NOVATECH
Engineers, Planners & Landscape Architects

TENDER FOR

COUNTY ROAD 44 MULTI-USE PATHWAY – PHASE 3
SETTLER'S TRAIL TO RIVER ROAD

TENDER NO. PRC 25-01

North Grenville

JANUARY 2025

NOVATECH FILE NO. 123066

NOVATECH

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DRAWING	DRAWING No.	REVISION
COUNTY RD44 MULTI-USE PATH – NOTES & DETAILS	123066-ND	[JAN31/25 / REV.2]
COUNTY RD44 MULTI-USE PATH – STATION 0+000 TO 0+855	123066-GR1	[JAN31/25 / REV.2]
COUNTY RD44 MULTI-USE PATH – STATION 0+855 TO 1+100	123066-GR2	[JAN31/25 / REV.2]
COUNTY RD44 MULTI-USE PATH – STATION 1+100 TO 1+418	123066-GR3	[JAN31/25 / REV.2]
COUNTY RD44 MULTI-USE PATH – STATION 1+418 TO 1+670	123066-GR4	[JAN31/25 / REV.2]
STREETLIGHT LOCATION PLAN – STATION 0+015 TO 1+150	123066-SL1	[JAN31/25 / REV.2]
STREETLIGHT LOCATION PLAN – STATION 1+150 TO 1+670	123066-SL2	[JAN31/25 / REV.2]
STREETLIGHT LOCATION PLAN – STATION 2+450 TO 3+665	123066-SL3	[JAN31/25 / REV.2]

SECTION A

GENERAL INFORMATION

A-1 INSTRUCTIONS FOR TENDERERS

i) **Soft copy** (electronic) tenders are to be email with the following title in the email:

COUNTY RD 44
Multi Use Pathway - Phase 3
Contract PRC 25-01

AND

delivered electronically in pdf format to:

Cara Ruddle, P.Eng., Senior Project Manager (c.ruddle@novatech-eng.com) and copied to Mark Guy, Director of Parks, Recreation and Culture (mguy@northgrenville.on.ca).

Upon receipt of the tender package, a confirmation email will be sent acknowledging the receipt of the tender and that the submitted document package can be opened.

ii) A non-mandatory site meeting to discuss the Tender will be held on February 6 at 11am at the Settler's Trail parking area. Questions about the Tender will be accepted until February 11 at noon, and a response to all questions will be no later than February 13 at noon.

iii) Tenders will be received until **February 25TH, 2025, at 2:00pm**

iv) Tenders will be opened/reviewed in **private** shortly thereafter.

v) Tenders for submission shall be completed on the attached copy of Section B – Form of Tender. Where a digital copy of the Schedule of Items and Prices is provided, Tenderer's are requested to submit a completed copy of the excel file along with their completed tender.

vi) The Tender shall be signed by an authorized officer of the company submitting the Tender and sealed with the Company Seal or witnessed.

vii) The Tenderer shall submit with the Form of Tender, the name and address of each proposed subcontractor used in making up his tender, stating the portion of work allocated to each and the cost thereof. Any changes in subcontractor requires approval from the Contract Administrator.

viii) Where so provided in the Form of Tender and when warranted, the Tenderer shall identify the name and certificate number of any employee holding a Lifetime Blasting Certificate who will supervise any blasting required under this Contract.

ix) By submitting this tender, the Tenderer is acknowledging and confirming that they (the Tenderer), if successful, can obtain any bonding required as detailed in A-5: Performance Surety and A-6: Maintenance Surety.

x) All survey and layout works to be provided by the Contractor as required by General Condition 7.02, to complete the works.

A-2 DEFINITIONS

The Owner is: ***Municipality of North Grenville***
285 County Rd 44, PO Box 130
Kemptville, Ontario
KOG 1J0

The Engineer/Contract Administrator is:
Novatech
240 Michael Cowpland Drive, Suite 200
Ottawa, Ontario
K2M 1P6

The Geotechnical Engineer is: ***GEMTEC***
32 Steacie Drive
Ottawa, Ontario
K2K 2A9

The Municipality is: ***MUNICIPALITY OF NORTH GRENVILLE***

A-3 SCHEDULE

It is anticipated that the contract will be awarded **March 7th, 2025** with construction commencing on or **March 24th, 2025.**

It is anticipated that the contract will be completed, with construction finished on or **July 31, 2025**.

The Contractor acknowledges that the Owner is seeking approval for certain items of the work included in the Contract. The Owner expects that all approvals will be in place prior to issuing an authorization to proceed with the work. Should there be pending approvals, the Contractor shall, where possible, undertake work which is not dependent upon these pending approvals. The Contractor shall not make claims for additional costs or expenses due to any delays arising from these approvals.

The following approvals are outstanding:

1. RVCA Permit for Retaining wall

A-4 INSURANCE

Coverage amount(s) for insurance types are required as shown:

TYPES		AMOUNT	REQUIRED
1.	Commercial General Liability Insurance	$5,000,000.00 (Min)	YES
2.	Automobile Liability Insurance	$2,000,000.00 (Min)	YES
3.	Aircraft and/or Watercraft Liability Insurance	$2,000,000.00 (Min)	NO
4.	Property Insurance - All Risk Builders Policy or Builders Risk Fire Policy including extended coverage and malicious damage endorsements and a Builders Risk Differences Conditions Policy providing equivalent coverage	$3,000,000.00 (Min)	YES
5.	Blasting	$2,000,000.00 (Min)	NO

NOTES

1. The Contractor is required to file the pertinent certificates of insurance, as listed above, prior to the execution of the Contract.

2. The Insurance Certificate shall include a clause noting that the Owner, (the Municipality), Novatech, and the Geotechnical Engineer are additional named insured with respect to General Liability arising out of the operation of the Contractor on this Contract until final acceptance of the work.

3. The Insurance policies shall have a deductible of not more than $5,000.

4. The Certificates of Insurance will state that the Insurer shall give the Owner thirty (30) days prior written notice of any changes, cancellation or termination of the policies outlined in the Certificate.

A-5 PERFORMANCE SURETY

A Performance Bond, in the amount of **fifty (50)** percent of the contract, and a Labour and Material Bond, in the amount of **fifty (50)** percent of the contract, may be required on acceptance of the Contract and prior to commencement of any work. If a bond is to be submitted, it shall be furnished by a certified bonding company, with head office in Canada, or authorized to carry on business in Canada. The Owner shall be named as obligee. An E-bond shall be deemed acceptable provided it meets all applicable legal requirements and provided to the Owner by the Contractor.

A-6 MAINTENANCE SURETY

Upon completion of this Contract, the Contract Administrator shall notify the Contractor in writing of acceptance of the works.

The Contractor may be required to post a Maintenance Bond or Surety in the amount of **twenty (20)** percent of the Contract price, to guarantee workmanship and materials for a period of **twelve (12)** months from the date of acceptance of the works, as established by the Contract Administrator. Rather than post a new Surety, the Contractor may elect to utilize the existing Performance Surety reduced to the appropriate amount, provided that the maintenance period and coverage is shown on the surety.

Where the Performance Surety has been chosen in the form of a letter of credit or a certified cheque, it will be held by the Owner until the **twelve (12)** month maintenance guarantee period expires.

A-7 RIGHT TO ACCEPT OR REJECT TENDERS

The Owner reserves the right to reject any or all tenders; or to accept any tender if it is deemed in the interest of the Owner to do so. If only one tender is received, the Owner reserves the right to reject that tender. Tenders that are incomplete, conditional or obscure, or that contain additions not called for, erasures, alterations, or irregularities of any kind, may be rejected.

A-8 INFORMAL TENDERS

All blanks must be legibly and properly filled in on the hard copy forms supplied for that purpose. The Owner shall be the sole judge of the informality of a tender. Tenders which are incomplete, conditional or obscure, or which contain additions not called for, erasures, alterations, or irregularities of any kind, may be rejected by the Owner.

A-9 UNBALANCED TENDERS

Each item in the tender form shall be a reasonable unit price for such item. The Contract Administrator shall be the sole judge of what is reasonable, and should any tender be considered unbalanced, then the Owner may reject it.

A-10 ACCEPTANCE OF TENDERS

All tenderers agree to leave their tenders open for acceptance by the Owner for a period of **sixty (60)** days after the closing of tenders.

A-11 CONTRACT EXECUTION

When the successful bidder is notified that his tender has been accepted, he shall be required to:

1. Execute the Contract within seven (7) days, not including Sunday or a legal holiday, from the date of mailing of the notice from the Owner to the Tenderer, according to the address given by him, that the Contract is ready for signature.

2. The Contract may, at the discretion of the Owner, be executed digitally (Refer to Section C, Article 12). Where the contract is to be signed digitally, the Contractor is required to provide all information required to finalize the contract within seven (7) days of request. The Contractor will then be required to execute the contract within three (3) days of issuance for signature.

3. Provide the Owner with the required Certificates of Insurance.

4. Where the Owner chooses to exercise the provisional bonding item, the Contractor shall provide the required Performance Bond and the Labour and Material Bond.

5. Provide the Owner with Certificates indicating that the Contractor has paid assessments under the Workers' Compensation Act that will protect him, the Owner and the Contract Administrator against claims under the Workers' Compensation Act. Such certificates shall be deposited at the time of award of the Contract, and after the issue of the Acceptance Certificate but before the issue of the Holdback Certificate.

Failure to so execute the Contract and provide the required certificates shall be sufficient reason for the Owner to cancel the award without obligation of claim upon the Owner.

A-12 COMMENCE WORK

The Contractor is advised that the actual work of this Contract must not be started until the Contract Administrator has issued an authorization to proceed with the work. It is anticipated that work will commence shortly after the award of contract and as outlined by A-3: Schedule. No work is to be done on the site until the following requirements are met:

1. As constructor of the works, you are required by O. Reg. 213/91 under the Occupational Health and Safety Act, to file an approved notification form with the Ministry of Labour. A copy of the Notice of Project is to be forwarded to the Contract Administrator. You are also required to comply with all other applicable requirements of the Occupation Health and Safety Act and Regulations made thereunder.

2. The Owner expects that the Contractor will allow no exceptions or compromises with respect to safety and environmental protection matters. In support of the Occupation Health and Safety Act, the Owner requires that the Contractor have a current Health and Safety Policy. The Owner also requires that the Contractor have a competent health and safety representative for the site [O. Reg. 213/91, s. 13 (2)] and appoint a Supervisor/Competent Person for the project [O. Reg. 213/91, s. 14 (1) and (2)].

3. The Owner is committed to providing equal treatment to people with disabilities. In support of the Accessibility for Ontarians with Disabilities Act, 2005, the Contractor must comply with all laws applicable to the performance of the work.

A-13 TIME FOR COMPLETION

The Contractor shall complete this Contract in its entirety within the time specified in A-3: Schedule.

If this time limit specified is not sufficient to permit completion of the work by the Contractor working a normal number of hours each day of the week on a single daylight shift basis, it is expected that additional and/or augmented daylight shifts will be required throughout the life of the Contract to the extent deemed necessary by the Contractor to ensure that the work be completed on time. The cost of complying with the directive will be considered to be included in the prices bid for the various items of work and no additional compensation will be allowed thereof.

Working time shall be charged until the date of acceptance of the work by the Owner, at which time all work required in the Contract, including all final clean-up and trimming shall be completed.

A-14 LIQUIDATED DAMAGES (CR to confirm)

In accordance with the General Conditions, the Contractor shall pay to the Owner the sum of **five hundred dollars ($500.00)** per day for liquidated damages for each calendar day the works remain uncompleted beyond the date of completion described in the special provisions. In addition to the specified liquidated damages, the Contractor shall pay the full costs of engineering and field services required beyond the time allowed for completion under the Contract.

The Owner may deduct any amount owing under this paragraph from any monies that may be due or payable to the Contractor on any account whatsoever. The Liquidated Damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative available to the Owner.

A-15 DISCREPANCIES AND CONFLICTS

1. Should a Tenderer find any discrepancies in, or omissions from the plans or other Contract documents, or should he be in doubt as to their meaning, he shall notify the Contract Administrator who may send a written instruction.

2. Should a discrepancy or conflict be discovered during construction, it shall be brought to the attention of the Contract Administrator prior to commencement of work on that portion of the work. No additional payment will be made for correction of errors made in this regard. Any discrepancies or conflicts encountered during construction are to be reported immediately to the Contract Administrator and the affected construction activities shall stop until such time that a solution has been identified and approved. No claim for delay relating to discrepancies or conflicts will be considered if a solution is provided in a reasonable amount of time.

A-16 METRIC SYSTEM UTILIZED

The Contractor is hereby advised that information shown on all Contract drawings, contained within the Form of Tender and elsewhere presented in this Contract appears in Metric Units unless otherwise noted. No claims for additional consideration will be entertained by the Owner where such claims arise as a result of the misinterpretation of quantities represented in these Contract documents.

A-17 TESTS

The Owner shall bear the expense of all quality assurance testing required by the Contract Administrator. The Contractor shall make arrangements with the Contract Administrator to facilitate testing of material or supply certified copies of all tests upon all materials to be used in the construction of the works, as required. The Contractor shall not be entitled to compensation for delays to conduct the required testing or due to failure to provide adequate notice to the Contract Administrator of work requiring testing. The Contractor shall coordinate with the Contract Administrator to schedule testing and provide notification in advance of undertaking work requiring testing.

Any testing required by a special provision shall be at the expense of the Contractor (i.e. pressure testing of sewers).

A-18 EQUIVALENTS

When an article to be supplied under this Contract is specified by its trade or other name (whether such name is followed by the phrase "or approved equal" or not), the Contractor shall base his price on the supply of the named articles and no other.

The Contractor may submit a request to the Contract Administrator for substitution of an equivalent material or process that results in design improvement benefits and/or a reduction in costs. Such submissions shall be accompanied by complete information on the material or process proposed for use, together with proposed cost savings, proposed additions or deletions to contract items, and the proposed changes to the contract time. The Contract Administrator is not obliged to approve any requests for substitution and the Owner and the Contract Administrator shall not be liable to the Contractor for failure to accept or act upon any request submitted or any delays arising from such requests.

The Contractor shall submit requests for substitution within ten (10) days of the award of the Contract.

A-19 PAYMENT AND QUANTITIES

1. 10% statutory holdback will be applied to all payment certificates in accordance with the Construction Act.

2. Progress payment certificates will be issued once a month with the exact timing to be determined at the pre-construction meeting.

3. The amount of Harmonized Sales Tax (HST) the Owner is legally obligated to pay will be in addition to the amount certified for each payment under the Contract and therefore will not affect the contract price.

4. For any works delayed by the Owner beyond the year of scheduled completion as detailed in A-3: Schedule, the unit rates bid for the delayed items will be adjusted in accordance with the annual average percentage change (January to January) in the Consumer Price Index, monthly, not seasonally adjusted (CPI) for the preceding year(s) as published by Statistics Canada (Table 18-10-0004-01, Canada, All-Items excluding energy) or prices will be re-negotiated (at the discretion of the Owner).

5. Payment adjustments will be made for changes in the MTO Asphalt Price Index. Payment adjustments shall be made as per Appendix 310-B of OPSS 310, Payment Adjustment for Changes in the MTO Performance Graded Asphalt Cement (PGAC) Price Index, as detailed in the applicable contract special provisions.

6. Payment adjustments will be made for changes in the MTO Fuel Price Index. Payment adjustments will be made as detailed in the applicable contract special provisions.

A-20 MARK-UPS ON EXTRA WORK

Mark-ups on extra work performed on a time and material basis for this contract shall be in accordance with the provisions of the general conditions contract (Section D, GC 8.02.05.08). Contractor mark-up on work performed by a subcontractor on a time and material basis shall be 10% up to $20,000 and 5% on amounts in excess of $20,000. No further mark-ups will be permitted regardless of the extent to which the work is assigned or sublet to others.

A-21 CONTRACTOR'S EMERGENCY CONTACT

At the pre-construction meeting the Contractor shall provide the Contract Administrator with a list of personnel who can be contacted twenty-four (24) hours per day, seven (7) days a week in the event of an emergency and who are authorized to take all necessary measures to alleviate and correct the emergency. This list shall include and identify the Contractor's Supervisor/Competent Person as defined by the Occupation Health and Safety Act [O. Reg. 213/91].

A-22 CONTRACTOR'S RESPONSIBILITY FOR UTILITIES

The Contractor shall assume full responsibility for the location and protection of all under and aboveground utilities, such as water, sewer, gas mains, house connections, utility poles, wires and conduits, etc., whether they are shown on the plan or not. Where the location of any of these utilities has been shown on the plans, such information is not guaranteed. The

Contractor shall be responsible for arranging, with the various utilities, the location of utilities in the field before work commences. No additional compensation will be allowed to the Contractor for this work.

The Contractor shall attend such meetings with the Owner, Municipality, and Utility Companies as may be required by the Contract Administrator to co-ordinate services affected by the Contractor. The responsibility for coordinating all utility meetings shall be determined at the pre-construction meeting.

The Contractor shall be responsible to coordinate all utility construction. The Contractor shall provide all line and grade necessary to construct all aspects of the utility plants, as required by the utility subcontractor or by the utility companies.

A-23 STREET CLEANING AND DUST CONTROL

The Contractor shall be responsible for the cleaning, including scrapping and washing, of all streets impacted by his construction activities at least once a week and/or as deemed necessary by the Contract Administrator to the satisfaction of the Municipality.

The Contractor shall take such steps as may be required to prevent dust nuisance resulting from his operations whether within the right-of-way or elsewhere, or by public traffic where it is the Contractor's responsibility to maintain a roadway through the work. Where the work requires the sawing of asphalt or the sawing or grinding of concrete, blades and grinders of wet type shall be used together with sufficient water to prevent incidence of dust wherever dust would affect traffic, be a nuisance to residents of the area where the work is being carried out, or it presents a health and safety risk to the public or workers.

No additional compensation will be allowed for the cleaning of streets or for dust control unless specific, non-provisional, tender items are included in the Contract for this work.

A-24 MAINTENANCE OF THE SITE

The Contractor shall be responsible to perform all general maintenance of the site required to maintain access to the site and allow the work to be completed during the time specified in section A-3: Schedule. This shall include construction and maintenance of access roads within the working area, maintaining drainage to pre-existing or better conditions, and the clearing and removal of snow for construction purposes. These costs shall be deemed included with the associated items and the total contract price and will not be considered for extra payment.

A-25 RESTORATION OF WORK AREA

The Contractor shall restore all work areas to their previous condition or better, to the satisfaction of the Contract Administrator. No additional compensation will be allowed for this restoration unless specific tender items are included in the Contract for this work.

A-26 REMOVAL OF WASTE

Open burning of brush and debris is prohibited under this Contract. Unless specifically noted in the contract documents, all brush and debris is to be removed from site. The Contractor shall be responsible for the appropriate re-use of all materials not classified as waste in accordance with current legislation and the provisions of this contract. No additional

compensation will be allowed for this removal of waste unless specific tender items are included in the Contract for this work.

A-27 USE OF WATER

The Contractor shall make all arrangements with the Municipality for water to be used for this Contract.

A-28 CONSTRUCTION ACCESS

No parking of any construction vehicles, including the vehicles of any construction workers, will be allowed on adjacent municipal or private roadways.

A-29 DETAILED SHOP DRAWINGS

Detailed shop drawings submitted by the Contractor must conform in size to the Owner's contract drawings and be numbered in sequence with the contract drawings. The number appearing at the right-hand bottom corner shall be a contract drawing number with a suffix, as directed by the Contract Administrator.

The Contractor shall coordinate all such drawings, and review them for accuracy, completeness and compliance to the contract specifications and design requirements (including all applicable Municipal and Provincial Standards) such as but not limited to dimensions, materials, quantities, catalogue numbers and information that pertains solely to the fabrication process or to the techniques of construction and installation prior to submission to the Contract Administrator. The Contractor shall confirm the review of each shop drawing by stamp, date and signature. The Contract Administrator's review of each shop drawing is for the sole purpose of ascertaining conformance with the general design concept and does not include the detail design inherent in the shop drawings. The Contract Administrator's review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or for meeting all requirements of the contract documents unless the Contract Administrator expressly notes the acceptance of a deviation on the shop drawings.

A-30 CONTRACT DOCUMENTS

The contract documents are specific to this project and are not to be used on other work.

The Contractor shall ensure that the drawings being used to construct the work are the most recent issued revision of the contract drawings.

A-31 ELECTRONIC DOCUMENTS

All electronic documents supplied to the Contractor have the following disclaimers:

1. Electronic documents, when supplied, are supplemental. The Tender or Contract documents shall be the print (or pdf) versions of the documents included with the issued Tender or executed Contract. Any electronic documents supplied will not form part of the Tender or the Contract.

2. Requested electronic documents remain the property of Novatech (on behalf of the Owner) and shall only be used for the purpose for which they were originally intended.

3. The Contractor is responsible to ensure electronic documents being used are up to date and reflect all issued print (or pdf) revisions, as electronic versions of updated documents are not routinely issued.

4. The Contractor is to ensure that CAD files used for layout, grading and construction are consistent with the survey control information provided.

SECTION B

FORM OF TENDER

SECTION B

FORM OF TENDER

Tender for: ***County RD 44***
Multi Use Pathway - Phase 3
Contract PRC 25-01

Tender by:

residing at (or place of business):

comprising the firm of _____

a Company duly incorporated under the laws of _____

and having its head office at _____

hereinafter called the "Tenderer".

I (We) _____ having carefully examined the locality and site of the proposed works, and all the contract documents relating thereto, including the drawings, Form of Tender, General Information, Specifications, Schedule of Items and Prices, General Conditions, Form of Agreement and Special Provisions, hereby tender and offer in accordance therewith to enter into a contract within the prescribed time to construct the said works in strict accordance with the contract documents, and such further detail drawings as may be supplied from time to time, and to furnish all materials, labour, tolls, plant, matters and things necessary therefore complete and ready for use within the time specified for the sum below, all in accordance with the contract:

Total Tender Price **$** _____

Repeat total in writing _____

_____Dollars and _____ Cents

which sum is made up as shown in the Schedule of Items and Prices appended hereto.

Regardless of anything contained in the specifications or elsewhere, we understand and agree that all Federal, Provincial and Municipal taxes such as customs, excise sales tax, etc., where applicable, and permits and fees, are our responsibility and are included in our tender price. Notwithstanding the above, HST is not to be included in the tender price and it will be paid in addition to the amount certified for each payment under the Contract and therefore will not affect the contract price.

We acknowledge receipt of and have allowed for all requirements of Addenda _____ to _____ inclusive.[1]

1. The Tenderer will enter the number(s) of the addenda received by him during the tendering period and taken into account by him in preparing this tender.

FORM OF TENDER

If this tender is accepted, I (We) agree to complete the works within the time to be known as the "Time for Completion" as detailed in A-3: Schedule as set out in the General Information.

