of asphalt to property line and constructed per Norfolk County Design Criteria 6.7.01. | Complete - Provided under "4. PARKING LOT" on notes and details sheet. | ND-1 |
| | 6) Identify roof water leaders from all proposed buildings | Complete - Provided on site servicing plan | SS-1 |
| | 7) Per Norfolk County Design Criteria 11.3.00, rear and side yard swales shall have a minimum slope of 2% | Unable due to existing elevations and pond outlet. Refer to Gerrits Engineering Response Letter | Gerrits Response Letter, Page 3. |
| | 8) Confirm elevation for Pond Weir 1. Currently the detail shows 251.24m | Complete - Corrected on-plan to 231.54 | PND-1 |
| | 9) Per Norfolk County Design Criteria 7.4.01, an additional 0.3m freeboard is required above the 100-year storm level | Complete and provided - refer to pond plan and sections | PND-1 |

Continued on next sheet

| COMMENT RESPONSE MATRIX | | | |
|-------------------------|---|--|----------------------------------|
| DEPARTMENT | COMMENT | RESPONSE | REFERENCE |
| Development Engineering | 10) Per Norfolk County Design Criteria 10.1.1., the system shall be designed to meet the greater of either the maximum daily demand plus fire flow, or the maximum hourly demand. | Not applicable: Refer to Gerrits Engineering Response Letter | Gerrits Response Letter, Page 4. |
| | 11) Per Norfolk County Design Criteria 10.1, please revise onsite demand factors. | Complete, revised. Refer to Gerrits Engineering Response Letter. | Gerrits Response Letter, Page 4. |
| | 12) Per Norfolk County Design Criteria 7.8.04, please revise runoff coefficients for areas that outlet to Big Creek | Complete, revised. Refer to Gerrits Engineering Response Letter. | Gerrits Response Letter, Page 4. |
| | 13) Per Norfolk County Design Criteria 7.8.02, please revise IDF Curve Parameters. | Complete, revised. Refer to Gerrits Engineering Response Letter. | Gerrits Response Letter, Page 4. |
| Zoning Administrator | Building height of office/manufacturing building is deficient. Proposal is 12.58m from grade to peak, Maximum permitted is 11m in the agricultural zone. (Planning staff note that this was addressed through the Zoning By-Law Amendment.) | Complete: Height of office building permitted through bylaw amendment. | Zoning By-Law Amendment |
| | Provide setback and building height information for proposed buildings in site statistics table | Complete - Table provided on site plan for zoning provision compliance | A1.01 |
| | Parking access aisles for parking spaces need to be 7.3m for two way traffic. | Complete - Revised and provided on site plan. | A1.01 |
| | Parking is deficient by 13 parking spaces, 108 total parking spaces required. | Complete - Revised to 108 total parking spaces provided. | A1.01 |
| | 2 Type-A and 3 Type-B barrier free spaces minimum required. Type-A spaces can be provided in lieu of Type-B spaces. The proposal currently meets the barrier free parking requirement. | Complete - 2 Type-A and 3 Type-B barrier free stalls shown. | A1.01 |

End of Response Matrix

SITE PLAN APPLICATION SPPL2025233 2148 HIGHWAY 3 – ROLL NUMBER 3310.491.028.07800

**NORFOLK COUNTY
12 GILBERSTON DRIVE
SIMCOE ONTARIO N3Y 3N3**

Attn: Alisha Cull Acting director, Planning and Realty Services

Site Plan Application SPPL2025233

1st Submission Comments

2148 Highway 3, Norfolk ON

Thank you for your comments received date comments received September 16 2025; the following items are in response to comments:

Building Department Comments

Industrial building will require a standpipe system.

[OBC 3.5.7.8, NFPA 14]

- a) Location of fire department connection on industrial building is required. *[OBC 3.2.5.15]*
- b) Fire water capacity to be included in functional servicing report. *[NFPA 14]*
- c) Fire water mains to be indicated on civil drawing (if applicable). *[OBC 7.2.11.1]*
- d) Location of pump house to be indicated on the civil drawings (if applicable). *[OBC 3.2.5.18, NFPA 20]*

- **Response:** Functional servicing report includes fire water capacity and Site servicing drawing have been updated to show fire department connection, fire water mains and pump house location.

Industrial building as designed will require a sprinkler system – interconnected floor space.

[OBC 3.2.5.12, NFPA 13, 3.2.8.2]

- a) Location of fire department connection on industrial building is required. *[OBC 3.2.5.15]*
- b) Fire water capacity to be included in functional servicing report. *[NFPA 13]*
- c) Fire water mains to be indicated on civil drawings (if applicable). *[OBC 7.2.11.1]*
- d) Location of pump house to be indicated on the civil drawings (if applicable). *[OBC 3.2.5.18, NFPA 20]*

- **Response:** Functional servicing report includes fire water capacity and Site servicing drawing have been updated to show fire department connection, fire water mains and pump house location.

Fire department access to farm building (greenhouse) is required.

Access lane to be shown on the civil drawings. [OBC 2.2.4.1]

Response: Site servicing drawing includes the fire access lane.

Existing agricultural buildings being used as a contractor's shop.

A change of use / building permit is required to change the building from a farm building of low human occupancy to an industrial occupancy. [BCA 8/10]

Response: CDN Buildings to comment.

Development Engineering Comments

General:

Comment #1: Please include a response matrix in your next submission.

- Response: We elected to provide a letter response format to the comments as the amount of comments were minimal.

Comment #2: Securities are to be provided in the amount of 10% of site works and 100% of works within the right-of-way. This is to be provided in a security schedule. A copy of Norfolk County's template can be provided upon request.

a. As-constructed drawings must be included as part of the securities. The minimum amount of \$1500.00 @ 100% will be required.

b. Driveway apron to be included at 100%.

- Response: Please see Securities and Construction Estimates with civil engineering package.

Erosion and Sediment Control Plan:

Comment #3: No Comments.

- Response: Noted

Site Servicing Plan

Comment #4: Illustrate the connection between the pond's permanent pool supply and the onsite dry hydrants.

- Response: Please see pond section and details to show location of dry hydrant pipe intake

Site Grading Plan

Comment #5: Driveway entrance is to be paved from edge of asphalt to property line and constructed per Norfolk County Design Criteria 6.7.01: COMMERCIAL, LIGHT INDUSTRIAL AND APARTMENTS

Asphalt

- 40 mm HL3 surface course
- 50 mm HL8 base course

Granular Base

- 150 mm of Granular 'A'
- 225 mm of Granular 'B'

- Response: Notes and detail page has been updated to include Driveway entrance pavement structure.

Comment #6: Identify roof water leaders from all proposed buildings.

- Response: Civil drawings have been updated to show down spouts on all buildings.

Comment #7: Per Norfolk County Design Criteria 11.3.00, rear and side yard swales shall have a minimum slope of 2.0%

- Response: Due to the existing elevations and pond outlet location, we are unable to meet the minimum slope of 2.0% for 3.0m channel. We have include a detail which includes rip rap and subdrain to ensure drainage is directed towards the proposed storm pond.

Pond Plan

Comment #8: Confirm elevation for pond weir 1. Currently the detail shows 251.24m.

- Response: The weir detail has been updated and the corrected elevation identified

Comment #9: Per Norfolk County Design Criteria 7.4.01, an additional 0.3m freeboard is required above the 100-year stormwater level.

- Response: Civil drawings have been updated to include the 0.30m freeboard around the pond at the elevation of 231.90m

Functional Servicing Report (February 28, 2025)

Comment #10: Per Norfolk County Design Criteria 10.1.1, the system shall be designed to meet the greater of either of the following demands:

- a. Maximum daily demand plus fire flow
- b. Maximum hourly demand

- Response: Noted. However, the subject property is a separated water system, with fire supply and potable water supply being separated and in different pipes. One system is supplying the potable water which is sized to accommodate the greater of the maximum daily demand or the maximum hourly demand. The fire supply system is sized to accommodate the fire flows.

Comment #11: Per Norfolk County Design Criteria 10.1, please revise onsite demand factors.

- Response: Functional servicing report has been updated to reflect demand factors based on Norfolk County Design criteria 10.1

Comment #12: Per Norfolk County Design Criteria 7.8.04, please revise runoff coefficients for areas that outlet to Big Creek.

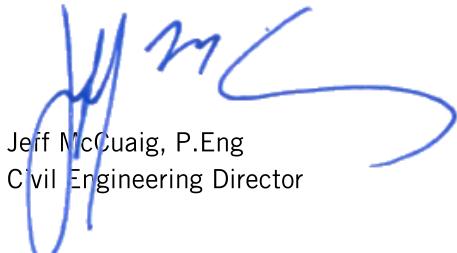
- Response: Functional servicing report has been updated to reflect runoff coefficients based on Norfolk County Design Criteria 7.8.04

Comment #13: Per Norfolk County Design Criteria 7.8.02, please revise IDF Curve Parameters.

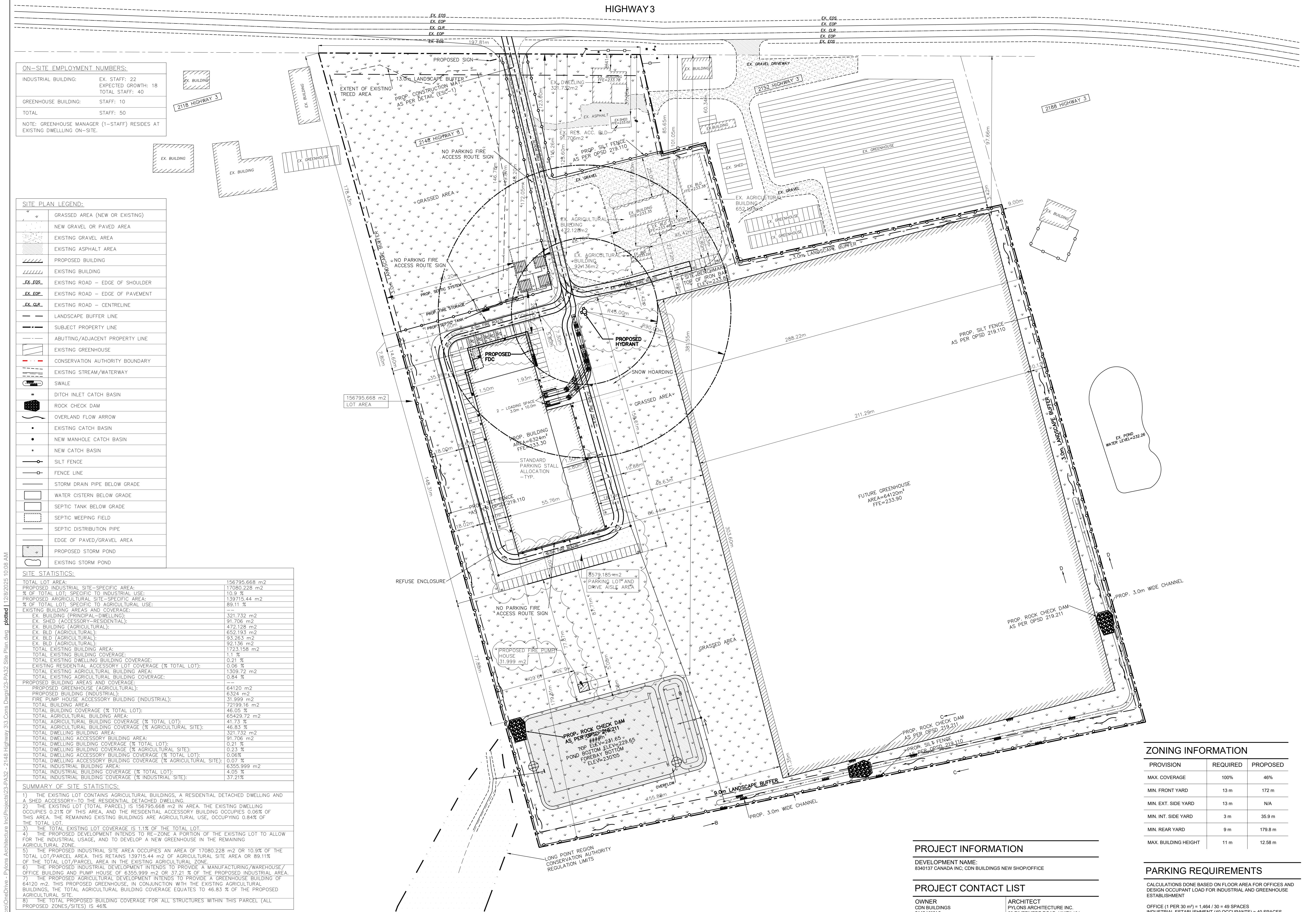
- Response: Functional servicing report has been updated to reflect IDF Curve parameters based on Norfolk County Design Criteria 7.8.02

We trust this answers your questions presently. Please feel free to contact the office should you have any further questions.

Sincerely,
Gerrits Engineering Limited


Jeff McCuaig, P.Eng
Civil Engineering Director

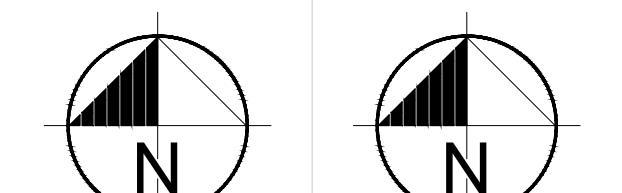

kevin filion, C.E.T.
Civil Design Manager



PYLONS
architecture inc.

Architecture • Interior Design • Project Management
T 289-637-1375 E info@pylons.ca W www.pylons.ca

A 20 Rivermeade Road, Unit# 101, Concord, Ontario, Canada



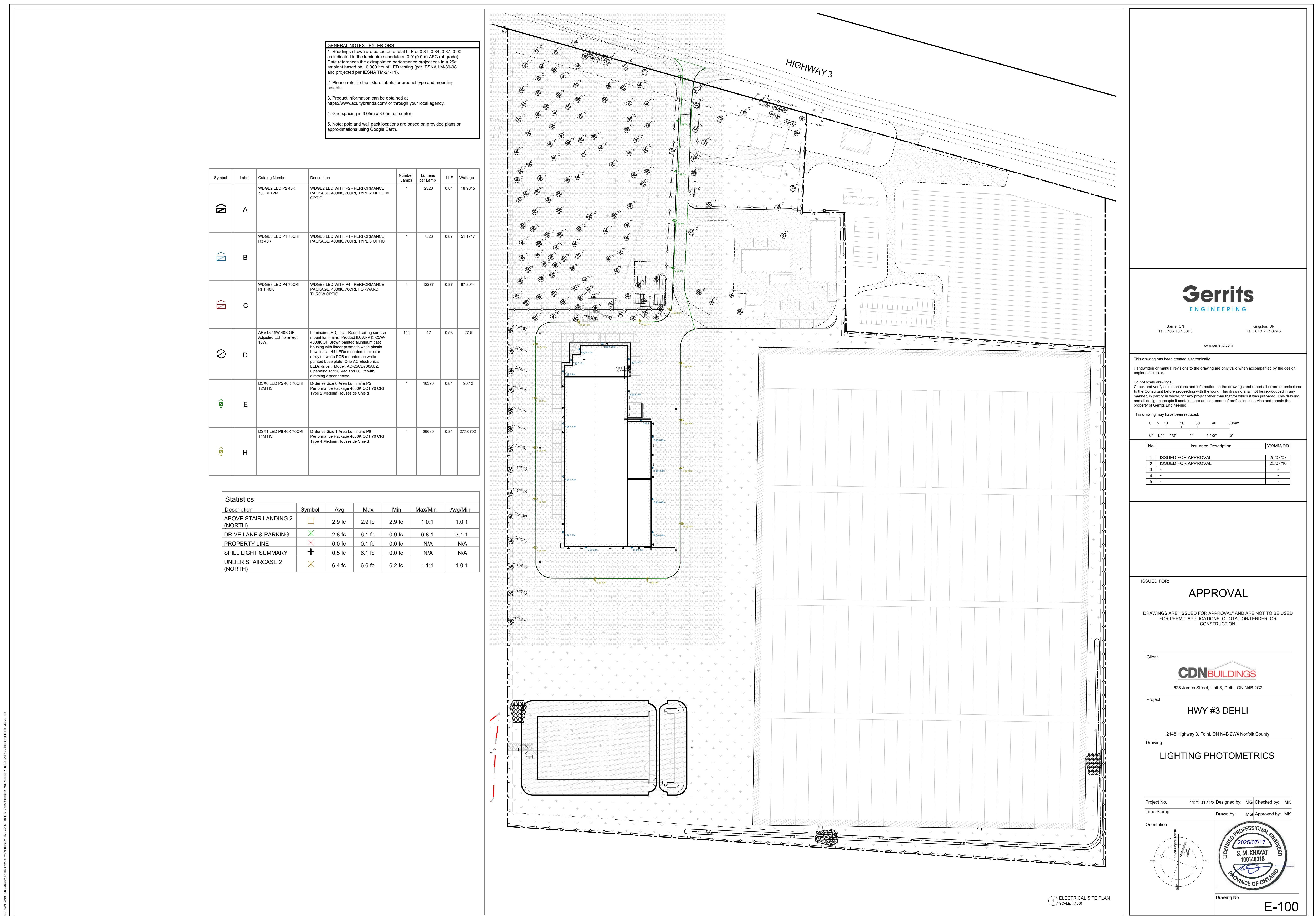
8340137 CANADA INC.

2148 HIGHWAY #3 DELHI,
ONTARIO N4B 2C2

SITE PLAN

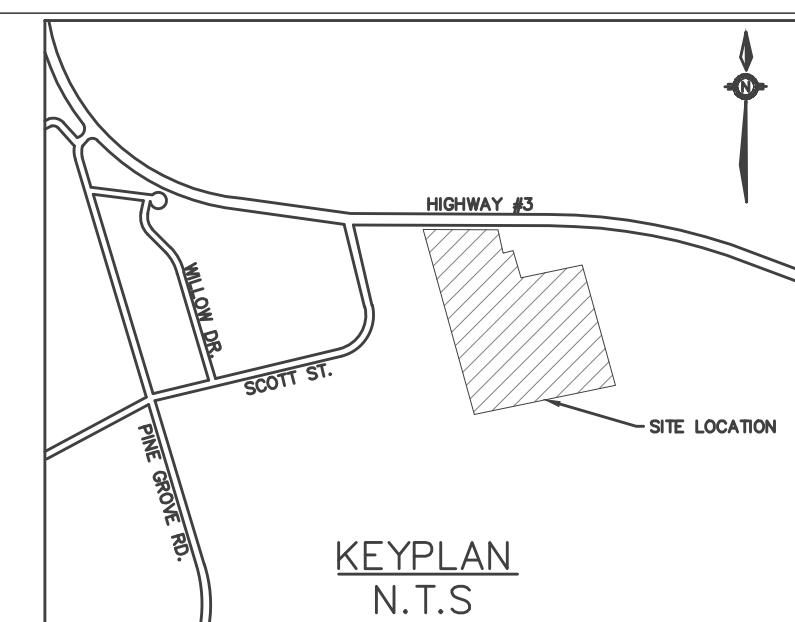
Project No.: 23-PA32
Scale: AS NOTED
Date: OCT 16, 2023
Drawn by: AS
Checked by: RN

A1.01



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This drawing may have been reduced.
0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"



LEGEND

| | |
|----------|------------------------------------|
| —○— | PRIVACY FENCE |
| —○— | ACOUSTIC FENCE |
| —X— | CHAIN LINK FENCE |
| —○— | SILT FENCE |
| —G— | GAS LINE |
| —H— | HYDRO LINE |
| —B— | BELL LINE |
| SAN# ● | EXISTING SANITARY MAINTENANCE HOLE |
| SAN# ● | PROPOSED SANITARY MAINTENANCE HOLE |
| CB# □ | EXISTING CATCH BASIN |
| CB# □ | PROPOSED CATCH BASIN |
| STM# ○ | EXISTING STORM MAINTENANCE HOLE |
| STM# ○ | PROPOSED STORM MAINTENANCE HOLE |
| HYD&VB □ | SERVICE CAP |
| HYD&VB □ | EXISTING FIRE HYDRANT |
| HYD&VB □ | PROPOSED FIRE HYDRANT |
| VB# □ | EXISTING VALVE BOX |
| VB# □ | PROPOSED VALVE BOX |
| —○— | PROPOSED SIGN |
| ◆ | EXISTING LIGHT POLE |
| ► | MANDOOR |
| △ | OVERHEAD DOOR |
| —○— | FIRE DEPT CONNECTION |
| DS | DOWNSPOUT |
| E | ELECTRICAL ROOM |
| M | MECHANICAL ROOM |
| —○— | LANDSCAPE AREA |
| —○— | LIGHT DUTY ASPHALT AREA |
| —○— | HEAVY DUTY ASPHALT AREA |
| —○— | GRAVEL AREA |

| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
| 2. | MTO SUBMISSION | 25/04/09 |
| 3. | SPA & BP SUBMISSION | 25/12/05 |

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

Issued For:

SITE PLAN APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

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

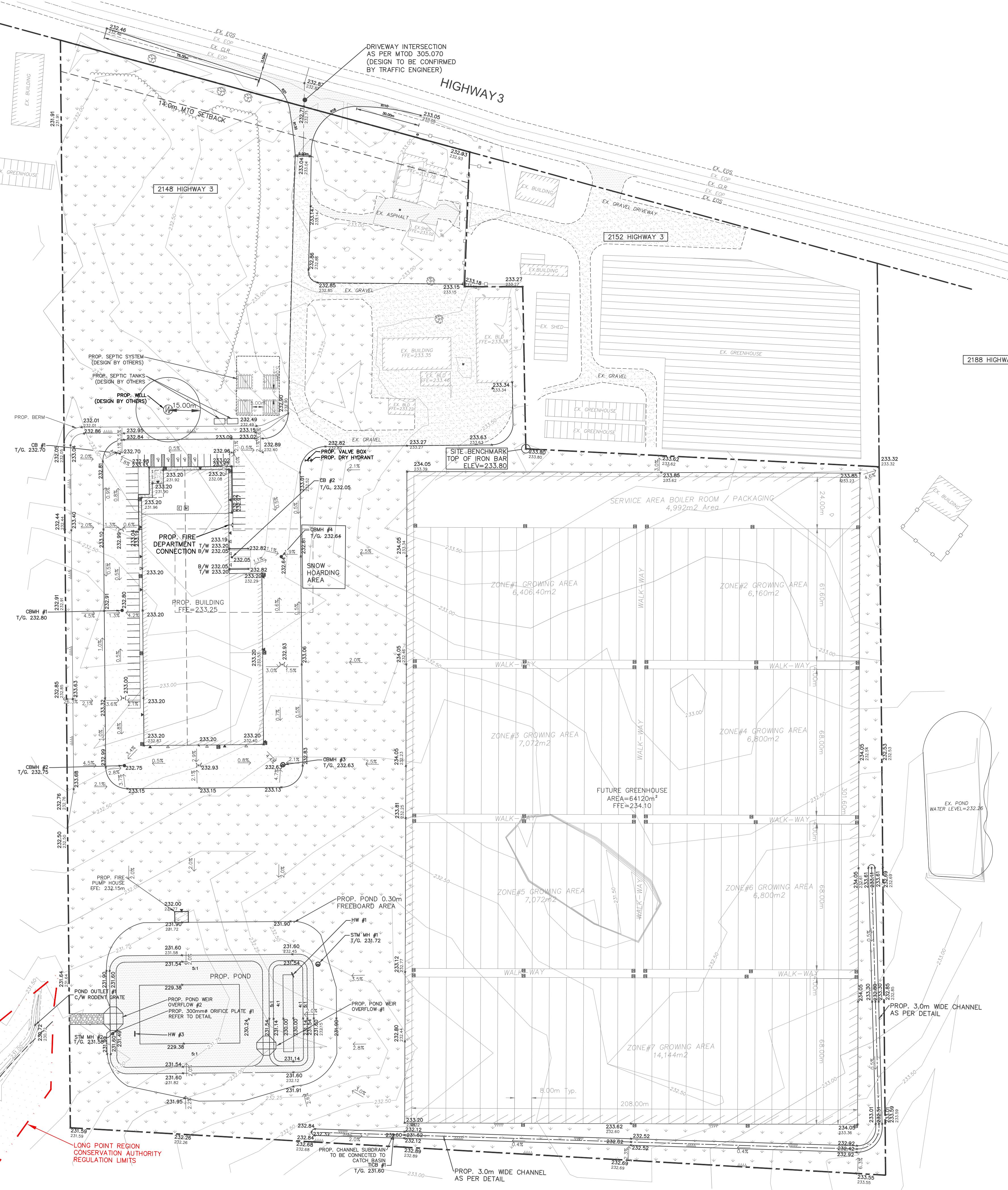
Project No. 1121-012-22 Designed by: KF Checked by: JDM

Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp:

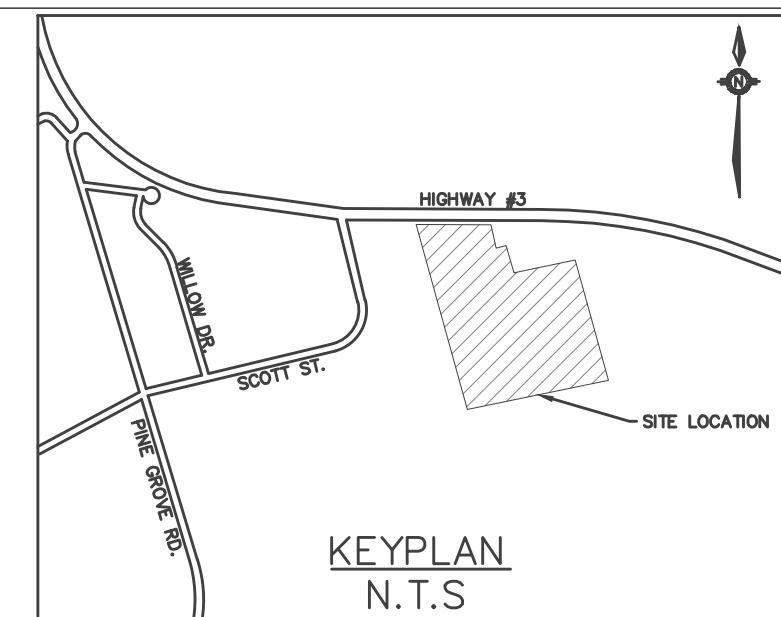


Drawing No. SG-1



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0 5 10 20 30 40 50mm
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LEGEND

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

— CATCHMENT BOUNDARY

→ OVERLAND FLOW

— LPRCA REGULATION LIMIT

| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
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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

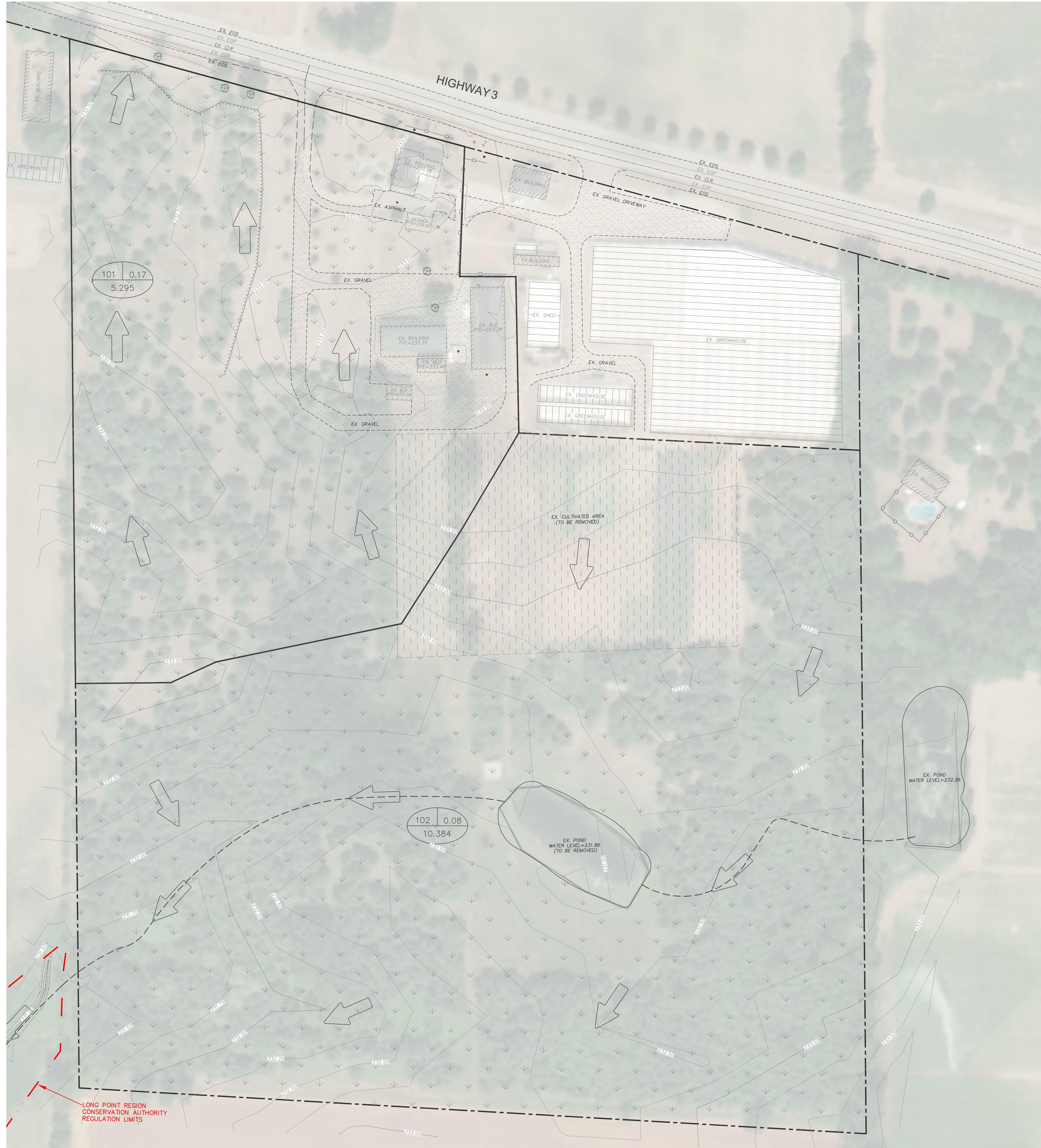
Drawing:
**PRE-DEVELOPMENT
STORMWATER
DRAINAGE PLAN**

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

Orientation: Stamp

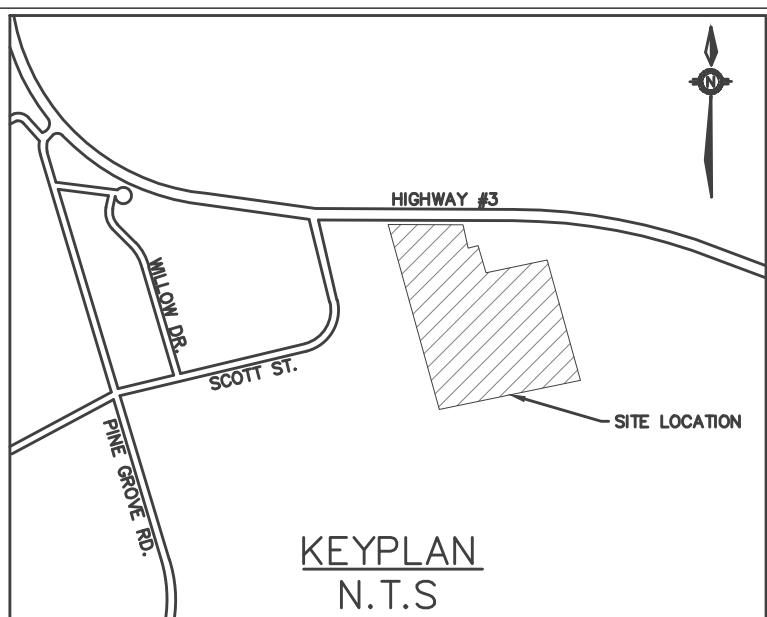


Drawing No. SWM-1

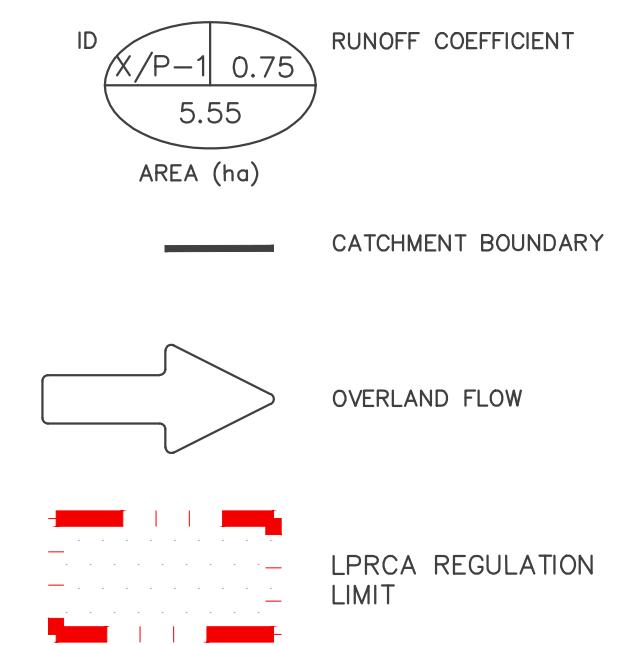


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LEGEND



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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

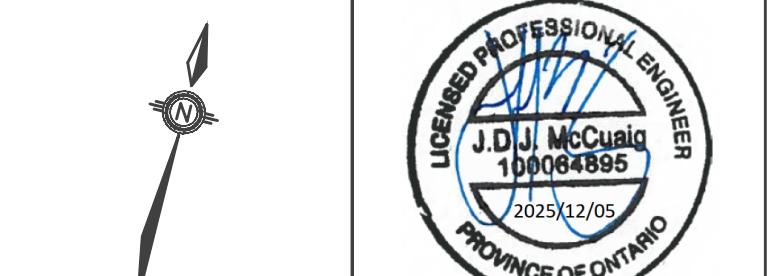
Project: **HWY #3 DELHI**
2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

Drawing: **POST DEVELOPMENT
STORMWATER
DRAINAGE PLAN**

Project No. 1121-012-22 Designed by: KF Checked by: JDM

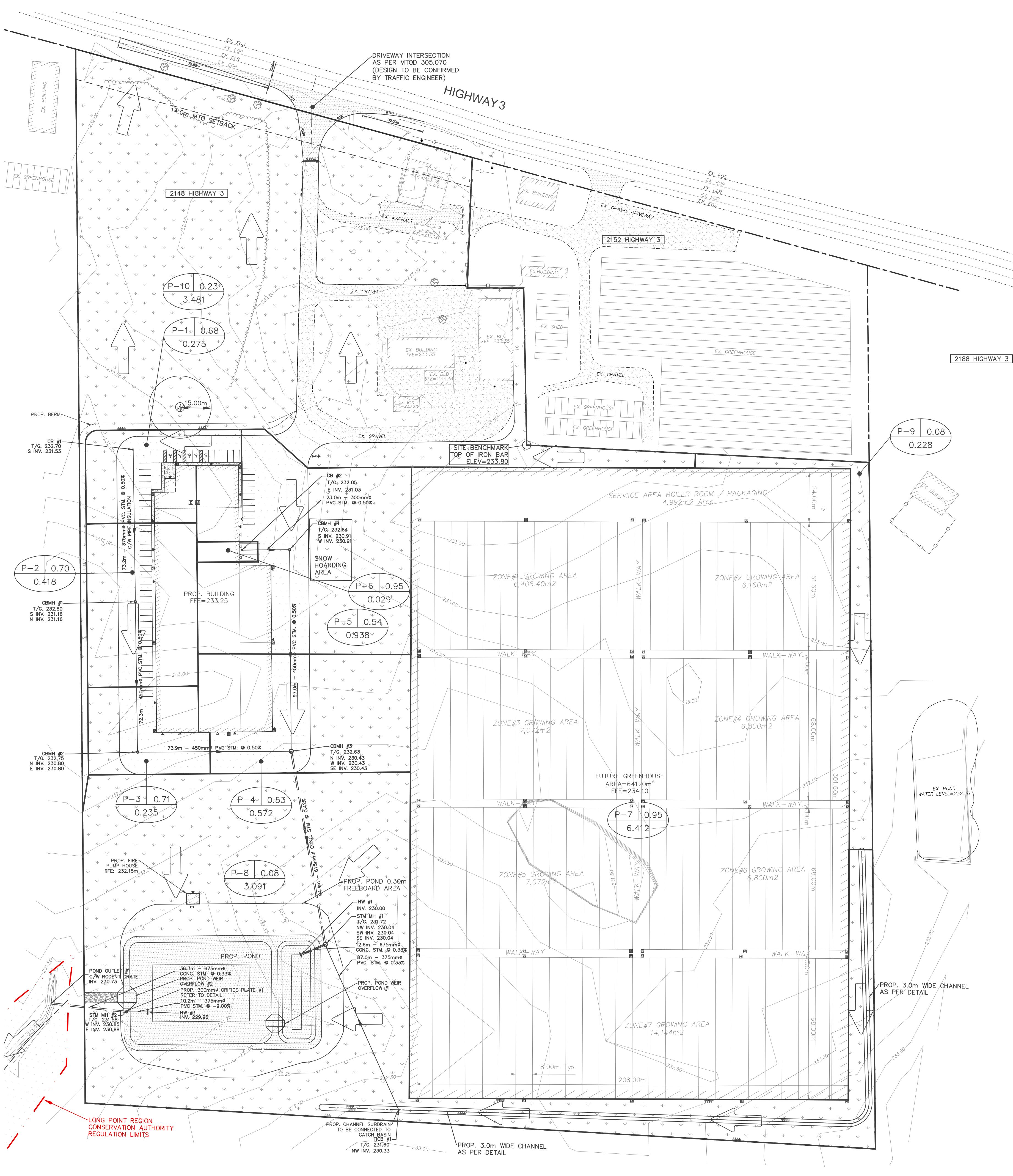
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Orientation North Stamp:



Drawing No. SWM-2

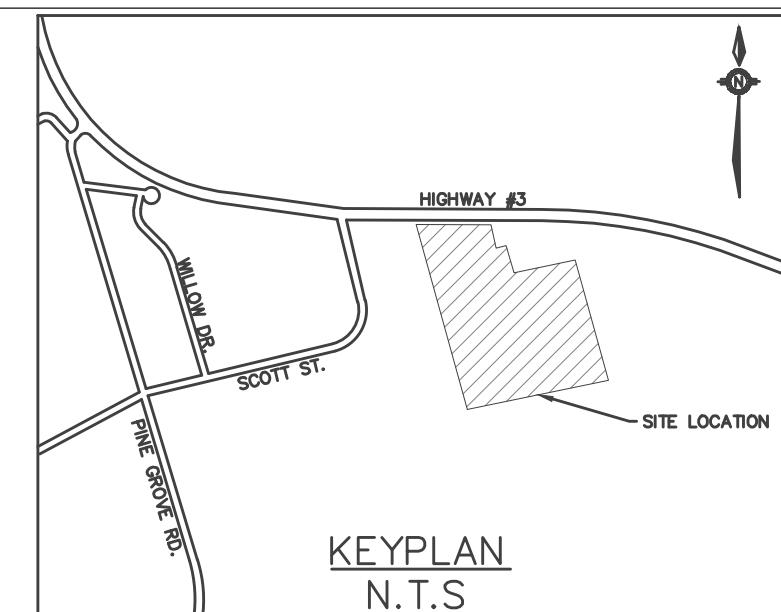
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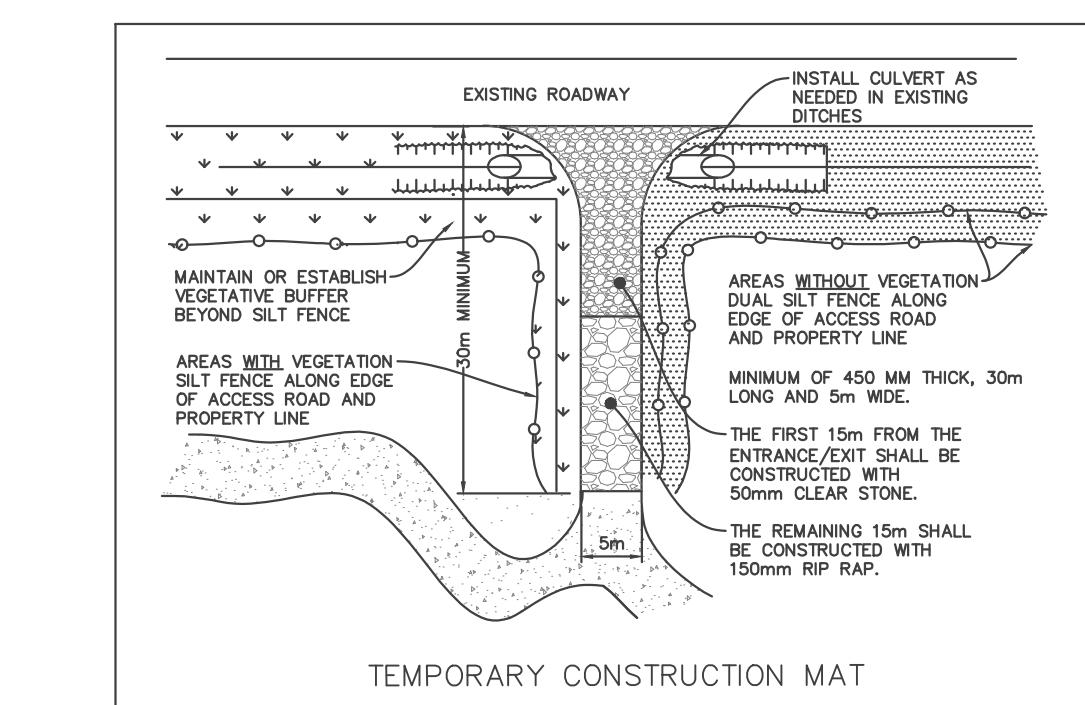
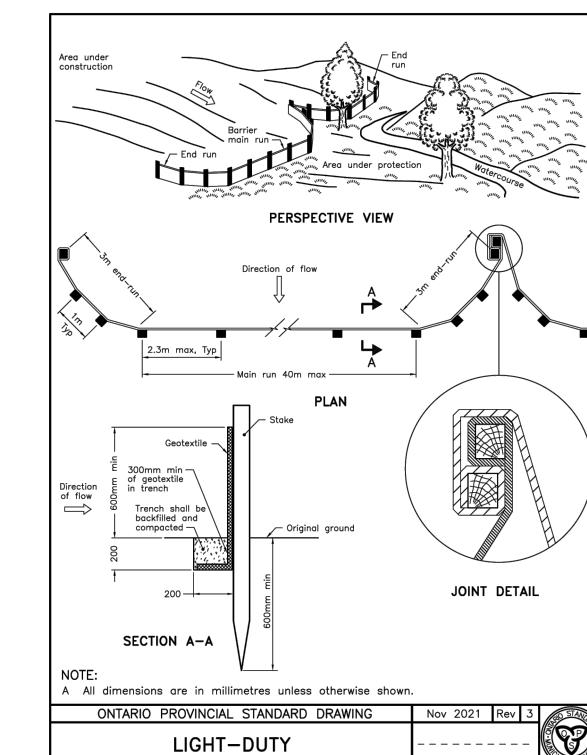
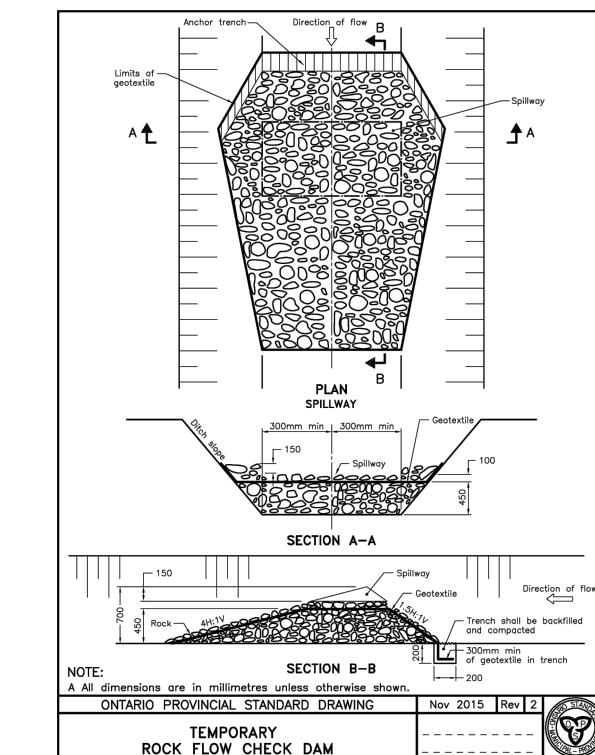
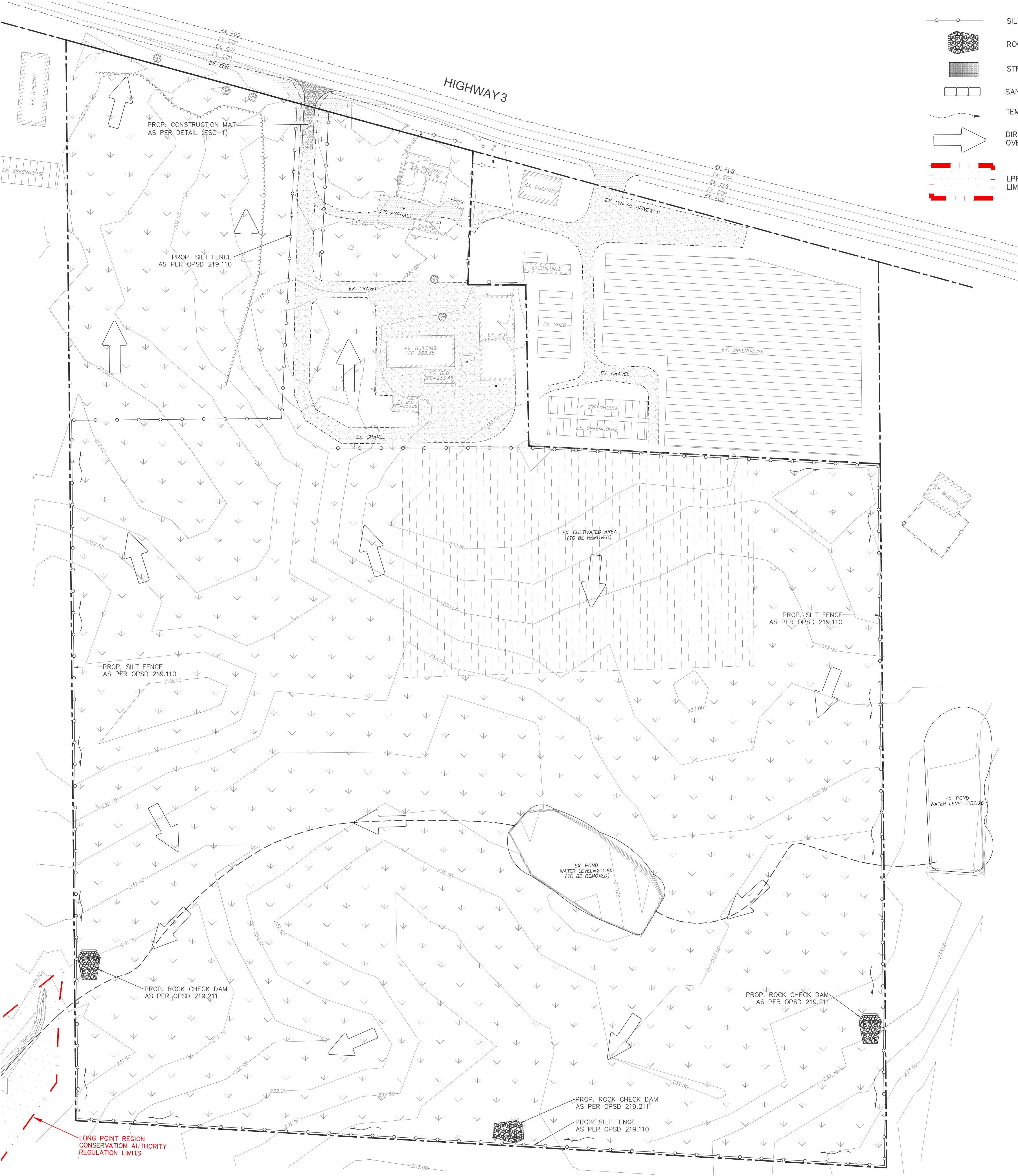
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0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"



LEGEND

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



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 ON SITE.
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 OPSD 219.130 FOR HEAVY DUTY. UNLESS NOTED OTHERWISE, SILT FENCE TO BE INSPECTED FOR COMPLIANCE WITH GRADING STANDARDS. SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGE AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROL 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 OF 6.0m CLEAR STONE WITH THE REMAINING 10.0m CONSISTING OF 50mm CLEAR STONE, OR MEET MUNICIPAL STANDARDS WHERE IDENTIFIED.
6. CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPS 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 CONDUCTIVE STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOCHED 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 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.