Dated at _____ this _____ day of _____ 20_____

_____ _____

Signature of Witness

Signature of Tenderer
("I have authority to bind the Corporation")

SEAL IF APPLICABLE

LIST OF SUBCONTRACTORS

The Tenderer shall list here the names of any subcontractors whom he proposes to use:

SUBCONTRACTOR	ADDRESS	TRADE

SCHEDULE OF ITEMS AND PRICES

1. The following will be the unit and lump sum prices for the construction of:

County RD 44
Multi Use Pathway - Phase 3
Contract PRC 25-01

in accordance with the Plans and Specifications and Form of Tender dated:

_____

submitted by _____

2. The quantities shown in the Schedule of Items and Prices, furnished herewith, include fixed plan quantity items, unit price items and lump sum items. Fixed plan quantities are denoted by a "P" in the Schedule of Items and Prices and these items will NOT be measured for payment. Submit, where indicated in the Form of Tender, unit prices for various items of work to be used as adjustment to the fixed plan quantities on account of additions or deletions to the work authorized by the Owner or the Contract Administrator.

   The quantities shown in the Schedule of Items and Prices, furnished herewith, are for the sole purpose of indicating to the Tenderer the general magnitude of the work should it be necessary to carry out the work. For any work done on a unit price basis, the Contractor will be paid for a measured quantity at the unit price submitted in the tender, subject to the provisions of Section 8.02.02 of the General Conditions as described in the Special Provisions.

3. Any item listed in the provisional section of the Schedule of Items and Prices or is denoted in the item description as Provisional is provisional and no payment will be made without the approval of the Contract Administrator. The Contractor shall not be entitled to any additional compensation under the Contract should there be no requirement, or partial requirement for the use of the provisional items.

4. The item description shown is for the purpose of quick determination of the scope of the work involved in each item and to avoid lengthy descriptions in the Schedule of Items and Prices. This, however, does not relieve the Contractor from the responsibility of ensuring that all requirements of these tender documents are allowed for in the unit prices quoted. Payment of the prices quoted shall represent consideration in full for all work described, including the applicable labour, equipment, materials, and all other work connected therewith and incidental thereto.

5. In the event of any discrepancy between the unit price and the extension in the Schedule of Items and Prices, the unit price shall govern. In the event of any discrepancy between the Total Tender Price (page B5) submitted and the Schedule of Items and Prices, the price submitted in the Schedule of Items and Prices shall prevail.

TENDER SUMMARY

SECTION	AMOUNT
A – GENERAL & SITE PREPERATION	$
B – EARTHWORKS	$
C – WATERMAIN	$
D -SANITARY SEWER	$
E – STORM SEWER	$
F – ROAD WORKS	$
G – UTILITIES	$
H - LANDSCAPING	$
I - PROVISIONALS	$
TOTAL TENDER PRICE	**$**

_____ _____

Signature of Tenderer Date

_____ _____

Print Name of Signatory Company Name

County Road 44 Multi-Use Pathway Extension
(Settler's Trail to River Road)

ITEM NO.	ITEM	SPECIFICATIONS		UNIT		EST. QUANTITY	UNIT RATE	TOTAL AMOUNT
		OPSS/MUNICIPAL	NOVATECH					
SECTION A - General & Site Preparation								
1	Traffic Management	F-1010, F-1013	NOVA 1000	LS		1.0		
2	Erosion and Sediment Control Items							
a	Straw Bale Check Dam	805	NOVA 8051	ea		9		
b	Light Duty Silt Fence	805	NOVA 8051	m		725		
4	Tree Protection Fencing	801, F-8011	123066-SP-01	m		50.0		
3	Clearing and Grubbing	201	123066-SP-01	ha	(P)	0.8		
4	Topsoil Stripping							
a	Topsoil (approximate 0.15m depth)	206	NOVA 2061	m^2	(P)	7976.0		
b	Topsoil and Peat (approximate 0.23m depth)	206	NOVA 2061	m^2	(P)	1547.0		
5	As-Built Survey Submission	209	123066-SP-04	LS		1.0		
6	Bonding		NOVA 9997	LS		1.0		
						SUBTOTAL - SECTION A		
SECTION B - Earthworks								
1	Earth Excavation and Grading, including Subgrade preparation							
a	Multi-Use Pathway (including disposal off site of excess material) (Cut = 284m^3, Fill = 3810m^3)	206	NOVA 2060	m^3	(P)	284.0		
b	Imported Material (Gran B Type II)	206	NOVA 2060	m^3	(P)	3810.0		
c	Imported Clay Apron Subgrade Material (between STA. 0+030 & 0+320)	206	NOVA 2060	m^3	(P)	1969.0		
2	Removals		NOVA 2060					
a	Ex. Post & Rail Fence	510	NOVA 2060			25.4		
3	Excess Soil Management Plan	180	NOVA 2060	LS		1.0		
4	Swale Grading	206	NOVA 2063	m		567.5		
5	Imported Clay Apron Subgrade Material (between STA. 0+030 & 0+320)	206	NOVA 2060	m^3	(P)	1969.0		
						SUBTOTAL - SECTION B		
SECTION C - Storm Sewer								
1	Storm Sewer							
a	150mm dia. PVC SDR 35 CB lead	410, F-4100	123066-SP-02	m		30.8		
b	200mm dia. PVC SDR 35 CB lead	410, F-4100	123066-SP-02	m		7.7		
2	Catch Basins							
a	600mm x 600mm Ditch Inlet PCC, c/w lead as per OPSD 705.030	407, F-4070	123066-SP-02	ea		1.0		
b	Adjust 600mm x 600mm Ditch Inlet PCC	407, F-4070	123066-SP-02	ea		1.0		
3	Perforated Subdrain							
a	300mm Perforated Subdrain	405, F-4050	NOVA 4050	m		24.0		
4	Drainage Systems							
a	Landscape CBs - Tees and Elbows	407, F-4070	123066-SP-02	ea		6.0		
b	Relocated Lanscape CB's - Tees and Elbows	408, F-4080	NOVA 4080	ea		3.0		
c	Adjust Landscape CB Lid	408, F-4080	NOVA 4080	ea		5.0		

County Road 44 Multi-Use Pathway Extension
(Settler's Trail to River Road)

ITEM NO.	ITEM	SPECIFICATIONS		UNIT		EST. QUANTITY	UNIT RATE	TOTAL AMOUNT
		OPSS/MUNICIPAL	NOVATECH					
5	Culverts							
a	200mm dia. HDPE c/w B bedding and Rodent Grate	421, F-4210	NOVA 4210	m		19.0		
b	300mm dia. HDPE c/w B bedding and Rodent Grate	421, F-4210	NOVA 4210	m		88.6		
6	Connection to Existing c/w "All Inclusive" Reinstatement	410, 492, F-4101	123066-SP-02, NOVA 4920	ea		1.0		
7	CCTV Inspection (x2)	409, F-4090	123066-SP-02	m	(P)	38.5		
8	Overburden well							
a	Adjustment and Replacement of existing lid with lockable lid	408, F-4080	123066-SP-03	ea		3.0		
9	Drainage swale on Landfill site	206	NOVA 2063	m		309.0		
						SUBTOTAL - SECTION C		
SECTION D - Multi-use Pathway Works								
1	Granular A (150mm) and shoulder material	314, 501, F-3147	NOVA 3145	m^2	(P)	7100.0		
2	Granular B (200mm)	314, 501, F-3147	NOVA 3145	m^2	(P)	8130.0		
3	Asphalt							
a	50mm Base Course (HL3)	310, F-3101, F-3106, F-3130	NOVA 3100	m^2	(P)	4875.6		
4	Curb							
a	Mountable	353, F-3531	NOVA 3530	m	(P)	125.8		
5	Pavement Markings							
a	Line Painting (MUP Centreline)	710	NOVA 7100	LS		1.0		
b	Intersections Crossing Painting	710	NOVA 7100	LS		1.0		
						SUBTOTAL - SECTION D		
SECTION E - Utilities								
1	Concrete Encased Road Crossings c/w Duct (regardless of No. of ducts)							
a	Streetlighting Only	401, 603	NOVA 6030	ea.		67		
2	Duct (supply and placement)							
a	Streetlight Duct (76mm PVC)	603, 604	NOVA 6030	m		2070.0		
3	Street Lights							
a	Directed-Buried Streetlight pole. Bracket, and luminaire (Light = GCJ0-15H-MV-WW-2R-GY-700-PCR7-CR; Bracket = 0.3m; Pole = HA-200-B-1-PG-X-OTT)	609, 615, 616, 617	NOVA 6010	ea		28.0		
c	Street Light Wiring	604	NOVA 6030	m		2070.0		
4	Street Light Disconnects	614	NOVA 6010	ea		4.0		
						SUBTOTAL - SECTION E		

County Road 44 Multi-Use Pathway Extension
(Settler's Trail to River Road)

ITEM NO.	ITEM	SPECIFICATIONS		UNIT		EST. QUANTITY	UNIT RATE	TOTAL AMOUNT
		OPSS/MUNICIPAL	NOVATECH					
SECTION F - Landscaping and Reinstatement								
1	Topsoil (100mm, Imported) - Hydraulic Seeding and Mulch							
a	Seed Mix	802, 804	NOVA 8020, NOVA 8040	m^2		3900.0		
2	Fencing							
a	1.8m Chain-link Fence c/w 1 side arm barbed wire (3) including removal of existing Chain-link fence (after installation of new chain-link fence)	772, F-7722	NOVA 7720	m		293.4		
3	Retaining Walls - "all-inclusive" c/w Post & Rail Fence							
a	Segmental Block Wall	902, 904	NOVA 9010	m^2		35.0		
4	General Reinstatement							
a	Relocate traffic signs	703, 709	NOVA 4920	ea	(P)	2.0		
b	Relocate Settlers Trail sign		NOVA 4920	ea	(P)	1.0		
5	Entrance Reinstatement							
a	Gravel		NOVA 3145, NOVA 4920	ea	(P)	3.0		
b	Asphalt		NOVA 3100, NOVA 3145, NOVA 4920	ea	(P)	1.0		
						SUBTOTAL - SECTION F		
SECTION G - Provisionals								
1	Select Pruning and Trimming	212, 314, F-2120, F-3147	123066-SP-01	hr		5.0		
2	Select Subgrade Material	212, 314, F-2120, F-3147	NOVA 3140	m^3		50.0		
3	Additional Pipe Bedding (total depth, as per Geotech report)	206, 401, 410	123066-SP-02, NOVA 4410	m		20.0		
4	Roadway Filter Fabric (Woven Geotextile)	511	NOVA 5111	m^2		1.0		
	Removal of Contaminated Soil by Landfill site	206, 314	123066-SP-05	m^3		50.0		
5	Signage							
a	Relocate EQ Homes Sign		NOVA 7110	ea		1.0		
b	Permanent Street Signage	703, 709	NOVA 7110	ea		1.0		
6	Equipment and Labour Rates							
a	General Labourer	127	NOVA 9998	hr		20.0		
b	Foreman c/w Pickup Truck	127	NOVA 9998	hr		20.0		
c	Backhoe, Operated (65 kW min. net power)	127	NOVA 9998	hr		20.0		
d	Bulldozer, Operated (D6 or Equivalent)	127	NOVA 9998	hr		20.0		
e	Excavator, Operated (32 tonne)	127	NOVA 9998	hr		20.0		
f	Triaxle Dump Truck, Operated	127	NOVA 9998	hr		20.0		
g	Hydraulic Rock Breaker, Operated (incl. excavator)	127	NOVA 9998	hr		20.0		
h	Sweeper/Flusher, Operated	127	NOVA 9998	hr		20.0		

County Road 44 Multi-Use Pathway Extension
(Settler's Trail to River Road)

ITEM NO.	ITEM	SPECIFICATIONS		UNIT		EST. QUANTITY	UNIT RATE	TOTAL AMOUNT
		OPSS/MUNICIPAL	NOVATECH					
7	Asphalt Cement Price Index Adjustment	310	NOVA 3100	ea		1.0		
8	EB99 Utility Box	602	NOVA 6010	ea		1.0		
							SUBTOTAL - SECTION G	
SECTION H - Contingency								
1	Contingency Allowance		NOVA 9999			1.0	$30,000.00	$30,000.00
							TOTAL TENDER	

SECTION C

FORM OF AGREEMENT

FORM OF AGREEMENT

THIS AGREEMENT made in TRIPLICATE this _____ day of _____ 20_____

BETWEEN **Municipality of North Grenville**
285 County Road 44, PO Box 130
Kemptville, Ontario
KOG 1J0

(hereinafter called the Owner)

OF THE FIRST PART

AND

(hereinafter called the Contractor)

OF THE SECOND PART

WITNESSETH

That the Owner and the Contractor in consideration of the fulfilment of their respective promises and obligations herein set forth covenant and agree with each other as follows:

ARTICLE 1

(a) A general, but not necessarily complete, description of the work is:

A 3.0m wide Asphalt Multi-Use pathway c/w 0.5m wide shoulders is to be constructed on the West side of County Road 44 between Settler's Trail and River Road, along with storm drainage infrastructure (Culverts/CB's/etc.). The contract also includes the installation of lights for CR43 to Settlers Trail along the existing pathway and from Settler's Trail to River Road along the new pathway.

(b) The Contractor shall, except as otherwise specifically provided, at his own expense, provide all and every kind of labour, machinery, plant, structures, roadways, materials, appliances, articles, and things necessary for the due execution of all the work set out in this Contract and shall forthwith according to the instruction of the Contract Administrator, commence the works and diligently execute the respective portions thereof, and deliver the works complete in every particular to the Owner within the time specified in A-3: Schedule, known as the "Time for Completion".

ARTICLE 2

If the Tender provides for and contains a Contingency Allowance, it is understood and agreed that such Contingency Allowance is merely for the convenience of accounting by the Owner, and the

Contractor is not entitled to payment thereof, except for extra or additional work carried out by him in accordance with the Contract and only to the extent of such extra or additional work.

ARTICLE 3

In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following order:

(a) Agreement
(b) Addenda (If Applicable)
(c) Special Provisions
(d) Contract Drawings
(e) Standard Specifications
(f) Standard Drawings
(g) General Information
(h) Tender
(i) Amendments to the General Conditions
(j) General Conditions
(k) Working Drawings

Later dates shall govern within each of the above categories of documents.

ARTICLE 4

The Contractor shall not, without the consent in writing of the Owner and without restricting in any way the provisions of Section 3.08 of the General Conditions, make any assignment of any part or the whole of any monies due or to become due under the provisions of this Contract.

ARTICLE 5

The Owner covenants with the Contractor, that the Contractor having in all respects complied with the provisions of this Contract, will be paid for and in respect of all the Works and in accordance with the tendered unit price, the maximum sum of _____Dollars and _____Cents ($_____), together with such extra or additional work at the unit rates or the amounts, as the case may be, stipulated in the written orders of the Contract Administrator authorizing the extra or additional works; such payment, however, shall be subject to Article 2 hereof and subject to such additions and deductions as may properly be made under the terms thereof, and further subject to the provisions that the Owner may make payment on account monthly or otherwise as may be provided in the General Conditions attached hereto.

ARTICLE 6

Where any notice, direction or other communication is required to be, or may be given, or made by one of the parties hereto to the other or to the Contract Administrator or to his agent, it shall be deemed sufficiently given or made if mailed or delivered in writing to such party or to the Contract Administrator at the following address:

The Owner:
Municipality of North Grenville
285 County Road 44, PO Box 130
Kemptville, Ontario
KOG 1J0
Attention: Mark Guy

The Contract Administrator:
NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6
Attention: Cara Ruddle

The Contractor:

Where any such notice, direction or other communication is given or made to the Contract Administrator, a copy thereof shall likewise be delivered to any agent of the Contract Administrator, if appointed, and where any such notice, direction or other communication is given or made to such agent, a copy thereof shall likewise be delivered to the Contract Administrator.

ARTICLE 7

A complete copy of the documents, as defined in Article 3 above, is hereto annexed and is made part of this Contract as fully to all intents and purposes, as though recited in full herein.

ARTICLE 8

No implied Contract of any kind whatsoever by or on behalf of the Owner, shall arise or be implied from anything in this Contract contained, nor from any position or situation of the parties at any time; it being clearly understood that the express covenants and agreements herein contained and made by the Owner shall be the only covenants and agreements upon which any rights against the Owner may be founded. Furthermore, nothing contained in the contract documents shall create any contractual relationship between the Contract Administrator and the Contractor, a Subcontractor, a Supplier, or their agent, employee, or other person performing any portion of the Work.

ARTICLE 9

Time is deemed to be of the essence for this Contract. The Contractor shall provide adequate labour, equipment, and material to ensure the completion of the Contract in accordance with the contract documents. The Work shall be performed as vigorously and as continuously as weather conditions or other interferences may permit.

ARTICLE 10

The Contractor declares that, in tendering for the Works and in entering into this Contract, he has either investigated for himself the character of the work and all local conditions that might affect his tender or his acceptance of the work, or that not having so investigated, he is willing to assume and does hereby assume all risk of conditions arising or developing in the course of the work which might or could make the work, or any items thereof, more expensive in character, or more onerous to fulfil, than was contemplated or known when the tender was made or the Contract signed. The Contractor also declares that he did not and does not rely upon information furnished by any methods whatsoever other than as provided in the tender documents, by the Owner or its officer or employees, being aware that any information from such sources was and is approximate and speculative only and was not in any manner warranted or guaranteed by the Owner.

ARTICLE 11

This Contract shall apply to and be binding on the parties hereto and their successors, administrators, executors and assigns and each of them.

ARTICLE 12

This Agreement may be executed in counterparts, each of which when so executed shall be deemed to be an original and all of which when taken together shall constitute one and the same instrument. The words "execution," signed," "signature," and words of like import in this Agreement or in any other certificate, agreement or document related to this Agreement shall include images of manually executed signatures transmitted by facsimile or other electronic format (including, without limitation, "pdf", "tif" or "jpg") and other electronic signatures (including, without limitation, DocuSign and AdobeSign). The use of electronic signatures and electronic records (including, without limitation, any contract or other record created, generated, sent, communicated, received, or stored by electronic means) shall be of the same legal effect, validity and enforceability as a manually executed signature or use of a paper-based record-keeping system to the fullest extent permitted by applicable law, including, the *Electronic Commerce Act, 2000* and the *Canada Business Corporations Act*.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first above written or cause their corporate seals to be affixed, attested by the signature of their proper officers, as the case may be.

Date:_____ **CONTRACTOR**

Name:

Name:
Title:

Name:
Title:

I/We have the authority to bind the Corporation

Date:_____ **OWNER**

Name:

Name:
Title:

Name:
Title:

I/We have the authority to bind the Corporation

SECTION D

GENERAL CONDITIONS

GENERAL CONDITIONS

The General Conditions for this project are the "OPSS MUNI General Conditions of Contract, November 2019" (OPSS.MUNI 100).

A copy of the General Conditions is available upon request or online on the Ontario Ministry of Transportation website at the following address:

https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/TechnicalPublications.aspx
(OPS Volume 7)

AMENDMENTS TO THE GENERAL CONDITIONS

The OPSS MUNI General Conditions of Contract, November 2019 are amended by the following:

GC 2.01 is amended and extended as follows:

.01 a) is deleted and replaced with the following:

The location and depth of underground utilities and services shown on the contract drawings are based on information made available to the Owner. However, no responsibility will be assumed by the Owner for the correctness or completeness of the contract drawings with respect to existing public utilities and services whether underground or on the surface. It is the Contractor's responsibility to contact the Municipal Authorities and/or Utility Companies for further information in regard to the exact location of these utilities and services.

The Contractor shall not make any claim against the Owner for damages or extra work caused or occasioned by his relying upon such records, reports or information, either as a whole or in part, furnished by any civic department, or commission, private company or individual.

The Contractor shall exercise care in construction operations and take such other precautions as are necessary to safeguard the utilities and services from damage and shall co-operate with Municipal Authorities or Utility Companies relocating or altering their plant.

GC 3.01.10 is amended and extended by the addition of the following:

.01 The Contractor shall, at any time during the progress of the work, or during the period of guaranteed maintenance, make available an opening through any part of the work to such an extent as directed by the Owner for the purpose of inspection of the whole or part of the work. Should the work so opened be found to be faulty in respect of the requirements of the Contract, the whole expense of opening, inspection, replacement and restoration shall be borne by the Contractor. Should the work so opened to inspection be found by the Owner to be in satisfactory condition and in full compliance with the requirements of the Contract, then the said expenses shall be borne by the Owner.

.02 The Owner may, at any time, condemn and reject material and work which, in its opinion, are not in accordance with the contract documents or the Owner's instruction and the Owner will require the substitution of proper materials. All rejected materials shall be promptly removed from the site at the sole expenses of the Contractor.

GC 3.05 is amended and extended as follows:

.02 is deleted in its entirety and pre and post construction inventories will not be provided.

GC 3.06 is amended and extended as follows:

.01 is supplemented by the addition of the following:

No such extension will be made for delay unless written notice of claim is given to the Contract Administrator within seven (7) days of the commencement of the delay, provided however, that in the case of continuing cause of delay, only one claim shall be necessary.

GC 3.07 is amended and extended by the addition of the following:

.04 No claim for delay will be allowed on account of failure to furnish drawings until two (2) weeks after demand for same and then not unless such claim is reasonable.

.05 The Contract Administrator shall not, except by written notice to the Contractor, stop or delay any part of the work pending decisions or proposed changes either by himself or by the Owner.

GC 4.10 is amended and extended by the addition of the following:

.03 The Owner may terminate the employment of the Contractor if the Owner certifies that sufficient cause exists to justify such action. Such termination of employment may be made:

(i) If the Contractor should be adjudged as bankrupt, or
(ii) If he should make a general assignment for the benefits of his creditors, or
(iii) If a receiver should be appointed on account of his insolvency, or
(iv) If he should take the benefit of any Act relating to insolvent debtors, or
(v) If a winding-up order be made against the Contractor, or
(vi) If he should refuse or fail to supply enough plant, properly skilled labour or proper materials after having received seven (7) days notice in writing from the Owner to so do, or
(vii) If he should fail to make prompt payment to subcontractors or suppliers, or
(viii) If he should persistently disregard laws, ordinances or the instructions of the Owner, or
(ix) If he should otherwise be guilty of substantial violations of the provisions of the Contract.

.04 Should the Owner terminate the employment of the Contractor, as provided in Subsection (.03), it shall give the Contractor seven (7) days written notice of such termination of employment.

.05 Should the Owner terminate the employment of the Contractor, as provided in Subsection (.03), it may take possession of the premises, and of all materials and plant on the premises and may finish the work by any method it may deem expedient, but without undue delay or expense. In such case, the Contractor shall not receive any further payment until the work is complete.

.06 If the unpaid balance of the contract price exceeds the expense of finishing the work (including compensation to the Owner for its additional services), such excess shall be paid to the Contractor. If such expense exceeds the unpaid balance, the Contractor shall pay the difference to the Owner. The additional expense incurred by the Owner due to the Contractor's default should be certified by the Owner.

GC 7.02 is amended and extended as follows:

.01 is extended by the addition of the following:

The Contract Administrator shall provide original survey control information for the site to the Contractor prior to the commencement of work and shall be responsible only for the accuracy of the information provided. Should any discrepancies become evident during the site control calibration process, the Contractor shall contact the Contract Administrator or the Contract Administrator’s field representative immediately, so that the discrepancies can be investigated and resolved.