SITE PLAN APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

Issued For:

CDN BUILDINGS

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

Project:

HWY #3 DELHI

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

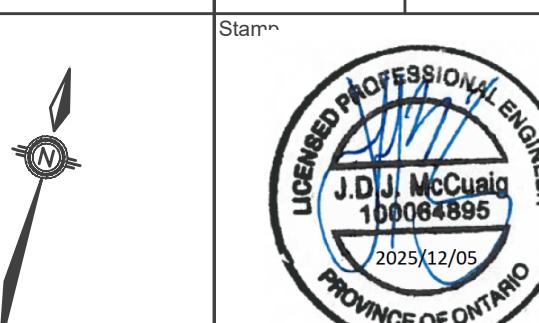
Drawing:

EROSION & SEDIMENT CONTROL PLAN

Project No. 1121-012-22 Designed by: KF Checked by: JDM

Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp:



Drawing No.:

ESC-1

COST ESTIMATE

| ON-SITE WORKS | | | | | |
|---|---|--------------------|-------|--------------|--------------|
| Item No. | Description | Estimated Quantity | Units | Unit Cost | Total Cost |
| Part A - Site Preparation, ESC Measures & Removals | | | | | |
| A.1 | Supply & Install Light Duty Silt Fence | 1613 | m | \$12.50 | \$20,162.50 |
| A.2 | Supply & Install Construction Entrance Mat | 1 | LS | \$7,000.00 | \$7,000.00 |
| A.3 | Supply & Install Rock Check Dam | 3 | each | \$550.00 | \$1,650.00 |
| \$28,812.50 Subtotal | | | | | |
| Part B - Watermains | | | | | |
| B.1 | Supply & Install 100mm PVC DR 18 Water Service | 28 | m | \$225.00 | \$6,300.00 |
| B.2 | Supply & Install 150mm PVC DR 18 Water Service | 28 | m | \$280.00 | \$7,840.00 |
| B.3 | Supply & Install 200mm PVC DR 18 Water Service | 323 | m | \$315.00 | \$101,745.00 |
| B.4 | Supply & Install Fire Hydrant, Valve & Box | 1 | ea | \$9,500.00 | \$9,500.00 |
| \$125,385.00 Subtotal | | | | | |
| Part C - Sanitary Sewers | | | | | |
| C.1 | Supply & Install Septic System and tanks | 1 | LS | \$50,000.00 | \$50,000 |
| C.2 | Supply & Install 150mm PVC DR 35 Sanitary Sewer | 33 | m | \$275.00 | \$9,075 |
| \$59,075.00 Subtotal | | | | | |
| Part D - Storm Sewers | | | | | |
| D.1 | Supply & Install 150mm Subdrain | 353 | m | \$45.00 | \$15,885 |
| D.2 | Supply & Install 300mm PVC DR 35 Storm Sewer | 23 | m | \$285.00 | \$6,555 |
| D.3 | Supply & Install 375mm PVC DR 35 Storm Sewer | 83.4 | m | \$300.00 | \$25,020 |
| D.4 | Supply & Install 450mm PVC DR 35 Storm Sewer | 243.2 | m | \$325.00 | \$79,040 |
| D.5 | Supply & Install 675mm Concrete Storm Sewer | 143.3 | m | \$375.00 | \$53,738 |
| D.6 | Supply & Install Headwall OPSD 804.030 | 2 | each | \$10,000.00 | \$20,000 |
| D.7 | Supply & Install Catchbasin | 3 | each | \$6,000.00 | \$18,000 |
| D.8 | Supply & Install 1200mm Diameter Manhole | 4 | each | \$8,500.00 | \$34,000 |
| D.9 | Supply & Install 1500mm Diameter Manhole | 2 | each | \$10,250.00 | \$20,500 |
| | Supply & Install Stormwater Management Facility | 1 | LS | \$175,000.00 | \$175,000 |
| \$447,737.50 Subtotal | | | | | |
| Part E - Roadworks & Concrete Works | | | | | |
| E.1 | Supply & Install Base Asphalt (HL8) | 8600 | m2 | \$25.00 | \$215,000 |
| E.2 | Supply & Install Surface Asphalt (HL3) | 8600 | m2 | \$20.00 | \$172,000 |
| E.3 | Supply & Install Granular B | 8600 | m2 | \$12.00 | \$103,200 |
| E.4 | Supply & Install Granular A | 8600 | m2 | \$15.00 | \$129,000 |
| E.5 | Supply & Install Concrete Sidewalk (OPSD 310.010) | 154 | m2 | \$150.00 | \$23,100 |
| E.5 | Supply & Install Concrete Barrier Curb (OPSD 600.110) | 100 | m | \$110.00 | \$11,000 |
| E.7 | Line Painting | 1 | LS | \$9,500.00 | \$9,500 |
| \$662,800.00 Subtotal | | | | | |
| \$1,323,810.00 Total | | | | | |
| OFF-SITE WORKS | | | | | |
| Item No. | Description | Estimated Quantity | Units | Unit Cost | Total Cost |
| Part A - Site Preparation, ESC Measures & Removals | | | | | |
| A.1 | Not Applicable | 0 | | \$0.00 | \$0.00 |
| \$0.00 Subtotal | | | | | |
| Part B - Watermains | | | | | |
| B.1 | Not Applicable | 0 | | \$0.00 | \$0.00 |
| \$0.00 Subtotal | | | | | |
| Part C - Sanitary Sewers | | | | | |
| C.1 | Not Applicable | 0 | | \$0.00 | \$0.00 |
| \$0.00 Subtotal | | | | | |
| Part D - Storm Sewers | | | | | |
| D.1 | Not Applicable | 0 | | \$0.00 | \$0.00 |
| \$0.00 Subtotal | | | | | |
| Part E - Roadworks & Concrete Works | | | | | |
| E.1 | Supply & Install Granular B | 800 | m2 | \$12.00 | \$9,600 |
| E.2 | Supply & Install Granular A | 800 | m2 | \$15.00 | \$12,000 |
| E.3 | Supply & Install Base Asphalt (HL8) | 800 | m2 | \$25.00 | \$20,000 |
| E.4 | Supply & Install Surface Asphalt (HL3) | 800 | m2 | \$20.00 | \$16,000 |
| \$57,600.00 Subtotal | | | | | |
| \$57,600.00 Total | | | | | |

SITE SECURITIES ESTIMATE

ON-SITE WORKS

| | |
|--|--|
| Part A - Site Preparation, ESC Measures & Removals | \$28,812.50 |
| Part B - Watermains | \$125,385.00 |
| Part C - Sanitary Sewers | \$59,075.00 |
| Part D - Storm Sewers | \$447,737.50 |
| Part E - Roadworks & Concrete Works | \$662,800.00 |
| | <u>Estimated Cost</u> <u>\$1,323,810.00</u> |
| | Total On-Site Securities <u>\$132,381.00</u> |

OFF-SITE WORKS

| | |
|--|--|
| Part A - Site Preparation, ESC Measures & Removals | \$0.00 |
| Part B - Watermains | \$0.00 |
| Part C - Sanitary Sewers | \$0.00 |
| Part D - Storm Sewers | \$0.00 |
| Part E - Roadworks & Concrete Works | \$57,600.00 |
| | <u>Estimated Cost</u> <u>\$57,600.00</u> |
| | Total Off-Site Securities <u>\$57,600.00</u> |

TOTAL SECURITIES REQUIRED

| | |
|----------------------------------|----------------------|
| ON-SITE SECURITIES | \$132,381.00 |
| OFF-SITE SECURITIES | \$57,600.00 |
| TOTAL SECURITIES REQUIRED | \$ 189,981.00 |

*Note: Values provided are an estimate of the projects probable capital costs based on an accuracy of +/- 20%, do not include taxes or fees associated with permits, and are subject to fluctuations in the respective markets

Prepared by: Kevin Filion Kevin Filion, C.E.T.

Checked by: Jeff McCuaig, P.Eng.

Date: 11/28/2025



Gerrits
ENGINEERING

CIVIL | STRUCTURAL | MECHANICAL | ELECTRICAL

ENGINEERING | BUILDINGS | RELATIONSHIPS

BARRIE | ONTARIO | 705-737-3303

WWW.GERRENG.COM

December 5, 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 Maplevue Dr. W., Suite 300
Barrie, ON L4N 9E7



TABLE OF CONTENTS

| | |
|--|-----------|
| 1. INTRODUCTION..... | 2 |
| 1.1. SUPPORTING & REFERENCE DOCUMENTS | 2 |
| 1.2. SUBJECT PROPERTY | 2 |
| 1.3. PROPOSED LAND USE | 3 |
| 2. SANITARY SERVICING | 4 |
| 2.1 <i>Septic System</i> | 4 |
| 3. WATER SUPPLY AND DISTRIBUTION..... | 5 |
| 3.1. DESIGN CRITERIA | 5 |
| 3.2. INTERNAL DISTRIBUTION SYSTEM | 5 |
| 3.3. FIRE FLOW REQUIREMENT | 6 |
| 4. STORM DRAINAGE AND STORMWATER MANAGEMENT | 6 |
| 4.1. EXISTING DRAINAGE CONDITIONS | 6 |
| 4.2. PROPOSED DRAINAGE CONDITIONS | 7 |
| 4.2.1. <i>Hydrology Model Results</i> | 7 |
| 4.3. STORMWATER QUANTITY CONTROL..... | 8 |
| 4.4. STORMWATER QUALITY CONTROL..... | 9 |
| 4.4.1. <i>Stormwater Quality Control During Construction</i> | 9 |
| 4.4.2. <i>Permanent Quality Control</i> | 10 |
| 4.4.3. <i>Wet Pond</i> | 10 |
| 4.5. EROSION AND SEDIMENT CONTROL | 11 |
| 5. CONCLUSIONS..... | 12 |

APPENDICES

- Appendix A – Design Calculations
- Appendix B – Geotechnical Investigation
- Appendix C – Design Drawings

LIST OF FIGURES & DRAWINGS

| | |
|-------------------|------------------------------------|
| DWG SP1.00 | Site Plan |
| DWG ESC-1 | Erosion and Sediment Control Plan |
| DWG SS-1 and SG-1 | Site Servicing and Grading Plan |
| DWG PND-1 | Pond Plan |
| DWG SWM-1 | Pre-Development SWM Drainage Plan |
| DWG SWM-2 | Post-Development SWM Drainage Plan |



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)
- Norfolk Design Criteria, February 2019

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.

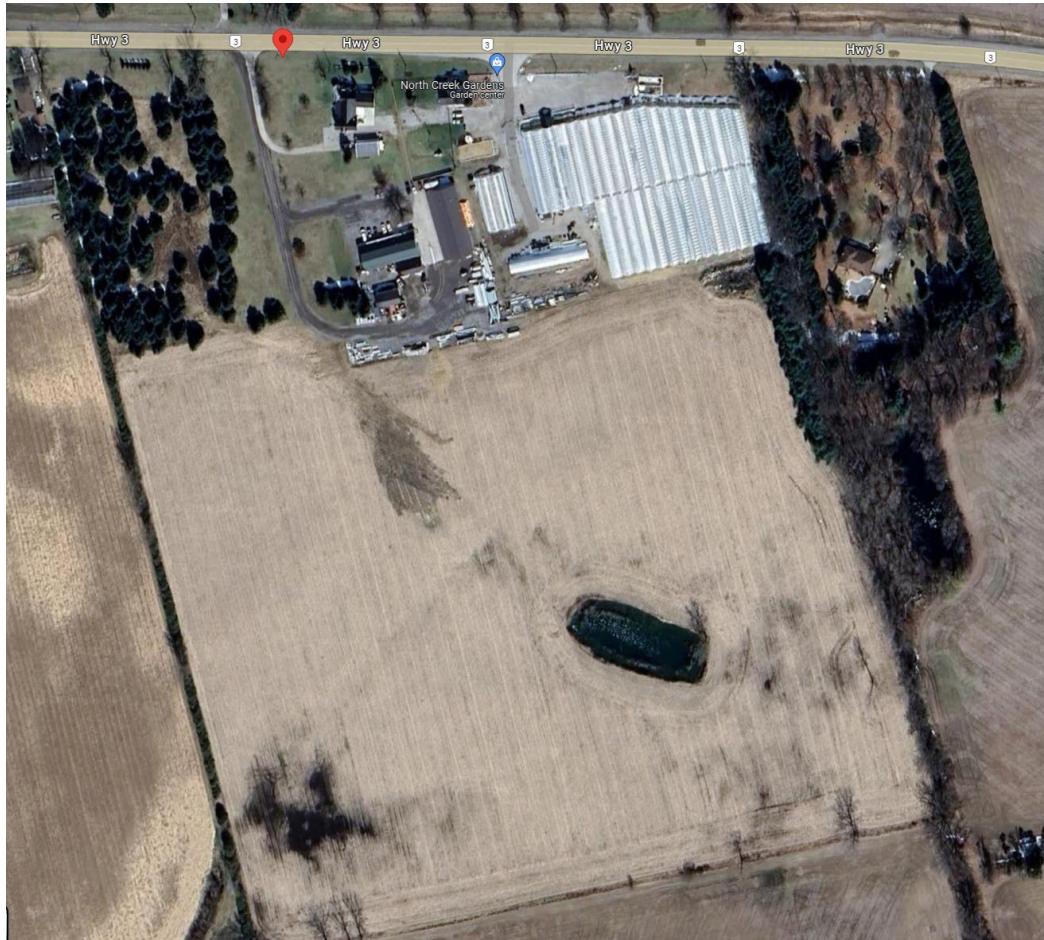


Figure 1 - Subject Property (Red)

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.

$$\begin{aligned} Q_{\text{peak}} &= \text{Proposed Buildings (O.B.C.)} + \text{Existing Residence} \\ &= 75 \text{ Liters/Employee/Day (Factory - No Showers)} + 500 \text{ Litres/resident} \\ &= 75 \text{ Employees (75 Litres/Employee/day} \times 75) + 5 \text{ residents (500 L/resident/day} \times 5) \\ &= 8,125 \text{ Liters/Day} \end{aligned}$$

Minimum Size of Septic Tank

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

$$\begin{aligned} \text{Tank} &= 3 \times 8,125 \text{ L} \\ &= 24,375 \text{ L} \end{aligned}$$

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/m² therefore required filter medium area is:

$$\begin{aligned} \text{Area} &= Q / 50 \\ &= 8,125 / 50 \\ &= 162.5 \text{ m}^2 \end{aligned}$$

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:

$$\begin{aligned} \text{Area} &= QT / 850 \\ &= 8,125 \times 8 / 850 \\ &= 76.5 \text{ m}^2 \end{aligned}$$

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.

$$\begin{aligned} \text{Area} &= Q / 6 \\ &= 8,125 / 6 \\ &= 1,355 \text{ m}^2 \end{aligned}$$



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

| | Required |
|--|----------|
| Tank Size (L): | 24,375 |
| Contact Area (m ²): | 162.5 |
| Expanded Contact Area (m ²): | 76.5 |
| Loading Area (m ²): | 1,355 |

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 Norfolk Design Criteria, and includes the following criteria:

- Commercial/Industrial Demand (Average Day Demand) = 28m³/ha*d
- Max Day Factor (MDD) = 2.25
- Peak Hour Factor (PH) = 2.00
- 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) | 439.6 | m ³ /d |
| | 5.1 | L/s |
| Maximum Day Demand (Design) | 989.1 | m ³ /d |
| | 11.4 | L/s |
| Peak Hour Flow (Design) | 879.2 | m ³ /d |
| | 10.2 | 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 m³. It is acceptable to use a water supply from the permanent pool of the pond equal to 3,147 m³, 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 | = | 149,737 m ² | R | = | 0.08 | AR | = | 3,671.7 |
| Asphalt | = | 557 m ² | R | = | 0.95 | AR | = | 529.2 |
| Building Roof | = | 1,727 m ² | R | = | 0.95 | AR | = | 1,640.7 |
| Gravel | = | 4,773 m ² | R | = | 0.60 | AR | = | 3,341.1 |

| | | |
|------------------------------------|------------|--------------------|
| Site Area = 156,794 m ² | AR = 9,183 | Total AR = 9,182.6 |
| | | Weighted R = 0.11 |



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 | = | 0.08 | AR | = | 5,637.0 |
| Asphalt | = | 9,235 m ² | R | = | 0.95 | AR | = | 8,773.3 |
| Concrete | = | 155 m ² | R | = | 0.95 | AR | = | 147.3 |
| Gravel | = | 4,772 m ² | R | = | 0.60 | AR | = | 3,340.4 |
| Building Roof | = | 72,169 m ² | R | = | 0.95 | AR | = | 68,560.6 |
| | | | | | Total | AR | = | <u>86,458.5</u> |
| | | Site Area = 156,794 m ² | | | AR = 86,459 | | | Weighted R = 0.55 |

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 | = 0.17 (existing condition) – Catchment Area X-101 |
| | = 0.08 (existing condition) – Catchment Area X-102 |
| | = 0.64 (proposed condition) – Catchment Area P1-P9 |
| | = 0.23 (proposed condition) – Catchment Area P10 |
| Time of Concentration (t _c) | = 10 Minutes |
| Rainfall Intensity | = Norfolk County 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 | 0.18 | 0.24 | 0.29 | 0.37 | 0.45 | 0.51 |
| Pre-Development X-102 Towards the Water Course | 0.17 | 0.22 | 0.26 | 0.33 | 0.41 | 0.46 |
| Post-Development (w/o Attenuation) Towards the Right of Way | 0.16 | 0.22 | 0.25 | 0.33 | 0.40 | 0.45 |
| Post-Development (w/o Attenuation) Towards the Water Course | 1.57 | 2.09 | 2.43 | 3.15 | 3.83 | 4.38 |

Based on the above results, there is a decrease in runoff to the Highway 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 quantity control 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 (m²)

c = orifice coefficient = 0.80

g = gravitational constant = 9.81m/s²

h = high water level over center of orifice (m)

We find that the proposed quantity control 300mm orifice pipe at an elevation of 230.88 m in addition to the 2 m wide by 2.0 m long 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 and detailed calculations provided 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 to Water Course | 0.17 | 0.22 | 0.26 | 0.33 | 0.41 | 0.46 |
| Post Development Controlled Release Rate | 0.09 | 0.11 | 0.12 | 0.16 | 0.27 | 0.41 |
| Storage Volume Required (m ³) | 899 | 1,193 | 1,391 | 1,817 | 2,189 | 2,464 |

The calculations summarized in Table 3 indicate that there is a reduction in the post development flows from the site and therefore the stormwater management facility (SWMF) provides adequate quantity control. The quantity storage requirements within the SWMF are calculated to be approximately 2,464 m³. The proposed SWMF has been sized with a total available quantity control volume of about 2,660 m³, which meets the 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 the 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 |

$$\begin{aligned} \text{TIMP} &= (A_{\text{BLD}} + A_{\text{ASP}} + A_{\text{GRAV}}) / A_{\text{TOTAL}} \\ &= (78,853) / 121,980 \\ &= 0.65 \text{ (or 65\%)} \end{aligned}$$

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 remain unchanged from 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 m³/ha, which provides a calculated volume of 2104 m³. In addition to the permanent pool volume for quality control, an additional 40 m³/ha for active storage (extended detention) equal to 488 m³ 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 m³/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.



Jeff McCuaig, P.Eng.
Director, Civil Engineer



December 5, 2025

Appendix A

Design Calculations

RUNOFF COEFFICIENT CALCULATIONS

Reference Material

MECP SWM Planning and Design Guidelines (2003)
Design Criteria February 2019

| Surface Area | Runoff Coefficient |
|-------------------------|--------------------|
| Lawns | 0.08 |
| Predevelopment Gravel | 0.70 |
| Post Development Gravel | 0.70 |
| Asphalt | 0.95 |
| Concrete | 0.95 |
| Building Roof | 0.95 |

WEIGHTED RUNOFF COEFFICIENTS

| Area ID | Total Area (m ²) | Lawns | Gravel | Asphalt | Concrete | Building |
|--------------------------|------------------------------|--------|--------|---------|----------|----------|
| Predevelopment Sub Areas | | | | | | |
| X-101 | 52953 | 45896 | 4773 | 557 | 0 | 1727 |
| X-102 | 103841 | 103841 | 0 | 0 | 0 | 0 |
| Total | 156794 | 149737 | 4773 | 557 | 0 | 1727 |

| Weighted Runoff Coefficient |
|-----------------------------|
| 0.11 |
| 0.17 |
| 0.08 |
| 0.11 |

| Post Development Sub Areas | | | | | | |
|----------------------------|------------------------------|-------|--------|---------|----------|----------|
| | Total Area (m ²) | Lawns | Gravel | Asphalt | Concrete | Building |
| P-1 | 2752 | 866 | 0 | 1296 | 127 | 463 |
| P-2 | 4184 | 1183 | 0 | 1409 | 0 | 1592 |
| P-3 | 2348 | 651 | 0 | 1247 | 0 | 450 |
| P-4 | 5725 | 2770 | 0 | 1621 | 0 | 1334 |
| P-5 | 9375 | 4467 | 0 | 2591 | 28 | 2289 |
| P-6 | 286 | 0 | 0 | 88 | 0 | 198 |
| P-7 | 64120 | 0 | 0 | 0 | 0 | 64120 |
| P-8 | 30914 | 30914 | 0 | 0 | 0 | 0 |
| P-9 | 2276 | 2276 | 0 | 0 | 0 | 0 |
| P-10 | 34814 | 27336 | 4772 | 983 | 0 | 1723 |
| Total | 156794 | 70463 | 4772 | 9235 | 155 | 72169 |

| Weighted Runoff Coefficient |
|-----------------------------|
| 0.55 |
| 0.68 |
| 0.70 |
| 0.71 |
| 0.53 |
| 0.54 |
| 0.95 |
| 0.95 |
| 0.08 |
| 0.08 |
| 0.23 |
| 0.55 |

| Controlled Sub Areas (P1 - P9) | | | | | | |
|--------------------------------|------------------------------|-------|--------|---------|----------|----------|
| | Total Area (m ²) | Lawns | Gravel | Asphalt | Concrete | Building |
| Total | 121980 | 43127 | 0 | 8252 | 155 | 70446 |

| Weighted Runoff Coefficient |
|-----------------------------|
| 0.64 |
| 0.64 |

| Uncontrolled Sub Areas (P10) | | | | | | |
|------------------------------|------------------------------|-------|--------|---------|----------|----------|
| | Total Area (m ²) | Lawns | Gravel | Asphalt | Concrete | Building |
| Total | 34814 | 27336 | 4772 | 983 | 0 | 1723 |

| Weighted Runoff Coefficient |
|-----------------------------|
| 0.23 |
| 0.23 |

SUB AREA PRE-DEVELOPMENT RELEASE RATES

IDF Curve Parameters

| Storm Event | Coeff A | Coeff B | Coeff C |
|-------------|---------|---------|---------|
| 2-Year | 529.711 | 4.501 | 0.745 |
| 5-Year | 583.017 | 3.007 | 0.703 |
| 10-Year | 670.324 | 3.007 | 0.698 |
| 25-Year | 721.533 | 2.253 | 0.679 |
| 50-Year | 766.038 | 1.898 | 0.668 |
| 100-Year | 801.041 | 1.501 | 0.657 |

Site Statistics

| X-101 | |
|------------------------------|-------|
| Total Site Area (ha) | 5.30 |
| Runoff Coefficient, C | 0.17 |
| Time of Concentration (mins) | 10 |
| X-102 | |
| Total Site Area (ha) | 10.38 |
| Runoff Coefficient, C | 0.08 |
| Time of Concentration (mins) | 10 |

Formulae

Rainfall Intensity, I (mm/hr)= $A/(tc+B)^C$
 Release Rate, Q (m^3/s)= $C_i C A/360$

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

RELEASE RATES TRIBUTARY TO CONTROL SYSTEM (X-101)

| Return Rate | Peaking Coefficient, C_i | Runoff Coefficient, C | Rainfall Intensity (mm/hr) | Release Rate (m^3/s) |
|-------------|----------------------------|-----------------------|----------------------------|--------------------------|
| 2-Year | 1 | 0.17 | 72.24 | 0.18 |
| 5-Year | 1 | 0.17 | 96.03 | 0.24 |
| 10-Year | 1 | 0.17 | 111.84 | 0.29 |
| 25-Year | 1.1 | 0.17 | 131.63 | 0.37 |
| 50-Year | 1.2 | 0.17 | 146.50 | 0.45 |
| 100-Year | 1.25 | 0.17 | 160.97 | 0.51 |

RELEASE FROM UNCONTROLLED AREAS (X-102)

| Return Rate | Peaking Coefficient, C_i | Runoff Coefficient, C | Rainfall Intensity (mm/hr) | Release Rate (m^3/s) |
|-------------|----------------------------|-----------------------|----------------------------|--------------------------|
| 2-Year | 1 | 0.08 | 72.24 | 0.17 |
| 5-Year | 1 | 0.08 | 96.03 | 0.22 |
| 10-Year | 1 | 0.08 | 111.84 | 0.26 |
| 25-Year | 1.1 | 0.08 | 131.63 | 0.33 |
| 50-Year | 1.2 | 0.08 | 146.50 | 0.41 |
| 100-Year | 1.25 | 0.08 | 160.97 | 0.46 |

SUB AREA POST DEVELOPMENT RELEASE RATES

| IDF Curve Parameters | | | |
|----------------------|---------|---------|---------|
| Storm Event | Coeff A | Coeff B | Coeff C |
| 2-Year | 529.711 | 4.501 | 0.745 |
| 5-Year | 583.017 | 3.007 | 0.703 |
| 10-Year | 670.324 | 3.007 | 0.698 |
| 25-Year | 721.533 | 2.253 | 0.679 |
| 50-Year | 766.038 | 1.898 | 0.668 |
| 100-Year | 801.041 | 1.501 | 0.657 |

| Controlled Sub Areas (P1 - P9) | |
|--------------------------------|-------|
| Total Site Area (ha) | 12.20 |
| Runoff Coefficient, C | 0.64 |
| Time of Concentration (mins) | 10 |
| Uncontrolled Sub Areas (P10) | |
| Total Site Area (ha) | 3.48 |
| Runoff Coefficient, C | 0.23 |
| Time of Concentration (mins) | 10 |

| Formulæ | |
|-------------------------------|---|
| Rainfall Intensity, I (mm/hr) | = A/(tc+B)^C |
| Release Rate, Q (m³/s) | = C _i CIA/360 |
| Where: | t _c =Time of Concentration (min) |
| C _i | = Peaking Coefficient |
| C | = Runoff Coefficient |
| I | = Rainfall Intensity (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 (m³/s) |
|-------------|-------------------------------------|-----------------------|----------------------------|---------------------|
| 2-Year | 1 | 0.64 | 72.24 | 1.57 |
| 5-Year | 1 | 0.64 | 96.03 | 2.09 |
| 10-Year | 1 | 0.64 | 111.84 | 2.43 |
| 25-Year | 1.1 | 0.64 | 131.63 | 3.15 |
| 50-Year | 1.2 | 0.64 | 146.50 | 3.83 |
| 100-Year | 1.25 | 0.64 | 160.97 | 4.38 |

RELEASE FROM UNCONTROLLED AREAS (P10)

| Return Rate | Peaking Coefficient, C _i | Runoff Coefficient, C | Rainfall Intensity (mm/hr) | Release Rate (m³/s) |
|-------------|-------------------------------------|-----------------------|----------------------------|---------------------|
| 2-Year | 1 | 0.23 | 72.24 | 0.16 |
| 5-Year | 1 | 0.23 | 96.03 | 0.22 |
| 10-Year | 1 | 0.23 | 111.84 | 0.25 |
| 25-Year | 1.1 | 0.23 | 131.63 | 0.33 |
| 50-Year | 1.2 | 0.23 | 146.50 | 0.40 |
| 100-Year | 1.25 | 0.23 | 160.97 | 0.45 |

STAGE STORAGE DISCHARGE FOR CONTROLLED AREA (P1-P9)

Formulae

Quantity Control Orifice

Release Rate, $Q (m^3/s) = c * A * (2^g * h)^{0.5}$

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, $Q (m^3/s) = C * (h^{0.5}) * w$

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 = -10383.4985

b = 3418997.012

c = 2131595.078

d = -235014.2466

Quantity Control Systems

Quantity Control Orifice 1

Diameter (mm): 300

Elevation (m): 230.88

Constant: 0.8

Centroid (m): 231.03

Quantity Control Orifice 2

Diameter (mm): 0

Elevation (m): 232.00

Constant: 0.8

Centroid (m): 232.00

Rating Curve Data Points

Elevation (m)

Outflow (m^3/s)

Storage (m^3)

Notes:

230.88 0.00 0

231.08 0.06 650

231.18 0.10 996

231.38 0.15 1737

231.43 0.17 1932

231.53 0.32 2335

231.63 0.54 2660

Check

| Storm Event | Allowable (m^3/s) | Controlled (m^3/s) | Storage (m^3) | Release | Storage |
|-------------|-----------------------|------------------------|-------------------|---------|---------|
| 2-Year | 0.17 | 0.09 | 899 | PASS | PASS |
| 5-Year | 0.22 | 0.11 | 1193 | PASS | PASS |
| 10-Year | 0.26 | 0.12 | 1391 | PASS | PASS |
| 25-Year | 0.33 | 0.16 | 1817 | PASS | PASS |
| 50-Year | 0.41 | 0.27 | 2189 | PASS | PASS |
| 100-Year | 0.46 | 0.41 | 2464 | 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 | 1300 | 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 | 1798 | 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 |
| 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 | 0.000 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| 231.03 | 0.05 | 3320 | 3629 | 482 | 0.00 | 0.000 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| 231.08 | 0.05 | 3393 | 3797 | 650 | 0.05 | 0.056 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.056 |
| 231.13 | 0.05 | 3466 | 3968 | 821 | 0.10 | 0.079 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.079 |
| 231.18 | 0.05 | 3544 | 4143 | 996 | 0.15 | 0.097 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.097 |
| 231.23 | 0.05 | 3623 | 4323 | 1176 | 0.20 | 0.112 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.112 |
| 231.28 | 0.05 | 3703 | 4506 | 1359 | 0.25 | 0.125 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.125 |
| 231.33 | 0.05 | 3784 | 4693 | 1546 | 0.30 | 0.137 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.137 |
| 231.38 | 0.05 | 3864 | 4884 | 1737 | 0.35 | 0.148 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.148 |
| 231.43 | 0.05 | 3946 | 5079 | 1932 | 0.40 | 0.158 | 0.00 | 0.000 | 0.03 | 0.02 | 1.28 | 0.01 | 0.172 |
| 231.48 | 0.05 | 4027 | 5279 | 2132 | 0.45 | 0.168 | 0.00 | 0.000 | 0.08 | 0.04 | 1.49 | 0.07 | 0.235 |
| 231.53 | 0.05 | 4110 | 5482 | 2335 | 0.50 | 0.177 | 0.00 | 0.000 | 0.13 | 0.06 | 1.54 | 0.14 | 0.321 |
| 231.58 | 0.05 | 4879 | 5707 | 2560 | 0.55 | 0.186 | 0.00 | 0.000 | 0.18 | 0.09 | 1.57 | 0.24 | 0.425 |
| 231.63 | 0.05 | 5164 | 5807 | 2660 | 0.60 | 0.194 | 0.00 | 0.000 | 0.23 | 0.12 | 1.58 | 0.35 | 0.543 |

MAX POND HEIGHT

2-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

| Controlled Sub Areas (P1 - P9) | |
|---|-------|
| Total Site Area (ha) | 12.20 |
| Runoff Coefficient, C | 0.64 |
| Storm Duration (mins) | 20 |
| 2-Year Release Rate (m ³ /s) | 1.573 |
| Total Site Area (ha) | 0.00 |
| Runoff Coefficient, C | 0.00 |
| Storm Duration (mins) | 0 |
| 2-Year Release Rate (m ³ /s) | 0.000 |

Rating Curve Data Points

| Elevation (m) | Outflow (m ³ /s) | Storage (m ³) |
|---------------|-----------------------------|---------------------------|
| 230.88 | 0.000 | 0.00 |
| 231.08 | 0.056 | 649.66 |
| 231.18 | 0.097 | 996.35 |
| 231.38 | 0.148 | 1737.04 |
| 231.43 | 0.172 | 1932.29 |
| 231.53 | 0.321 | 2335.05 |
| 231.63 | 0.543 | 2660.24 |

Formulae

$Q_{in} = Q_p / (t_s / 2) * t_i$
 $Q_{out} = \text{Computer Generated using rating curve data points}$
 $\text{Storage (m}^3\text{)} = \text{Cumulative storage}_{(i-1)} + \Delta \text{ Storage}_i$
 $\Delta \text{ Storage (m}^3\text{)} = (Q_{in} - Q_{out})(t_i - t_{i-1}) * 60$

 Where:
 $Q_{in} = \text{Flow rate tributary to the system at a given time (m}^3\text{/s)}$
 $Q_{out} = \text{Flow rate out of the system at a given time (m}^3\text{/s)}$
 $t_s = \text{Storm Duration (min)}$
 $t_i = \text{Time(min)}$

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 | 0.157 | 0.000 | 9.44 | 9.44 |
| 2 | 0.315 | 0.001 | 18.82 | 28.26 |
| 3 | 0.472 | 0.002 | 28.16 | 56.42 |
| 4 | 0.629 | 0.005 | 37.45 | 93.86 |
| 5 | 0.786 | 0.008 | 46.69 | 140.55 |
| 6 | 0.944 | 0.012 | 55.88 | 196.44 |
| 7 | 1.101 | 0.017 | 65.03 | 261.47 |
| 8 | 1.258 | 0.023 | 74.13 | 335.59 |
| 9 | 1.415 | 0.029 | 83.18 | 418.77 |
| 10 | 1.573 | 0.036 | 92.18 | 510.96 |
| 11 | 1.415 | 0.044 | 82.27 | 593.23 |
| 12 | 1.258 | 0.051 | 72.41 | 665.64 |
| 13 | 1.101 | 0.058 | 62.57 | 728.21 |
| 14 | 0.944 | 0.065 | 52.69 | 780.90 |
| 15 | 0.786 | 0.072 | 42.88 | 823.79 |
| 16 | 0.629 | 0.077 | 33.14 | 856.93 |
| 17 | 0.472 | 0.081 | 23.47 | 880.41 |
| 18 | 0.315 | 0.083 | 13.87 | 894.28 |
| 19 | 0.157 | 0.085 | 4.34 | 898.62 |
| 20 | 0.000 | 0.085 | -5.13 | 893.49 |
| 21 | 0.000 | 0.085 | -5.09 | 888.40 |
| 22 | 0.000 | 0.084 | -5.05 | 883.34 |
| 23 | 0.000 | 0.084 | -5.02 | 878.33 |
| 24 | 0.000 | 0.083 | -4.98 | 873.34 |
| 25 | 0.000 | 0.082 | -4.95 | 868.39 |
| 26 | 0.000 | 0.082 | -4.91 | 863.48 |
| 27 | 0.000 | 0.081 | -4.88 | 858.60 |
| 28 | 0.000 | 0.081 | -4.84 | 853.76 |
| 29 | 0.000 | 0.080 | -4.81 | 848.95 |
| 30 | 0.000 | 0.080 | -4.77 | 844.18 |
| 31 | 0.000 | 0.079 | -4.74 | 839.44 |
| 32 | 0.000 | 0.078 | -4.71 | 834.73 |
| 33 | 0.000 | 0.078 | -4.67 | 830.06 |
| 34 | 0.000 | 0.077 | -4.64 | 825.41 |
| 35 | 0.000 | 0.077 | -4.61 | 820.81 |
| 36 | 0.000 | 0.076 | -4.57 | 816.23 |
| 37 | 0.000 | 0.076 | -4.54 | 811.69 |
| 38 | 0.000 | 0.075 | -4.51 | 807.18 |
| 39 | 0.000 | 0.075 | -4.48 | 802.70 |
| 40 | 0.000 | 0.074 | -4.45 | 798.25 |

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 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | 0.000 | 0.000 | 0.000 | 0.000 |
| 13 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | 0.000 | 0.000 | 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 | 0.000 |
| 2 | 0.001 |
| 3 | 0.002 |
| 4 | 0.005 |
| 5 | 0.008 |
| 6 | 0.012 |
| 7 | 0.017 |
| 8 | 0.023 |
| 9 | 0.029 |
| 10 | 0.036 |
| 11 | 0.044 |
| 12 | 0.051 |
| 13 | 0.058 |
| 14 | 0.065 |
| 15 | 0.072 |
| 16 | 0.077 |
| 17 | 0.081 |
| 18 | 0.083 |
| 19 | 0.085 |
| 20 | 0.085 |
| 21 | 0.085 |
| 22 | 0.084 |
| 23 | 0.084 |
| 24 | 0.083 |
| 25 | 0.082 |
| 26 | 0.082 |
| 27 | 0.081 |
| 28 | 0.081 |
| 29 | 0.080 |
| 30 | 0.080 |
| 31 | 0.079 |
| 32 | 0.078 |
| 33 | 0.078 |
| 34 | 0.077 |
| 35 | 0.077 |
| 36 | 0.076 |
| 37 | 0.076 |
| 38 | 0.075 |
| 39 | 0.075 |
| 40 | 0.074 |

5-YEAR RELEASE RATES AND HYDROGRAPHS

| Site Statistics | | Rating Curve Data Points | | | Formulae | |
|--------------------------------|----------------|--------------------------|--------------------|--------------------------|--|----------------|
| Controlled Sub Areas (P1 - P9) | | Elevation (m) | Outflow (m³/s) | Storage (m³) | | |
| Total Site Area (ha) | 12.20 | | | | $Q_{in} = Q_p / (t_d / 2) * t_i$ | |
| Runoff Coefficient, C | 0.64 | 230.88 | 0.000 | 0.00 | $Q_{out} = \text{Computer Generated using rating curve data points}$ | |
| Storm Duration (mins) | 20 | 231.08 | 0.056 | 649.66 | $\text{Storage (m}^3\text{)} = \text{Cumulative storage}_{i-1} + \Delta \text{ Storage}_i$ | |
| 5-Year Release Rate (m³/s) | 2.090 | 231.18 | 0.097 | 996.35 | $\Delta \text{ Storage (m}^3\text{)} = (Q_{in} - Q_{out})(t_i - t_{i-1}) * 60$ | |
| | | 231.38 | 0.148 | 1737.04 | Where: | |
| | | 231.43 | 0.172 | 1932.29 | $Q_{in} = \text{Flow rate tributary to the system at a given time (m}^3\text{/s)}$ | |
| | | 231.53 | 0.321 | 2335.05 | $Q_{out} = \text{Flow rate out of the system at a given time (m}^3\text{/s)}$ | |
| | | 231.63 | 0.543 | 2660.24 | $T_d = \text{Storm Duration (min)}$ | |
| | | | | | $T_i = \text{Time(min)}$ | |
| 5-Year Release Rate (m³/s) | 0.000 | | | | | |
| Hydrograph Data (Controlled) | | | | | Hydrograph Data (Uncontrolled) | |
| Minute | In Flow (m³/s) | Out Flow (m³/s) | Delta-Storage (m³) | Cummulative Storage (m³) | Minute | In Flow (m³/s) |
| 0 | 0.000 | 0.000 | 0.00 | 0.00 | 0 | 0.000 |
| 1 | 0.209 | 0.000 | 12.54 | 12.54 | 1 | 0.000 |
| 2 | 0.418 | 0.001 | 25.02 | 37.56 | 2 | 0.000 |
| 3 | 0.627 | 0.003 | 37.43 | 74.99 | 3 | 0.000 |
| 4 | 0.836 | 0.006 | 49.78 | 124.77 | 4 | 0.000 |
| 5 | 1.045 | 0.011 | 62.06 | 186.83 | 5 | 0.000 |
| 6 | 1.254 | 0.016 | 74.28 | 261.12 | 6 | 0.000 |
| 7 | 1.463 | 0.023 | 86.44 | 347.56 | 7 | 0.000 |
| 8 | 1.672 | 0.030 | 98.54 | 446.10 | 8 | 0.000 |
| 9 | 1.881 | 0.038 | 110.57 | 556.67 | 9 | 0.000 |
| 10 | 2.090 | 0.048 | 122.54 | 679.21 | 10 | 0.000 |
| 11 | 1.881 | 0.060 | 109.31 | 788.51 | 11 | 0.000 |
| 12 | 1.672 | 0.072 | 95.99 | 884.50 | 12 | 0.000 |
| 13 | 1.463 | 0.084 | 82.77 | 967.27 | 13 | 0.000 |
| 14 | 1.254 | 0.094 | 69.64 | 1036.90 | 14 | 0.000 |
| 15 | 1.045 | 0.100 | 56.72 | 1093.62 | 15 | 0.000 |
| 16 | 0.836 | 0.104 | 43.94 | 1137.57 | 16 | 0.000 |
| 17 | 0.627 | 0.107 | 31.22 | 1168.79 | 17 | 0.000 |
| 18 | 0.418 | 0.109 | 18.55 | 1187.33 | 18 | 0.000 |
| 19 | 0.209 | 0.110 | 5.93 | 1193.26 | 19 | 0.000 |
| | | | | Max Storage | 20 | 0.000 |
| 20 | 0.000 | 0.111 | -6.64 | 1186.63 | 20 | 0.000 |
| 21 | 0.000 | 0.110 | -6.61 | 1180.02 | 21 | 0.000 |
| 22 | 0.000 | 0.110 | -6.58 | 1173.44 | 22 | 0.000 |
| 23 | 0.000 | 0.109 | -6.55 | 1166.88 | 23 | 0.000 |
| 24 | 0.000 | 0.109 | -6.53 | 1160.35 | 24 | 0.000 |
| 25 | 0.000 | 0.108 | -6.50 | 1153.85 | 25 | 0.000 |
| 26 | 0.000 | 0.108 | -6.47 | 1147.38 | 26 | 0.000 |
| 27 | 0.000 | 0.107 | -6.45 | 1140.93 | 27 | 0.000 |
| 28 | 0.000 | 0.107 | -6.42 | 1134.51 | 28 | 0.000 |
| 29 | 0.000 | 0.107 | -6.39 | 1128.12 | 29 | 0.000 |
| 30 | 0.000 | 0.106 | -6.37 | 1121.75 | 30 | 0.000 |
| 31 | 0.000 | 0.106 | -6.34 | 1115.41 | 31 | 0.000 |
| 32 | 0.000 | 0.105 | -6.31 | 1109.10 | 32 | 0.000 |
| 33 | 0.000 | 0.105 | -6.29 | 1102.81 | 33 | 0.000 |
| 34 | 0.000 | 0.104 | -6.26 | 1096.55 | 34 | 0.000 |
| 35 | 0.000 | 0.104 | -6.24 | 1090.31 | 35 | 0.000 |
| 36 | 0.000 | 0.104 | -6.21 | 1084.10 | 36 | 0.000 |
| 37 | 0.000 | 0.103 | -6.18 | 1077.92 | 37 | 0.000 |
| 38 | 0.000 | 0.103 | -6.16 | 1071.76 | 38 | 0.000 |
| 39 | 0.000 | 0.102 | -6.13 | 1065.63 | 39 | 0.000 |
| 40 | 0.000 | 0.102 | -6.11 | 1059.52 | 40 | 0.000 |

10-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

| Controlled Sub Areas (P1 - P9) | |
|--|-------|
| Total Site Area (ha) | 12.20 |
| Runoff Coefficient, C | 0.64 |
| Storm Duration (mins) | 20 |
| 10-Year Release Rate (m ³ /s) | 2.434 |
| | |
| Total Site Area (ha) | 0.00 |
| Runoff Coefficient, C | 0.00 |
| Storm Duration (mins) | 0 |
| 10-Year Release Rate (m ³ /s) | 0.000 |

Rating Curve Data Points

| Elevation (m) | Outflow (m ³ /s) | Storage (m ³) |
|---------------|-----------------------------|---------------------------|
| 230.88 | 0.000 | 0.00 |
| 231.08 | 0.056 | 649.66 |
| 231.18 | 0.097 | 996.35 |
| 231.38 | 0.148 | 1737.04 |
| 231.43 | 0.172 | 1932.29 |
| | | |
| 231.53 | 0.321 | 2335.05 |
| 231.63 | 0.543 | 2660.24 |

Formulae

$Q_{out} = Q_{in}/(t_d/2) * t_i$
 $Q_{out} = \text{Computer Generated using rating curve data points}$
 $\text{Storage (m}^3\text{)} = \text{Cumulative storage}_{(i-1)} + \Delta \text{ Storage}$
 $\Delta \text{ Storage (m}^3\text{)} = (Q_{in} - Q_{out}) * (t_i - t_{i-1}) * 60$

 Where:
 $Q_{in} = \text{Flow rate tributary to the system at a given time (m}^3\text{/s)}$
 $Q_{out} = \text{Flow rate out of the system at a given time (m}^3\text{/s)}$
 $T_d = \text{Storm Duration (min)}$
 $T_i = \text{Time(min)}$

Hydrograph Data (Controlled)

| Minute | In Flow (m ³ /s) | Out Flow (m ³ /s) | Delta-Storage (m ³) | Cumulative Storage (m ³) |
|--------|-----------------------------|------------------------------|---------------------------------|--------------------------------------|
| 0 | 0.000 | 0.000 | 0.00 | 0.00 |
| 1 | 0.243 | 0.000 | 14.61 | 14.61 |
| 2 | 0.487 | 0.001 | 29.14 | 43.74 |
| 3 | 0.730 | 0.004 | 43.59 | 87.33 |
| 4 | 0.974 | 0.008 | 57.97 | 145.31 |
| 5 | 1.217 | 0.013 | 72.28 | 217.59 |
| 6 | 1.461 | 0.019 | 86.51 | 304.10 |
| 7 | 1.704 | 0.026 | 100.67 | 404.77 |
| 8 | 1.947 | 0.035 | 114.76 | 519.52 |
| 9 | 2.191 | 0.045 | 128.77 | 648.29 |
| 10 | 2.434 | 0.056 | 142.71 | 791.00 |
| 11 | 2.191 | 0.073 | 127.09 | 918.09 |
| 12 | 1.947 | 0.088 | 111.58 | 1029.67 |
| 13 | 1.704 | 0.099 | 96.28 | 1125.96 |
| 14 | 1.461 | 0.106 | 81.28 | 1207.24 |
| 15 | 1.217 | 0.112 | 66.34 | 1273.57 |
| 16 | 0.974 | 0.116 | 51.45 | 1325.03 |
| 17 | 0.730 | 0.120 | 36.64 | 1361.66 |
| 18 | 0.487 | 0.122 | 21.88 | 1383.54 |
| 19 | 0.243 | 0.124 | 7.18 | 1390.72 |
| 20 | 0.000 | 0.124 | -7.46 | 1383.27 |
| 21 | 0.000 | 0.124 | -7.42 | 1375.84 |
| 22 | 0.000 | 0.123 | -7.39 | 1368.45 |
| 23 | 0.000 | 0.123 | -7.36 | 1361.08 |
| 24 | 0.000 | 0.122 | -7.33 | 1353.75 |
| 25 | 0.000 | 0.122 | -7.30 | 1346.45 |
| 26 | 0.000 | 0.121 | -7.27 | 1339.18 |
| 27 | 0.000 | 0.121 | -7.24 | 1331.94 |
| 28 | 0.000 | 0.120 | -7.21 | 1324.72 |
| 29 | 0.000 | 0.120 | -7.18 | 1317.54 |
| 30 | 0.000 | 0.119 | -7.15 | 1310.39 |
| 31 | 0.000 | 0.119 | -7.12 | 1303.27 |
| 32 | 0.000 | 0.118 | -7.09 | 1296.17 |
| 33 | 0.000 | 0.118 | -7.06 | 1289.11 |
| 34 | 0.000 | 0.117 | -7.03 | 1282.08 |
| 35 | 0.000 | 0.117 | -7.01 | 1275.07 |
| 36 | 0.000 | 0.116 | -6.98 | 1268.09 |
| 37 | 0.000 | 0.116 | -6.95 | 1261.15 |
| 38 | 0.000 | 0.115 | -6.92 | 1254.23 |
| 39 | 0.000 | 0.115 | -6.89 | 1247.34 |
| 40 | 0.000 | 0.114 | -6.86 | 1240.48 |

Hydrograph Data (Uncontrolled)

| Minute | In Flow (m ³ /s) | Out Flow (m ³ /s) | Delta-Storage (m ³) | Cumulative Storage (m ³) |
|--------|-----------------------------|------------------------------|---------------------------------|--------------------------------------|
| 0 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | 0.000 | 0.000 | 0.000 | 0.000 |
| 13 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | 0.000 | 0.000 | 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 | 0.000 |
| 2 | 0.001 |
| 3 | 0.004 |
| 4 | 0.008 |
| 5 | 0.013 |
| 6 | 0.019 |
| 7 | 0.026 |
| 8 | 0.035 |
| 9 | 0.045 |
| 10 | 0.056 |
| 11 | 0.073 |
| 12 | 0.088 |
| 13 | 0.099 |
| 14 | 0.106 |
| 15 | 0.112 |
| 16 | 0.116 |
| 17 | 0.120 |
| 18 | 0.122 |
| 19 | 0.124 |
| 20 | 0.124 |
| 21 | 0.124 |
| 22 | 0.123 |
| 23 | 0.123 |
| 24 | 0.122 |
| 25 | 0.122 |
| 26 | 0.121 |
| 27 | 0.121 |
| 28 | 0.120 |
| 29 | 0.120 |
| 30 | 0.119 |
| 31 | 0.119 |
| 32 | 0.118 |
| 33 | 0.118 |
| 34 | 0.117 |
| 35 | 0.117 |
| 36 | 0.116 |
| 37 | 0.116 |
| 38 | 0.115 |
| 39 | 0.115 |
| 40 | 0.114 |

Max Release

25-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

| Controlled Sub Areas (P1 - P9) | |
|--|-------|
| Total Site Area (ha) | 12.20 |
| Runoff Coefficient, C | 0.64 |
| Storm Duration (mins) | 20 |
| 25-Year Release Rate (m ³ /s) | 3.152 |
| Total Site Area (ha) | 0.00 |
| Runoff Coefficient, C | 0.00 |
| Storm Duration (mins) | 0 |
| 25-Year Release Rate (m ³ /s) | 0.000 |

Rating Curve Data Points

| Elevation (m) | Outflow (m ³ /s) | Storage (m ³) |
|---------------|-----------------------------|---------------------------|
| 231.08 | 0.056 | 649.66 |
| 231.18 | 0.097 | 996.35 |
| 231.38 | 0.148 | 1737.04 |
| 231.43 | 0.172 | 1932.29 |
| 231.53 | 0.321 | 2335.05 |
| 231.63 | 0.543 | 2660.24 |
| #REF! | #REF! | #REF! |

Formulae

$Q_{in} = Q_{out}/(t_d/2) * t_i$
 $Q_{out} = \text{Computer Generated using rating curve data points}$
 $\text{Storage (m}^3\text{)} = \text{Cumulative storage}_{(i-1)} + \Delta \text{ Storage}$
 $\Delta \text{ Storage (m}^3\text{)} = (Q_{in} - Q_{out}) * (t_i - t_{i-1}) * 60$

 Where:
 $Q_{in} = \text{Flow rate tributary to the system at a given time (m}^3\text{/s)}$
 $Q_{out} = \text{Flow rate out of the system at a given time (m}^3\text{/s)}$
 $T_d = \text{Storm Duration (min)}$
 $T_i = \text{Time(min)}$