.07 is extended by the addition of the following:

The Contractor shall establish site control (vertical and horizontal) using the information provided by the Contract Administrator. The Contractor may use the type of survey equipment deemed appropriate for the site to transfer horizontal control information for temporary benchmarks (i.e. Total Station, GPS etc.).

Vertical control shall only be transferred for temporary site benchmarks and for all vertical layout by means of a conventional level. No other method of vertical control shall be acceptable. The maximum tolerance allowable for vertical information is 2.5mm.

.10 is extended by the addition of the following:

The Contractor shall provide layout of line and grade and offset stakes. The Contractor shall assume responsibility for maintaining layout stakes. The Contractor shall provide sufficient alignment and grade stakes for roadway construction, and provide suitable methods for laying pipe on grade. The cost of providing horizontal and vertical layout, including providing grade for pipes, structures, utilities and all other components of the work, shall be borne by the Contractor and included in the total contract price.

.12 is inserted as follows:

Where the Contractor is required to provide as-built information to the Contract Administrator, or a third party, and quality assurance checks find inaccuracies in the information provided, the Contractor shall pay all costs associated for the Contract Administrator to obtain the required as-built information.

GC 7.03 is amended and extended as follows:

.02 is supplemented by the addition of the following:

The Contractor shall obtain approval from the Contract Administrator prior to designating areas within the property limit for storage of his equipment and materials and the erection of offices and sheds.

GC 7.11 is amended and extended by the addition of the following:

.02 In the case of damage to or interference with any utilities, pole lines, pipe lines, conduits, farm tiles, or other public or privately owned works or property, the Contractor shall immediately notify the Owner, Contract Administrator, and the owner of the works of the location and details of such damage of interference. Wherever reasonable, the Contractor shall also provide notice to any affected consumers of damaged works.

GC 7.13 is amended and extended as follows:

.02 is deleted and replaced by:

Should the location or position of any gas or water pipe, public or private sewer or drain, subway, conduit, railway or other structure be such as, in the opinion of the Contract Administrator, to require its removal, realignment or change, such removal, realignment or change shall, subject to the provisions of the General Conditions of Contract, be without cost to the Contractor for the work of removal, realignment or change only. However, such structure shall be stripped or uncovered and supported or sustained by the Contractor at his own cost and expense before such removal or before and after such realignment or change as constituting part of the Contract. The Contractor shall not become entitled to claim any damage or extra compensation from or on account of any delay due to removal or rearrangement. The Contractor shall be entitled to an extension of the time for the equivalent time that the work has been delayed by any delay in the removal, realignment or change of any such obstruction.

GC 7.14 is amended and extended by the addition of the following:

.03 No work shall be undertaken at night without the order or consent in writing of the Contract Administrator. However, the Contract Administrator may order any work to be carried out in whole or in part at night, and the Contractor shall have no claim for extra compensation in respect thereof.

.04 The Contractor shall, as far as possible, refrain from work on weekends and days which are statutory or declared holidays in the Municipality in which the work is being done. In case he desires to work on any such holiday or weekend, he shall notify the Contract Administrator in writing at least four (4) days in advance of such holidays or weekend, that he desires to work, stating those places where the work will be done. In case the Contractor fails to give notice in advance of such holiday or weekend, such failure shall be considered as notification that no work requiring the presence of the Contract Administrator or an Inspector is to be done by the Contractor on such holiday or weekend.

GC 7.16 is amended and extended by the addition of the following:

.04 The decision of the Contract Administrator is to be final as to the nature and cause of such imperfections and the necessity for remedying the same. Should the Contractor fail to comply with the directions of the Contract Administrator, the latter may, after giving the Contractor twelve (12) hours written notice, perform the necessary work and the cost thereof may be deducted or collected by the Owner as herein provided.

All monies payable to the Owner by the Contractor under any stipulation herein may be retained out of monies then due, or which may become due, from the Owner to the Contractor under this or any other Contract with the Owner, or otherwise howsoever, or may be recovered from the Contractor or his surety, in any court of competent jurisdiction, as a debt due to the Owner, and the Contract Administrator shall have full power to withhold any estimate or certificate, if circumstances arise which may indicate to them the advisability of so doing though the sum to be retained may be unascertained.

GC 8.01 is amended and extended as follows:

.02.01 a) and b) are deleted and revisions to unit prices under this clause will not be made.

GC 8.02 is amended and extended as follows:

.03 is deleted in its entirety. Advance payments for Material intended for incorporation in the Work will not normally be made unless specifically agreed to in advance and at the sole discretion of the Owner.

.04.10.01 is deleted and interest will not be paid.

GC 8.02.05.08 is amended and extended as follows:

.01 is deleted in its entirety and replaced as follows:

Where the Contractor arranges for Work on a Time and Material Basis, or a part of it, to be performed by Subcontractors on a Time and Material basis and has received approval prior to the commencement of such Work, in accordance with the requirements of subsection GC 3.09, Subcontracting by the Contractor, the Owner shall pay the cost of Work on a Time and Material Basis by the Subcontractor calculated as if the Contractor had done the Work on a Time and Material Basis plus a mark-up by the Contractor is allowed on Subcontractor's total labour, Equipment, and Material after Subcontractor Mark-Up is applied, calculated on the following basis:

a) 10% of the first $20,000; plus
b) 5% of the amount in excess of $20,000.

.02 No further markup shall be applied regardless of the extent to which the work is assigned or sublet to others. If Work is assigned or sublet to an associate, as defined by the Securities Act, no markup whatsoever shall be applied.

SECTION E

SPECIAL PROVISIONS

STANDARD DRAWINGS AND SPECIFICATIONS

Construct all works in accordance with the contract drawings, specifications, standard municipal and detail drawings as contained or referred to in this document. The Contractor shall be responsible for obtaining the current version of all referenced standard drawings and specifications from the publishing body.

All work on this contract shall generally be in accordance with applicable Ontario Provincial Standard Specifications (OPSS).

All references within this document to an OPSS document shall be deemed to mean the OPSS Municipal (OPSS.MUNI) version of the specification unless specifically noted otherwise.

STANDARD DETAIL DRAWINGS

1. The Ontario Provincial Standard Drawings (OPSD), which are provisions of this Contract are listed within the notes on the Contract Drawings.

2. The City of Ottawa Standard Detail Drawings, which are provisions of this Contract are listed within the notes on the Contract Drawings. The Contractor shall obtain their own copy of the City of Ottawa standard detail drawings from the Standard Tender Documents Vol. #2: Material Specifications and Standard Detail Drawings.

STANDARD SPECIFICATIONS

1. The Ontario Provincial Standard Specifications (OPSS), which are provisions of this Contract are listed within the Schedule of Items and Prices.

2. The City of Ottawa Standard Special Provisions, which are provisions of this Contract, are listed in the Schedule of Items and Prices. The Contractor shall obtain their own copy of the City of Ottawa Standard Special Provisions from the Standard Tender Documents – Volumes #1 & #3: Construction Specifications.

3. The Standard Special Provisions, which are provisions of this Contract, are:

NOVA	Rev. Date	Description	Pages
1000	MARCH 2023	Traffic Management	10
2060	MARCH 2022	Excavation, Grading and Removals	3
2061	MARCH 2022	Topsoil Stripping	2
2063	MARCH 2022	Ditches	2
3110	MARCH 2022	Asphalt Pathways and Service Roads	2
3145	MARCH 2022	Granular Material - Rural	3
3511	MARCH 2022	Tactile Walking Surface Indicators	2
3515	MARCH 2022	Concrete Sidewalk, Medians, Boulevards and Islands	2
3530	MARCH 2022	Concrete Curb	2

4050	MARCH 2023	Subdrain and Clear Stone Trenches	3
4080	MARCH 2023	Iron Works Adjustment	1
4210	MARCH 2022	Culverts and Precast Headwalls	2
4920	MARCH 2022	“All Inclusive” Reinstatement	1
5110	MARCH 2022	Rip Rap, Rock Protection, and Granular Sheeting	1
5111	MARCH 2022	Geotextile Materials	1
6010	MARCH 2022	Installation of Streetlights and Disconnects	3
6030	MARCH 2022	Installation of Duct and Cable	5
7100	FEBRUARY 2018	Pavement Markings	1
7115	FEBRUARY 2018	Signage	2
7720	MARCH 2022	Fencing	2
8020	MARCH 2022	Imported Topsoil	3
8040	MARCH 2022	Seed and Cover (Hydraulic)	3
8042	MARCH 2022	Tackifier	1
8044	MARCH 2022	Supplemental Fertilizer	1
8051	MARCH 2023	Erosion and Sediment Control Plan, Monitoring and Measures	4
9010	MARCH 2022	Retaining Walls	4
9996	MARCH 2022	Payment Adjustment for Changes in the Fuel Price Index	2
9997	JULY 2023	Bonding	1
9998	FEBRUARY 2018	Equipment, Foreman, and Labourer	1
9999	MARCH 2022	Contingency Allowance	1

4. The Non-Standard Special Provisions, which are provisions of this Contract, are:

NOVA	Rev. Date	Description	Pages
123066-SP-01	JANUARY 2025	Clearing and Grubbing	2
123066-SP-02	JANUARY 2025	Pipe Sewers	4
123066-SP-03	JANUARY 2025	Overburden Well Adjustments	1
123066-SP-04	JANUARY 2025	As-Built Survey Submission	1
123066-SP-05	JANUARY 2025	Removal of Contaminated Soil (Provisional)	1

TRAFFIC MANAGEMENT

Scope

This specification is supplemental to Section GC 7.06, Maintaining Roadways and Detours, of the OPS General Conditions. This specification covers the requirements for maintaining vehicular, transit, bicycle and pedestrian traffic in and around the contract limits.

The provisions of the Construction - General section apply to all Contracts unless further modified in Construction – Contract Specific section of this Special Provision.

References

Manual of Uniform Traffic Control Devices for Canada (MUTCDC) – latest edition, published by Transportation Association of Canada (TAC)

Ontario Traffic Manual (OTM) – All reference in this specification to the Ontario Traffic Manual will indicate the most recent version(s) of the OTM including, and not necessarily be limited to, as applicable:

- Book 1 – Introduction of the Ontario Traffic Manuals
- Book 5 – Regulatory Signs
- Book 6 – Warning Signs
- Book 7 – Temporary Conditions
- Book 11 – Markings and Delineations
- Book 12 – Traffic Signals.

Definitions

Construction Site Pedestrian Control Plan (CSPCP) - A detailed plan for the control of pedestrian traffic that serves to ensure the provision of a safe and accessible path of travel for all pedestrians through and/or around the construction site.

Road Authority - The body or organization having jurisdiction over the roadway, and responsible for maintaining the works after acceptance (typically the Municipality).

Road Closure Permit - In accordance with the applicable municipal by-law(s), prior to closing any roadway to traffic, the Contractor shall obtain a permit for the roadway closure. Non-compliance with any conditions of the permit may result with issuance of Provincial Offences notices under the by-law.

Road Cut and/or Encroachment Permit - In accordance with the applicable municipal by-law(s), prior to commencement of the Work, the Contractor shall obtain a permit for the Work. Non-compliance with any conditions of the permit may result with issuance of Provincial Offences notices under the by-law.

Traffic Control Device(s) (TCD) - A generic term used to describe any person, sign, signal, marking or device placed upon, over or adjacent to a roadway by or at the direction of a public authority or official having jurisdiction or their designate, for the purpose of regulating, warning, guiding or informing a vehicle operator or pedestrian of an existing condition or hazard. TCD must conform to requirements of OTM Book 7 “Temporary Conditions”.

TRAFFIC MANAGEMENT

Traffic Control Plan (TCP) - A detailed plan for the control of traffic, including vehicular, transit, cyclists and pedestrian movements, required to allow the Contractor to fulfill all conditions of the contract, taking into account the organized, systematic, and safe conduct of the project.

Traffic Control Persons (TCP's) - A person duly trained and authorized to direct traffic at a work zone through the use of the Traffic Control Sign (STOP/SLOW Paddle).

Traffic Protection Plan (TPP) - A plan required by the Occupational Health and Safety Act and its regulations for the protection of workers in a work zone. The plan must contain a written description of the traffic hazards to which workers may be exposed and measures used to protect them.

Traffic Management Plan (TMP) - A typical requirement of the Road Cut and/or Encroachment Permit(s). TMP means a standard outlining the particulars of proposed work on any highway that is submitted by or on behalf of the Contractor to the Road Authority for approval. The traffic management plan shall contain the information respecting how the applicant intends to comply with the by-laws including but not limited to the following:

a) start and completion times of work;
b) specific location of work;
c) requirement to work during peak hours, if any;
d) lane use requirements;
e) requirements for road closure;
f) public notification undertaken;
g) parking meters affected by work;
h) requirement for temporary no stopping signs;
i) identification of any bus route(s) and bus stops affected by work activity; and
j) traffic routing and detour requirements where required.

Transit Authority - The body or organization having jurisdiction over the operation of public transportation within and around the contract limits.

Design and Submission Requirements

The Contractor shall obtain all required permits to complete the work, as required by the Road Authority. Copies of all permits shall be provided to the Contract Administrator in advance of starting associated work.

The Contractor is required to forward a copy of the Traffic Management Plan, as submitted to the Road Authority, to the Contract Administrator.

Where required by the Road Authority, the Contractor shall submit a Traffic Control Plan and a Construction Site Pedestrian Control Plan with copies to the Contract Administrator.

Construction - General

General
The Contractor shall designate a person to be responsible for traffic control and work zone safety in accordance with General Condition 7.01.11.

TRAFFIC MANAGEMENT

The Contractor shall be fully and solely responsible to ensure the development and implementation of a submitted/reviewed Traffic Control Plan (TCP).

Vehicular and pedestrian traffic control within the work zone, and on the approaches to and from the work zone, is the sole responsibility of the Contractor. The Road Authority delegates this authority and responsibility to the Contractor in accordance with the submitted/reviewed TCP.

In advance of commencing operations, or implementing any successive iteration of the TCP on a portion of the Contract not yet within the active work area, the Contractor shall inspect the condition of the existing roadway and sidewalk for safe passage and inform the Road Authority and the Contract Administrator of any required safety related or maintenance issues.

The supply and placement of all necessary temporary traffic control devices shall be performed under the sole direction of the Contractor and in accordance with the Contractor's submitted/reviewed TCP.

A minimum of ten (10) working days prior to commencing construction, the Contractor shall submit the Traffic Control Plan to the Road Authority with a copy to the Contract Administrator. Subsequent revisions are to be submitted five (5) working days prior to implementation. The Contractor must review and address comments provided by the Road Authority, to the satisfaction of the Road Authority.

Notwithstanding the foregoing, the Contractor shall, at his own expense, remove any equipment or material, which in the Contract Administrator's opinion, constitute a hazard to traffic or pedestrians, or an obstruction to Municipal maintenance operations.

A copy of the most current version of the TCP is to be posted on site and made available for viewing.

Where temporary concrete barriers are used, they are to conform to the requirements and guidelines in OTM Book 7, Ontario Roadside Safety Manual, and OPSS/OPSD.

The Contractor shall remove all dirt and debris from all paved or concrete surfaces at the close of each workday, to the satisfaction of the Contract Administrator.

Open Lanes
Unless amended or modified in Contract Specific Requirements the following are the requirements for roads or lanes that are required to be open for this Contract:

1. All roads and lanes are to be open at all times.
2. No interruption or blockage of traffic is permitted.
3. No loading or unloading is allowed in or from open lanes.
4. Flagging of traffic within an open lane is not permitted to facilitate the movement of construction equipment or materials.
5. All open lanes are to have a riding surface that is consistent with pre-construction materials and shall provide for the safe and continuous mobility of vehicles and cyclists.
6. Deviations of the riding surface, or abrupt transitions in level, resulting from removals, trenching, grinding operations, etc. are not permitted in open lanes for longer than 24 hours. Those deviations shall be reinstated with adequate hot mix asphalt (HMA) ramping to accommodate the posted speed to the satisfaction of the Contract Administrator.

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Any penalties imposed on the Contractor for a breach of the requirements for maintaining open lanes by the Road Authority shall at the expense of the Contractor.

Where Contract Specific Requirements identifies “minor interruptions” to traffic flow in open lanes will be permitted to facilitate construction activities, the resulting traffic delay must be under 30 seconds per incident. Minor interruptions are to occur at a frequency no greater than ten times per hour. Any flagging should be coordinated with gaps in adjacent traffic and must give priority to Transit vehicles.

Vehicle Access to Entrances and Side Roads
The Contractor shall provide vehicle access for all existing entrances, private approaches, and side roads to the satisfaction of the Contract Administrator. All accesses must be fully operational at the end of the workday unless the owner of the property has provided consent to allow the access to remain closed. All the costs associated with this work shall be borne by the Contractor.

Any temporary loss of access/egress necessary to complete the works must be identified in the Contractor’s TCP.

The Contractor is required to notify all affected residents and businesses, in writing, a minimum of 72 hours prior to loss of access.

Site Pedestrian Control
Pedestrian control within the work zone is the responsibility of the Contractor and shall be provided in accordance the Contractor’s Construction Site Pedestrian Control Plan.

The Construction Site Pedestrian Control Plan shall ensure the provision of a safe and accessible path of travel for all pedestrians through and/or around the construction site. The plan shall ensure that pedestrians with disabilities, as well as those with increased mobility needs (parents with strollers and/or young children, elderly pedestrians using canes, walkers, or wheelchairs, etc.), shall be accommodated either through or around the construction site at all times.

Pedestrian Access
In addition to the provision of a safe and accessible path of travel for all pedestrians through and/or around the construction site, a safe and accessible path of travel shall be provided to gain pedestrian access to all buildings, properties, and other destinations within or immediately adjacent to the contract limits.

Pedestrian Barriers
Erection of temporary barriers or fencing is required where existing pedestrian facilities exist to separate pedestrians from construction operations or related hazards to the satisfaction of the Contract Administrator. The temporary barriers or fencing shall include a cane detectable boundary protection, with edge or barrier at least 75mm high above the ground surface.

At a minimum, the barrier or fencing shall be constructed in a rigid and secure manner, thus providing a physical limitation through which a pedestrian could not normally pass.

Accomodation of Cyclists
Accommodation of cyclists in the work zone is the responsibility of the Contractor. The Contractor’s TCP must identify a safe and accessible path of travel for all cyclists through and/or around the construction site.

TRAFFIC MANAGEMENT

Transit Services

Travel lanes accommodating transit service shall have a minimum width of 3.5 meters and a minimum vertical clearance of 4.5 meters at all times.

Access by buses and pedestrians to all existing or temporary bus stops in and adjacent to the work zone must be maintained at all times.

Should a road or sidewalk closure be required that impacts transit service, notice must be given to the transit authority a minimum of fifteen (15) working days in advance.

The Contractor will be responsible to install any operational requirements, as identified by the transit authority, along transit detour routes to facilitate the safe movement of transit vehicles.

Should a road or sidewalk closure be re-opened in advance of the original approved date and time, notice must be given to the transit authority a minimum of two (2) working days in advance.

The Contractor shall provide the transit authority and the CA with a minimum of ten (10) working days' notice to coordinate temporary relocation of bus stops.

The Contractor shall provide the transit authority and the CA with a minimum of twenty (20) working days' notice to coordinate temporary shelter removals/relocations.

When a bus stop and/or shelter must be temporarily relocated, the Contractor may be required to provide stop infrastructure (i.e. bench, bus and/or shelter pads), to the satisfaction of both the transit authority and the CA. All temporary stop locations including infrastructure are to be fully accessible in accordance with Municipal Accessibility Design Standards and to the satisfaction of the transit authority and the CA.

Temporary bus stops are to be constructed and ready for use prior to the start of any works that would impact the regular bus stop location(s).

The Contractor is to fully address any concerns that are raised by the transit authority and/or the CA with regards to temporary bus stop facilities, including accessible pedestrian routes to and from the stop, as well as roadway conditions.

Any transit infrastructure that is damaged as a result of the Contractor's work, shall be reinstated to current Municipal Standard Specifications by the Contractor.

The Contractor shall provide five (5) working days notification to the transit authority prior to the opening of any bus stop(s) to regular service.

Transit access to and from a Transitway on/off ramp must be maintained 24 hours per day, 7 days per week.

Should the Contractor require access to a Transitway or other Transit Property an application to obtain a Transitway Access Permit is to be submitted a minimum of ten (10) working days in advance of the required access to the CA and the transit authority.

TRAFFIC MANAGEMENT

Active Railway Crossing
Where there is a possibility that the Contractor's operations may impact an active railway crossing (regardless of the location of the crossing in relation to the construction zone), the Contractor must contact the appropriate Rail Authority to advise of proposed construction operations and impacts. The Contractor must abide by conditions of the Railway Safety Act and its associated Regulations, and requirements imposed by the Rail Authority and incorporate these modifications into the Traffic Control Plan.

Signalized Intersections
Notwithstanding other notification requirements contained in this specification, where the Contractor intends to modify an approach to a signalized intersection, fifteen (15) working days notification to the Contract Administrator and the Road Authority is required.

Where the modification to the intersection approach involves the installation of detection loops, the Contractor shall provide ten (10) working days' notice to the Road Authority and the CA where the detection loops are to be installed by the Road Authority. If the detection loops are to be installed by the Contractor, the Contractor is to provide five (5) working days notification to the Road Authority and the CA in order for the Road Authority to approve the detection loop layout.

The Contractor shall provide a CAD drawing submission of the TCP for each signalized intersection affected by construction operations.

Where stated in the Contract, the Road Authority will rewire and/or supply temporary traffic control signals, for existing traffic control signals which are impacted by construction. Where temporary traffic control signals are required, the Contractor is required to complete the necessary civil work. This civil work must be completed at least ten (10) working days prior to the date when Municipal forces are scheduled.

The Contractor shall contact the Contract Administrator and the Road Authority at least fifteen (15) working days in advance to arrange for a mutually acceptable date and time to have the relocation and connections of the traffic control signal performed. The Contractor must provide adequate space and time for Municipal crews to complete their work.

Where the Contractor proposes the use of Portable Temporary Traffic Signals (PTTS), the Contractor must submit a PHM-125 drawing to the Road Authority for review a minimum of fifteen (15) working days in advance of submitting the associated TCP.

For some contracts, the Road Authority may require the use of PTTS.

Paid Duty Police
Paid Duty Police (PDP) may be required to direct traffic at signalized intersections, when those intersections are adversely affected by construction operations. At a minimum, PDP are required in the following scenarios:

1. PDP are required if there is a need to direct traffic within 30 m of a signalized intersection. Traffic Control Persons are not permitted to direct traffic within 30m of a signalized intersection.
2. PDP are required if any traffic signal display is visually obstructed by equipment or materials.
3. PDP may be required where a lane re-alignment or lane use requires traffic to travel contrary to the existing pavement markings and/or signage.

TRAFFIC MANAGEMENT

- PDP may be required if traffic is being forced to change lanes through an intersection.
- PDP may be required if protected auxiliary turn lanes are being closed, but the movement is being maintained by an adjacent through lane.

The Traffic Control Plan must identify those locations for which PDP will be required.

Parking
Where on street parking is allowed through or around the construction zone, the Contractor and the Contractor's employees and subcontractors are to abide by the applicable by-laws governing on street parking. The Contractor shall be responsible for any permits or approvals from the Road Authority required for obtaining parking on municipal streets.