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 | 0.315 | 0.000 | 18.91 | 18.91 |
| 2 | 0.630 | 0.000 | 37.82 | 56.73 |
| 3 | 0.945 | 0.000 | 56.73 | 113.46 |
| 4 | 1.261 | 0.000 | 75.64 | 189.09 |
| 5 | 1.576 | 0.000 | 94.55 | 283.64 |
| 6 | 1.891 | 0.000 | 113.46 | 397.10 |
| 7 | 2.206 | 0.000 | 132.37 | 529.46 |
| 8 | 2.521 | 0.000 | 151.28 | 680.74 |
| 9 | 2.836 | 0.004 | 169.96 | 850.70 |
| 10 | 3.152 | 0.024 | 187.67 | 1038.37 |
| 11 | 2.836 | 0.100 | 164.19 | 1202.56 |
| 12 | 2.521 | 0.111 | 144.60 | 1347.16 |
| 13 | 2.206 | 0.121 | 125.09 | 1472.25 |
| 14 | 1.891 | 0.130 | 105.66 | 1577.92 |
| 15 | 1.576 | 0.137 | 86.32 | 1664.23 |
| 16 | 1.261 | 0.143 | 67.05 | 1731.28 |
| 17 | 0.945 | 0.148 | 47.86 | 1779.14 |
| 18 | 0.630 | 0.153 | 28.62 | 1807.76 |
| 19 | 0.315 | 0.157 | 9.51 | 1817.27 |
| 20 | 0.000 | 0.158 | -9.47 | 1807.80 |
| 21 | 0.000 | 0.157 | -9.40 | 1798.40 |
| 22 | 0.000 | 0.156 | -9.34 | 1789.06 |
| 23 | 0.000 | 0.154 | -9.27 | 1779.79 |
| 24 | 0.000 | 0.153 | -9.20 | 1770.59 |
| 25 | 0.000 | 0.152 | -9.13 | 1761.46 |
| 26 | 0.000 | 0.151 | -9.07 | 1752.39 |
| 27 | 0.000 | 0.150 | -9.00 | 1743.39 |
| 28 | 0.000 | 0.149 | -8.94 | 1734.45 |
| 29 | 0.000 | 0.148 | -8.88 | 1725.57 |
| 30 | 0.000 | 0.147 | -8.84 | 1716.73 |
| 31 | 0.000 | 0.147 | -8.81 | 1707.92 |
| 32 | 0.000 | 0.146 | -8.77 | 1699.15 |
| 33 | 0.000 | 0.146 | -8.73 | 1690.42 |
| 34 | 0.000 | 0.145 | -8.70 | 1681.72 |
| 35 | 0.000 | 0.144 | -8.66 | 1673.06 |
| 36 | 0.000 | 0.144 | -8.63 | 1664.43 |
| 37 | 0.000 | 0.143 | -8.59 | 1655.84 |
| 38 | 0.000 | 0.143 | -8.55 | 1647.29 |
| 39 | 0.000 | 0.142 | -8.52 | 1638.77 |
| 40 | 0.000 | 0.141 | -8.48 | 1630.28 |

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 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | 0.000 | 0.000 | 0.000 | 0.000 |
| 13 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | 0.000 | 0.000 | 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 | 0.000 |
| 2 | 0.000 |
| 3 | 0.000 |
| 4 | 0.000 |
| 5 | 0.000 |
| 6 | 0.000 |
| 7 | 0.000 |
| 8 | 0.000 |
| 9 | 0.004 |
| 10 | 0.024 |
| 11 | 0.100 |
| 12 | 0.111 |
| 13 | 0.121 |
| 14 | 0.130 |
| 15 | 0.137 |
| 16 | 0.143 |
| 17 | 0.148 |
| 18 | 0.153 |
| 19 | 0.157 |
| 20 | 0.158 |
| 21 | 0.157 |
| 22 | 0.156 |
| 23 | 0.154 |
| 24 | 0.153 |
| 25 | 0.152 |
| 26 | 0.151 |
| 27 | 0.150 |
| 28 | 0.149 |
| 29 | 0.148 |
| 30 | 0.147 |
| 31 | 0.147 |
| 32 | 0.146 |
| 33 | 0.146 |
| 34 | 0.145 |
| 35 | 0.144 |
| 36 | 0.144 |
| 37 | 0.143 |
| 38 | 0.143 |
| 39 | 0.142 |
| 40 | 0.141 |

50-YEAR RELEASE RATES AND HYDROGRAPHS

Site Statistics

| Controlled Sub Areas (P1 - P9) | |
|--|-------|
| Total Site Area (ha) | 12.20 |
| Runoff Coefficient, C | 0.64 |
| Storm Duration (mins) | 20 |
| 50-Year Release Rate (m ³ /s) | 3.827 |
| Total Site Area (ha) | 0.00 |
| Runoff Coefficient, C | 0.00 |
| Storm Duration (mins) | 0 |
| 50-Year Release Rate (m ³ /s) | 0.000 |

Rating Curve Data Points

| Elevation (m) | Outflow (m ³ /s) | Storage (m ³) |
|---------------|-----------------------------|---------------------------|
| 231.08 | 0.056 | 649.66 |
| 231.18 | 0.097 | 996.35 |
| 231.38 | 0.148 | 1737.04 |
| 231.43 | 0.172 | 1932.29 |
| 231.53 | 0.321 | 2335.05 |
| 231.63 | 0.543 | 2660.24 |
| #REF! | #REF! | #REF! |

Formulae

$Q_{in} = Q_{out}/(t_d/2) * t_i$
 $Q_{out} = \text{Computer Generated using rating curve data points}$
 $\text{Storage (m}^3\text{)} = \text{Cumulative storage}_{(i-1)} + \Delta \text{ Storage}$
 $\Delta \text{ Storage (m}^3\text{)} = (Q_{in} - Q_{out}) * (t_i - t_{i-1}) * 60$

 Where:
 $Q_{in} = \text{Flow rate tributary to the system at a given time (m}^3\text{/s)}$
 $Q_{out} = \text{Flow rate out of the system at a given time (m}^3\text{/s)}$
 $T_d = \text{Storm Duration (min)}$
 $T_i = \text{Time(min)}$

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 | 0.383 | 0.000 | 22.96 | 22.96 |
| 2 | 0.765 | 0.000 | 45.92 | 68.88 |
| 3 | 1.148 | 0.000 | 68.88 | 137.76 |
| 4 | 1.531 | 0.000 | 91.84 | 229.59 |
| 5 | 1.913 | 0.000 | 114.80 | 344.39 |
| 6 | 2.296 | 0.000 | 137.76 | 482.15 |
| 7 | 2.679 | 0.000 | 160.72 | 642.86 |
| 8 | 3.061 | 0.000 | 183.68 | 826.54 |
| 9 | 3.444 | 0.021 | 205.38 | 1031.92 |
| 10 | 3.827 | 0.099 | 223.63 | 1255.55 |
| 11 | 3.444 | 0.115 | 199.74 | 1455.28 |
| 12 | 3.061 | 0.129 | 175.95 | 1631.24 |
| 13 | 2.679 | 0.141 | 152.26 | 1783.50 |
| 14 | 2.296 | 0.154 | 128.53 | 1912.03 |
| 15 | 1.913 | 0.169 | 104.64 | 2016.67 |
| 16 | 1.531 | 0.203 | 79.65 | 2096.32 |
| 17 | 1.148 | 0.233 | 54.91 | 2151.24 |
| 18 | 0.765 | 0.253 | 30.73 | 2181.97 |
| 19 | 0.383 | 0.265 | 7.09 | 2189.05 |
| 20 | 0.000 | 0.267 | -16.03 | 2173.02 |
| 21 | 0.000 | 0.261 | -15.67 | 2157.34 |
| 22 | 0.000 | 0.255 | -15.32 | 2142.02 |
| 23 | 0.000 | 0.250 | -14.98 | 2127.04 |
| 24 | 0.000 | 0.244 | -14.65 | 2112.39 |
| 25 | 0.000 | 0.239 | -14.32 | 2098.07 |
| 26 | 0.000 | 0.233 | -14.00 | 2084.06 |
| 27 | 0.000 | 0.228 | -13.69 | 2070.37 |
| 28 | 0.000 | 0.223 | -13.38 | 2056.99 |
| 29 | 0.000 | 0.218 | -13.09 | 2043.90 |
| 30 | 0.000 | 0.213 | -12.79 | 2031.11 |
| 31 | 0.000 | 0.208 | -12.51 | 2018.60 |
| 32 | 0.000 | 0.204 | -12.23 | 2006.37 |
| 33 | 0.000 | 0.199 | -11.96 | 1994.42 |
| 34 | 0.000 | 0.195 | -11.69 | 1982.73 |
| 35 | 0.000 | 0.190 | -11.43 | 1971.30 |
| 36 | 0.000 | 0.186 | -11.17 | 1960.12 |
| 37 | 0.000 | 0.182 | -10.92 | 1949.20 |
| 38 | 0.000 | 0.178 | -10.68 | 1938.52 |
| 39 | 0.000 | 0.174 | -10.44 | 1928.07 |
| 40 | 0.000 | 0.171 | -10.27 | 1917.80 |

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 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9 | 0.000 | 0.000 | 0.000 | 0.000 |
| 10 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | 0.000 | 0.000 | 0.000 | 0.000 |
| 13 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | 0.000 | 0.000 | 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 | 0.000 |
| 2 | 0.000 |
| 3 | 0.000 |
| 4 | 0.000 |
| 5 | 0.000 |
| 6 | 0.000 |
| 7 | 0.000 |
| 8 | 0.000 |
| 9 | 0.021 |
| 10 | 0.099 |
| 11 | 0.115 |
| 12 | 0.129 |
| 13 | 0.141 |
| 14 | 0.154 |
| 15 | 0.169 |
| 16 | 0.203 |
| 17 | 0.233 |
| 18 | 0.253 |
| 19 | 0.265 |
| 20 | 0.267 |
| 21 | 0.261 |
| 22 | 0.255 |
| 23 | 0.250 |
| 24 | 0.244 |
| 25 | 0.239 |
| 26 | 0.233 |
| 27 | 0.228 |
| 28 | 0.223 |
| 29 | 0.218 |
| 30 | 0.213 |
| 31 | 0.208 |
| 32 | 0.204 |
| 33 | 0.199 |
| 34 | 0.195 |
| 35 | 0.190 |
| 36 | 0.186 |
| 37 | 0.182 |
| 38 | 0.178 |
| 39 | 0.174 |
| 40 | 0.171 |

100-YEAR RELEASE RATES AND HYDROGRAPHS

| Site Statistics | | Rating Curve Data Points | | | Formulae | | | |
|---|------------------------------|------------------------------|---------------------------------|---------------------------------------|-------------|---------------------------|---------|--|
| Controlled Sub Areas (P1 - P9) | | | | | | | | |
| Total Site Area (ha) | 12.20 | Elevation (m) | 230.88 | Outflow (m ³ /s) | 0.000 | Storage (m ³) | 0.00 | |
| Runoff Coefficient, C | 0.64 | | 231.08 | | 0.056 | | 649.66 | |
| Storm Duration (mins) | 20 | | 231.18 | | 0.097 | | 996.35 | |
| 100-Year Release Rate (m ³ /s) | 4.380 | | 231.38 | | 0.148 | | 1737.04 | |
| | | | 231.43 | | 0.172 | | 1932.29 | |
| Total Site Area (ha) | 0.00 | | 231.53 | | 0.321 | | 2335.05 | |
| Runoff Coefficient, C | 0.00 | | 231.63 | | 0.543 | | 2660.24 | |
| Storm Duration (mins) | 0 | | | | | | | |
| 100-Year Release Rate (m ³ /s) | 0.000 | | | | | | | |
| 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 | 0.438 | 0.000 | 26.28 | 26.28 | | | | |
| 2 | 0.876 | 0.002 | 52.42 | 78.70 | | | | |
| 3 | 1.314 | 0.007 | 78.43 | 157.13 | | | | |
| 4 | 1.752 | 0.014 | 104.30 | 261.43 | | | | |
| 5 | 2.190 | 0.023 | 130.04 | 391.48 | | | | |
| 6 | 2.628 | 0.034 | 155.65 | 547.12 | | | | |
| 7 | 3.066 | 0.047 | 181.12 | 728.25 | | | | |
| 8 | 3.504 | 0.065 | 206.31 | 934.56 | | | | |
| 9 | 3.942 | 0.090 | 231.13 | 1165.69 | | | | |
| 10 | 4.380 | 0.109 | 256.27 | 1421.95 | | | | |
| 11 | 3.942 | 0.126 | 228.93 | 1650.88 | | | | |
| 12 | 3.504 | 0.142 | 201.70 | 1852.58 | | | | |
| 13 | 3.066 | 0.162 | 174.23 | 2026.80 | | | | |
| 14 | 2.628 | 0.207 | 145.26 | 2172.06 | | | | |
| 15 | 2.190 | 0.261 | 115.74 | 2287.80 | | | | |
| 16 | 1.752 | 0.304 | 86.88 | 2374.69 | | | | |
| 17 | 1.314 | 0.348 | 57.93 | 2432.61 | | | | |
| 18 | 0.876 | 0.388 | 29.28 | 2461.90 | | | | |
| 19 | 0.438 | 0.408 | 1.81 | 2463.70 | Max Storage | | | |
| 20 | 0.000 | 0.409 | -24.55 | 2439.16 | | | | |
| 21 | 0.000 | 0.392 | -23.54 | 2415.61 | | | | |
| 22 | 0.000 | 0.376 | -22.58 | 2393.03 | | | | |
| 23 | 0.000 | 0.361 | -21.66 | 2371.37 | | | | |
| 24 | 0.000 | 0.346 | -20.77 | 2350.60 | | | | |
| 25 | 0.000 | 0.332 | -19.92 | 2330.68 | | | | |
| 26 | 0.000 | 0.320 | -19.19 | 2311.48 | | | | |
| 27 | 0.000 | 0.313 | -18.76 | 2292.72 | | | | |
| 28 | 0.000 | 0.306 | -18.34 | 2274.38 | | | | |
| 29 | 0.000 | 0.299 | -17.94 | 2256.44 | | | | |
| 30 | 0.000 | 0.292 | -17.54 | 2238.90 | | | | |
| 31 | 0.000 | 0.286 | -17.14 | 2221.76 | | | | |
| 32 | 0.000 | 0.279 | -16.76 | 2205.00 | | | | |
| 33 | 0.000 | 0.273 | -16.39 | 2188.61 | | | | |
| 34 | 0.000 | 0.267 | -16.02 | 2172.59 | | | | |
| 35 | 0.000 | 0.261 | -15.66 | 2156.92 | | | | |
| 36 | 0.000 | 0.255 | -15.32 | 2141.61 | | | | |
| 37 | 0.000 | 0.250 | -14.97 | 2126.63 | | | | |
| 38 | 0.000 | 0.244 | -14.64 | 2112.00 | | | | |
| 39 | 0.000 | 0.239 | -14.31 | 2097.68 | | | | |
| 40 | 0.000 | 0.233 | -13.99 | 2083.69 | | | | |
| 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 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 6 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 7 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 8 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 9 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 10 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 11 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 12 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 13 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 14 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 15 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 16 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 17 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 18 | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| 19 | 0.000 | 0.000 | 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 | 0.000 | | | | | | | |
| 2 | 0.002 | | | | | | | |
| 3 | 0.007 | | | | | | | |
| 4 | 0.014 | | | | | | | |
| 5 | 0.023 | | | | | | | |
| 6 | 0.034 | | | | | | | |
| 7 | 0.047 | | | | | | | |
| 8 | 0.065 | | | | | | | |
| 9 | 0.090 | | | | | | | |
| 10 | 0.109 | | | | | | | |
| 11 | 0.126 | | | | | | | |
| 12 | 0.142 | | | | | | | |
| 13 | 0.162 | | | | | | | |
| 14 | 0.207 | | | | | | | |
| 15 | 0.261 | | | | | | | |
| 16 | 0.304 | | | | | | | |
| 17 | 0.348 | | | | | | | |
| 18 | 0.388 | | | | | | | |
| 19 | 0.408 | | | | | | | |
| 20 | 0.409 | Max Release | | | | | | |
| 21 | 0.392 | | | | | | | |
| 22 | 0.376 | | | | | | | |
| 23 | 0.361 | | | | | | | |
| 24 | 0.346 | | | | | | | |
| 25 | 0.332 | | | | | | | |
| 26 | 0.320 | | | | | | | |
| 27 | 0.313 | | | | | | | |
| 28 | 0.306 | | | | | | | |
| 29 | 0.299 | | | | | | | |
| 30 | 0.292 | | | | | | | |
| 31 | 0.286 | | | | | | | |
| 32 | 0.279 | | | | | | | |
| 33 | 0.273 | | | | | | | |
| 34 | 0.267 | | | | | | | |
| 35 | 0.261 | | | | | | | |
| 36 | 0.255 | | | | | | | |
| 37 | 0.250 | | | | | | | |
| 38 | 0.244 | | | | | | | |
| 39 | 0.239 | | | | | | | |
| 40 | 0.233 | | | | | | | |

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 | Infiltration | 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 |

Notes

Infiltration is not proposed. Quality control is provided through the Wet Pond, which has been designed for both quantity and quality control.

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 |

ONTARIO BUILDING CODE (2012) MINIMUM WATER SUPPLY

| Reference Documents | Building Information | Formulae |
|---|---|--|
| Ontario Building Code (2024) Site Plan Completed by CDN dated 2025/01/21 Note: Building information obtained from preliminary site plan | Building Classification: F-2 Construction Type: Non-combustible Number of Storeys: 2.5 Total GFA (m ²): 6678 | $Q = K * V * S_{tot}$ Where: Q= Minimum water supply in litres 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 Proposed Gross Floor Area (m ²): 6678 Total Building Volume (m ³): 58766.4 | 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. |

3. SPATIAL COEFFICIENT, S_{tot}

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

MINIMUM SUPPLY OF WATER

| WATER SUPPLY | TARGET DURATION | MINIMUM FLOW RATE (L/min) |
|--|-----------------|---------------------------|
| 1586693 L 1587 m ³ 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



December 5, 2025

Appendix B

Geotechnical Investigation Report



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

Contents

| | |
|--|----|
| 1. Introduction | 3 |
| 2. Site Description | 3 |
| 3. Field Work | 3 |
| 4. Subsurface Conditions | 3 |
| 5. Groundwater Conditions..... | 4 |
| 6. Discussion and Recommendations | 4 |
| 6.1 General..... | 4 |
| 6.2 Building Foundations | 5 |
| 6.3 Excavation and Groundwater Control..... | 7 |
| 6.4 Subsurface Walls | 7 |
| 6.5 Floor Slabs | 8 |
| 6.6 Pavement Designs..... | 9 |
| 7. Statement of Limitation..... | 9 |
| 8. Closure | 10 |

Enclosures

Enclosure 1: Test Pit Location Plan
Enclosure 2: Existing Contour Plan
Enclosure 3: Existing Conditions Plan
Enclosures 4 to 9: Test Pit Logs
Enclosures 10 to 13: Grain Size Distribution Curves

List of Appendices

Appendix A: Limitations and Use of Report

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-compactated 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 Nilee 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

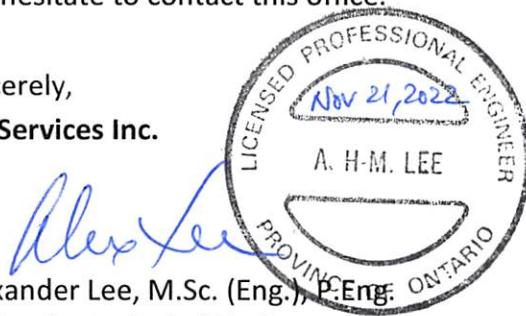
The Statement of Limitation including the Terms and Conditions of this report is presented on Appendix 'A' is an integral part of this report.

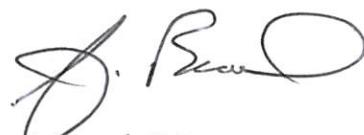
8. Closure

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.

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



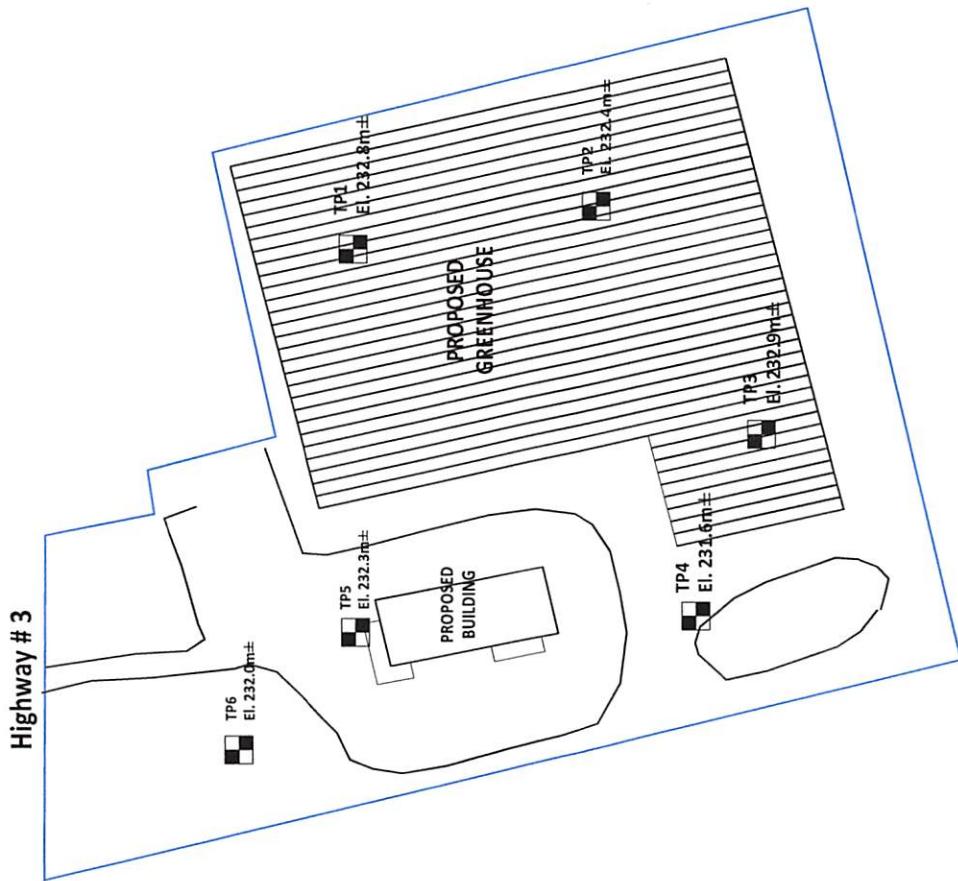

J. Board, B.A.
General Manager

JLP Services Inc.
Geotechnical Investigation
Proposed Greenhouse
2148 Highway #3, Delhi, Ontario
G4G33-22-8
November 21, 2022

Enclosures

Legend

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



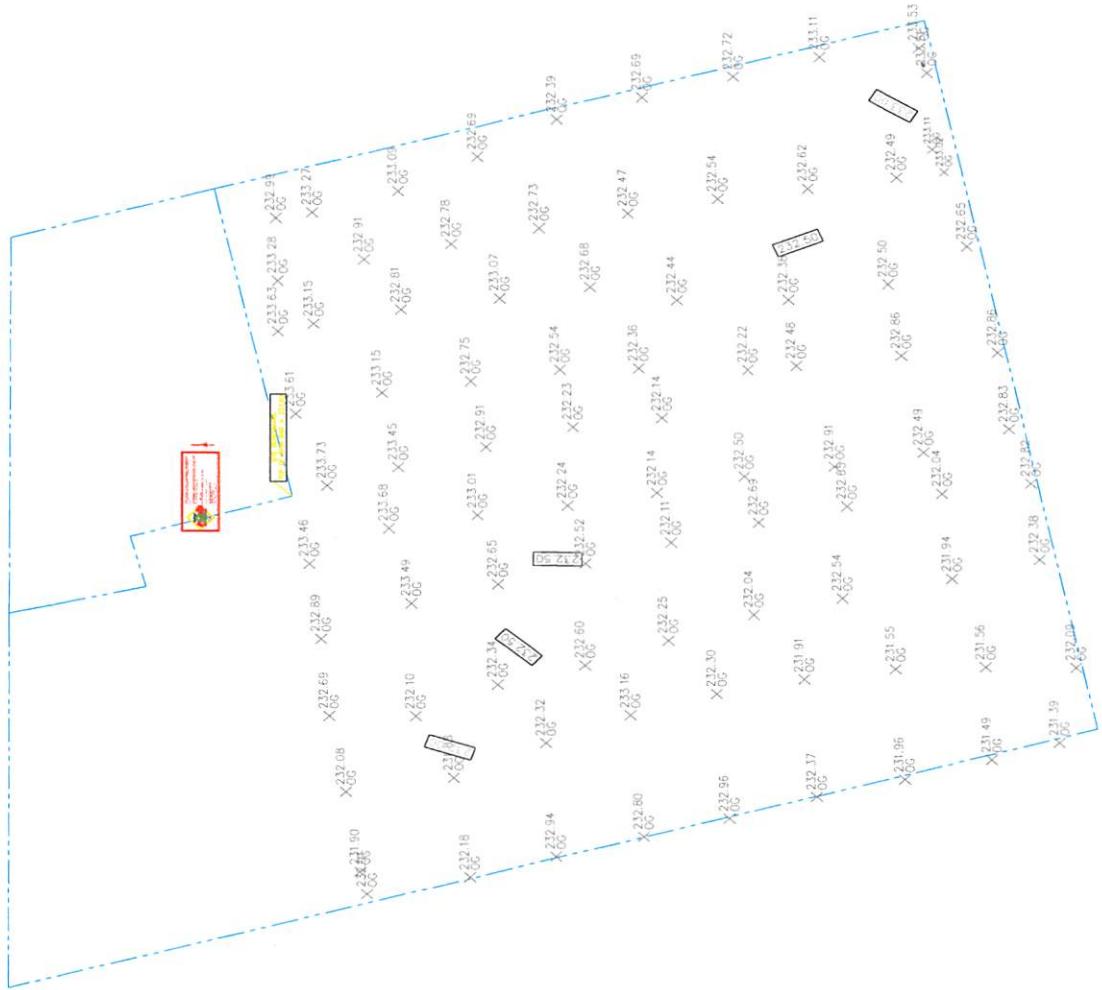
Notes:
1. The soil types and boundaries are applicable only at the location of the boreholes. Between boreholes, they are assumed and may change substantially. The topsoil thickness quoted in the report are used for discussion purposes only and should not be used for estimating purposes.
2. The Ground 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 with fees.