Where construction activities require the removal/modification of existing on-street parking, the Contractor shall notify the Road Authority and the CA fifteen (15) working days in advance. Any changes to regulatory parking signage shall be identified in the Contractor's TCP.

A designated safe parking area shall be specified in the Traffic Control Plan for the Contract Administrator for the duration of the contract. This parking area shall accommodate a minimum of 2 vehicles reserved for Contract Administrator and inspection staff.

The Contractor shall make no claim for the additional costs of obtaining any approvals or permits or for any parking tickets issued to its employees.

Speed Reduction Zones
Temporary regulatory speed reduction zones, if desired are to be coordinated with the Road Authority and implemented, if approved, by the Road Authority or the Contractor if delegated.

Advisory speed reduction zones, if any, are to be implemented by the Contractor, and identified in the Contractor's TCP.

OTM Book 7 Section 2.6 provides detailed guidance on reduced speed zones.

Location and Storage of Materials and Equipment
The Contractor shall not store any equipment or materials on the road or the roadway shoulders or boulevards, unless the storage areas are identified in the TCP and appropriate traffic control devices protect the equipment or materials.

For roads with normal posted speed of 80 km/hr or greater, materials and/or equipment shall not be stored outside of the work zone within 4.0 m of the travelled portion of any roadway except where a barrier curb is in place in which case the minimum clearance required is 1.0 m.

Notwithstanding the foregoing, the Contractor shall, at the Contractor's expense, remove any vehicle, equipment or material, which, in the opinion of the CA, constitutes a hazard to traffic or pedestrians, or an obstruction to Municipal maintenance operations.

Lane and Road Closures
Approved lane and road closures shall be carried out by the Contractor at the Contractor's expense. The Contractor shall apply for a Road Closure Permit from the Road Authority and comply with all requirements of the permit prior to closing any road.

TRAFFIC MANAGEMENT

All lane and road closures are the responsibility of the Contractor and any associated temporary signage, temporary line painting, and other traffic control devices are the responsibility of the Contractor, including those which may be required outside of the construction zone.

The City requires a minimum of fifteen (15) business days to process a temporary road closure.

In addition, the Contractor is required to notify all emergency services a minimum of forty-eight (48) hours prior to closure.

Pavement Markings
The Contractor is responsible for all temporary pavement markings unless otherwise noted in the contract documents.

All temporary line painting treatments must be specified and detailed in the Traffic Control Plan.

All signalized intersections must have temporary pavement markings for stop bars at all times; when construction operations do not accommodate the use of pavement markings, the Contractor shall supply and install appropriate signage (e.g. Rb-78 “Stop Line”, Rb-41 through 48 “Lane Designation”).

Removal of pavement markings, where necessary, shall be by means of asphalt grinding, sandblasting or some other form of mechanical removal and not by the use of black paint.

The Contractor will be responsible for maintenance of all pavement markings within the contract limits, including winter maintenance, to the satisfaction of the CA until final acceptance of the Work.

Where the Contractor is responsible for placement of the final pavement markings, the Contractor will “spot” the marking layout for inspection by the Road Authority prior to placing the final pavement markings. The Contractor will provide the CA with five (5) working days’ notice for inspection. Final pavement markings are to be placed in accordance with the approved Pavement Marking and Signage drawings.

Signage
All signs are to be bilingual.

The Road Authority shall be responsible during construction to remove, install or modify any regulatory or warning signage, except those noted below, unless otherwise noted in the contract documents. The Contractor shall notify the Road Authority and the CA fifteen (15) working days prior to this requirement.

The Contractor is responsible for the supply, placement and maintenance of all temporary condition signs. The Contractor is also responsible for regulatory and warning signage required to be used as part of the Contractor’s TCP. This includes, but is not limited to:

- RB-25 “Keep Right”
- RB-41 through RB 48, “Lane Designation”
- RB-90A “Construction Zone Begins”
- RB-90B “Construction Zone Ends”
- RB-91 “Yield to Oncoming”
- Wa-33 “Object Marker”

TRAFFIC MANAGEMENT

All temporary condition road closure, detour route and information signs to use Diamond Grade Fluorescent Orange sheeting (such as 3M™ Diamond Grade Fluorescent Orange Sheeting (Series 3924S) or approved equivalent).

Portable Variable Message Sign and City Contract Sign
Where required by the Road Authority the Contractor shall supply Portable Variable Message Signs (PVMS), with the location and wording to be determined by the Road Authority. The Contractor is responsible to monitor the condition of these signs.

PVSM are to be identified on the Contractor's TCP and properly protected.

Construction – Contract Specific

In determining the expected traffic and pedestrian operations for the site, the Contractor is advised of the following requirements that shall apply specifically to this Contract and in addition to the requirements stated in the Construction - General section of this specification.

Open Lanes (Contract-Specific)
The following roads are affected by this contract:

Road	From	To	Road classification (for the purpose of this contract)	Transit? (yes/no)
County Road	Settler's Trail	River Road	County	no

Measurement for Payment

When the contract contains separate items for the works required by this specification they shall be measured as per the items and units listed in the Schedule of Items and Prices.

Where Traffic Management item is lump sum, it shall be paid in equal payments over the term of the contract.

Basis of Payment

Payment at the contract price for the appropriate items associated with traffic management, and the total contract price shall be full compensation for all labour, equipment, materials, and expenses required to fulfill all obligations set forward in this specification.

Where the contract does not contain a specific Traffic Management item(s), the work required by this specification shall be deemed included in the total contract price.

Where the contract does not contain specific items for works related to the implementation of the TCP or the CSPCP (ex. Granular 'A' for walkway, pedestrian barrier, asphalt widening, temporary hard surface

TRAFFIC MANAGEMENT

reinstatement, etc.), all costs are deemed to be included in the associated items and the total contract price.

Police assistance will not be considered for separate payment unless the applicable item “Police Assistance at Intersection” is included in the Schedule of Items and Prices.

All line and symbol paintings and removals required for the implementation of the Contractor’s traffic control plan shall be deemed included in the Traffic Management item or the total contract price. Where the contract contains line items for pavement markings and removal of pavement markings, these items are for the application of pavement markings in accordance with the approved Pavement Marking and Signage Drawing layout on intermediate and/or surface course asphalt only.

Unless specific line items are provided within the contract, the Contractor shall be responsible for all fees associated with obtaining municipal approvals (road cut permits, road closures, pavement degradation fees etc.) for works within the existing roadway limits.

Where there is a specific item Pavement Degradation Fees, this item will be carried as an allowance in the tender and payment will be adjusted based on the pre-tax value of the actual Pavement Degradation Fee charged at the time of securing the road cut permit. This item will not be subject to any markup by the Contractor. The Contractor will be required to submit a copy of the permit and proof of pavement along with proof of the final road cut inspection and any associated fee adjustment based on actual trench areas.

EARTH EXCAVATION, GRADING AND REMOVALS

Amendments to OPSS 206 and OPSS 510

OPSS 206 and OPSS 510 shall apply except as may be amended and extended herein.

References

Ontario Provincial Standard Specifications
OPSS 180 – Management of Excess Material
OPSS 501 – Compacting
OPSS 1010 – Aggregates – Base, Subbase, Select Subgrade and Backfill Material

Definitions

Section 3.14.03 is amended to include:

Leave Grades – The elevation that lots and blocks are to be left to. They are equal to the corner and terrace finished grade elevations minus the leave low depth.

Leave Low – The depth below lot and block finished grade elevations that material is to be placed to in order to achieve a fill balance during building construction.

Road Box – The horizontal limit of placement for granular subbase and base for an urban cross section. Typically extends to 0.5m outside the edge of pavement (or behind the face of curb), as shown on the contract drawings.

Urban Cross Section – A roadway consisting of a driving surface bounded by curbs, typically having an underground storm system.

Construction

The Contractor is required to grade roads and boulevards, and to shape the lots to the following elevations:

Feature	Elevation/Limits
Roadway, asphalt service roads, asphalt pathways and cycle tracks	Design grade less the thickness of asphalt and granular base and subbase
Concrete sidewalks, medians and islands	Design grade less the thickness of concrete and granular base
Granular walkways, pathways, and service roads	Design grade less thickness of granular surface layer and base layer

The Contractor shall excavate and prepare the subgrade to the required elevations and for the required material thicknesses as shown on the contract drawings, sections and details. The work will include the excavation of excess material in cut areas and placing, grading, and compacting material in fill areas.

Grading shall include the incorporation of all required excavated material from site (earth excavation, structures, underground infrastructure, storm water management facility excavation, etc.) into the works as specified to achieve the required design subgrade elevations. All compaction is to be as per OPSS 501.

EARTH EXCAVATION, GRADING AND REMOVALS

The Owner reserves the right to revise excavation, filling and grading requirements. Appropriate adjustments to quantities may be required.

The Contractor is to ensure that positive drainage is maintained at all times and that surface and subsurface water are managed within and around the works so as not to be detrimental to the works or the environment.

Subgrade Preparation
The Contractor is to ensure the subgrade material is shaped and crowned to facilitate positive drainage of the roadway granular material as shown on the contract drawings. The Contractor is to proof roll the subgrade prior to placement of any granular material.

Where subgrade is disturbed soil it is to be compacted in maximum 300mm lifts to a minimum of 95% (or as specified in the geotechnical report) of the material's Standard Proctor Maximum Dry Density (SPMDD).

Sub-excavation
Where unsuitable soil conditions are present below utility, mainline or service trenches, or for roadway or boulevard subgrade, the Contractor shall excavate the deleterious material to the limits directed by the Contract Administrator. The material shall be replaced with Granular B – Type I or Type II, as per OPSS 1010, or other suitable material as directed by the Contract Administrator. The replacement material shall be compacted to 100% of the material's SPMDD in lifts not greater than 300mm.

The Contractor shall incorporate the deleterious material into onsite grading works at the approval of the Contract Administrator. If directed by the Contract Administrator or the material is in excess of onsite requirements, the material shall be removed offsite for re-use as designated elsewhere in the contract.

Removals
The Contractor shall remove all existing culverts, asphalt, driveways, fences etc. identified on the contract drawings. The Contractor is to review the extent of the removals with the Contract Administrator prior to commencing removal operations. Removals shall be completed as per OPSS 510. Unless the item is designated for salvage, the Contractor shall dispose of material from removal operations offsite. The Contractor is responsible to manage material from removal operations in accordance with all applicable legislation.

Any incidental items which require removal shall be removed and deemed included in the Earth Excavation and Grading works, whether shown on the contract drawings or not. These include fences, tile drains, and small piles of debris or pieces of concrete. Any known substantive removals have been identified on the contract drawings.

Management of Excess Earth Material
Where designated for on-site re-use, the Contractor shall place all excess material in location directed by the Contract Administrator. Where excess earth material is required to be managed offsite, work shall be completed as specified elsewhere in the contract documents.

All management of excess earth materials is to be in accordance with OPSS 180 and applicable legislation.

EARTH EXCAVATION, GRADING AND REMOVALS

Quality Control
The Contractor will provide verification in writing substantiated by sufficient survey shots that lot/block grading conforms to design leave grades. Lots and blocks are not to be left flat, but are to conform to lot corner grades and terrace grades less the specified depth outlined above.

The Contractor is to ensure that positive drainage is maintained at all times and that surface and subsurface water are managed within and around the works so as not to be detrimental to the works or the environment.

The Contractor is to notify the Contract Administrator for inspection and approval of the subgrade before proceeding with subsequent work.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Removals shall be as per the items and units specified in the Schedule of Items and Prices. Where the Earth Excavation and Grading item specifies “including removals”, there shall be no separate payment for removals required by this contract.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material and expenses required to do the work.

The Earth Excavation and Grading item shall include all excavation, loading, hauling, depositing on site where required, grading and proof rolling to achieve the design subgrade and leave grade elevations. The item shall also include all work required to grade and compact material to achieve design subgrade and leave grade elevations in fill areas including all work to trim, shape and proof roll the subgrade.

The Earth Excavation and Grading including Removals item shall include all the works specified above and all removals required to complete the works, including any filling and compaction of any voids or depressions caused by removals and the offsite disposal of removed materials, including any associated fees.

Sub-excavation shall include the excavation, loading, hauling, and onsite placement or offsite disposal of deleterious material and proof rolling of material at the bottom of excavation limits, and the supply, placement and compaction of replacement granular material. This item shall only be used at the direction of the Contract Administrator.

TOPSOIL STRIPPING

Amendments to OPSS 206

OPSS 206 shall apply except as may be amended and extended herein.

References

Novatech Specifications
NOVA 8025 – Native Topsoil

Construction

Stripping
Existing topsoil is to be excavated from the areas defined in Table 1. The topsoil is to be stripped to the approval of the Geotechnical Engineer. The Contractor shall not proceed with filling operations prior to receiving geotechnical approval that stripping depth is adequate.

Table 1: Topsoil Excavation Areas

	Areas to be Stripped of Topsoil
1	Edge of gravel shoulder on west side of County Road 44 to the existing and/or proposed Property Line.

Where the contract landscape items that include topsoil specify the use of native topsoil, the Contractor shall use a two-stage stripping method. The upper portion of the topsoil shall be stripped for horticultural purposes, to the depth acceptable to the Contract Administrator, and stockpiled, in designated areas on site, for reuse. The remaining organic material shall be removed to the approval of the Geotechnical Engineer and used for general fill requirements as specified in Table 2.

Topsoil may be used as general fill in locations approved by the Contract Administrator. Under no circumstances is topsoil to be used as subgrade under the road, building envelopes, or any proposed or future hard surfaced area.

Suitable topsoil, as directed by the Contract Administrator can be used as defined in Table 2.

Table 2: Topsoil Use

	Areas for Topsoil Use
1	Stockpiled and/or process for reuse as per NOVA 8025 if acceptable to the Landscape Architect
2	Rough grading of landscaped areas where there will be no hard surface

All material which is unsuitable or is excess of the requirements outlined in Table 2 shall be managed in accordance with the contract documents.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

TOPSOIL STRIPPING

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, and material required strip, load, haul, deposit, spread, and compact topsoil, or to stockpile on site or to manage excess material as specified.

DITCHES

Amendments to OPSS 206

OPSS 206 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for construction of ditches.

References

Novatech Specifications
NOVA 8050 – Erosion and Sediment Control Measures
NOVA 8051 – Erosion and Sediment Control Plan, Monitoring and Measures

Definitions

Outlet Ditches – are any ditch or swale which is outside of the right of way of a roadway.

Regulatory Agency – Ontario Ministry of the Environment, Conservation and Parks (MECP), Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, the Municipality, the Conservation Authority, or any other authority having jurisdiction.

Equipment

All excavation of ditches is to be completed with a smooth bucket (ditching bucket). Alternative method will be considered, such as use of a bull dozer, subject to approval of the Contract Administrator and the quality of the finished product.

Construction

General
All ditches are to be constructed in accordance with the approved erosion and sediment control plan for the project and NOVA 8050/8051.

The Contractor is to verify existing tie in elevations to ensure positive drainage before commencing the work and report any discrepancies to the Contract Administrator.

Ditches are to be constructed to the line and grades shown on the contract drawings. All side slopes are not to exceed 3:1 (Horizontal:Vertical) sloping.

Excavated material is to be spread within the drainage easement and levelled to the satisfaction of the Contract Administrator. The Contractor is to ensure that the spread material does not impact existing drainage patterns.

Ditches are to be seeded as specified on the contract drawings immediately upon completion of the ditching work.

DITCHES

Topsoil

Where identified on the contract drawings, ditches requiring topsoil and seed are to have the topsoil stripped and placed in a windrow. The ditch is to be excavated to the line and grade as indicated on the contract drawings plus the additional depth required for topsoil placement. Excavated material is to be spread within the drainage easement and levelled to the satisfaction of the Contract Administrator. The topsoil is to be placed on the ditch and the material is to be spread to the depth specified. Seeding and mulching is to be carried out immediately upon completion of the topsoil placement.

Quality Control

The Contractor is to monitor and maintain the ditch and erosion and sediment control measures to ensure no wash-outs (erosion of the banks) occur and the vegetative cover is established to the satisfaction of the Contract Administrator and the Regulatory Agency until the end of the warranty period.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material and expenses required to do the work, including excavation, levelling of excavated material and maintaining existing drainage.

Outlet Ditches with Seed shall also include the seeding of the ditch as specified on the contract drawings.

Outlet Ditches with topsoil, seed and mulch shall include the stripping of topsoil, excavation of the ditch, and levelling of excavated material. Topsoil placement, seed and mulch will be paid as a separate item.

ASPHALT WALKWAYS, PATHWAYS, AND SERVICE ROADS

Amendments to OPSS 311

OPSS 311 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the construction of asphalt walkways, pathways, and service roads, including the supply and construction of the granular base and subbase (where required).

References

Ontario Provincial Standard Specifications
OPSS 206 – Grading
OPSS 310 – Hot Mix Asphalt
OPSS 314 – Untreated Granular Subbase, Base, Surface, Shoulder, and Stockpiling
OPSS 501 – Compacting
OPSS 1010 – Aggregates – Base, Subbase, Select Subgrade and Backfill Material

Design and Submission Requirements

The Contractor is required to submit to the Contract Administrator mix designs for all types of asphalt to be placed under the contract. Mix designs for each type of asphalt are required to be submitted a minimum of two (2) weeks prior to placement of the type of asphalt. It is the Contractor's responsibility to ensure that the mix designs satisfy all contract requirements.

The Contractor shall submit to the Contract Administrator, along with the required mix designs, copies of the required QC test results as required by F-3130 and Asphalt Cement certificates for review.

Materials

Asphalt
The hot mix asphalt supplied and placed shall be according to OPSS 1150 and the type shall be as specified in the Schedule of Items and Prices, or the contract drawings. If no type is specified on the contract drawings, asphalt shall be HL3F or Superpave 12.5 58-34 Level B.

Granular
The granular base (and subbase) material shall conform to OPSS 1010 and be the type specified in the Schedule of Items and Prices, or on the contract drawings.

Construction

General
The subgrade is to be prepared to the line and grade required and proof rolled prior to the placement of the granular material. The Contract Administrator is to confirm subgrade densities and elevations before placement of granular material. Any soft areas within the subgrade are to be sub-excavated at the discretion of the Contract Administrator.

The granular base shall be constructed to the widths and depths specified on the contract drawings. Compaction of the granular base and subbase (where required) shall be in accordance with OPSS 501.

ASPHALT WALKWAYS, PATHWAYS, AND SERVICE ROADS

Where the asphalt surface is to tie into existing paved surfaces, the existing surface shall be saw cut flush at the tie-in location. Where required by the contract drawings, a 500mm key joint shall be ground into the existing asphalt to a depth of 50mm at the tie-in location. All existing asphalt surfaces shall be cleaned and uniformly coated with emulsified asphalt prior to placing the asphalt surface course.

Quality Assurance

Where required by the Contract Administrator, quality assurance for the asphalt will be as per OPSS 310 Section 310.08 Quality Assurance and granular compaction will be as per OPSS 501 Section 501.08 Quality Assurance.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Square metre items shall be paid based on the area of surface course asphalt placed. Notwithstanding, the granular base and subbase (where required) shall be constructed to the widths required by the contract drawings.

Where any of these items are specified as plan quantity, the item shall be paid at the units specified and shall not be measured for payment.

Basis of Payment

Payment at the contract price for these items shall be full compensation for all labour, equipment, material and expenses required to do the work. These items shall include, but are not limited to, the supply, placement and compaction of granular base and subbase (where required), the supply, placement and compaction of the asphalt surface course, including all saw cutting, grinding, and emulsified asphalt application as required to tie into existing asphalt surfaces.

Where any of these items is specified as “all-inclusive”, it is deemed to include the excavation, grading and proof rolling of the subgrade, including the loading hauling and placing of excavated material as specified in the contract.

No payment will be made for subexcavation without prior approval from the Contract Administrator. Subexcavation, if required, shall be paid under a separate item as specified in the contract.

GRANULAR MATERIAL - RURAL

Amendments to OPSS 314

OPSS 314 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the construction of granular subbase, base, roadway surface and shoulders, edge ramping of bituminous pavements, and select subgrade material for rural cross sections.

Design and Submission Requirements

The Contractor shall submit a topographic survey, or an approved grade certification form, of the placement elevations and limits for each layer (Subbase, Granular B, and Granular A) to the Contract Administrator prior to placing the following layer of material.

Construction

The Contractor is to obtain approval from the Contract Administrator that the preceding layer meets grading and compaction requirements before the next layer is placed. The Contractor is required to notify the Contract Administrator a minimum of two (2) days before compaction testing is required, no claim for delay shall be entertained if sufficient notice is not provided for testing requirements.

Select Subgrade Material
Select subgrade material (SSM) shall conform to OPSS 1010 requirements (or alternative subject to the approval of the Contract Administrator). SSM shall be required to provide fill from native soil to subgrade elevations where no suitable material is available, or replacement of contaminated soil or unsuitable backfill material where provided for in the Schedule of Items and Prices.

SSM is to be compacted in maximum lifts of 300mm and to a minimum of 96% of the material's SPMDD or as directed by the Contract Administrator.

Subbase
The granular subbase shall consist of Granular B – Type II material (or Type I if specified on the contract drawings). The subbase is to be placed to the widths, depths and elevations specified on the contract drawings.

The subbase is to extend to tie into the front slope of the ditch, as per the contract drawings.

Granular subbase is to be compacted in maximum lifts of 300mm and to 100% of the material's SPMDD.

Base
The granular base shall consist of Granular A, (or Granular O if specified on the contract drawings). The base shall be placed to the widths, depths and elevations specified on the contract drawings.

The base is to extend to tie into the front slope of the ditch, as per the contract drawings.

Granular base is to be compacted in maximum lifts of 300mm and to 100% of the material's SPMDD.

GRANULAR MATERIAL - RURAL

Where surface course asphalt is not included in the contract, the granular base item shall include the supply and placement of Granular A to match the top of the base course asphalt and the specified cross fall required for the roadway shoulders.

Shoulders
The granular shoulder item shall consist of Granular A. The shoulders shall be placed to the depth, width and elevations as per the contract drawings, including all temporary edge ramping to asphalt and the rounding of shoulders as required. When wear course asphalt is scheduled for more than 30 days after base course asphalt, the Contractor shall temporarily grade the shoulder to match base lift asphalt elevations instead of edge ramping as specified with associated costs deemed to be included in the contract price for this item.

Granular shoulders are to be compacted in maximum lifts of 300mm and to 100% of the material's SPMDD.

Quality Control
The Contractor shall submit a topographic survey or an approved grade certification form of the placement elevations and limits for each layer (Subbase, Granular B, and Granular A) to the Contract Administrator prior to placing the following layer of material.

Quality Assurance

The Contractor shall provide the Contract Administrator with all line and grade necessary to facilitate the quality assurance compaction testing and grade checks required to be performed.

The Contractor, in conjunction with the Contract Administrator, will coordinate all testing and sampling required. The Owner will pay for the cost of the testing only.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Where trucking weigh tickets are supplied for items measured by the cubic metre, conversion will be at the relative density determined by the laboratory testing. Where no weigh tickets are supplied, the Contractor shall provide and supply the Contract Administrator with pre-placement and post-placement topographic surveys to compute the volume of material, or the volume will be determined by measurements taken in the field prior to placement by average end area method. All surveys to be submitted to the Contract Administrator are to be conducted in the presence of the Contract Administrator.

Plan Quantity Measurements
Where measurement for payment is a plan quantity payment, it will not be measured for payment. The quantity for these items are the area of the surface course asphalt. All intersection radii are included in plan quantity measurements.

For granular shoulders to be paid by plan quantity square metres, the plan quantity shall be the area from edge of shoulder to edge of pavement, with no allowance for shoulder rounding.

GRANULAR MATERIAL - RURAL

The Contractor will be required to supply and place the granular base, the granular subbase and the granular shoulder to the limits specified above and as shown on the contract drawings and sections, regardless of the plan quantity area.

Basis of Payment

Granular items shall include all work and material required to supply, place, grade, and compact the granular material to the limits specified and to supply and place any water required for compaction of material or for dust control. All work required for testing, measurements and surveys required to calculate material quantities, perform quality control, and assist in quality assurance checks shall be deemed to be included in the contract price for the associated item.

Granular base shall also include all work and material required to provide shouldering to match base course asphalt elevations where surface course asphalt is not included in the contract.

Granular shoulders shall also include all work required to supply edge ramping, temporary shouldering, and shoulder rounding.

Any material covered by this specification brought to site that is deemed to be unacceptable by the Contract Administrator shall be removed from site at no cost to the Owner.

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

TACTILE WALKING SURFACE INDICATORS

Amendments to OPSS 351

OPSS 351 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the supply and installation of Tactile Walking Surface Indicator plates (TWSI's).

Submittals

One copy of the manufacturer's installation instructions and Working Drawings for each type of tactile walking surface indicator plates shall be submitted to the Contract Administrator prior to the installation of the plates.

When requested, a certificate from the manufacturer for the tactile walking surface indicator plates that confirms the product was manufactured and met the test requirements according to the Contract Documents shall be submitted to the Contract Administrator. The certificate shall include test results from an independent testing laboratory currently accredited by the Standards Council of Canada.

The Contractor shall submit to the Contract Administrator 10 business days prior to the proposed date of sidewalk installation a schedule of TWSI installations. The Contractor shall submit a table and a location sketch, for each proposed TWSI installation. At minimum, the table shall indicate for each crossing requiring a TWSI installation: the total proposed length of each TWSI, the radius of the proposed TWSI plates, and the number of proposed TWSI plates. For TWSI installations requiring two or more different radii plates, the number of plates for each radius shall be indicated.

Material

Plates
The TWSI's shall be cast or ductile iron and shall conform to the local municipal standards and meet the approval of the Contract Administrator. All bolts and nuts required to join multiple plates together are to be stainless steel.

TACTILE WALKING SURFACE INDICATORS

Construction

General
TWSI's are to be installed as indicated on the contract drawings. The following additional requirements apply:

- TWSI's shall be set back 150-200mm from the back of curb.
- TWSI's shall be 610-650mm in depth and have a minimum width of 1500mm.
- TWSI's shall extend the full width of the curb/ramp area for curb ramps and single transition areas.
- For blended transition areas serving multiple crossing directions, a gap of 300mm is to be provided between TWSI sets unless otherwise indicated.
- All TWSI's shall have 6mm wide by 6mm deep drain grooves extending between the TWSI and the curb.
- Plates shall be installed parallel with the curb radius. The use of radius TWSI plates may be required to follow the back of curb radius as closely as possible.
- The top of the TWSI shall be flush with the adjacent concrete surface.
- The TWSI shall be installed in wet concrete to secure it in place and to allow proper finishing of the adjacent concrete surfaces.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work including supplying, preparing, setting/placing, and finishing of the TWSI's.

No additional payment will be made for the work in connection with providing depressed access crossings, flared sides, curb transitions or blended transitions as the cost of such work is deemed included in the contract price for the applicable item.

CONCRETE SIDEWALK, MEDIANS, BOULEVARDS AND ISLANDS

Amendments to OPSS 351

OPSS 351 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the construction of monolithic curb and sidewalk, concrete medians (monolithic and curb and median cap), crosswalks, boulevards and islands, and the supply, placement, grading and compaction of the granular base for the concrete surface.

References

Novatech Specifications
NOVA 3511 – Tactile Walking Surface Indicators

Material

Concrete
The Class of Concrete shall be a Class-C2 CSA.A23.1, 32 MPa, with a percent of air content between 5% to 8% prior to placement of concrete.

The slump shall be between 40 ± 20 mm for extruded concrete curbs and between 80 ± 30 mm for cast-in-place concrete curbs and sidewalks unless otherwise submitted and approved by the Contract Administrator.

Granular
Base material for sidewalks, medians, boulevards and islands shall be Granular 'A' conforming to OPSS 1010 unless otherwise specified in the contract.

05.02 Expansion Joint Material
Expansion joint filler material shall be asphalt impregnated fiberboard having a minimum of 12 mm thickness and shall be according to OPSS 1308, Type A.

Construction

General
Sidewalks, medians, boulevards and islands shall be constructed to the dimensions and the standard detail specifications as noted in the contract drawings, including all depressed access crossings, required aprons or flares, and increased thicknesses and reinforcement for entranceways and driveways.

Where monolithic construction is specified, the Contractor must obtain written approval from the Contract Administrator prior to proceeding with non-monolithic construction.

The Contactor shall mobilize within two (2) weeks of request by Contract Administrator.

CONCRETE SIDEWALK, MEDIANS, BOULEVARDS AND ISLANDS

Private Entrances and Crosswalks
Where concrete crosswalks or flush (to finished grade) median is required within an asphalt surface (roadway, entrance way, etc.), the Contractor shall saw cut the base course asphalt, remove the asphalt and granular to the depth required for placement of the concrete sidewalk and install the concrete sidewalk and reinstate the base course asphalt immediately prior to the placement of wear course asphalt. Alternatively, the Contractor may saw cut the finished asphalt to the dimensions of the sidewalk, remove the asphalt and granular to the required depth and place the concrete to match the finished asphalt surface. All work required to saw cut, remove, and dispose of materials; grade and compact the base to prepare for placement of the concrete sidewalk or crosswalk; and reinstate base lift asphalt (if completed prior to wear course placement) shall be included in the contract price for the associated concrete item.

If the Contractor chooses to install the crosswalk or flush median after wear course asphalt placement, all saw cut lines shall be neat and true to proposed concrete placement limits with no breakage or damage to the adjacent wear course asphalt, all to the satisfaction of the Contract Administrator.

The quantity of base course asphalt, Granular 'B' and Granular 'A' shall include the areas where sidewalks or flush medians are to be placed within asphalt limits. The quantity of wear course asphalt shall not include the area of sidewalks or flush medians to be placed within asphalt limits.

Tactile Walking Surface Indicators (TWSI's)
TWSI's shall be constructed where shown on the contract drawings or as directed by the Contract Administrator, and as specified in NOVA 3511.

Quality Assurance

The Contractor shall provide all required documentation to the Contract Administrator required for sampling purposes. The Contractor shall notify the Contract Administrator prior to placement of concrete so that quality assurance testing can be scheduled. When requested by the Contract Administrator, the Contractor shall supply and cast cylinders for testing. The Owner will pay for the cost of the geotechnical quality assurance testing only.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

When items are to be paid by the square metre, they shall be the area from edge of placement to edge of placement and the length placed. The width of the curb shall not be included for payment for non-monolithic construction.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work including mobilization, supplying, forming, pouring and finishing the concrete sidewalk, median, boulevard or island, and all reinforcing material required. The Contractor shall hold the price for concrete works until and throughout the year specified in Table 1.

Where an item is specified as complete with granular, that item shall be deemed to also include the supply, placement, grading and compacting the granular 'A' base to the depth specified.

CONCRETE CURB

Amendments to OPSS 353

OPSS 353 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the construction of concrete curbs, including all work to grade granular base, supply and install curb as per the type indicated on the contract drawings and backfill the curb.

Material

Concrete
Section 353.05.01 shall be amended in that the class of concrete shall be CSA 32 MPa, Class C-2 and the slump shall be 40 +/- 20mm for extruded concrete curbs.

Construction

General
Curb works will be deferred until after house construction, unless otherwise specified. Construction of the curbs will be scheduled to coincide with completion of house construction, but the minimum length of curb required for mobilization will be as per Table 1.

The Contactor will mobilize within two (2) weeks of request by Contract Administrator.

Joints
The Contractor is to tie into existing curbs as indicated on the contract drawings and to provide transition from barrier curb to mountable curb, at locations indicated on the contract drawings. Exact locations are to be field determined as directed by the Contract Administrator. Transitions will not be paid as a separate item, the mid-point of the transition will be limit of payment.

Depressed Curbs at Access Crossings
Depressed curbs at access crossings shall be constructed where shown on the contract drawings or as directed by the Contract Administrator.

Extrusion Methods
Two (2) No. 15 reinforcing bars shall be added to the curb or curb and gutter section for the full length of the depressed accesses if the full section depth of 400mm is not maintained.

Two (2) No. 15 dowels, 300mm long, shall be installed at the end of an extruded pour in preparation for the continuation of the extruded pour.

Addition of Material on Site
Section 1350.05.01.03.01 of OPSS 1350 is deleted in its entirely and replaced with the following:

CONCRETE CURB

Normal field quality assurance testing such as slump and air content will be made on site. If the test results are out of the specified range, a re-test will be done if requested by the Contractor. This will allow the Supplier to make the necessary adjustments. If the re-test is within the specification limits, the load will be accepted only if it can be placed within (2) two hours, and no water has been added after the first hour.

If the re-test is out of the specified limits the concrete will be rejected regardless of the time limits.

Quality Assurance

The Contractor will procure written verification from the Contract Administrator that the string line for the curb works is acceptable for both line and grade prior to installation. If verification of the string line is not obtained, the Contractor assumes all risk and responsibility to remove and replace deficient works entirely at his cost, should the Contract Administrator determine that the curb works were installed incorrectly.

Together with the Contract Administrator, prior to pouring the concrete curb, the Contractor and the Contract Administrator's representative shall verify that the slope from the finished garage floors to the top of depressed curb will be between 2-6%. If the slope is outside this range, the Contract Administrator shall be informed prior to proceeding. Any adjustment to proposed curb grades must be approved by the Contract Administrator prior to the placement of the curb.

The Contractor shall provide all required documentation to the Contract Administrator required for sampling purposes. The Contractor shall notify the Contract Administrator prior to placement of concrete so that quality assurance testing can be scheduled. When requested by the Contract Administrator, the Contractor shall supply and cast cylinders for testing.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work including mobilization, excavation, and placement of the concrete curb. The Contractor shall hold the price for curb until and throughout the year specified in Table 1.

SUBDRAIN AND CLEAR STONE TRENCHES

Amendments to OPSS 405

OPSS 405 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the installation of pipe subdrains and clear stone drainage trenches.

Definitions

Clear Stone Trench – A drainage channel consisting of clear stone wrapped in a geotextile fabric.

Perforated Drainage Pipes – Are pipes installed in the bottom of a ditch, storm pond or other drainage system to increase the storage capacity and/or increase water quality of storm water.

Roadway Subdrain – Is subdrain installed parallel to the travelled lanes of the roadway to drain the subgrade of the roadway.

Materials

Geotextile
Geotextiles shall be non-woven, Class II with an FOS of 75-150µm unless otherwise specified on the contract drawings.

Subdrain Outlets
Subdrain outlets are to be CSP and be complete with rodent grates.

Clear Stone
Clear stone shall be the size indicated on the contract drawings for the applicable item and shall conform to OPSS 1004 requirements.

Construction

General
The Contractor is to ensure all drainage systems maintain positive drainage towards the required outlets. The Contractor is to verify that existing elevations will permit positive drainage of the constructed works.

All geotextile is required to overlap a minimum of 500mm unless otherwise indicated.

Clear Stone Trench
Clear stone trenches shall be constructed to the cross-sectional dimensions and to the alignments shown on the contract drawings. The trench is to be excavated, geotextile cloth placed, clear stone placed, and the geotextile wrapped around the clear stone. The upper portion of the trench is to be backfilled with specified material, if required.

SUBDRAIN AND CLEAR STONE TRENCHES

Perforated Drainage Pipes
Perforated drainage pipes shall be the size and type indicated on the contract drawings. The trench shall be constructed to the cross sectional dimensions and alignment as shown on the contract drawings. The trench is to be excavated, geotextile cloth placed, clear stone base installed and graded, perforated pipe installed, backfill with clear stone and the geotextile wrapped around the clear stone. The upper portion of the trench is to be backfilled with the material specified on the contract drawings.

For perforated drainage pipes located within lots that have leave low grades which are below the required top of clear stone elevation, construction shall be completed as per Table 1.

Table 1: Clear Stone & Perforated Drainage Pipe Trench Leave Condition

Location	Construction Requirement
Along MUP on West Side of County Road 44	Contractor to construct subgrade adjacent to trench to required elevations to fully construct the trench to finished trench grades *(100mm below finished grade)* at the time of servicing.

Where the drainage pipe crosses under driveways or other hard surfaces it is to be non-perforated.

Roadway Subdrain
Roadway subdrain shall be installed to the depth and alignment as indicated on the contract drawings. The subdrain trench is to be excavated, the geotextile cloth placed, the clear stone and subdrain placed and the clear stone wrapped with the geotextile. Unless otherwise indicated on the contract drawings the subdrain is to be 150mm diameter perforated pipe.

Where subdrain outlets are indicated they shall not be considered a separate item, and be included in the measurement of the subdrain.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

SUBDRAIN AND CLEAR STONE TRENCHES

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, materials and expenses required to excavate, supply and install, and backfill.

Clear stone trenches shall also include the supply and installation of the geotextile and clear stone.

Perforated drainage pipes shall also include the supply and installation of the perforated pipe, clear stone, geotextile, and non-perforated pipe for crossing under hard surfaces.

Subdrain shall also include the supply and installation of the pipe, clear stone, geotextile, and all outlets required.

IRON WORKS ADJUSTMENTS

Amendments to OPSS 408

OPSS 408 shall apply as modified by the City of Ottawa Special Provisions F-4080 except as may be amended and extended herein.

Construction

Frame and covers are to be the type specified in the contract drawings. It is the Contractor's responsibility to ensure the elevation of the top of the structure conforms to the specified tolerances for the adjustment of the specific type of frame and cover required by the contract (for both the base course asphalt and surface course asphalt adjustment elevations).

This item is only for raising iron works from base course asphalt to surface course asphalt elevation. The cost of placing the iron works for a structure at base course asphalt elevation is deemed to be included in the individual price for the structure. All structures outside of the roadway surface are to be set at finished grade and no adjustment will be paid for these structures. Where there is an intermediate lift of asphalt required and is scheduled to be placed separately from base course and wear course, an additional adjustment will be paid for the impacted structures. The payment quantity for this item includes all valve boxes, valve chambers, storm maintenance holes and sanitary maintenance holes within the roadway surface and surface inlet roadways catchbasins.

The Contractor is to note that all rear yard catch basins and rear yard catch basin maintenance holes are to be left at final grade by the Contractor and no adjustment will be paid. Curb inlet catch basins are to be set to final grade at the time of curb installation and the cost of adjustment is deemed to be included in the individual price for the structure, no separate payment will be made for the adjustment of curb inlet catch basin frame and covers.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, materials and expenses required to do the works.

CULVERTS AND PRECAST HEADWALLS

Amendments to OPSS 421 and 422

OPSS 421 and 422 shall apply except as may be amended and extended herein.

Construction

All works are to be constructed to Ontario Provincial standards and specifications whether indicated on the contract drawings or not. All pipe material and structures are to be as per the Schedule of Items and Prices and the contract drawings. All excavation, granular bedding, frost tapers, clay seals and associated appurtenances (including grates, railings etc.) are to be included in the prices for the associated items.

The Contractor is to verify all invert information of existing ditches, creeks and drainage structures and shall tie into existing surfaces as indicated on the contract drawings.

The Contractor shall excavate existing base material, including deleterious material and soft spots as directed by the Contract Administrator. Any excavation required below the proposed bottom of the granular base and replacement with specified granular material shall be covered under a separate item.

The Contractor will backfill trenches to the proposed road subgrade elevation or existing ground elevation (as identified in profile drawings). The backfill material is to conform to the requirements of the geotechnical reports and be suitable material. Under no circumstances is topsoil to be used as backfill material. Where frost tapers are specified, the granular material to the proposed subgrade elevation is to be included in the contract price for the pipe.

Clay seals are to be constructed where required, as shown on the contract drawings and as directed by the Contract Administrator. All costs associated with this work is to be included in the contract price for the applicable item.

The cost of all insulation required as shown on the contract drawings shall be included in the contract price for the related items.

All roadway culverts shall be installed 1/10th their diameter below the ditch invert.

<u>Work Within or Connecting to an Existing Watercourse</u>
Where work is required within the limits of a watercourse, the Contractor shall undertake all work within the limits to the approval of the Municipality, the Conservation Authority, other regulatory bodies, and in accordance with the conditions of the necessary approvals. All work required to construct temporary creek diversions, dewater, provide and maintain erosion and sediment control and protect fish habitat to the approval of the Contract Administrator and all Regulatory Agencies is to be included in the contract price for the associated item.

<u>Box Culverts</u>
Where required by the contract drawings, the box culvert shall be waterproofed including supply of protection board and sand cushion, as specified.

Insulation is to be placed where required as per the recommendations of the manufacturer and the Geotechnical Engineer.

CULVERTS AND PRECAST HEADWALLS

Shop drawings shall be provided and reviewed by the Contract Administrator prior to installation of precast concrete box culverts.

Where substrate is required to be placed within the culvert it shall be the type indicated and to the approval of the Contract Administrator and/or the Regulatory Agency, with the cost included in the contract price for the culvert.

Structures
Precast headwalls are to be the type and size indicated on the contract drawings and are to be installed as per relevant specifications, including all excavation and backfill as required by the detail drawings. All work to connect the headwall to the associated pipe is to be included in the contract price. Also included are all grates, railings and other appurtenances shown on the detail drawings.

Final Acceptance
The Contractor shall ensure all structures and culverts are clean and free from debris prior to leaving site.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

All excavation (including frost tapers), dewatering, watercourse works, bedding, backfill, compaction, testing, substrate, etc. required to complete the works in accordance with all relevant specifications are deemed included in the contract price for each culvert and related items.

All headwalls are to include the supply and installation of the structure and all appurtenances (grating, railing etc.), dewatering, watercourse works, excavation, backfill, and compaction of the structure.

All required connectors, geotextile, waterproofing, insulation, etc., whether these items are shown on the drawings or not, are to be included in the contract price of the associated item unless specific items for these works are contained in the Schedule of Items and Prices.

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

"ALL INCLUSIVE" REINSTATEMENT

Amendments to OPSS 492

OPSS 492 shall apply except as may be amended and extended herein.

Scope

Where pipe, structure or other item is specified to include "all-inclusive" reinstatement, the contract price for the said item will be deemed to include the reinstatement of all features and surfaces to existing or better conditions.

Construction

A general, but not complete, description of the required reinstatement is:

Item	Description	STA. to STA. (length)	Type of Reinstatement Required (including materials)
C6	Connection to existing DICB "all inclusive" reinstatement	Approx. 0+884	Landscape area reinstatement 100mm topsoil and seed and mulch

Any disturbance caused outside of the standard trench widths due to the Contractor's method of construction shall be reinstated to match existing or better conditions, by the Contractor, at no additional cost to the contract.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices specified to include "all inclusive" reinstatement.

Basis of Payment

No separate payment will be made for the requirements of this specification. All additional work required shall be deemed included in the applicable tender item. This includes, but is not limited to, all work required by the associated specification, all removals, disposal of removals and excess materials, all saw cutting and grinding required, police assistance, and all restoration work.

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

RIP-RAP, ROCK PROTECTION, AND GRANULAR SHEETING

Amendments to OPSS 511

OPSS 511 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the installation of rip-rap, rock protection, and granular sheeting, including associated geotextile.

Material

Geotextile
Geotextile for use under rip-rap, rock protection, and granular sheeting shall be non-woven, Class II, with an FOS of 75-150µm unless otherwise specified on the contract drawings.

Rip-Rap
Rip-rap shall be to the gradation requirements shown on the contract drawings. Where no requirements are provided, the following shall apply:

- For areas subjected to flow velocities under 3 m/s, the rip-rap shall meet OPSS-1004 R-10 gradation requirements (150mm, maximum).
- For areas subjected to flow velocities over 3 m/s, the rip-rap shall meet OPSS-1004 R-50 gradation requirements (450mm, maximum).

Construction

The Contractor shall prepare the rip-rap, rock protection and granular sheeting areas to the dimensions shown on the contract drawings and the associated standard detail drawings. Geotextile is to be placed and lapped by a minimum of 500mm prior to placement of the rip-rap, rock protection or granular sheeting. The geotextile is to be anchored as shown on the contract drawings or as required by the Contract Administrator.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price for each item will be full compensation for all labour, equipment, material, and expenses required to do the work including the subgrade preparation, supply, installation, and anchoring of the geotextile, and the supply, placement and grading of the stone.

GEOTEXTILE MATERIALS

Amendments to OPSS 511

OPSS 511 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the supply and installation of geotextile materials and biaxial geogrids for subgrade reinforcement.

Material

Geotextile
Where required for installation over the subgrade beneath hard surfaced areas, geotextile shall be woven, Class II with a minimum unless otherwise specified in the contract documents.

Biaxial Geogrid
Where required for installation over the subgrade beneath hard surfaced areas, biaxial geogrid shall have a minimum ultimate tensile strength of 25kN/m (Approved product is Terrafix TBX2500 or approved equivalent) unless otherwise specified in the contract documents.

Construction

When required by the Contract Administrator, the Contractor shall place the geotextile/geogrid over the full area of subgrade required. The geotextile/geogrid is to be lapped by a minimum of 500mm and extend the full width of the roadway or area required.

The subgrade is to be smooth and shaped to the cross section and elevations required in the contract documents before placement of the geotextile/geogrid.

The geotextile/geogrid is to be anchored as shown on the contract drawings or as required by the Contract Administrator.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices, with no allowance for material overlap.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work including the supply, installation, and anchoring of the geotextile/geogrid.

INSTALLATION OF STREETLIGHTS AND DISCONNECTS

Scope

This specification covers the requirements for the installation of streetlights, streetlight bases, and streetlight disconnects.

References

Ontario Provincial Standard Specifications
OPSS 604 – Installation of Cables
OPSS 609 – Grounding
OPSS 614 – Installation of Power Supply Equipment
OPSS 615 – Erection of Poles
OPSS 616 – Footings and Pads for Electrical Equipment
OPSS 617 – Installation of Roadway Luminaries

Novatech Specifications
NOVA 6030 – Installation of Ducts and Cables

The Contractor is responsible to obtain all specifications relevant to their work from the individual utility authorities. The Contractor is to ensure work is conducted in conformance to the requirements of those specifications.