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

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

1



10

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 tosoil thicknesses 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 a temporary Benchmark (TB) as shown.
3. The soil samples will be retained for three months from the date of issue of the final report.



Contour Plan
Proposed Building
2148 Highway 3,
Delhi, Ontario

| | |
|-------------------|----------------|
| Prepared By: GB | Checked By: JB |
| Source: Site Plan | Scale: NTS |

| | |
|-------------------|----------------|
| Prepared By: GB | Checked By: JB |
| Source: Site Plan | Scale: NTS |

Legend



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



Notes:
1. The soil types and boundaries are applicable only at the location of the boreholes. Between boundaries, they are assumed and may change substantially. The tested properties 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 (TB) 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 at fees.



Existing Condition Plan
Proposed Greenhouse
2148 Highway 3
Delhi, Ontario

| | |
|-------------------------|---------------------|
| Date: November 14, 2022 | Ref. No. G633-22-11 |
| Prepared By: GB | Checked By: JB |
| Source: Site Plan | Scale: N.T.S. |
| | ENCL. No. 3 |

**TEST PIT NUMBER TP1**

PAGE 1 OF 1

CLIENT CDN Buildings
PROJECT NUMBER G4633--22-8
DATE STARTED 24-8-22 COMPLETED 24-8-22
EXCAVATION CONTRACTOR CDN Buildings
EXCAVATION METHOD Excavator
LOGGED BY JB CHECKED BY JB
NOTES _____

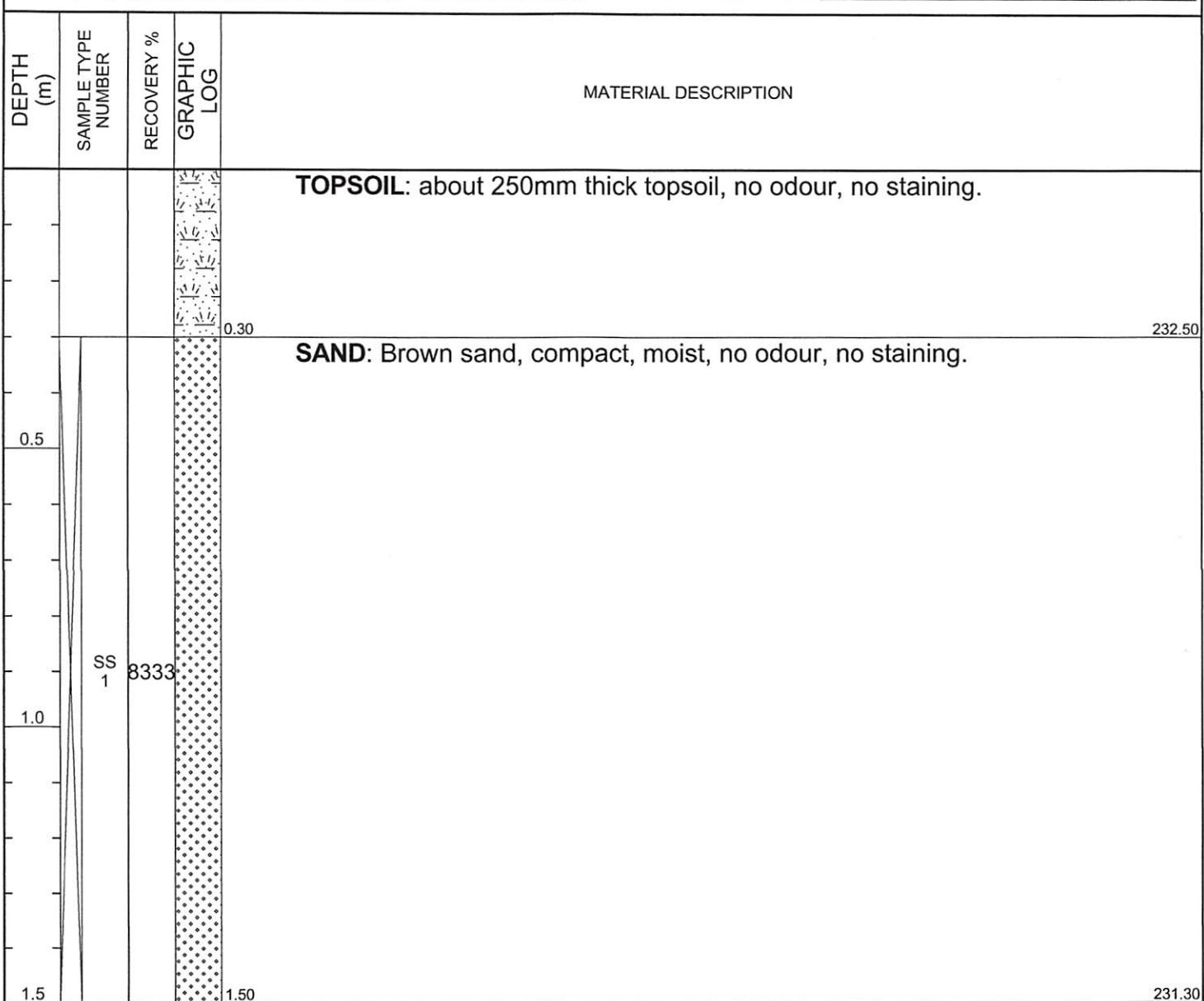
PROJECT NAME Proposed GreenhousePROJECT LOCATION 2148 Highway #3, Delhi, OntarioGROUND ELEVATION 232.8 m Geodetic TEST PIT SIZE 1.5m x 1.5m

GROUND WATER LEVELS:

AT TIME OF EXCAVATION ---

AT END OF EXCAVATION ---

AFTER EXCAVATION ---

**TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS**

Bottom of test pit at 1.50 m.

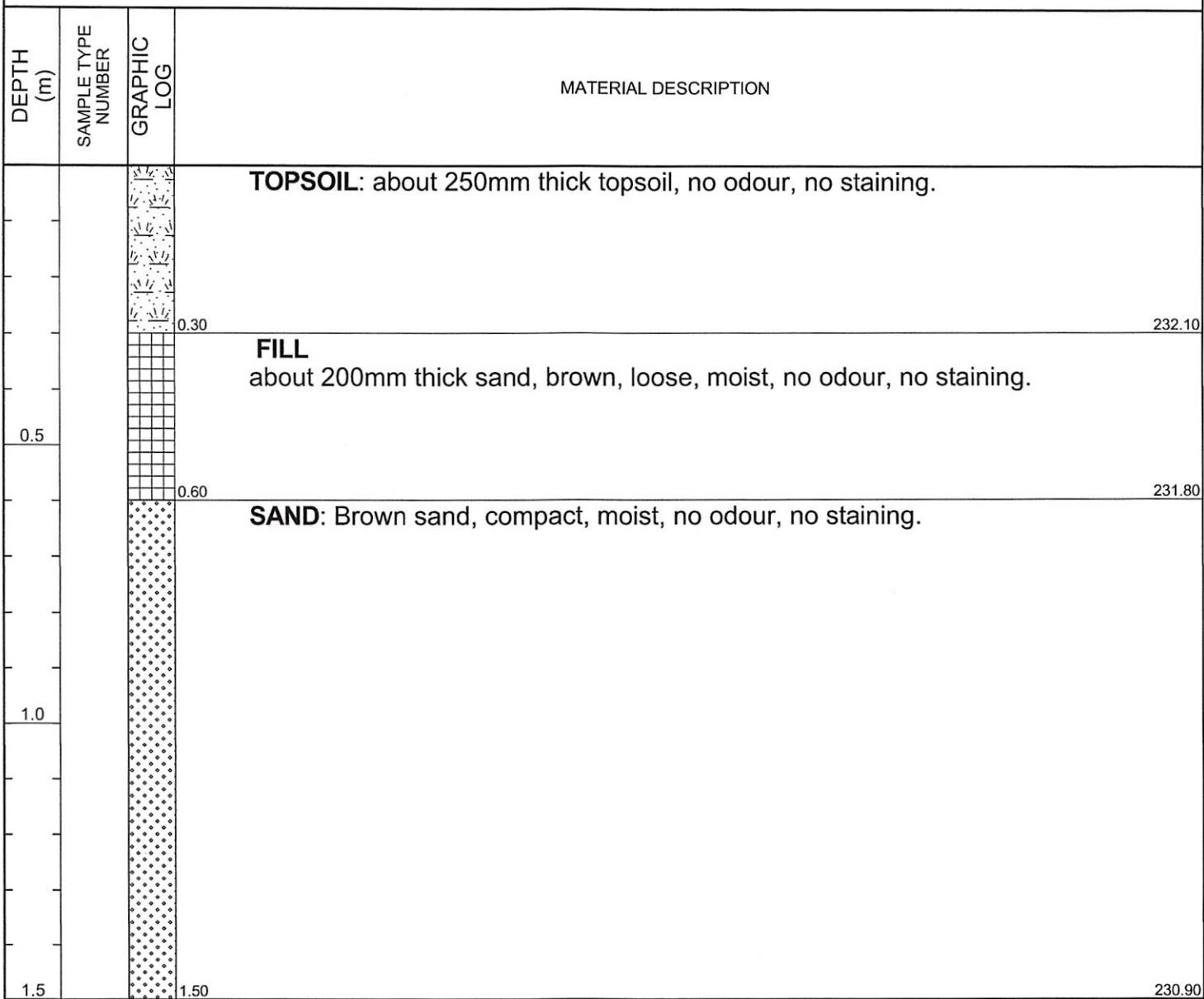


Geotechnical & Environmental Consultants

TEST PIT NUMBER TP2

PAGE 1 OF 1

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 ---



**TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS**

Bottom of test pit at 1.50 m.



Geotechnical & Environmental Consultants

TEST PIT NUMBER TP3

PAGE 1 OF 1

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 | | | |
| 0.5 | | | |
| 1.0 | SS 1 7692 | | SAND: Brown sand, trace silt, compact, moist, no odour, no staining. |
| 1.50 | | | |
| 1.5 | | | |
| | | | 232.70 |
| | | | 231.40 |

**TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS**

Bottom of test pit at 1.50 m.

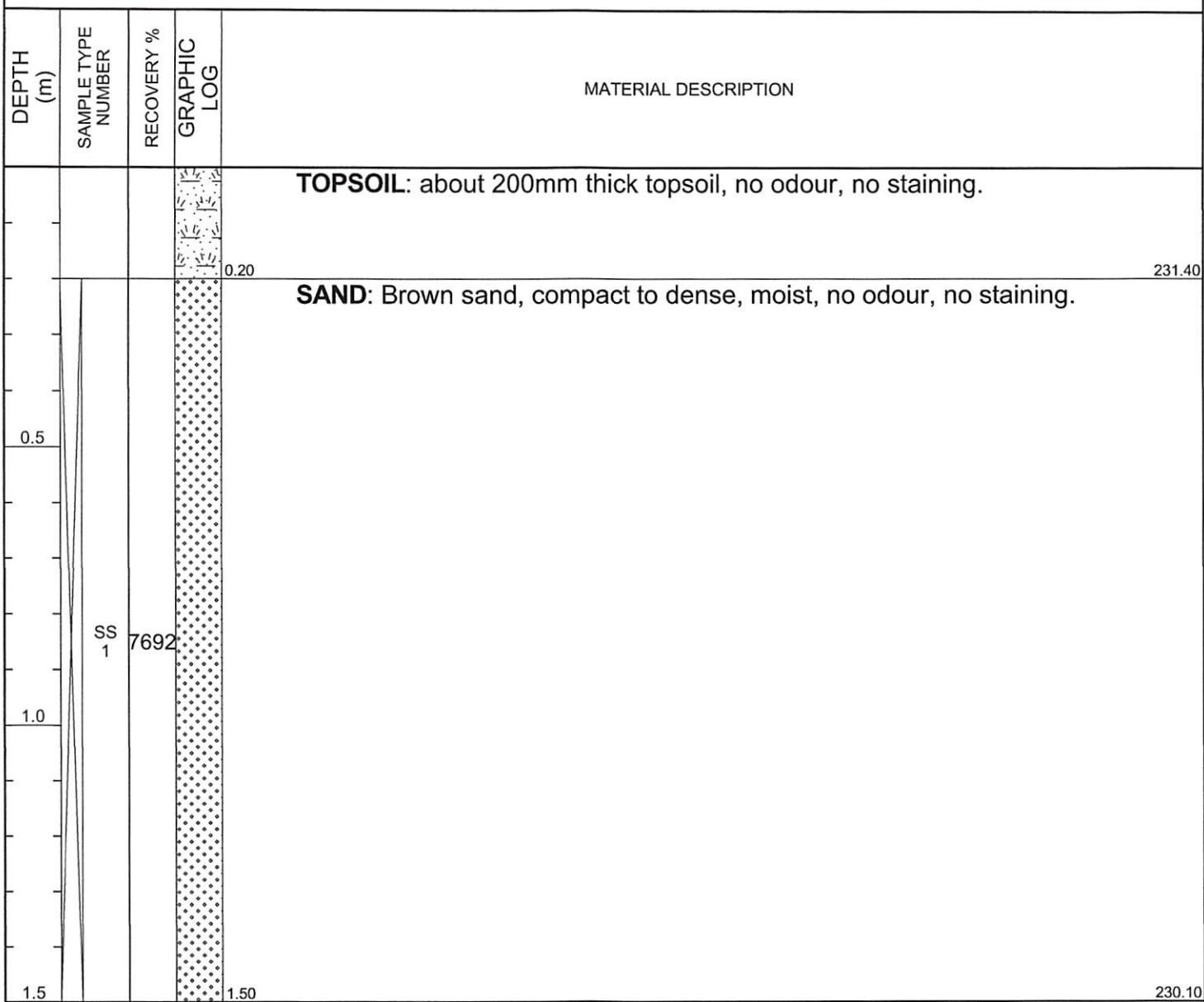


TEST PIT NUMBER TP4

PAGE 1 OF 1

CLIENT CDN Buildings
PROJECT NUMBER G4633--22-8
DATE STARTED 24-8-22 COMPLETED 24-8-22
EXCAVATION CONTRACTOR CDN Buildings
EXCAVATION METHOD Excavator
LOGGED BY JB CHECKED BY JB
NOTES _____

PROJECT NAME Proposed Greenhouse
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
GROUND ELEVATION 231.6 m Geodetic TEST PIT SIZE 1.5m x 1.5m
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---



**TEST PIT DRY AT COMPLETION
END OF TEST PIT AT 1.5 MBGS**

Bottom of test pit at 1.50 m.



CLIENT CDN Buildings
PROJECT NUMBER G4633--22-8
DATE STARTED 24-8-22 COMPLETED 24-8-22
EXCAVATION CONTRACTOR CDN Buildings
EXCAVATION METHOD Excavator
LOGGED BY JB CHECKED BY JB
NOTES _____

PROJECT NAME Proposed Greenhouse
PROJECT LOCATION 2148 Highway #3, Delhi, Ontario
GROUND ELEVATION 232.3 m Geodetic TEST PIT SIZE 1.5m x 1.5m
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

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

CLIENT CDN BuildingsPROJECT NAME Proposed GreenhousePROJECT NUMBER G4633--22-8PROJECT LOCATION 2148 Highway #3, Delhi, OntarioDATE STARTED 24-8-22 COMPLETED 24-8-22GROUND ELEVATION 232 m Geodetic TEST PIT SIZE 1.5m x 1.5mEXCAVATION CONTRACTOR CDN Buildings

GROUND WATER LEVELS:

EXCAVATION METHOD ExcavatorAT TIME OF EXCAVATION ---LOGGED BY JB CHECKED BY JBAT END OF EXCAVATION ---NOTES AFTER EXCAVATION ---

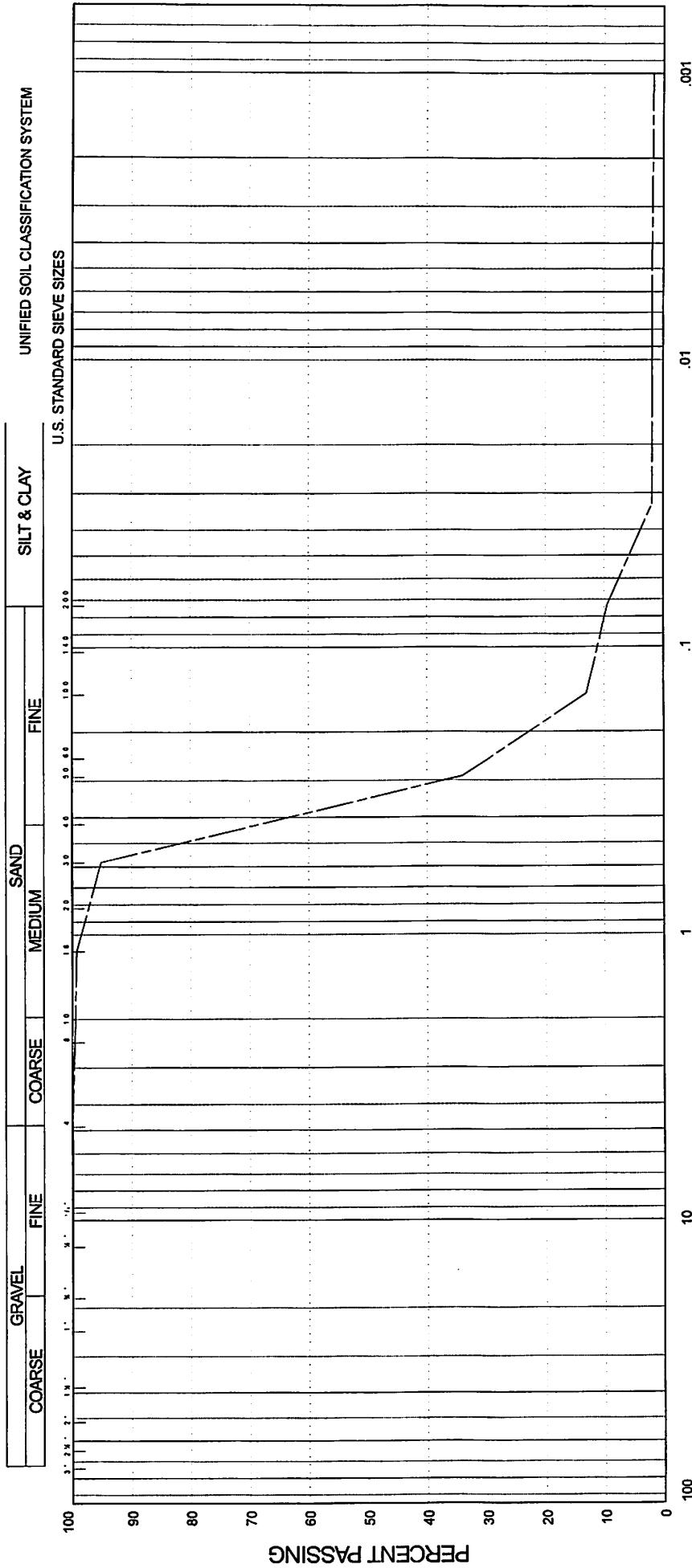
| DEPTH (m) | SAMPLE TYPE NUMBER | RECOVERY % GRAPHIC LOG | MATERIAL DESCRIPTION |
|--------------|-----------------------|------------------------------|---|
| | | | TOPSOIL: about 200mm thick topsoil, no odour, no staining. |
| 0.5 | | | |
| 1.0 | SS 1 7692 | 0.20 | SAND: Brown sand, compact, moist,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

**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° G4633-228



Grain Size in Millimeters

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

ENCLOSURE N° 10

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±

PLASTIC PROPERTIES

LIQUID LIMIT % = -

PLASTIC LIMIT % = -

PLASTICITY INDEX % = -

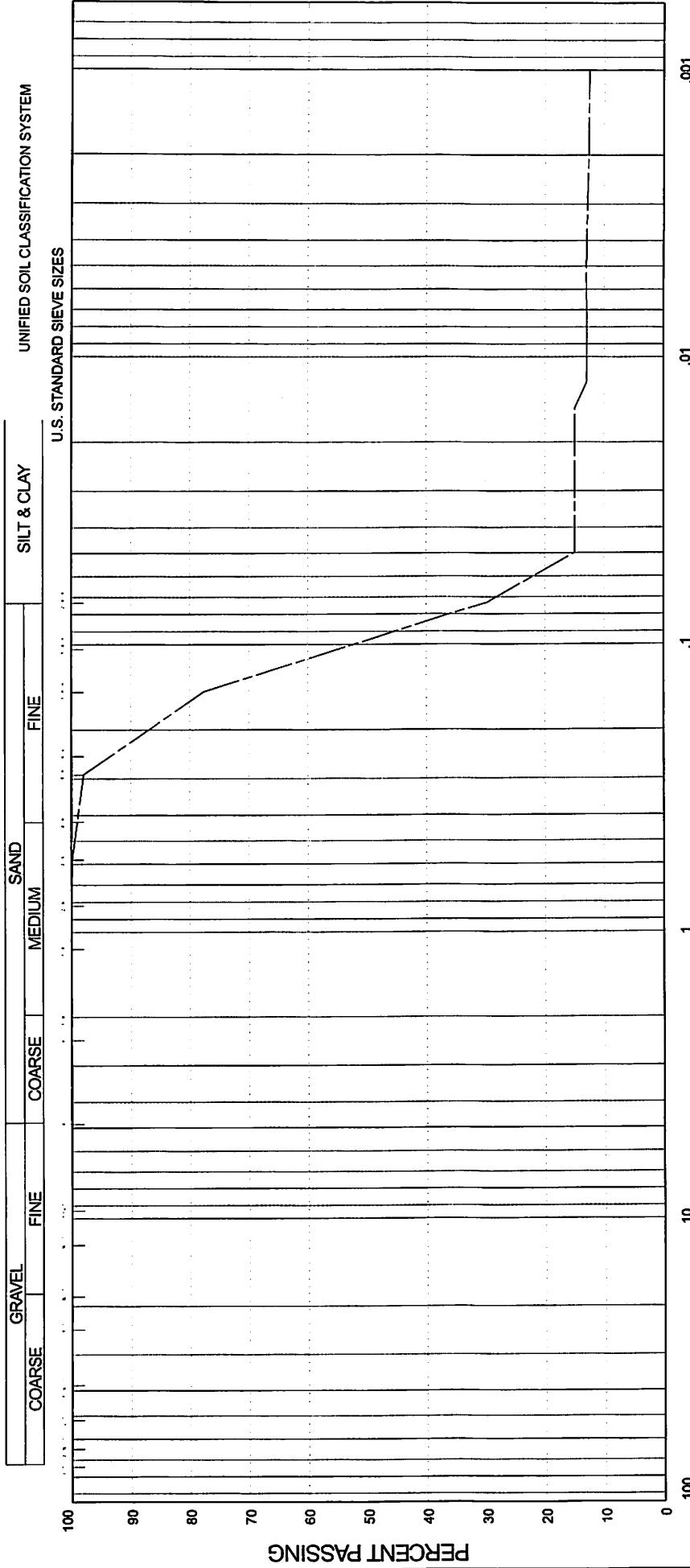
MOISTURE CONTENT % = 4.6

Classification of Sample and Group Symbol:

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

GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-9



ENCLOSURE N° 11

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

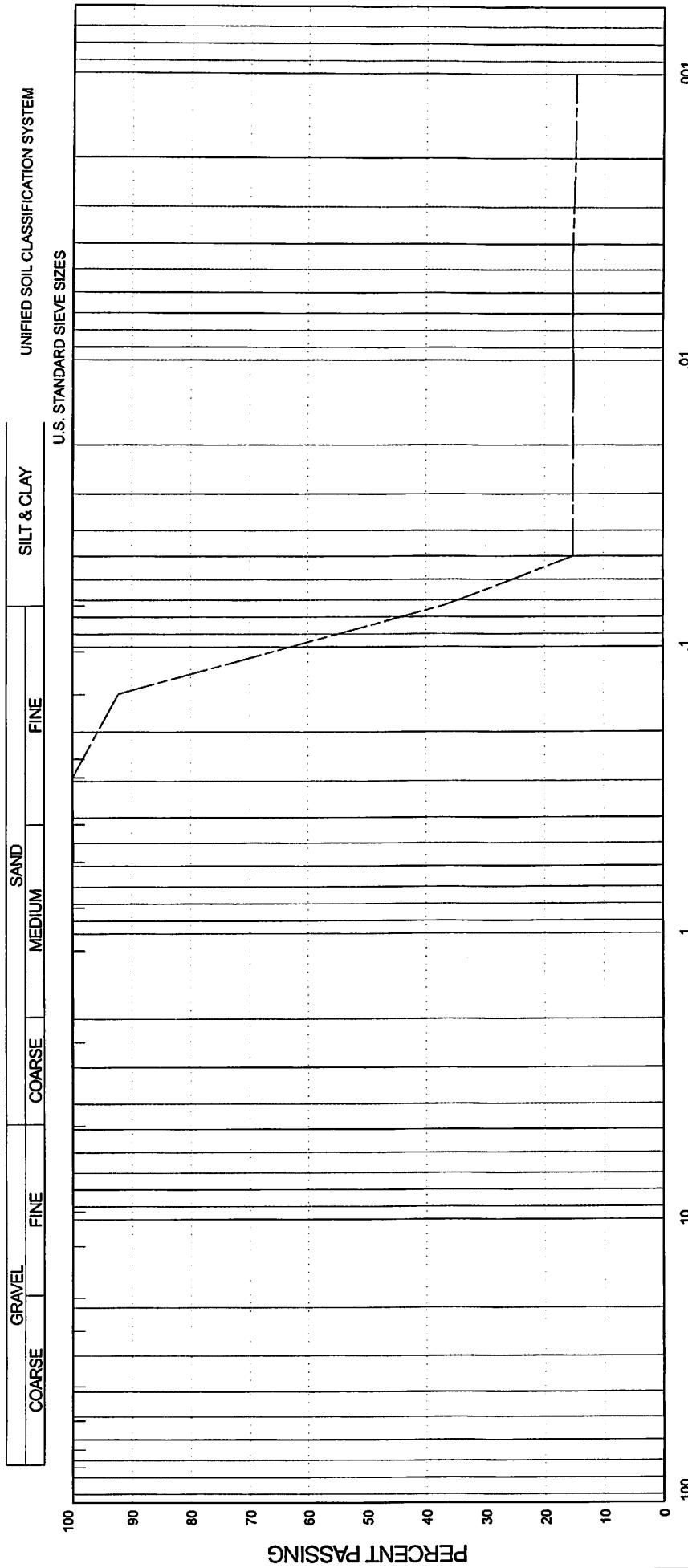
COEFFICIENT OF UNIFORMITY:
COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:
SAND, some silt, some clay (SM)