Definitions

Utility Authority – The owner (or future owner), or designated representative of the owner, of the power distribution, streetlighting, communications, or natural gas plant being installed.

Design and Submission Requirements

The Contractor is to submit copies of shop drawings for all poles, brackets, light types, and photocells and frangible bases to the Contract Administrator for review before ordering any streetlighting components.

The Contractor is required to supply the Contract Administrator with as-built information of all installed utility infrastructure in a format acceptable to the Contract Administrator.

The Contractor is required to submit as-built information to the utility companies as required by the individual utility authority.

The Contractor is to inform the Contract Administrator of all deviations from the approved drawings for any reason, including field conditions or direction of a utility inspector.

The Contractor is required to provide the Contract Administrator with a certificate from the ESA and the utility authority stating that the streetlights and the distribution system satisfy their requirements.

INSTALLATION OF STREETLIGHTS AND DISCONNECTS

Materials

Materials shall conform to those listed on the contract drawings and shall meet the approval of the utility authorities and their specifications.

Construction

The Contractor shall be responsible for the coordination of all aspects of the utility construction. This includes coordination with the Contract Administrator, utility authorities, and subcontractors, as well as any other relevant parties to ensure that approvals, inspections, and all other matters pertinent to the works are in place.

The Contractor is to arrange and pay for all Electrical Safety Authority (ESA) inspections. The Contractor will arrange for the inspections and energization by the utility authority.

All excess material will be managed as part of the earth excavation requirements as specified in the contract. If rock is encountered, it shall be dealt with as trench rock as specified in the contract and at the direction of the Contract Administrator.

Streetlights
Bases, if required, are to be as specified on the contract drawings and have all duct extensions and anchorage required. Bases are to be constructed as per OPSS 616 and utility authority's specifications.

Streetlight poles shall be the type specified on the contract drawings and conform to OPSS 615 and all utility authority's specifications. All required grounding is to be installed as per OPSS 619 and utility authority's specifications.

Streetlight brackets and luminaires are to be the lengths and types specified on the contract drawings and are to include all components specified for the fixture. Installation shall be as per OPS 617 and the utility authority's specifications.

Photocells, if required, are to be the type specified on the contract drawings and are to be installed as per the utility authority's specifications.

Disconnects
Disconnect foundations are to be placed in the locations and to the elevations as per the contract drawings. The foundations shall be constructed as per OPSS 616 and the utility authority's specifications. All duct extensions, grounding (as per OPSS 609 and utility authority's specifications), and anchorage shall be installed as required.

Disconnect panels or cabinets shall be the type specified on the contract drawings or by the utility authority. Installation, internal wiring and connections are to be as per the utility authority's specifications.

INSTALLATION OF STREETLIGHTS AND DISCONNECTS

Quality Control
The Contractor shall perform all testing and arrange all inspections required for the approval and energization of the system.

The Contractor shall provide all line and grade required to properly locate all utility works, including pole bases and disconnect foundations. This requirement shall apply to items to be installed as contract works and for items to be installed by the utility authorities. The Contractor shall be solely responsible for the accuracy of the provided information.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work including all excavation, backfill, and compaction required.

Streetlights shall also include the pole bases, poles, luminaires, photocells, brackets, conductors, grounding, duct extensions, internal wiring, any other appurtenance required, and all fees and work associated with the inspection and energization of the streetlight system.

Disconnects shall also include the supply and installation of the foundation and cabinet, internal wiring and connections, ducts, and all fees and work associated with inspections.

INSTALLATION OF DUCTS AND CABLE

Amendments to OPSS 603 AND 604

OPSS 603 and 604 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the installation of ducts, cables and natural gas pipes.

References

Novatech Specifications
NOVA 4030 – Rock Excavation for Pipeline Installation
NOVA 4920 – “All-Inclusive” Reinstatement

The Contractor is responsible to obtain all specifications relevant to their work from the individual utility authorities. The Contractor is to ensure work is conducted in conformance to the requirements of those specifications.

Definitions

Utility Authority – The owner (or future owner), or designated representative of the owner, of the power distribution, streetlighting, communications, or natural gas plant being installed.

Design and Submission Requirements

The Contractor is required to supply the Contract Administrator with as-built information of all installed underground utility infrastructure in a format acceptable to the Contract Administrator.

The Contractor is required to submit as-built information to the utility companies as required by the individual utility authority.

Prior to construction, the Contractor is to inform the Contract Administrator of all deviations from the contract drawings for any reason, including field conditions, revisions to the design drawings of the individual utility companies, or direction of a utility inspector.

Materials

Materials shall conform to those listed on the contract drawings and shall meet the approval of the utility authorities and their specifications.

The responsibility for the supply and placement of cables and ducts shall be as per Table 6030-1, found at the end of this specification. Regardless of the source of supply or placement of the cables and ducts, the Contractor shall be responsible for the excavation, backfill and compaction of the trench unless otherwise specified.

All caps shall be approved hard plastic caps.

INSTALLATION OF DUCTS AND CABLE

Construction

The Contractor shall be responsible for the coordination of all aspects of the utility construction. This includes coordination with the Contract Administrator, utility authorities, and subcontractors, as well as any other relevant parties to ensure that proper approvals, inspections, supply of material, and all other matters pertinent to the works are in place.

Utility Trenching
All trenching is to be completed as per OPSS 401.

Prior to the commencement of Utility works, the Contractor is to build and shape boulevard grades to within 100mm of proposed subgrade, or to grades required to supply sufficient cover for the installed duct and cable works. All fill areas are to be filled with suitable material and compacted as per OPSS 501 before installation of the duct and cable work commences. No additional payment will be considered for any pre-grading and compaction or levelling of trenches and compaction after construction of the ducts and cables. This work is deemed included in the scope of work of the Excavation and Grading item.

Any excess material generated from the works associated with utility trenching shall be incorporated into the site grading requirements (or disposed of offsite if not required) as per the contract documents, and is deemed included with the scope of work for the utility trenching item.

Utility trenches are to be constructed to the lines and grades as indicated on the contract drawings and the applicable standard detail drawings. All trenching for secondary services and tails are deemed included in the trenching price or on a per each basis as per the Schedule of Items and Prices.

Streetlight trenching is deemed to be included within the common joint utility trench irrespective of whether or not it is constructed within a common or dedicated trench. All connection sweeps for streetlight ducts are deemed included in the trenching price.

If rock is encountered, it shall be excavated in accordance with NOVA 4030 with prior approval from the Contract Administrator.

Utility service trenching is to include the placement of a 50mm by 100mm post at the end of the trench on private property.

Installation of Linear Ducts
Ducts are to be placed to the lines and grades indicated on the contract drawings and cross sections. Bedding and backfill requirements shall be as per the contract drawings. Ducts are to have pull rope installed and sealed with caps. All duct installations shall meet the requirements of the utility authorities.

The Contractor shall arrange all required inspections prior to backfilling the trench.

All spare conduit are to be capped in the locations specified and have pull rope installed and sealed with a cap.

Concrete Encasement
Where concrete encased duct are required, the Contractor shall construct all concrete encased duct banks to the utility authority's specifications. The concrete encased trenching item shall be based shall be based on the utility authority's standard cross section full configurations. The payment for duct shall

INSTALLATION OF DUCTS AND CABLE

be based on the number of ducts required for cable and spares as identified on the design drawings. Any additional duct required to meet a utility authority's standard dimensions will not be considered for payment.

Road Crossings
Road crossings are to be installed as indicated on the contract drawings and as per the cross section details. The exact number and location of utility duct crossings are to be confirmed prior to construction. All communications road crossings are to be constructed with one spare duct (100mm PVC DB2) unless otherwise noted on the contract drawings.

The crossings are to be extended a minimum of 2m behind the face of curb or 1.0m past the back edge of sidewalk unless otherwise specified. Crossings are to include the construction of a frost taper (10:1) below the proposed subgrade elevation, complete with Granular 'B' Type II backfill and compaction.

The termination of all crossings are to be clearly marked. Ducts are to have pull rope installed and be sealed with caps.

Where road crossings are unable to be constructed prior to granular base and base course asphalt placement due to a delay in the utility approvals, the additional removal and reinstatement cost will be covered under a provisional item. No additional payment will be considered where the delay is due to the Contractor.

Installation of Cables
Cables are to be placed to the lines and grades indicated on the contract drawings and cross sections. Cables are not to be left exposed overnight. Bedding and backfill requirements shall be as per the contract drawings. All cable installations shall meet the requirements of the utility authorities.

The Contractor shall arrange all required inspections prior to backfilling the trench.

Sand Backfill
The Contractor will backfill all utility trenches to the proposed subgrade elevation with sand that conforms to the requirements of mortar sand according to OPSS 1004, or better where required by the contract drawings or the utility authority.

Quality Control
The Contractor will ensure all ducts are clean and free of standing water, breakage or distortion.

The Contractor shall provide all line and grade required to properly locate all utility works. The Contractor shall be solely responsible for the accuracy of the provided information.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Where duct, cable and wiring are specified to be measured by the linear metre, the measurement shall be based on the length of trenching only with no allowance for excess cable and wiring required for connections to electrical chambers, poles, streetlights etc.

INSTALLATION OF DUCTS AND CABLE

Basis of Payment

All excavation, bedding, backfill, compaction, testing, etc., required to complete the works in accordance with all relevant specifications are deemed included in the contract price for each trenching item. The placement of supplied ducts, cables, and natural gas lines are to be included in the trenching item, including all caps, pull ropes and any other appurtenances. All trenches will include sand backfill required to the subgrade elevation of the surface works as specified on the contract drawings in the trenching item price. For trenches constructed in cut areas only, any sub-excavation of unsuitable base material and replacement with granular backfill will be covered under a separate item. The trenching item will be for the length of utility trench required, regardless of the number of ducts required in the trench.

Dedicated streetlight only trenching will be paid separately as per the Schedule of Items and Prices, where required.

Where the contract contains a provisional Frost Excavation item for utility trenching it shall only be used at the discretion of the Contract Administrator. It will be paid in addition to the standard trenching item when the average frost depth exceeds 0.30m. It will be paid only when the excavation requires additional effort due to the presence of frost and the cause of the frost excavation was due to an Owner controlled delay in schedule. It will be measured based on the length of trench excavated (paid by linear metre of trench constructed) regardless of frost depth.

Where a trenching item is designated as “including reinstatement” in the Schedule of Items and Prices it is to include the full reinstatement of the area affected by the utility trench and is to be as per NOVA 4920.

All connections to existing utilities are to be included in the tendered price for each associated item, this will include all work to locate, expose, break into, connect to, and any other work required.

All duct items shall include the supply and installation of Contractor supplied ducts and are to include all caps, pull ropes and any other appurtenances and all concrete and required reinforcement where specified as concrete encased.

All cable items shall include the supply and installation of Contractor supplied cable and wiring and are to include all required appurtenances.

All crossings are to include all excavation, backfill, compaction, the installation of all ducts and pipes (regardless of the quantity), all concrete, reinforcement, frost tapers, caps, pull ropes, markers, and any other work required to supply the crossing.

Where the contract contains a provisional item for the reinstatement of granular and asphalt for crossings constructed after base course asphalt due to a delay in the approvals, this item shall include all additional work required in addition to the crossing item. This includes removals, additional excavation, additional frost taper, and reinstatement to base course asphalt. This item will be paid in addition to the applicable road crossing item.

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

INSTALLATION OF DUCTS AND CABLE

Table 6030-1: Supply and Installation Responsibilities for Utility Ducts, Pipes and Cables

Utility	Supply	Install
Streetlighting		
Duct	Contractor	Contractor
Wiring	Contractor	Contractor

Notes:
1. The Contractor is responsible for arranging the supply and delivery of all materials.
2. The Contractor is responsible for all materials after delivery, until acceptance.
3. The Contractor is responsible to coordinate scheduling for all works to be done by the Utility.
4. The Contractor is to provide all horizontal and vertical layout for all utility works. This includes all works undertaken by the utility authorities directly including, but not limited to, grade level boxes, pedestals, vaults, transformers, grounding grids, maintenance holes, conduits, cables, and pipes.

PAVEMENT MARKING

Amendments to OPSS 710

OPSS 710 shall apply except as may be amended and extended herein.

Construction

The Contractor will install all lines, symbols and markings in the roadway where required as shown on the contract drawings or as required by the Contract Administrator.

Pavement markings will only be paid for markings required for the final roadway configuration. All pavement markings required for lane closures and detours relating to construction staging shall be deemed to be included in the Contractor's price for the traffic management item.

Obliteration of pavement markings shall be by mechanical removal unless otherwise specified in the contract documents.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Pavement markings and obliterations will be measured for 10cm width lines by the horizontal length of the type of pavement marking installed or per each pavement marking (i.e. stop bar, symbol). For areas wider than 10cm, the measurement will be made in 10cm equivalents.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work.

SIGNAGE

Scope

This specification covers the requirement for the installation of temporary and permanent street name and traffic control (regulatory) signs.

References

Ontario Traffic Manual (OTM) – All reference in this specification to the Ontario Traffic Manual will indicate the most recent version(s) of the OTM including, and not necessarily be limited to, as applicable:

OTM Book 5 – Regulatory Signs
OTM Book 8 – Guide and Information Signs, Volume One

Materials

Sign Posts
Temporary sign posts shall be 100mm x 100mm treated lumber or approved alternative.

Permanent sign posts shall be of galvanized steel set in a concrete base, all meeting Municipality standards.

Signs
Traffic control (regulatory) signs shall conform to the requirements of OTM Book 5.

Temporary street name signs shall be made of ½" white crezon board or approved alternative.

Permanent street name signs shall meet Municipality standards for street name signs.

Construction

Upon completion of base course asphalt, the Contractor shall install and maintain temporary street name and traffic control signage at every intersection and where indicated by the Contract Administrator.

Each sign post shall typically consist of two street name signs securely fastened to the top of each sign post and one traffic control (stop or yield) sign mounted on the post at the height specified. The base of the sign is to be a minimum of 1.5m above the top of asphalt or curb to a maximum height of 2.5m. All temporary signage installed shall be of consistent heights.

All temporary street sign posts shall be securely fastened to an appropriate sized base and weighted sufficiently to avoid overturning. The weighting material shall be contained to allow movement of the sign base as required to facilitate construction.

Street signs shall be double sided and bilingual. The minimum dimensions of the signs shall be 40" by 8". The signs shall have a white background with black letters in a clear font. Temporary street name letters are to be 5.5" high and street type letters are to be 3" high. Permanent street name sign lettering shall meet Municipality standards.

SIGNAGE

The Contractor shall inspect and maintain the temporary signs until placement of surface course asphalt or sidewalk installation. Following the completion of surface course asphalt (or sidewalk), the Contractor shall remove the temporary street name and regulatory signs and place permanent street name signs and regulatory signs on fixed posts.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices. Where the measurement is per each, it shall be per each sign post (regardless of the number of signs per post) installed.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work. This includes but is not limited to the supply, installation, inspection, maintenance, and removal.

This item does not include payment for any signs required for the temporary control of traffic to facilitate construction and/or are required by the Contractor’s traffic control plan.

FENCING

Amendments to OPSS 772

OPSS 772 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirement for the construction of fences.

References

Ontario Provincial Standard Specifications
OPSS 904 – Concrete Structures
OPSS 911 – Coating Structural Steel Systems
OPSS 1350 – Concrete – Materials and Production
OPSS 1541 – Chain-Link Fence Components
OPSS 1601 – Wood, Preservative Treatment, and Shop Fabrication

Materials

Chain-Link Fence
Chain-link fence components (fence posts, rails and hardware) shall be according to OPSS 1541. The components shall also have an inorganic-zinc/epoxy/polyurethane coating system applied in accordance with OPSS 911. The finish colour shall be black and all coats shall be shop applied.

The fence fabric shall be galvanized, with black PVC coating applied on top of the metal fabric.

Units shall be shop welded where required. No field welding will be permitted without the permission of the Contract Administrator.

Wood Privacy Fence
Lumber shall be pressure treated pine, select, dressed four sides, and treated in accordance with CSA 080, unless otherwise specified on the contract drawings. All lumber shall be selected for uniform appearance and shall be free of splits, cracks, open knots, and other structural defects.

All fasteners shall be heavy duty hot-dipped galvanized. Nails and spikes shall have spiral shanks.

Post and Rail Fence
Posts and rails shall be well peeled cedar with no peeler marks.

All fasteners shall be heavy duty hot-dipped galvanized. Nails and spikes shall have spiral shanks.

Concrete
Concrete shall conform to OPSS 1350 and have a nominal minimum 28-Day compressive strength of 20 MPa unless a higher strength is specified on the contract drawings.

Page Wire Fence
Page Wire fence components (fence posts, rails and hardware) shall be according to OPSS 1540.

FENCING

Construction

Fences shall be constructed as per OPSS 772, to the details shown on the contract drawings, and as per the manufacturer recommendations. Wood privacy fences are to have vertical face boards installed tightly together to provide privacy unless otherwise indicated on the contract drawings. All wood cuts are to be treated with the same preservative as used for the pressure treating of the lumber.

All posts are to be set in concrete in conformance with OPSS 904. All excess material from post hole excavation shall be levelled and incorporated into the rough grading works or removed from site.

All excess and waste material from fence construction is to be removed from site. All areas of the work damaged as a result of fence installation shall be reinstated by the Contractor at no additional cost.

Quality Assurance

All fences will be subject to spot inspections to ensure conformance with the contract requirements, in addition to a visual inspection prior to acceptance.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work. This includes, but is not limited to, the supply and construction of the fence, post holes, concrete, and all fasteners and components required to construct the fence.

The Contractor shall hold the price for each tender item covered by this specification through the completion of the contract.

IMPORTED TOPSOIL

Amendments to OPSS 802

OPSS 802 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the supply, preparation and placement of soil.

References

Novatech Specifications
NOVA 8060 – Trees, Shrubs, and Groundcover Planting

Definitions

Friable – Soil, which is easily crumbled through fingers when held by hand.

Native Topsoil – Topsoil from contract site.

Imported Topsoil – Topsoil that meets the contract requirements and has been sourced by the Contractor from an alternate location.

NPK Rating - Percentage of the chemical elements nitrogen (N), phosphorus (P), and potassium (K).

Design and Submission Requirements

Submit one (1) copy of soil analysis and amendment recommendations to the Contract Administrator. Where amendments have been recommended, the Contractor shall demonstrate to the Contract Administrator, prior to placement, that the proper amendments have been made. Do not commence work until topsoil is accepted by the Contract Administrator.

Acceptance of topsoil shall be subject to inspection and soil analysis test results including testing laboratory recommendations for soil amendment(s) and fertilizer application(s). Soil analysis and recommendations are to be prepared by an independent accredited analytical laboratory approved by the Contract Administrator.

The topsoil supplier may provide soil analysis and recommendations on file if the testing has been completed in the current year.

Topsoil is to be tested from source for clay, sand, and silt, NPK, Magnesium (Mg), soluble salt content, pH value, growth inhibitors, soil sterilant, organic matter, conductivity and environmental contaminants.

Submit documentation for type and source of organic matter to be incorporated into planting soil for approval.

IMPORTED TOPSOIL

Materials

Topsoil
Topsoil shall be used for seed areas, sod areas and tree plantings as indicated in the Schedule of Items and Prices.

Topsoil shall be fertile, friable, natural sandy loam, containing a maximum of 70% sand by weight and have organic matter content of 5% for sandy loams to maximum of 20% by volume. The final acidity value shall range from pH 5.5 to 7.5 and shall be capable of sustaining vigorous plant growth. The soil shall have water infiltration rates no less than 25mm per hour, nor greater than 75mm per hour and show ample evidence of soil organism activity including earthworm casts, algal blooms, and decomposed litter.

Topsoil shall be free of subsoil, coarse vegetative material 10mm diameter and 100mm length, and stones and clods over 50mm diameter. Stones and coarse vegetative debris in the topsoil which fall within the specification shall not exceed 5% by volume. It shall contain no man-made materials (including glass, plastic, and asphalt) or contain toxic substances (including atrazine). The topsoil shall not be supplied in a frozen state and shall not contain seed banks of crabgrass, couch grass, or other noxious weeds.

Planting Soil
Planting soil shall be used for planting beds (for shrubs, perennials, vines, and groundcovers).

Mix 4 parts topsoil with 1 part approved organic matter. Incorporate bone meal into planting soil at a rate of 0.5kg/m^3 of planting soil, or as approved by the Contract Administrator.

Construction

General
The Contractor shall, together with any and all Subcontractors involved in the work of this section, examine all surfaces or conditions relating to the work, in order to determine the acceptability of such surfaces or conditions for the work of this section to commence. The Contract Administrator is to be notified in writing of conditions which could be detrimental to installation and work is not to commence until instructed by the Contract Administrator. The commencement of work implies the Contractor's acceptance of the conditions.

Verify that grades are correct and approved by the Contract Administrator. If discrepancies occur, notify Contract Administrator and do not commence work until instructed by Contract Administrator.

The Contractor is to schedule placing of topsoil and planting soil to permit sodding, seeding or planting operations under optimal conditions and within 7 days. The topsoil and planting soil is to be placed after the Contract Administrator has inspected and approved areas to receive work and is to be placed during dry weather and on dry, unfrozen subgrade.

The Contractor is to thoroughly clean the work area to the satisfaction of the Owner and the Contract Administrator. Remove all excess materials, packaging, and debris from the site.

IMPORTED TOPSOIL

Topsoil
The Contractor shall eliminate all uneven areas and low spots in the subgrade, ensuring positive drainage. Cultivate subgrade to a depth 100mm in entire area to receive topsoil. Repeat cultivation in areas where equipment used for hauling and placing has compacted soil. Remove any surface debris, roots, vegetation, branches, stones, and other deleterious materials in excess of 50mm diameter from subgrade surface prior to placing topsoil.

Topsoil is to be placed to a uniform compacted depth in seed and sod areas; 15mm below finished grade for sod areas and at finished grade for seed areas. Depths shall be as specified for the applicable item.

Where the depth of soil is specified to exceed 150mm, the soil shall be placed in lifts of 150mm maximum and consolidated to prevent settlement.

Fine grade and loosen topsoil prior to seed/sod operations. Eliminate rough and low spots to ensure positive drainage. A loose friable bed is to be prepared by means of cultivation and subsequent raking, harrowing or gilling. Topsoil is to be consolidated prior to placement of surface treatment, leaving the surface smooth, uniform, firm against deep foot printing, and with a fine, loose texture, to the approval of the Contract Administrator.

Planting Soil
Planting soil is to be placed as per NOVA 8060, and to the minimum depths as shown on the contract drawings.

Where the depth of soil is specified to exceed 150mm, the soil shall be placed in lifts of 150mm maximum and consolidated to prevent settlement.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

There will be no separate payment for the work required by this specification unless a specific item has been included for all or part of the work in the Schedule of Items and Prices. Payment will be as specified for the associated items.

If included as a separate item, payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work, including all testing, application of amendments, and the supply, preparation, and placement of imported topsoil.

SEED AND COVER (HYDRAULIC SEEDING)

Amendments to OPSS 804

OPSS 804 shall apply except as may be amended and extended herein.

Reference

Novatech Specifications
NOVA 8020 – Imported Topsoil
NOVA 8025 – Native Topsoil

Canadian Nursery Landscape Association Publications
Canadian Standards for Nursery Stock, Section 17, latest edition

Design and Submission Requirements

When requested by the Contract Administrator, the Contractor shall submit a copy of invoice/receipt from seed supplier indicating dates, all seeds, quantity and lots acquired and all original seed package labels, to confirm shipping dates and total quantity of seed purchased and used on the project. The Contractor shall ensure all original seed labels are preserved and maintained until acceptance.

The Contractor shall notify the Contract Administrator upon completion of the required works in order to schedule an inspection for acceptance.

Materials

Nurse Crop
Nurse crop shall be Certified Canada No. 1 Grade, selected from the current year supply and shall be as specified on the contract drawings.

Seed Mixes
Seed mixes shall be Certified Canada No. 1 Grade, selected from the current year supply and shall be as specified on the contract drawings.

Fertilizer
Shall be a complete, synthetic fertilizer and shall be applied at the rates specified on the contract drawings.

Cover
Shall be Hydraulic Mulch applied at 2,000kg of dry product per 10,000m^2.

Construction

General
The Contractor shall, together with any and all Subcontractors involved in the work of this section, examine all surfaces or conditions relating to the work, in order to determine the acceptability of such surfaces or conditions for the work of this section to commence. The Contractor is to verify that finished grades are correct and surface preparation has been completed and both have been approved by the Contract Administrator. The Contract Administrator is to be notified in writing of conditions which

SEED AND COVER (HYDRAULIC SEEDING)

could be detrimental to installation and work is not to commence until instructed by the Contract Administrator. The commencement of work implies the Contractor's acceptance of the conditions.

Seeding operations are to be scheduled within the following seeding windows:

1. Spring start-up to May 31st
2. August 1st to September 30th

Work is not to be performed in adverse site conditions, including winds over 10km/h, ground covered with snow, ice, or standing water. Work is not to be performed on frozen soil or in temperatures which would inhibit seed germination.

Structures, signs, fences, pavement, water bodies, utilities, and other plant material are not to be sprayed, and any spray in areas not intended is to be cleaned, to the satisfaction of the Contract Administrator.

Seed, fertilizer, and nurse crop application rates shall be as specified on the contract drawings.

The Contractor shall provide adequate protection against erosion, pedestrian and vehicular traffic damages, immediately after seeding. The Contractor shall rope off newly seeded areas adjacent to walkways or roadways when necessary. Protection measures are to be removed following establishment, with the approval of the Contract Administrator.

The Contractor is to thoroughly clean the work area to the satisfaction of the Owner and the Contract Administrator. Remove all excess materials, packaging, and debris from the site.

Maintenance
Seeded areas are to be maintained by the Contractor until acceptance.

Seeded areas shall be watered in sufficient quantities and at the frequency required to maintain optimum soil moisture level for germination and continued healthy growth of grass. Avoid washout of soil, and immediately repair and reseed any areas damaged due to washouts.

The Contractor is to control and eliminate damaging pests when they appear in newly seeded areas. Areas showing root growth failure, deterioration, bare or thin spots, or which have been damaged by any means or cause, including replacement operations, shall the reseeded. Over-seed areas which show inadequate or improper seed growth.

Seed mixes are to be cut to a height of 60mm when it reaches 75mm in height. Clippings which would smother the grass are to be removed from site.

The Contractor is to supply all equipment, labour and materials necessary to meet these requirements.

SEED AND COVER (HYDRAULIC SEEDING)

Acceptance

Acceptance will be given provided that:

1. Seeded areas are properly, uniformly and well established.
2. Seeded areas are free of bare and dead spots and relatively weed-free; containing no more than five (5) broadleaf weeds, twenty-five (25) annual weeds, or weedy grasses per (100) square metres.
3. All submittals, installation and maintenance requirements have been provided.
4. Minimal surface soil is visible when grass cut to height of 60mm.
5. a. Turf Seed Mixes - Seeded areas show adequate and proper seed establishment and have been cut a minimum 2 times. Cut grass to 60mm when it reaches height of 75mm.
   b. No-Mow (non- Turf) Seed Mixes - Acceptance shall be based on the 30, 60 and 90-day review criteria as per section 804.08 – Quality Assurance.

Areas seeded in the Fall will be reviewed for acceptance the following Spring after required period of growth, provided the acceptance conditions are fulfilled.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work, including all requirements of NOVA 8020 or NOVA 8025, and the supply, installation, and maintenance of the seeded areas.

Payment in equal payments shall be made, fifty percent (50%) at the time of completion of seeding and cover operation, and fifty percent (50%) at the end of the maintenance and warranty period. Payment will be made provided that all seed and cover is acceptable. In the event that the maintenance and warranty period is extended, payment may be made upon receipt of an acceptable “Letter of Warranty” for replacement seed and cover and for the duration of the extended period(s).

TACKIFIER

Scope

This specification covers the supply and application of tackifier with the cover material for seed areas to prevent the erosion of the applied seed and the underlying soil.

Reference

Novatech Specifications
NOVA 8040 – Seed and Cover (Hydraulic Seeding)
NOVA 8045 – Natural Seed and Cover

Design and Submission Requirements

When requested by the Contract Administrator, the Contractor shall submit a copy of invoice/receipt from the supplier quantity and lots acquired to confirm type and total quantity of tackifier used on project.

The Contractor shall notify the Contract Administrator upon completion of the required works in order to schedule an inspection for acceptance.

Material

Tackifier

Fibra Tac Powder (by Fibramulch). Shall be 100% natural, non-toxic, water diluted liquid dispersion, mulch binder free of growth or germination inhibiting factors.

Construction

General
The tackifier shall be added directly into the hydraulic mulch slurry mixture at the rate specified on the contract drawings.

Tackifier shall be applied only in the areas identified in the contract documents or by the Contract Administrator.

The Contractor is to thoroughly clean the work area to the satisfaction of the Owner and the Contract Administrator. Remove all excess materials, packaging, and debris from the site.

Acceptance
Acceptance will be given as per NOVA 8040 or NOVA 8045 and provided that the tackifier application is uniform and the finished surface is free from washouts and other surface irregularities.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work, including the supply and installation of the tackifier. Payment for tackifier will be as per the items identified in the Schedule of Items and Prices.

SUPPLEMENTAL FERTILIZER

Scope

This specification covers the supply and application of additional fertilizer for seeded areas.

Reference

Novatech Specifications
NOVA 8040 – Seed and Cover (Hydraulic Seeding)
NOVA 8041 – Seed and Cover (Mechanical Seeding)

Material

Fertilizer
10 Weeks After Germination Application: Shall be complete synthetic slow release fertilizer with maximum 35% water soluble nitrogen and be the type, and applied at the rates, as specified in Table 1: Application Rates for Seed and Fertilizer.

Construction

Supplemental Applications
Fertilizer is to be applied to seeded areas as specified in Table 1: Application Rates for Fertilizer during the establishment period, provided plants have mature, true leaves. The seeded areas are to be well watered following the application of fertilizer. The Contractor is to postpone the subsequent applications of fertilizer until the following spring if the application date is after August 15th, unless otherwise approved by the Contract Administrator.

Acceptance
Acceptances shall be given provided the required applications of fertilizer have been completed at the specified rates. Any damage to the seeded areas as a result of over application of fertilizer shall be corrected prior to acceptance.

The Contractor is to thoroughly clean the work area to the satisfaction of the Owner and the Contract Administrator. Remove all excess materials, packaging, and debris from the site.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

EROSION AND SEDIMENT CONTROL PLAN, MONITORING AND MEASURES

Amendments to OPSS 805

OPSS 805 shall apply except as may be amended and extended herein.

References

Government of Ontario
Guidelines on Erosion and Sediment Control for Urban Construction Sites (May 1987)

Definitions

Regulatory Agency – Ontario Ministry of the Environment, Conservation and Parks (MECP), Ontario Ministry of Natural Resources, the Municipality, the Conservation Authority, or any other authority having jurisdiction.

Design and Submission Requirements

The Contractor shall submit a detailed Erosion and Sediment Control Plan (ESCP). The plan shall consist of a written description and detailed drawings indicating the on-site activities and measures used to control erosion and sediment control movement for each step of the work. The plan shall include a detailed schedule identifying the following:

1. Phasing of the steps for the installation of all control measures.
2. Inspection, monitoring and maintenance of all control measures during construction.
3. Phasing of the removal and disposal of the control measures.

The ESCP shall include a contingency plan identifying the provision of labour, equipment and materials to install additional measures and a detailed emergency response plan in the event of an accidental discharge. The Contractor shall maintain additional control measures on site and readily accessible at all times, in sufficient quantities, to be installed at a moment's notice.

As part of the ESCP, the Contractor shall submit weekly inspection reports to the Contract Administrator. The reports shall document the performance of installed measures, and identify deficiencies and required maintenance issues. The reports shall include:

1. Date and time of inspection and monitoring.
2. General description of mitigating measures being utilized.
3. Confirmation of the effectiveness of measures inspected.
4. Description of any issues requiring repair, improvement, or maintenance.
5. Description of any deficiencies, and the timeline for correction and re-inspection.
6. Deficiency re-inspection reports that are outstanding.

The ESCP is to bear the stamp and seal of a qualified Professional Engineer licensed in Ontario, herein designated as the Engineer of Record (EOR). The weekly inspection reports shall be prepared and signed by the EOR.

EROSION AND SEDIMENT CONTROL PLAN, MONITORING AND MEASURES

General

The Contractor acknowledges that surface erosion and sediment runoff resulting from their construction operations will have a detrimental impact to any downstream watercourse or sewer, and that all construction operations that may impact upon water quality will be carried out in a manner that fully meets the requirements of all applicable legislation and regulations. The Contractor shall be responsible for determining and conforming to the requirements of the Regulatory Agencies, having jurisdiction over the working area, and any potentially affected watercourses.

As such, the Contractor will be responsible for carrying out his operations, and supplying and installing any appropriate control measures, so as to prevent sediment laden runoff from entering any sewer or watercourse within or downstream of the working area. The Contractor shall schedule operations with consideration to forecasted weather to minimize the risk of sediment laden water entering any watercourse or sewer system.

The Contractor acknowledges that no one measure is likely to be 100% effective for erosion protection and controlling sediment runoff. Therefore, where necessary the Contractor will implement sequential measures arranged so as to achieve the required level of sediment and runoff control. Suggested on-site measures may include, but will not be limited to, the following methods: sediment ponds, silt fences, straw bales, filter cloths, catch basin filters, dams and/or berms, or other recognized technologies and methods available at the time of construction. Specific measures will be installed in accordance with the requirements of OPSS 805 where appropriate, or in accordance with manufacturer's recommendations.

Where, in the opinion of the Contract Administrator or Regulatory Agency, the installed control measures fail to perform adequately, the Contractor will supply and install additional or alternative measures as directed by the Contract Administrator or Regulatory Agency.

Erosion and sediment control measures will be implemented during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987). Before commencing the work, the Contractor will review and implement the required Erosion and Sediment Control measures in accordance with the approved ESCP and any other additional measures that the Contractor deems necessary to comply with the requirements of all Regulatory Agencies. The Contractor will be solely responsible for meeting all Regulatory Agency requirements.

Contractor's Responsibilities

The Contractor will ensure that all workers, including sub-contractors, in the working area are aware of the importance of the erosion and sediment control measures and informed of the consequences of the failure to comply with the requirements of all Regulatory Agencies, and the specifications detailed herein.

The Contractor will periodically and when requested by the Contract Administrator, clean out accumulated sediment deposits as required at the sediment control devices, including those deposits that may originate from outside the working area. Accumulated sediment will be removed in such a manner that prevents the deposition of this material into any sewer or watercourse and avoids damage to the control measure. The sediment will be removed from the site at the Contractor's expense and managed in compliance with the requirements for excess earth material, as specified elsewhere in the Contract.

EROSION AND SEDIMENT CONTROL PLAN, MONITORING AND MEASURES

The Contractor will immediately report to the Contract Administrator any accidental discharges of sediment material into either the watercourse or the storm sewer system. Failure to report will constitute a breach of this specification and the Contractor may also be subject to the penalties imposed by any applicable Regulatory Agency. Appropriate response measures, including any repairs to existing control measures or the implementation of additional control measures, will be carried out by the Contractor without delay.

Where, in the opinion of either the Contract Administrator or a Regulatory Agency, any of the terms specified herein have not been complied with or performed in a suitable manner, or at all, the Contract Administrator or Regulatory Agency has the right to immediately withdraw its permission to continue the work. The Contract Administrator or Regulatory Agency may renew its permission upon being satisfied that the defaults or deficiencies in the performance of the work have been rectified and the Contractor has met the requirements of this specification and/or the Regulatory Agency.

In addition to any other remedy and/or penalty provided by law, where there has been default or non-compliance with any of the terms specified herein and the Contractor refuses to perform or rectify same within forty-eight (48) hours of the receipt of the written demand to do so by the Contract Administrator, or the Owner, is hereby entitled to enter upon the working area and either complete the work in conformity with the contract or have the work done that it considers necessary to complete the work to its intended condition, whichever, in the Owner's sole opinion, is the most reasonable course of action. The Contractor and the Owner further agree that the costs incurred for any such work will be retained by the Owner from monies otherwise due to the Contractor, should any such monies be available.

Construction

The proposed erosion and sediment control measures will be implemented prior to construction and will remain in place for all phases of construction until the site vegetation is established. These measures are to be inspected and repaired as required on a regular basis.

Any additional measures required, based on field conditions or the sequence of the works, shall be supplied and installed by the Contractor. All related costs are to be included in the Erosion and Sediment Control Implementation and Monitoring item, and the total contract price.

The sediment control measures will only be removed when, in the opinion of the Contract Administrator, the measure or measures, is no longer required. No control measure may be permanently removed without prior authorization from the Contract Administrator. The tender price shall include the removal of the specified control measure, including any reinstatement required due to ground disturbance created by the removal.

Monitoring

The Contractor shall monitor runoff quality (both surface and dewatering discharge) and quantity of water from dewatering operations. This shall include turbidity monitoring of impacts to watercourses (upstream vs. downstream conditions), and total suspended solids (TSS) monitoring of point sources, such as dewatering discharge locations. All discharge shall be in compliance with specific site constraints, regulatory requirements, and sewer use bylaw requirements.

Unless otherwise identified in the contract documents, the Contractor shall meet the discharge objectives in Table 8051-1.

EROSION AND SEDIMENT CONTROL PLAN, MONITORING AND MEASURES

Table 8051-1: Discharge Objectives

Source	Objective	Monitoring Frequency (minimum)
Watercourse Impacts	Downstream turbidity not to exceed upstream levels by greater than 25%.	Min. daily for first 3 days of operation. Min. twice weekly for ongoing basis. Daily when work is within 20m of watercourse.
Discharge from Dewatering Operations	TSS maximum level of 25mg/L	Min. daily for first 3 days of operation. Min. twice weekly for ongoing basis.

Where site specific criteria or objectives are not obtained the Contractor and/or the EOR shall immediately contact the regulatory agency to notify of the results. The Contractor shall implement an action/mitigation plan acceptable to the EOR and the regulatory agency prior to continuing construction activities.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price for the Erosion and Sediment Control tender items shall be full compensation for all labour, equipment, and material required to do the work.

Progress payments for the Erosion and Sediment Control measures shall be made as follows:

a) 50% for initial construction.

b) 30% for maintenance pro-rated in equal payments over the term of the contract.

c) 20% for removal.

Payment at the contract price for the tender item Erosion and Sediment Control Implementation and Monitoring shall be full compensation for all additional labour, equipment and materials beyond the quantities and items identified in the Schedule of Items and Prices as required to meet current environmental standards and industry best practices, the submission of the ESCP, water quality monitoring, and weekly reporting.

Progress payments for Erosion and Sediment Control Implementation and Monitoring shall be made as follows:

a) 25% for satisfactory submission and implementation of the ESCP.

b) 75% pro-rated into equal payments over the term of the contract.

RETAINING WALLS

Scope

This specification covers the requirements for the construction of retaining walls.

References

Ontario Provincial Standard Specifications
OPSS 206 Grading
OPSS 405 Pipe Subdrain
OPSS 501 Compacting
OPSS 517 Dewatering of Pipeline, Utility and Associated Structure
OPSS 518 Control of Water from Dewatering Operations
OPSS 539 Temporary Protection Systems
OPSS 902 Excavating and Backfilling – Structures
OPSS 904 Concrete Structures
OPSS 905 Steel Reinforcement for Concrete
OPSS 908 Metal Traffic Barriers and Metal Railings for Structures
OPSS 1001 Aggregates – General
OPSS 1002 Aggregates – Concrete
OPSS 1010 Aggregates – Base, Subbase, Select Subgrade, and Backfill Material
OPSS 1860 Geotextiles

Ontario Building Code, Current Edition

CSA S6 Canadian Highway Bridge Design Code, Current Edition

Materials

Concrete
Concrete shall be the type specified on the contract drawings/approved shop drawings and conform to OPSS 904 with steel reinforcement as per OPSS 905, as specified.

Granular
Granular base, subbase and backfill shall conform to OPSS 1010 and be the type specified on the contract drawings

Geotextile
Geotextile fabric is to be non-woven Class II with an FOS of 75-150µm, unless otherwise indicated on the contract drawings.

Geogrid Reinforcement
Geogrid is to be the type and strength indicated on the contract drawings and be bidirectional unless otherwise indicated.

Railings
Shall be the style and type as indicated on the contract drawings and shall conform to OPSS 908.

RETAINING WALLS

Wall Material
Shall be the style and type as indicated on the contract drawings and shall conform to the requirements of the contract drawings and the manufacturer's specifications.

Design and Submission Requirements

All submittals required under this specification are to be affixed with the seal and signature of a licenced Professional Engineer, verifying that the drawings meet all requirements and are consistent with the contract documents.

The Contractor shall submit retaining wall shop drawings, showing stone size, layout, and other pertinent data to the Contract Administrator a minimum of two (2) weeks prior to proceeding with the work. The Contractor shall include with this submission detailed design calculations relating to the internal stability of the retaining wall design at the critical section(s).

The Contractor shall submit shop drawings of railings including attachment details and layout to the Contract Administrator a minimum of two (2) weeks prior to fabrication.

Construction

General
The Contractor is not to proceed with any portion of work required by this specification until the Contract Administrator has reviewed and given approval to the preceding portion of the work.

If the work is undertaken in freezing temperatures, the contractor shall protect the footings, back and side slopes, and granular base and backfill material from freezing.

Excavation
The Contractor is to provide all excavation necessary to properly construct the retaining wall in accordance with OPSS 902.

Sub excavation
Where unsuitable soil conditions are present below the specified retaining wall subgrade, the Contractor shall excavate the deleterious material to the limits directed by the Geotechnical Engineer. The material shall be replaced with Granular B – Type I or Type II, as per OPSS 1010, or other suitable material as directed by the Geotechnical Engineer. The replacement material shall be compacted to 100% of the material's SPMDD in lifts not greater than 300mm. Sub excavation shall include the removal offsite for reuse of all excavated material.

Excess Earth Material
Any excess earth material generated from the excavation works shall be incorporated into the site grading requirements and the material shall be managed as specified elsewhere in the contract.

Geotextile
Geotextile cloth shall be installed between the granular material and the native material and the granular backfill and the wall blocks, or as detailed on the contract or shop drawings. The cloth shall be overlapped by a minimum of 500mm at all joints.

RETAINING WALLS

Geogrid Reinforcement
Geogrid shall be installed at the vertical intervals shown, when required, on the contract or shop drawings. It shall be lapped a minimum of 500mm and be fastened every 300mm or as specified by the manufacturer or on the contract drawings.

Granular Base and Backfill
The granular base shall be to the depths and dimensions required as shown on the contract drawings or submitted shop drawings. The Contractor shall place the material to the dimensions required as shown on the contract or shop drawings. Compaction shall be according to OPSS 501 and OPSS 902 and lift thickness shall not exceed 300mm.

Backfill of the wall is to extend to the subgrade elevation required for the specified surface treatment at the top of the wall.

Wall
The retaining wall is to be constructed with minimum gaps. The placement of the blocks (stones) shall be in accordance with the submitted working drawings.

The wall is to be constructed to the lines and grades specified on the contract drawings and is to have the slope (step backs) required.

Subdrain is to be installed where indicated on the contract or shop drawings as per OPSS 405. The Contractor is to provide outlets as required and ensure positive drainage of the subdrain.

Protrusions
Where there is a pipe or other protrusion specified through the retaining wall, the Contractor is to include all work associated with coordinating the construction of the pipe through the wall. This work is to include the supply and construction of concrete collars, or other approved alternative, complete with all necessary reinforcement, grating/gates, and the submittal of shop drawings for the pipe collar.

Railing
Unless otherwise specified on the contract drawings a railing is required for any wall in excess of 600mm. The railing shall be constructed as per OPSS 908. Unless otherwise specified on the contract drawings, all railings are to be galvanized steel.

Quality Assurance

The Contractor shall coordinate all construction with the Contract Administrator a minimum of forty-eight (48) hours in advance, to arrange for geotechnical testing as required by the Contract Administrator.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

When the quantity for payment is to be by the square metre (m^2), measurement for payment shall be by the square metre of the retaining wall face (one side), including embedment.

RETAINING WALLS

No additional measurement will be completed for dual face blocks where required. For a wall where dual faced blocks are required, the retaining wall face measured for payment shall generally be the side with the largest amount of exposed face.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, materials, and expenses required to do the work. This shall include, but is not limited to, the excavation, base and subbase supply and preparation, concrete working slab and/or concrete footing if required, supply and installation of retaining wall stones, granular backfill, subdrain, geotextile cloth, geogrid if required, and all other associated works.

Sub excavation shall include the excavation of deleterious material, proof rolling of material at the bottom of excavation limits, and the supply, placement and compaction of replacement granular material. This item shall only be used at the direction of the Contract Administrator. This item shall include the removal of the material from site and the offsite reuse of the material, unless otherwise directed by the Contract Administrator. Where there is a contract item for Sub excavation – Trench, that item shall be deemed to apply to retaining wall base sub excavation.

Where this item is designated as “all-inclusive” it is to include all work, material and expenses to supply and install any barrier wall or pedestrian railing, rip-rap stones at the base of the wall and any aggregate treatment required adjacent to the wall.

Where the contract contains a specific item for barrier wall or pedestrian railing it shall include the fabrication, supply, and installation of the railing system complete with all required bases/anchors.

PAYMENT ADJUSTMENT FOR CHANGES IN THE FUEL PRICE INDEX

Scope

This specification covers the payment adjustments to the Contractor based on changes to the Ontario Ministry of Transportation's fuel price index. The price index will be published monthly in the MTO Contract Bulletin for each calendar month and will reflect that month's prices. The Contractor is responsible for any flow through to truckers, subcontractors and shippers/suppliers that may be required. The Owner will not provide any additional compensation for this purpose in addition to that provided through this special provision.