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±

GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-228



ENCLOSURE N° 12

PLASTIC PROPERTIES

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

.001

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

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±

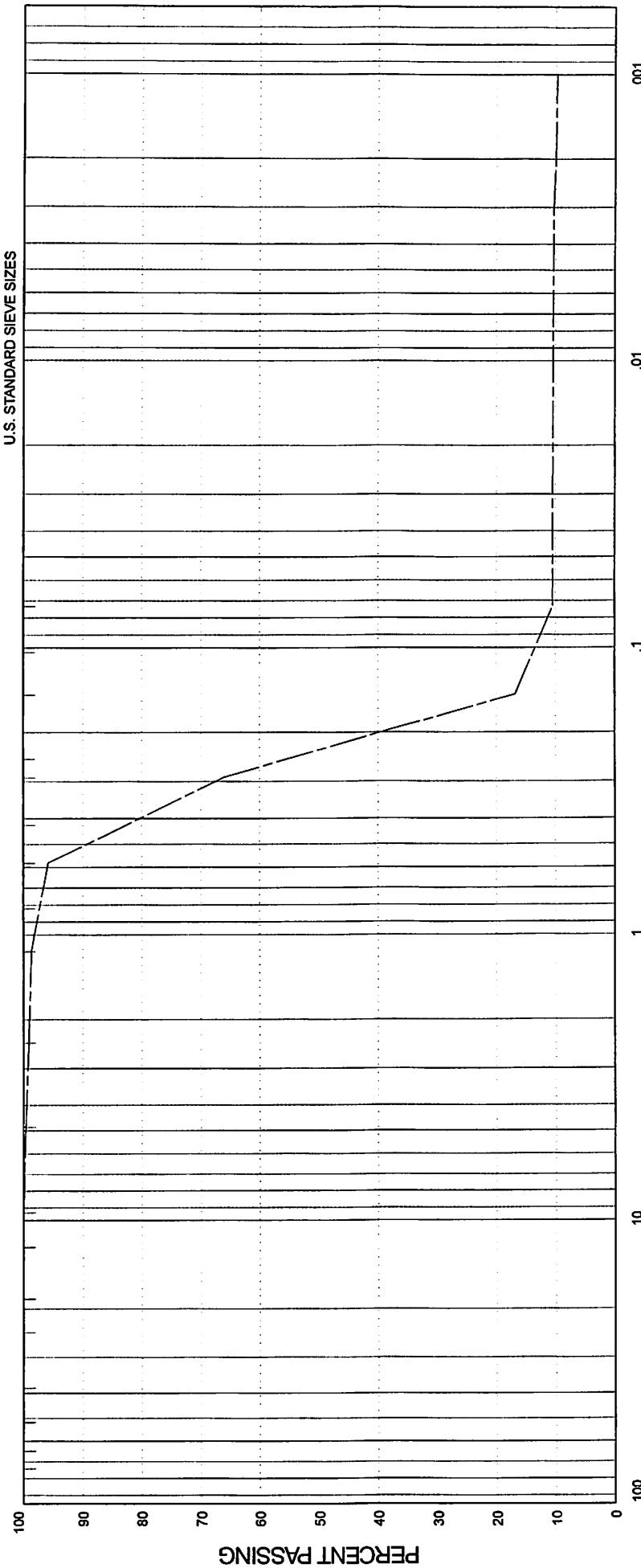
Classification of Sample and Group Symbol:

SILTY SAND, some clay (SM)

GRAIN SIZE DISTRIBUTION

OUR REFERENCE N° G4633-22-8

| GRAVEL | | SAND | | SILT & CLAY | | UNIFIED SOIL CLASSIFICATION SYSTEM | |
|--------|------|--------|--------|-------------|--|------------------------------------|--|
| COARSE | FINE | COARSE | MEDIUM | FINE | | | |
| | | | | | | | |



ENCLOSURE N° 13

PLASTIC PROPERTIES

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

COEFFICIENT OF UNIFORMITY:

COEFFICIENT OF CURVATURE:

Classification of Sample and Group Symbol:

SAND, trace clay (SW-SP)

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±

JLP Services Inc.
Geotechnical Investigation
Proposed Greenhouse
2148 Highway #3, Delhi, Ontario
G4G33-22-8
November 21, 2022

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 THIS 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.

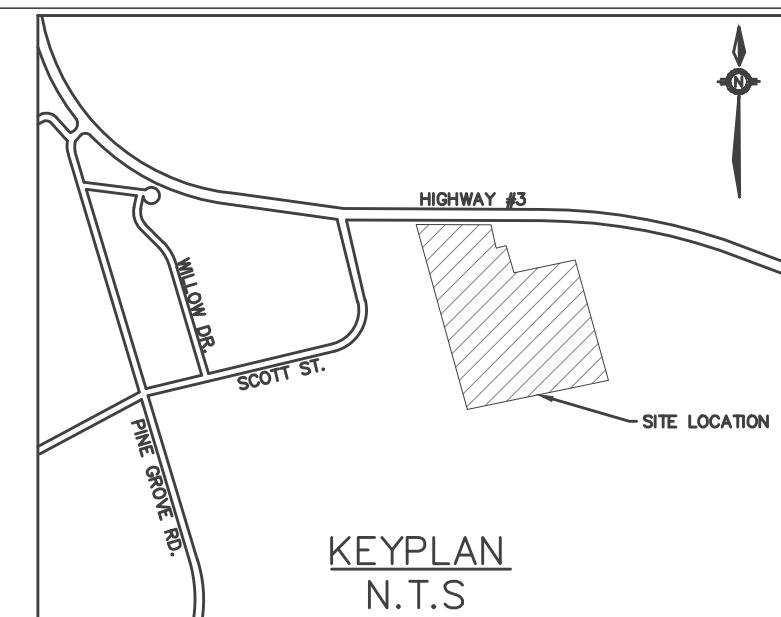
7. **GENERAL LIMITATIONS.**

- (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.



December 5, 2025

Appendix C Design Drawings



LEGEND

| | |
|--------|------------------------------------|
| —○— | PRIVACY FENCE |
| —○— | ACOUSTIC FENCE |
| —X— | CHAIN LINK FENCE |
| —○— | SILT FENCE |
| —G— | GAS LINE |
| —H— | HYDRO LINE |
| —B— | BELL LINE |
| SAN# ● | EXISTING SANITARY MAINTENANCE HOLE |
| SAN# ● | PROPOSED SANITARY MAINTENANCE HOLE |
| CB# □ | EXISTING CATCH BASIN |
| CB# □ | PROPOSED CATCH BASIN |
| STM# ○ | EXISTING STORM MAINTENANCE HOLE |
| STM# ○ | PROPOSED STORM MAINTENANCE HOLE |
| HYD&VB | SERVICE CAP |
| HYD&VB | EXISTING FIRE HYDRANT |
| HYD&VB | PROPOSED FIRE HYDRANT |
| VB# □ | EXISTING VALVE BOX |
| VB# □ | PROPOSED VALVE BOX |
| —○— | PROPOSED SIGN |
| ◆ | EXISTING LIGHT POLE |
| ► | MANDOOR |
| △ | OVERHEAD DOOR |
| —○— | FIRE DEPT CONNECTION |
| DS | DOWN SPOUT |
| E | ELECTRICAL ROOM |
| M | MECHANICAL ROOM |
| —○— | LANDSCAPE AREA |
| —○— | LIGHT DUTY ASPHALT AREA |
| —○— | HEAVY DUTY ASPHALT AREA |
| —○— | GRAVEL AREA |

| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
| 2. | MTO SUBMISSION | 25/04/09 |
| 3. | SPA & BP SUBMISSION | 25/11/28 |

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

SITE PLAN APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

Issued For:

CDN BUILDINGS

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

Project:

HWY #3 DELHI

2148 Highway 3, Delhi, ON N4B 2W4

Norfolk County

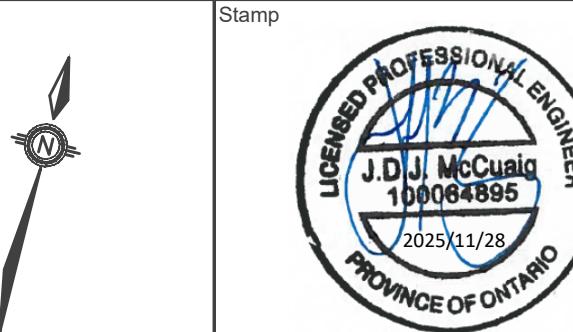
Drawing:

SITE SERVICING PLAN

Project No. 1121-012-22 Designed by: KF Checked by: JDM

Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp



Drawing No.

SS-1

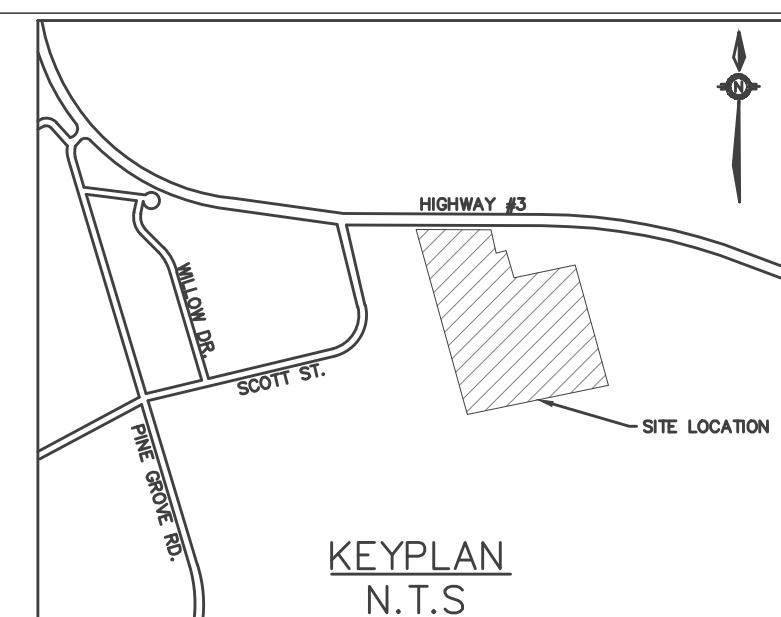
SAVED: X:\1100\1121\CDN Buildings\1121-012-22 2148 HWY #3 Delhi\DWGs_Civil\1121-012-22 LAYOUT_11/28/2025 2:15:04 PM_KFLION PRINTED: 11/28/2025 3:33:48 PM_SS-1_KFLION

This drawing has been created electronically.
Handwritten or manual revisions to the drawing are only valid when accompanied by the design engineer's initials.

No drawing is complete until all revisions and information on the drawings and report all errors or omissions to the Consultant before proceeding with work.
This drawing shall not be reproduced in any manner, in part or in whole, for any project other than that for which it was prepared.
This drawing, and all design concepts it contains, are an instrument of professional service and remain the property of Gerrits Engineering.

This drawing may have been reduced.

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



LEGEND

| | |
|----------|------------------------------------|
| —○— | PRIVACY FENCE |
| —○— | ACOUSTIC FENCE |
| —X— | CHAIN LINK FENCE |
| —○— | SILT FENCE |
| —G— | GAS LINE |
| —H— | HYDRO LINE |
| —B— | BELL LINE |
| SAN# ● | EXISTING SANITARY MAINTENANCE HOLE |
| SAN# ● | PROPOSED SANITARY MAINTENANCE HOLE |
| CB# □ | EXISTING CATCH BASIN |
| CB# □ | PROPOSED CATCH BASIN |
| STM# ○ | EXISTING STORM MAINTENANCE HOLE |
| STM# ○ | PROPOSED STORM MAINTENANCE HOLE |
| HYD&VB □ | SERVICE CAP |
| HYD&VB □ | EXISTING FIRE HYDRANT |
| HYD&VB □ | PROPOSED FIRE HYDRANT |
| VB# □ | EXISTING VALVE BOX |
| VB# □ | PROPOSED VALVE BOX |
| —○— | PROPOSED SIGN |
| ★ | EXISTING LIGHT POLE |
| ► | MANDOOR |
| △ | OVERHEAD DOOR |
| —○— | FIRE DEPT CONNECTION |
| DS | DOWNSPOUT |
| E | ELECTRICAL ROOM |
| M | MECHANICAL ROOM |
| —○— | LANDSCAPE AREA |
| —○— | LIGHT DUTY ASPHALT AREA |
| —○— | HEAVY DUTY ASPHALT AREA |
| —○— | GRAVEL AREA |

| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
| 2. | MTO SUBMISSION | 25/04/09 |
| 3. | SPA & BP SUBMISSION | 25/11/28 |

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

SITE PLAN APPROVAL

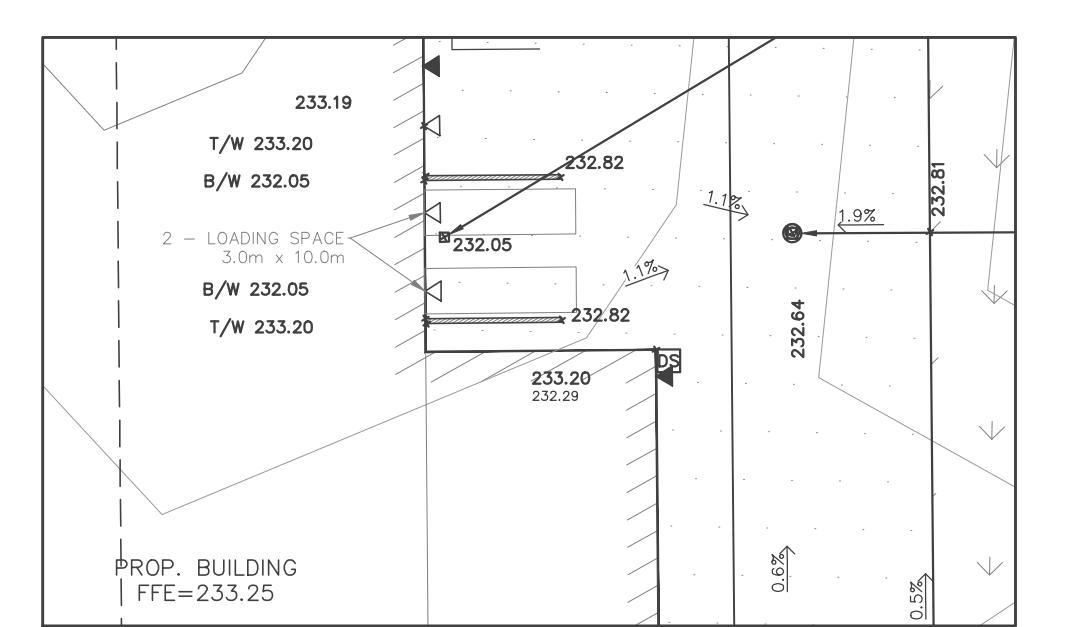
DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

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:

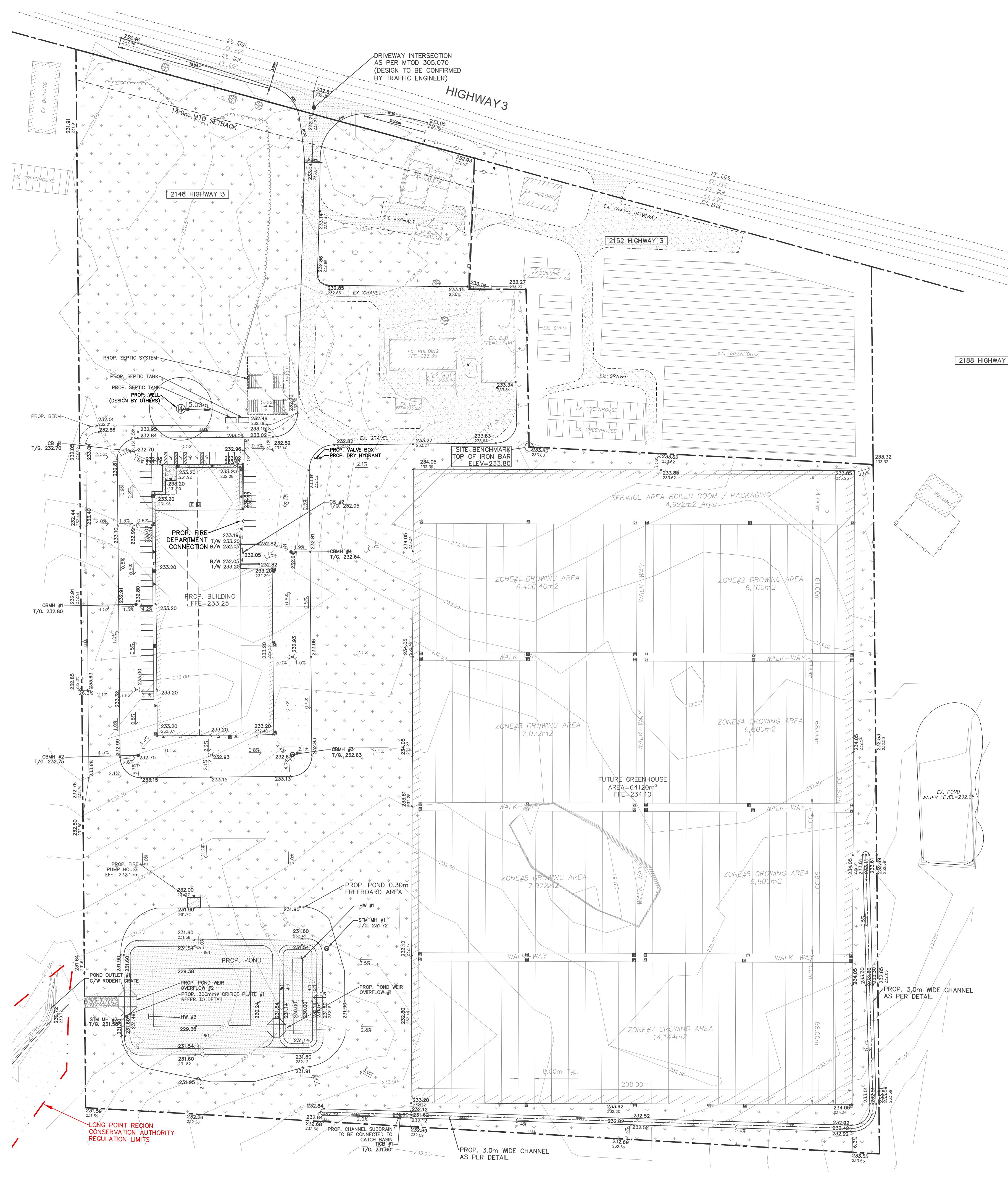
SITE GRADING PLAN

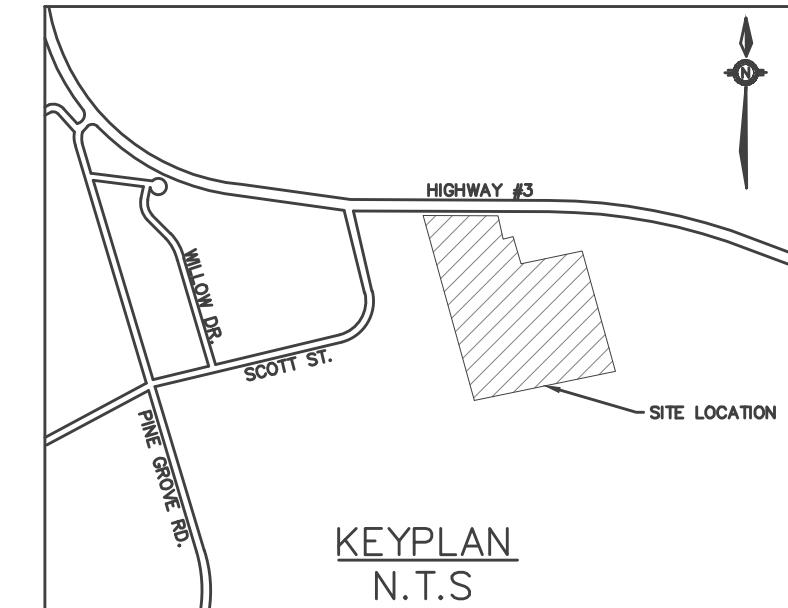
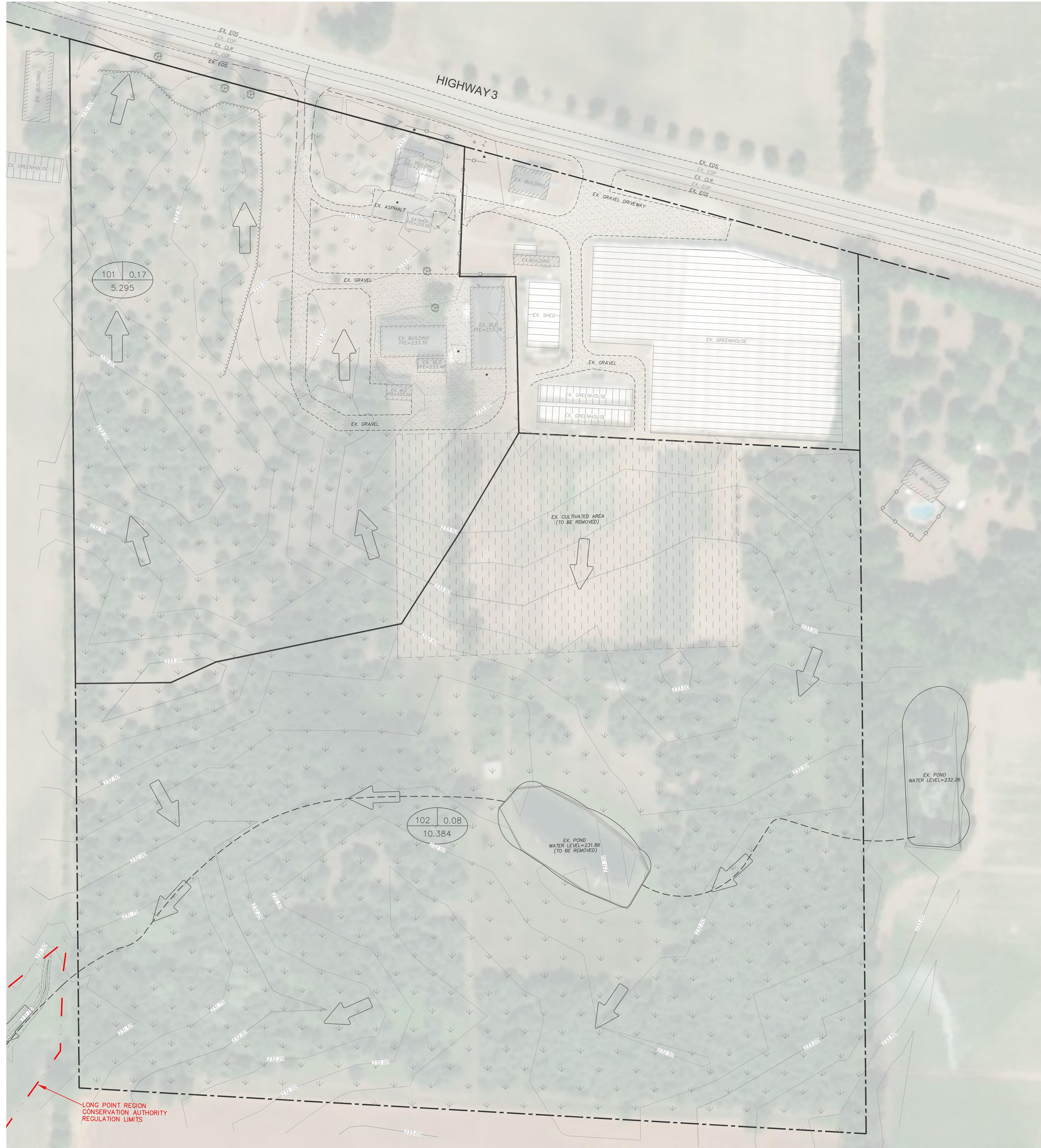


Project No. 1121-012-22 Designed by: KF Checked by: JDM
Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp

J.D. McCullum
LICENCED PROFESSIONAL ENGINEER
NO. 10004895
PROVINCE OF ONTARIO
Drawing No. SG-1





Gerrits

ENGINEERING

Barrie, ON **Kingston, ON**
Tel.: 705.737.3303 Tel.: 613.217.8246

Kingston, ON
Tel.: 613.217.8246

www.gerrenq.com

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lals.

sions and information on the drawings and report all
Consultant before proceeding with the work.
produced in any manner, in part or in whole, for any
which it was prepared.
concepts it contains, are an instrument of
ain the property of Gerrits Engineering.

This drawing has been created electronically.
Handwritten or manual revisions to the drawing are only valid when accompanied

Handwritten or handwritten initials 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 omissions to the Consultant before proceeding with the work.
This drawing shall not be reproduced in any manner, in part or in whole, for any project other than that for which it was prepared.
This drawing, and all design concepts it contains, are an instrument of professional service and remain the property of Gerrits Engineering.

LEGEND

| | | | |
|----|---------|------|--------------------|
| ID | $X/P-1$ | 0.75 | RUNOFF COEFFICIENT |
| | | 5.55 | |

— LBRCA REGULATION

LPRCA REGULATION LIMIT

| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
| 2. | MTO SUBMISSION | 25/04/09 |
| 3. | SPA & BP SUBMISSION | 25/11/28 |

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

Issued For:

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

The logo for CDN BUILDINGS. It features the word "CDN" in a large, bold, dark grey sans-serif font. To the right of "CDN" is a stylized, light grey outline of a house roofline. To the right of the roofline, the word "BUILDINGS" is written in a bold, red sans-serif font.

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

Project **HWY #3 DELHI**

2148 Highway 3, Delhi, ON N4B 2W4

Drawing:

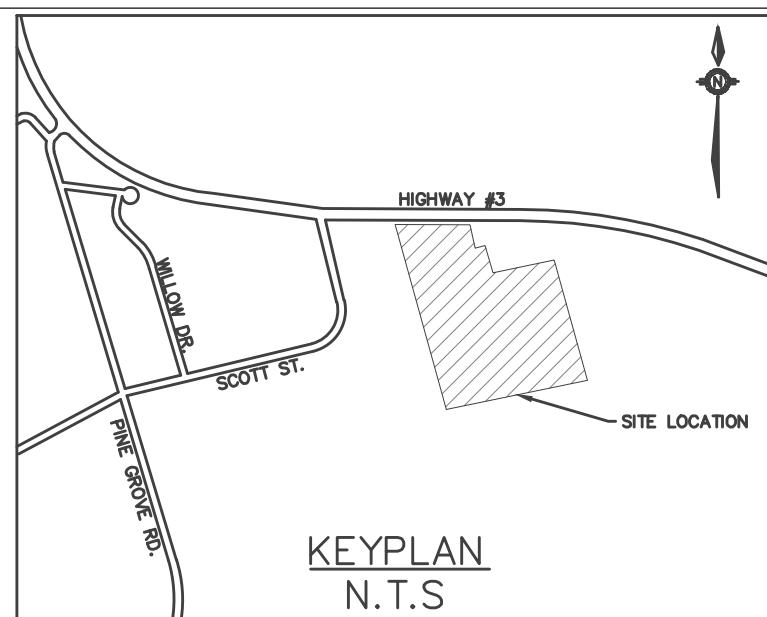
PRE-DEVELOPMENT STORMWATER DRAINAGE PLAN

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

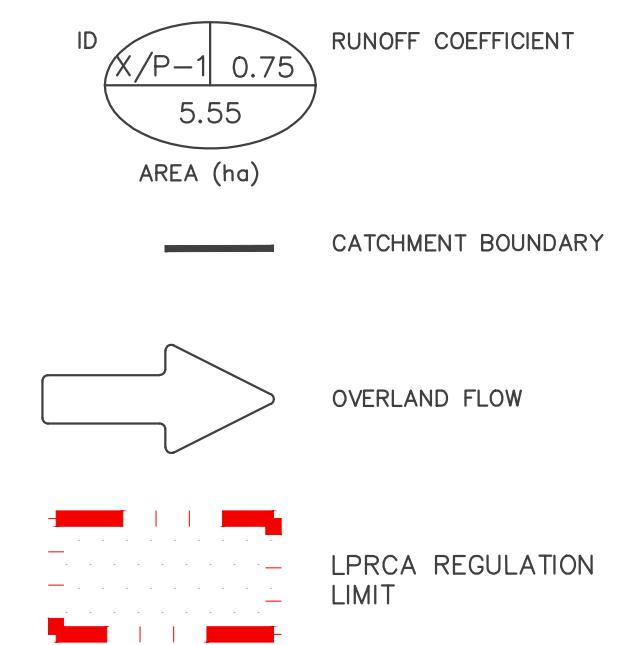
SWM-1

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 drawings.
Please verify all revisions and information on the drawings and report all errors or omissions to the consultant before proceeding with this drawing. This drawing shall not be reproduced in any manner, in part or in whole, for any project other than that for which it was prepared.
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This drawing may have been reduced.
0 5 10 20 30 40 50mm
0" 1/4" 1/2" 1" 1 1/2" 2"



LEGEND



| No. | Issuance Description | YY/MM/DD |
|-----|----------------------|----------|
| 1. | CLIENT REVIEW | 23/03/08 |
| 2. | MTO SUBMISSION | 25/04/09 |
| 3. | SPA & BP SUBMISSION | 25/11/28 |

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

Issued For:

SITE PLAN APPROVAL

DRAWINGS ARE "ISSUED FOR APPROVAL" AND ARE NOT TO BE USED FOR PERMIT APPLICATIONS OR CONSTRUCTION UNTIL SO AUTHORIZED BY THE CONSULTANT.

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

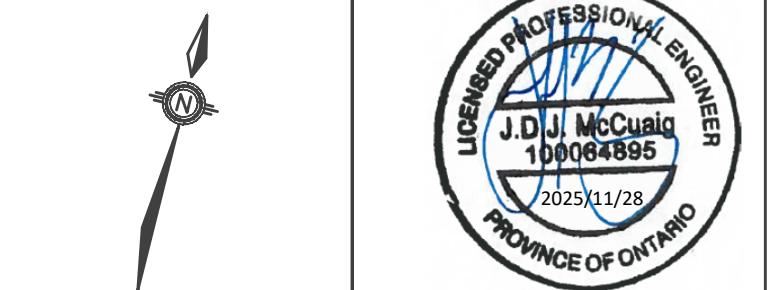
Project: **HWY #3 DELHI**
2148 Highway 3, Delhi, ON N4B 2W4
Norfolk County

POST DEVELOPMENT STORMWATER DRAINAGE PLAN

Project No. 1121-012-22 Designed by: KF Checked by: JDM

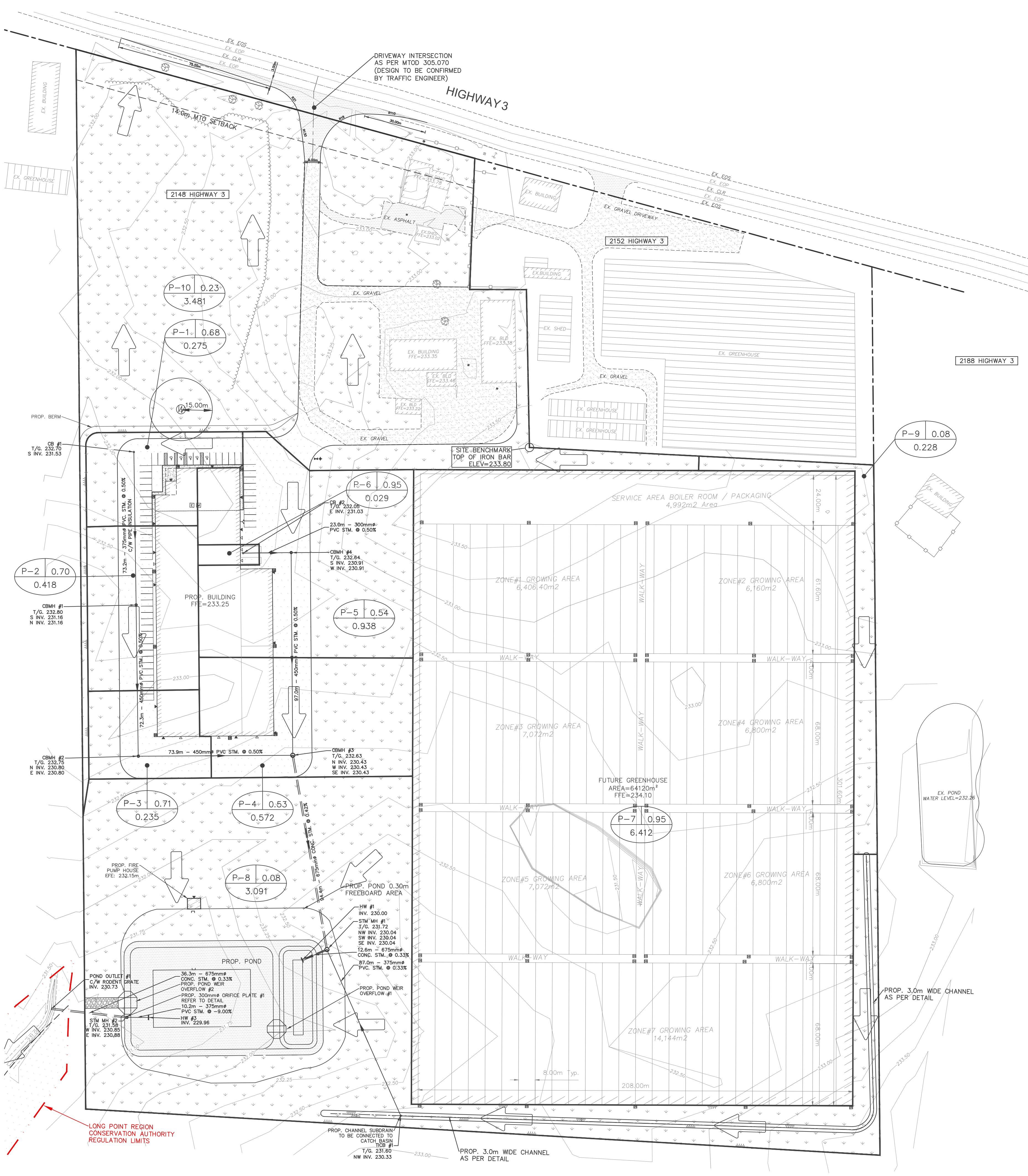
Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp



Drawing No. SWM-2

SAVED: X:\1100\1121\CDN Buildings\1121-012-22 2148 HWY #3 Delhi\DWGs_Civil\1121-012-22 LAYOUT.11\28\2025 2:15:04 PM - KF\JLION PRINTED: 11\28\2025 3:34:36 PM, SWM-2, KF\JLION



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| 1. | CLIENT REVIEW | 23/03/08 |
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BENCHMARK: TOP OF IRON BAR, EAST CORNER OF LOT
ELEVATION OF 233.80

Issued For:

SITE PLAN 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

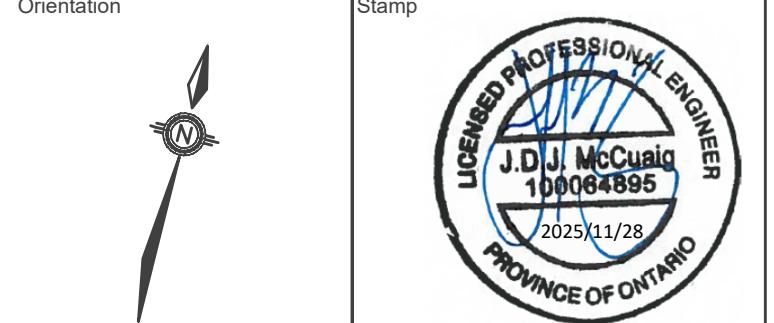
Drawing:

EROSION & SEDIMENT CONTROL PLAN

Project No. 1121-012-22 Designed by: KF Checked by: JDM

Scale: 1:1000 Drawn by: KF Approved by: JDM

Orientation Stamp



Drawing No.

ESC-1





The Corporation of Norfolk County

By-Law 2017-04

Lot Grading and Drainage

THIS FORM IS TO BE SUBMITTED WITH EVERY LOT GRADING PLAN

Municipal Address: 2148 Highway 3, DELHI, ONTARIO, N4B 2C2

And/or

PIN: _____

SELECT THE ONE PURPOSE FOR SUBMITTING THIS FORM:

Proposed Grading Plan for Infill Lot:

I, Jeff McCuaig P.ENG, a Qualified Person, submit the attached Proposed Grading Plan, under my seal to confirm that the Plan provides drainage in accordance with the Ontario Building Code and applicable Municipal regulations for the works to be constructed that are the subject of the Building Permit Application to which this is attached.

Proposed Grading Plan within a Plan of Subdivision:

I, _____, a Qualified Person, submit the attached Proposed Grading Plan, under my seal to confirm that the Plan conforms in all respects with the Master Grading Plan in the Plan of Subdivision Master Grading Plan, registered as:

_____ (common name of the Plan of Subdivision and Registration Number).

Final Grading Plan for Infill Lot that fully conforms with the Proposed Grading Plan:

I, _____, a Qualified Person, submit the attached Final Grading Plan, under my seal to confirm that the Plan conforms in all respects with the Proposed Grading Plan for the referenced property.

Final Grading Plan for Infill Lot that does not fully conform with the Proposed Grading Plan:

I, _____, a Qualified Person, submit the attached Proposed Grading Plan, under my seal to confirm that the Final Grading Plan does not fully conform with the Proposed Grading Plan for the referenced property. I further attest that the grading depicted in the Final Grading Plan provides adequate drainage in accordance with prevailing Acts, Regulations and by-laws.

Final Grading Plan in a Plan of Subdivision that conforms with the Proposed Grading Plan to the extent described in Section 5 of the By-Law:

I, _____, a Qualified Person, submit the attached Final Grading Plan, under my seal to confirm that the Plan conforms in all respects with the Proposed Grading Plan for the referenced property.

Final Grading Plan in a Plan of Subdivision that does not fully conform with the Proposed Grading Plan to the extent described in Section 5 of the By-Law:

I, _____, the Qualified Person that designed the Master Grading Plan, under my seal confirm that the Final Grading Plan does not fully conform with the Master Grading Plan for the referenced property as described in Clause 5.3 of the By-Law. I further attest that the grading depicted in the Final Grading Plan provides adequate drainage in accordance with prevailing Acts, Regulations and by-laws.

Exemption from Submission of Grading Plans (Must be obtained prior to making a Building Permit Application):

I, _____, a Qualified Person, under my seal, confirm that the existing property qualifies for a Lot Grading Plan exemption as described in the By-Law and that this property provides drainage in accordance with the Ontario Building Code and all other prevailing Acts, Regulations and by-laws for the works to be constructed that are the subject of the Building Permit Application attached hereto, and no changes will be made to the existing grading for the construction of those works.

Or:

I, _____, the (agent) or (owner) request that the County review the proposed works as described in the attached information which is to be the subject of a future Building Permit application and the County advise if this meets the requirements for an exemption for the submission of Proposed and Final Grading Plans. I understand that any fees provided to the County for this review are non-refundable, whether or not the exemption is granted and that in requesting this exemption, confirm that the works that are the subject of this application is eligible for an exemption under the By-Law.

Exemption is granted by (Print name): _____
(Sign name): _____ (County Staff), and this form may be provided with the supporting documentation submitted for the exemption with a Building Permit application consistent with the information in the Exemption Request.

Exemption is denied by (Print name): _____
(Sign name): _____ (County Staff). Proposed and Final Grading Plans must be submitted with the Building Permit application.

IN ANY INSTANCE ABOVE NOTING "UNDER MY SEAL", AFFIX SEAL
BELOW:



SEAL (Qualified Person)

(Sign and date over the seal)

Name: Jeff McCuaig, P.Eng.

License Number: 100064895

This form approved by the County Official under delegated authority under Norfolk County By-Law
2017-04



APPLICABLE LAW CHECKLIST

The Building Code Act prohibits the issuance of a building permit if the proposed construction or demolition will contravene an applicable law as defined by the Building Code. The questions below will help you to determine if an applicable law applies to your project. No timeframe for building permit review can be established until all required applicable law approvals are completed and the approval documents are submitted to the Building Division.

If the answer is **YES** to any question, the relevant approval documents must be submitted with this permit application. Where any required approval has **NOT** been obtained, the agencies listed on the back of this form must be contacted to obtain approval, and the declaration on the bottom of this form must state accordingly.

Property Address: 2148 Highway 3, Delhi, Roll#:3310491028078000000 **Permit Number (office use)** _____

| Zoning By-Laws – Norfolk County Planning Department | YES | NO |
|--|------------|-----------|
| Is/was relief required to permit a minor zoning variance in your proposal? | | X |
| Is/was rezoning required to permit the proposed building or land use? | X | |
| Is a land division or subdivision required and not yet fully completed? | | X |
| Are municipal services required but not yet completed or available? | | X |

| Planning Approval - Norfolk County Planning Department | YES | NO |
|---|------------|-----------|
| Is this property regulated by Site Plan Control under Section 41 of the Planning Act? | X | |

| Heritage - Norfolk County Heritage and Culture Department | YES | NO |
|---|------------|-----------|
| Are you demolishing a building that is listed on the County's heritage inventory? | | X |
| Is the building designated or in the process of being designated? | | X |
| Is the property located in a heritage district or study area? | | X |

| Construction and Fill Permits – Long Point Regional or Grand River Conservation Authority | YES | NO |
|---|------------|-----------|
| Is the property located within a regulated area (i.e. abutting a ravine, watercourse, wetland, or shoreline)? | | X |

| Building and Land Use Permits - Ontario Ministry of Transportation | YES | NO |
|---|------------|-----------|
| Is the property within 45m of a highway or 180 m from any highway intersection? | | X |
| Is the property within 395m of a controlled highway intersection? (applies to Sign Permits) | | X |
| Is this a major traffic generating project located within 800m of a highway? | | X |

Community Development Division- Building Department

185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6 • 519-426-5870 Ext. 6016

| Clean Water Act – Public Works | YES | NO |
|---|-----|----|
| Is the property located within a Source Water Protection regulated area? | | X |
| If yes: does a Water Source Protection Plan restrict the land use you are proposing? (s.59 screening form may be required) | | X |

| Agriculture and Farms - Ontario Ministry of Agriculture and Food | YES | NO |
|---|-----|----|
| Is this a farm building that will house animals or manure? | | X |
| Is this a milk processing plant? | | X |

| Crown Lands Work Permit – Ministry of Natural Resources | YES | NO |
|---|-----|----|
| Are you proposing to construct or place a structure or combination of structures that are in physical contact with more than 15 square meters of shore lands? | | X |
| Are you proposing to build on Crown Land? | | X |

| Electrical Conductor Clearances - Electrical Safety Authority | YES | NO |
|---|-----|----|
| Are any overhead power lines located above or within 5.5 metres of the proposed building? | | X |

| Environmental Approvals - Ministry of Environment, Conservation, Parks | YES | NO |
|--|-----|----|
| Is a Record of Site Condition required to be filed because of a change to more sensitive land use? Is the property a former waste disposal site? | | X |
| Is this project a major industrial, commercial, or government project? | | X |
| Is this a renewable energy project? | | X |
| Does this property have a Certificate of Property Use under the Environmental Protection Act? | | X |

| Child Care Centres - Ministry of Education | YES | NO |
|--|-----|----|
| Is a daycare proposed in any part of the building? | | X |

| Seniors Centres - Ministry of Children, Community and Social Services | YES | NO |
|--|-----|----|
| Is this a seniors project where Ontario Government funding is being sought? | | X |

| Long Term Care Centres – Ministry of Health & Long Term Care | YES | NO |
|---|-----|----|
|---|-----|----|

Community Development Division- Building Department

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| | | |
|---|--|---|
| Construction, alteration or conversion of building used for a nursing home? | | X |
|---|--|---|

| Education Act - Ministry of Education | YES | NO |
|--|-----|----|
| Is the project being carried out on the property of an educational facility? | | X |
| If so, is any or all building on the property being fully or partially demolished? | | X |

DECLARATION – I have considered the list of applicable laws in the Ontario Building Code as described above, and do hereby declare that:

| | |
|---|---|
| | None of these applicable law approvals apply to this project |
| x | Applicable laws check 'yes' apply to this project, and approval documents are submitted with this application. |
| | Applicable laws checked 'yes' apply to this project; however, all approval documents have not yet been obtained |

The information provided on this form is true to the best of my knowledge. I have authority to act on behalf of the owner, corporation, or partnership with respect to this application (if applicable).

Name: WILLIAM REED Signature: W. Reed. Date: 2025-12-03

Approvals from other agencies are required in many instances before a building permit can be processed and issued. These approvals are **NOT** administered by the Building Department. The fastest way to obtain a building permit is to ensure that all other required approvals are completed prior to permit application. The Building Department is required by law to prioritize applications that are fully complete in terms of applicable law approvals and document submissions. Building permit documents must be consistent with applicable law approvals. If you answer yes to any of the following question please reach out to these agencies for approvals.

Zoning and Planning – Community Services Division – Norfolk County

Zoning 519-426-5870 ext. 6064 or zoning@norfolkcounty.ca

Planning 519-426-5870 ext. 1842 or planning@norfolkcounty.ca

Planning Act, s.34, 34(5), 45, and Part VI

Zoning By-laws restrict such things as land use, lot size, building size, and setbacks. If your project does not comply with any part of the Zoning By-law, a minor variance or rezoning must be obtained before any building permit can be issued. Zoning By-laws also restrict the issuance of permits until any associated land division, subdivision, or municipal servicing is complete. **Planning Act, s.41**

Site Plan Approval applies to commercial, industrial, institutional, multi-residential and intensive livestock site plans. The site plan agreement must be registered before site plans will be approved.

Conservation Authority Permits

Grand River Conservation Authority (GRCA) 1-866-900-4722 or grca@grandriver.ca **Long Point Regional Conservation Authority (LPRCA)** 1-888-231-5408 or conservation@lprca.on.ca

Community Development Division- Building Department

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Conservation Authorities Act s. 28 (1)(c), regulation 166/06

Development within certain conservation regulated areas requires a construction and fill permit from the conservation authority before any building permit can be issued. GRCA or LPRCA will confirm if your property falls within their jurisdiction.

Highway Corridor Building & Land Use Permits

Ministry of Transportation (MTO) 1-800-265-6072 or www.mto.gov.on.ca/english/highway-bridges/highway-corridor-management/index.shtml

Public Transportation and Highway Improvement Act, s.34, 38

Ministry authorization is required for construction of all buildings within certain distances of a highway or intersection. The requirement for Ministry authorization extends to 800m from a highway where development will generate major traffic, such as a shopping centre.

Environmental Approvals

Ministry of the Environment, Conservation and Parks (MECP) 1-800-461-6290 or www.ontario.ca

Environmental Protection Act s. 46, 47.3, 168 and the Environmental Assessment Act s 5.

Ministry of Environment approvals are required where a property of industrial or commercial use is changed to more sensitive residential or parkland use, for major government, industrial and commercial projects where defined by regulation, properties formerly used for landfill or waste disposal, or renewable energy projects.

Electrical Conductor Clearances

Electrical Safety Authority 1-877-372-7233 or www.esasafe.com

Subsection 3.1.19. of the Ontario Building Code prohibits buildings being located beneath or within a certain minimum distances of overhead electrical conductor wires, other than the power feed to the building.

Source Water Protection – Environmental and Infrastructure Services – Norfolk County

Environmental Services – Stephanie Davis- Manager, Water & Wastewater Compliance- 519-426-5870 ext. 8037 or Stephanie.Davis@norfolkcounty.ca

Cambium Inc. Racheal Doyle – sourcewaterprotection@cambium-inc.com

Clean Water Act s. 59

Special land use restrictions may apply if a water source protection plan is in effect in the area where the building is located. Uses affected by these restrictions require the approval of the designated Risk Management Official

Agriculture and Farms

Ministry of Agriculture Food and Rural Affairs 1-877-424-1300 or www.omafra.gov.on.ca

Community Development Division- Building Department

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Nutrient Management Act 2002 s.11 reg 267/03, Milk Act s.14

Buildings or structures that house animals or store manure may trigger a requirement for a nutrient management strategy approved by the Ministry. The Ministry must determine that a milk processing plant is necessary and authorize it before a building permit can be issued.

Child Care Centres

Ministry of Education (905) 895-9192 or www.ontario.ca

Child Care and Early Years Act, s. 14 reg 137/15

Ministry plan approval is required if a new building is proposed to be used as a day nursery, an existing building is proposed to be used, altered or renovated for a day nursery, or if an existing day nursery is altered or renovated.

Seniors Centres

Ministry of Children, Community and Social Services 1-888-789-4199 or www.mcss.gov.on.ca

Elderly Persons Centres Act s. 6 of reg 314

Reports must be submitted to the Minister and approval obtained for all seniors centres to which government funding applies.

Long Term Care Homes

Ministry of Health & Long Term Care 1-800-387-5559 or www.health.gov.on.ca

Nursing Home Act s. 4, 5 reg 832 Homes for the Aged & Rest Homes Act s. 14

The Long Term Heath Care Act is designed to help ensure that residents of long-term care homes receive safe, consistent, high-quality, resident-centred care.

Education

Ministry of Education (905) 895-9192 or www.ontario.ca

Education Act s. 194

The board shall obtain approval from the Minister for the demolition of any buildings located on a school site regulated by the Education Act. App

Crown Lands Works Permits

Ministry of Natural Resources www.ontario.ca/page/crown-land-work-permits

Ontario Regulation 239/13 s. 2, s. 5

Ministry approval is required to construct a building on crown lands or to construct or place a structure along shorelines.