References

City of Ottawa
F-1002 – Payment Adjustment for Changes in the Fuel Price Index, March 2009

Ontario Ministry of Transportation
Contract Bulletin – Fuel Price Index (updated monthly)

Definitions

FA = Monthly Fuel Adjustment
IP = Impact Percentage of fuel in bid, pre-determined to be 7%
PFC = Percent Fuel Change
FTC = Fuel Index for Month ***Prior*** to Tender Close
FPP = Fuel Index for Progress Payment Month

Fuel Price Adjustment Calculation

A payment adjustment will be calculated using monthly progress payment amounts and the change between the fuel price index for the month of tender, and fuel price index when the work was completed.

A monthly progress payment adjustment will be made when the fuel index for the progress payment month differs by more or less than 15% from the fuel index for the month of the tender closing date. When the fuel index differential is less than 15%, there will be no payment adjustments made.

if FPP>FTC
PFC = ((FPP - FTC) / FTC) * 100) - 15%

if FPP<FTC
PFC = ((FPP - FTC) / FTC) * 100) + 15%

FA = (Base Contract Monthly Progress Amount x IP) x PFC

Notes:

1. Monthly Progress Amount is total progress amount for the payment period prior to holdback and HST.
2. Base Contract Monthly Progress Amount shall not include any change order works or other price adjustment to the contract (ex. AC Price Index Adjustment, Unit Rate Adjustment for Contract Delays etc.).
3. When (FPP – FTC) is positive the Contractor will receive a payment.
4. When (FPP - FTC) is negative the Owner will receive a credit.

PAYMENT ADJUSTMENT FOR CHANGES IN THE FUEL PRICE INDEX

5. When the agreed contract progress payment cut-off date is on or before the 15th of the month, then the previous months fuel index shall be used for that progress payment amount.
6. When the agreed contract progress payment cut-off date is after the 15th of the month, then the current months fuel index shall be used for that progress payment amount.

For contract change order items, payment will be adjusted based on the above formula for the value of the change order works, with an initial Fuel Price Index (FTC) for the month the pricing was submitted for the relevant change order.

Measurement for Payment

Measurement for payment shall be made under the "Fuel Price Index Payment Adjustment" provisional item. Units shall be 1.00 each for every $1.00, as per the Schedule of Items and Prices.

Basis of Payment

Payment will be included on the next possible progress payment based on the availability of Price Index at the time of progress payment certification. Typically, payment will be made on the subsequent progress payment certificate for the Fuel Price Index Payment Adjustment associated with the work paid on the previous progress payment.

It is agreed by the parties to the contract that it is impracticable and difficult to ascertain actual fuel consumed on the contract, and that the parties hereto agree that for the purpose of calculating the total fuel price adjustments, that the process outlined in this specification will be used. This specification shall be the only compensation due to the Contractor for direct fuel costs due to an Owner delay in the Contract.

Payment or Credit will be subject to taxes and hold-back.

BONDING (PROVISIONAL)

Scope

The scope of the work involved with the item ‘Bonding’ will include all work and costs necessary to fulfil the appropriate bonding requirements, as described in the contract documents, upon acceptance of the tender and a request to bond is made by the Owner to the Contractor.

References

This specification refers to the following parts of the contract document:

Section A – General Information
A-5 Performance Surety
A-6 Maintenance Surety

Section D – General Conditions
GC 6.04 Bonding

Submission Requirements

The Contractor is responsible to obtain all necessary bonding requirements as described in the contract documents.

The Contractor is made aware that terms and costs of this item may be re-negotiated (at the discretion of the Owner) should the bonding requirements at the time of contract execution differ from those requirements at the time of tender.

Measurement for Payment

This item is a lump sum item and will not be measured for payment.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to fulfil all bonding requirements.

This item is provisional, and the Contractor shall not claim additional compensation should the Owner require none or a portion of the tendered amount.

EQUIPMENT RENTAL, FOREMAN, LABOURER (PROVISIONAL)

Scope

This specification covers the requirements for the supply of equipment (operated), foreman (c/w pickup truck), and labourer for works as required by the Contract Administrator.

Construction

Where required by the Contract Administrator to perform work not covered by a contract item, and the directed work is performed on a time-and-material basis, the provided rates will be used for payment.

Measurement for Payment

Measurement for payment will be by the hour as listed in the “Schedule of Items and Prices”.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work.

Each item is deemed to include all associated costs including travel time, foreman’s pickup truck, operator and float, overhead, profit, hand tools, supervision etc., and no further mark-up of these rates will be considered for payment.

This item is provisional, and no payment will be made without the approval of the Contract Administrator. The Contractor will not be entitled to any additional compensation under the Contract should there be no requirement for the use of any or all of the amount included in the tender item.

CONTINGENCY ALLOWANCE

Scope

This specification covers the requirements for the use of the Contingency Allowance item.

Use

The Contingency Allowance is included to cover the cost of providing such materials and works that may be necessary as required by the Owner, and which are not provided for elsewhere in the Schedule of Items and Prices.

The Contingency Allowance will be drawn upon only as directed and authorized in writing by the Owner and as confirmed by issuance of a change order.

Measurement for Payment

Measurement for payment will be determined on a per change order item basis.

Basis of Payment

This item is provisional, and no payment will be made without the approval of the Owner. The Contractor will not be entitled to any additional compensation under the Contract should there be no requirement for the use of any or the entire amount included in the Contingency Allowance item.

CLEARING AND GRUBBING

Amendments to OPSS 201 and 801

OPSS 201 and 801 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirements for the installation and maintenance of tree protection fencing, the removal of trees, brush, bushes, stumps, windfalls, surface boulders and piled boulders.

References

City of Ottawa Publications, Planning and Growth Management
Protocol for Wildlife Protection during Construction, August 2015

Definitions

Barrier – standard plastic fencing or approved equivalent in good condition, 1.2m high, supported vertically by steel T-bars, and horizontally at the top of the fencing by 2”x4” wood railing bolted to the steel T-bars, as required. T-bars shall be straight, 2.0m long.

Dripline – shall be deemed to mean “Critical Root Zone” (CRZ). The CRZ is established by the diameter at breast height (DBH, 1.2m) multiplied by 10cm for every 1cm of trunk diameter.

Construction

The Contractor shall implement best practices when undertaking the work required by this specification to ensure that wildlife is not harmed. The Contractor is to refer to the “Protocol for Wildlife Protection during Construction” when implementing necessary mitigation measures to ensure the protection of wildlife. Where necessary, the Owner will provide a project specific wildlife protocol to be followed for the duration of the contract.

Unless otherwise noted in the contract documents and without approval from the Contract Administrator, no tree removals are to take place as noted in Table 1. There are some areas where only trimming and pruning may be required and other areas that require clearing and grubbing. All limits and scope of work are to be confirmed with the Contract Administrator prior undertaking any work. The Contractor shall be responsible to establish and maintain any and all access roads required to carry out the works described in this specification with the costs deemed to be included in the price for the associated contract item.

All tree protection required shall be installed prior to commencing any work associated with this specification. Protection measures are to be maintained for the duration of the project. If a tree permit is required for the project, all work is to be in conformance to the permit. The following measures are to be observed when work is required within the CRZ of any trees:

- When trees to be removed overlap with the CRZ of trees to be preserved: cut roots at the edge of the CRZ and grind down stumps after tree removals, do not pull-out stumps. Ensure there is not root pulling or disturbance of the ground within the CRZ.
- If roots must be cut, roots 20mm or larger should be cut at right angles with clean, sharp horticultural tools without tearing, crushing, or pulling.
- Handwork only where required within the CRZ; absolutely no machinery permitted.

CLEARING AND GRUBBING

Table 1: Tree Removal Restrictions

No Tree Removals Between	April 15 - August 15

Clearing and Grubbing

Clearing and Grubbing is to include the cutting and clearing of all standing trees, brush, bushes and other vegetation to a maximum of 300mm above original ground elevations, the disposal of felled materials, existing windfall and other surface litter from the designated areas. It is also to include the grubbing (or grinding) of all stumps and roots to a minimum of 500mm below original ground.

Areas

Clearing and Grubbing is to take place in the areas defined in Table 2.

Table 2: Clearing and Grubbing Areas

	Areas to be Cleared and Grubbed
1	Edge of gravel on west side of County Road 44 to the existing or proposed Property line.

Management of Excess Material

The Contractor shall load, haul and dispose of all material from clearing and grubbing offsite unless otherwise noted in the contract documents or as directed by the Contract Administrator. The Contractor is to make all arrangements to obtain a suitable disposal facility, and all costs associated with disposing of material offsite is to be included in the price for the associated contract item.

The Contractor is to conform to all requirements governing the transportation of forestry products, specifically Canadian Food Inspection Agency (CFIA) restrictions on the movement of ash products from areas with infestations of the Emerald Ash Borer.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Tree protection fencing is to include the supply and installation of the fencing, regular inspections, maintenance, and removal. No additional payment shall be made for inspection, maintenance, and removal.

Clearing and grubbing is to include the cutting and clearing of all trees, brush, bushes, other vegetation, felled materials, windfalls and surface litter, removal and disposal of all stumps, and the clean-up and offsite disposal of all material generated by this work.

Payment at the Contract unit rate price shall be full compensation for all labour, equipment, material and expenses required to do the work.

PIPE SEWERS

Amendments to OPSS 401, 402, 405, 407, 409, 410, 411 and 421

OPSS 401, 402, 405, 407, 409, 410, 411 and 421 shall apply except as may be amended and extended herein.

Construction

All works are to be constructed to provincial and municipal standards and specifications whether indicated on the contract drawings or not. All pipe material, structures and frame and covers are to be as per the contract drawings. All granular bedding, clay seals and associated appurtenances (including specified frame and covers, grates, etc.) are to be included in the prices for the associated items.

The Contractor will backfill trenches to the proposed road subgrade elevation or existing ground elevation (as identified in profile drawings). The backfill material is to conform to the requirements of the geotechnical reports and be suitable material, native material is to be used unless otherwise specified. The Contractor shall manage onsite material to ensure that suitable native material is used for trench backfill. Under no circumstances is topsoil to be used as backfill material.

Where sewer is to be laid on fill, the Contractor will submit density test reports and obtain approval from the Contract Administrator before construction of the sewer. Fill will be placed to 600mm minimum above the top of the pipe grade and compacted to a minimum of 95% Standard Proctor maximum dry density (SPMDD) for earth fill or 100% of the SPMDD for granular fill and is to be placed in 300mm lifts before construction of the sewers can commence. Density tests to be taken along the centre of the lift.

Clay seals are to be constructed where required, as shown on the contract drawings and as directed by the Contract Administrator. All costs associated with this work is to be included in the contract price of the sewer pipe.

The cost of all insulation required for mainline storm and sanitary sewers with less than 2.0m of cover to finished grade shall be included in the contract price for the related items. Insulation shall be placed in the thickness required to achieve thermal coverage equivalent to the minimum cover requirements listed above and shall be constructed as per contract details. Where the Schedule of Items and Prices contains a provisional item for insulation, it shall be used only for additional insulation required due to changes in the design.

All bedding shall be Class B unless otherwise specified on the contract drawings or in the geotechnical report.

<u>Structures</u>
Catch basins shall be the type shown on the contract drawings. Unless subdrain is included as a specific contract item, each roadway catch basin is to include 6m sub drain stubs as per OPSD 216.021.

Where roadway catch basins are interconnected, the Contractor is to modify the downstream catch basin as required to accommodate the inlet and outlet pipe. The Contractor is to ensure that free drainage conditions to the outlet pipe are maintained.

Inlet control devices (ICD`s) are to be the size and type specified on the contract drawings. Where roadway catch basins are interconnected the Contractor is to ensure that the ICD is placed on the outlet pipe of the downstream catch basin.

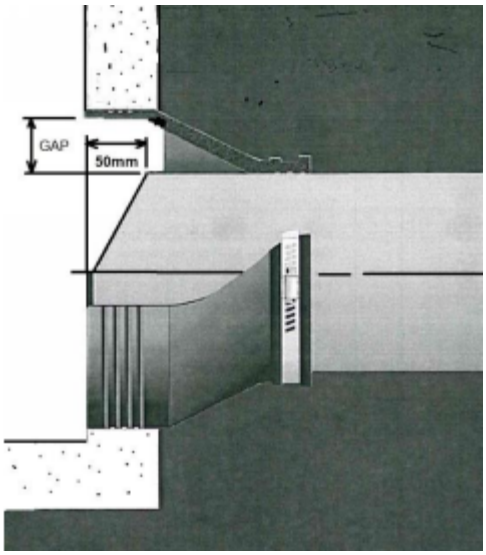
PIPE SEWERS

All maintenance holes are to be the type and size indicated on the contract drawings and are to be installed as per relevant specifications, including but not limited to all benching, parging and drop structures required.

All iron works within the roadway are to be set to base course asphalt elevation. All iron works outside the roadway are to be set to final design elevations. The costs are to be included in the price of the structure. Curb inlet catch basins are to be set to final design elevations.

Pipe Connections to Structures

Where a PVC pipe is connected to a maintenance hole structure using a flexible watertight connection (Kor-N-Seal and equivalent type products) with a gap between the pipe and the cored hole in the concrete structure, the Contractor shall taper back the top half of the PVC pipe until the obvert is 50mm behind the inside wall of the maintenance hole to prevent rubbing and eventual cracking of the obvert by cleaning hoses. Hoses shall rub on the concrete edge not the obvert.



Testing and Connections

A continuous CCTV inspection of all sewers will be required twice and shall include the cleaning and flushing of all sewer works as per OPSS 411. The initial inspection is to be performed prior to preliminary acceptance and the second inspection immediately prior to the placement of the final asphalt lift (surface course). The Contractor is to mobilize within seven (7) days of notice by the Contract Administrator. Deflection testing will only be required when and where ordered by the Contract Administrator, after review of the CCTV report.

Leakage testing of sanitary sewers and maintenance holes is required and shall be completed in accordance with OPSS 410.07.16. The field tests shall be performed in the presence of a licenced Professional Engineer who shall submit a certified copy of the test results.

The Contractor is to verify all invert information of existing infrastructure prior to commencing any work on the sewers and shall tie into existing sewers, maintenance holes and other structures as indicated on the contract drawings. Any work associated with maintaining and controlling the flow in the existing system shall be included in the price for the associated items.

PIPE SEWERS

Sewer Tolerances
All invert slopes shall be positively sloping downstream. Absolutely no standing water caused by reverse slope is permitted.

The maximum deviation in elevation at any maintenance hole shall be within the limits of +/- 30mm from the invert elevations specified on the contract drawings. In addition, sewers shall be installed within the limits of +/- 0.01% of the gradient specified on the contract drawings.

Quality Control
The Contractor shall complete all testing and CCTV requirements prior to demobilization. When requested by the Contract Administrator, the Contractor is to provide the Contract Administrator with a topographic survey (including horizontal and vertical alignment) of all iron works and structures prior to the issuance of substantial completion for the sewer works.

Where required by the Municipality or the Contract Administrator, the Contractor shall complete dye testing of all service laterals to ensure there is no cross-connection of the sewer pipes.
Prior to final acceptance of the works (following the completion of wear course asphalt placement), the Contractor shall flush and clean all sewer works to the satisfaction of the Municipality and the Contract Administrator.

Quality Assurance

The Contractor shall provide the Contract Administrator with all line and grade necessary to facilitate the quality assurance compaction testing and grade checks to be performed.

The Contractor, in conjunction with the Contract Administrator, will coordinate all testing and sampling required. The Owner will pay for the cost of all geotechnical testing only.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

All excavation, dewatering, bedding, backfill, compaction, testing, etc. required to complete the works in accordance with all relevant specifications are deemed included in the contract price for each sewer and related items. All required caps, tees, bends, insulation, etc. are to be included in the contract price of the associated sewer and related items.

All sewer pipe, service pipe and rear yard catch basin leads are to include the supply and installation of the pipe, the excavation, bedding, backfill and compaction of the trench.

All maintenance holes, ditch inlet catch basins, rear yard catch basin maintenance holes, and rear yard catch basin tees and elbows are to include supply and installation of the structure, the excavation, bedding, backfill,

PIPE SEWERS

compaction and adjustment of frame and covers to finished grade (structures outside of the roadway) or to base course asphalt grade (structures within the roadway).

All roadway catch basins are to include the supply and installation of the structure, catch basin leads, modifications for catch basin interconnections, subdrain stubs (6m, including clear stone and geotextile), the excavation, bedding, backfill and compaction and adjustment of frame and cover to finished grade (curb inlet catch basin) or base course asphalt elevation (surface inlet).

Where the contract contains a subdrain item (continuous subdrain), the item is deemed to include all work required to install the subdrain including the trenching for and the supply and installation of the subdrain, clear stone and geotextile.

All inlet control devices (ICD`s) are to include all work required to supply and install the ICD`s.

All connections to existing are to include the excavation, backfill, compaction, connection to, modifying, benching, maintain existing flows and all other incidental work associated with making the connections to existing infrastructure.

All closed-circuit television (CCTV) inspections are to include the cleaning and flushing of all sewer works, the inspection of all sewer mainlines, reports and all other incidentals associated with the work.

Payment at the contract price shall be full compensation for all labour, equipment, material, and expenses required to do the work.

OVERBURDEN WELL ADJUSTMENTS

Amendments to OPSS 408

OPSS 408 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirement for adjustment of existing overburden wells due to its proximity to the proposed multi-use path.

Construction

The Contractor is required to submit a shop drawing for the flush mounted overburden well cover and lockable cap for review and approval.

Well adjustments to be completed by a Licenced Well Technician. Forty eight (48) hours notice of work to be provided so that Municipal Representative can be present for works. Adjustment to be made to final elevations as noted on the contract drawings.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work.

AS-BUILT SURVEY SUBMISSION

Amendments to OPSS 206 and 314

OPSS 206 and 314 shall apply except as may be amended and extended herein.

Scope

This specification covers the requirement for the preparation and supply of as-built survey information.

Design and Submission Requirements

The Contractor is required to submit a red-line mark-up of the drawings within two (2) weeks of substantial completion. The submitted drawing shall have all as-built information for all proposed design information on the drawings including but not limited to:

- grading information – asphalt elevations (25m intervals along MUP edges), swale elevations
- pipe sizes and inverts,
- structure top of grate and invert information

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price will be full compensation for all labour, equipment, material, and expenses required to do the work. This includes but is not limited to all traffic control and survey time.

REMOVAL OF CONTAMINATED SOIL (PROVISIONAL)

Amendments to NOVA 2060/2065 and NOVA 3140/3145

NOVA 2060/2065 and NOVA 3140/3145 shall apply except as may be amended and extended herein.

Scope

This specification is for the removal of contaminated soil during the excavation, grading and subgrade preparation work for the multi-use pathway.

Construction

There may be some contaminated soil by the existing Municipal landfill site. The existing soil material should be reviewed by the Geotechnical Consultant to confirm if contaminated soils are present.

In the event contaminated soils are present, the Contractor is to remove the contaminated soil as per the direction of the Geotechnical Consultant. The Geotechnical Consultant may also recommend additional materials be excavated, removed and replaced with appropriate fill material to support the multi-use pathway. This work shall include the supply of additional materials to replace the material removed and include the disposal of the contaminated material off-site.

Quality Assurance

The Contractor is to obtain approval from the Geotechnical Engineer that the decontamination has been successfully completed prior to placing the remaining granular material.

Quality assurance testing will be required as per NOVA 3140/3145.

Measurement for Payment

Measurement for payment shall be as per the items and units listed in the Schedule of Items and Prices.

Basis of Payment

Payment at the contract price shall be full compensation for all labour, equipment, material and expenses required to do the work as specified.

Removal of contaminated soils shall include cutting of all non-granular material, the removal of the material and regrading of the subgrade to design elevations, including the supply of additional granular material as required to meet the design elevations.

SECTION F

SUPPLEMENTAL MATERIALS

SUPPLEMENTAL MATERIALS

DOCUMENT	REVISION/DOCUMENT	PAGES	NOTES
Geotechnical Investigation Proposed Multi-Use Pathway County Rd 44	Project: 100011.070, September 3, 2024	32	PDF COPY INCLUDED

GEMTEC
www.gemtec.ca

Geotechnical Report
County Road 44 Multi-Use Pathway
Kemptville, Ontario

GEMTEC
www.gemtec.ca

Submitted to:

Novatech
240 Michael Cowpland Drive, Suite 200
Ottawa, Ontario
K2M 1P6

Geotechnical Report
County Road 44 Multi-Use Pathway
Kemptville, Ontario

September 3, 2024
Project: 100011.070

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Ottawa, ON, Canada
K2K 2A9

September 3, 2024

File: 100011.070 – Rev0

Novatech
240 Michael Cowpland Drive, Suite 200
Ottawa, Ontario
K2M 1P6

Attention: Cara Ruddle, P.Eng., Senior Project Manager

Re: Geotechnical Report
County Road 44 Multi-Use Pathway, Kemptville, Ontario

Enclosed is our geotechnical investigation report for the above-noted project, in accordance with our proposal dated April 4, 2023. This report was prepared by Pat Baxter and John Hagan, P.Eng.

Pat Baxter
Senior Technologist

John Hagan, P.Eng.
Senior Pavement Engineer

PB/JH/af

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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation carried out for the proposed County Road 44 multi-use pathway to be located in Kemptville, Ontario. The purpose of the investigation was to identify the general subsurface conditions at the site by means of a limited number of boreholes and, based on the factual information obtained, to provide engineering guidelines on the geotechnical design aspects of the project, including construction considerations that could influence design decisions.

This investigation was carried out in general accordance with our proposal dated April 4, 2023.

2.0 PREVIOUS INVESTIGATION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC), formerly Houle Chevrier Engineering, carried out a geotechnical investigation in 2016 titled "*Geotechnical Investigation, Multi-Use Pathway, County Road 44, North Grenville, Ontario, Houle Chevrier Job Number 64153.43*". The previous investigation included this project area (Settler's Trail to River Road), and borehole information from the previous report has been utilized in the current report.

3.0 PROJECT DESCRIPTION AND SITE GEOLOGY

3.1 Project Description

It is understood that a new multi-use pathway is proposed from Settler's Trail to River Road (approximately 1.8 kilometres) along County Road 44. The new multi-use pathway is an extension of a previously constructed pathway that runs from County Road 43 to Settler's Trail.

The proposed pathway will consist of a 3.0-metre-wide asphalt multi-use pathway.

3.2 Surficial Geology Maps

Surficial geology maps of the area indicate that the subsurface conditions the proposed MUP consists of glaciomarine deposits of sand, gravel, silt and clay. Bedrock geology and drift thickness maps of the area indicate the bedrock is mapped as dolostone and sandstone of the Beekmanton Group formation at depths ranging between 5 to 10 metres.

Fill material associated with the previous development of the site should also be anticipated.

4.0 METHODOLOGY

4.1 Geotechnical Investigation

The field work for this investigation was carried out on July 7 and 8, 2016. During that time, a total of fifteen (15) boreholes, numbered 16-1 to 16-15, were advanced along the proposed pathway alignment using portable drilling equipment supplied and operated by Marathon Drilling Co. Ltd. Only Boreholes 16-1 to 16-8 are considered relevant to this report, as such Boreholes 16-9

to 16-15 are not included. The boreholes were advanced to depths ranging from about 0.6 to 1.8 metres below ground surface.

Penetration tests were carried out where possible within the overburden deposits. The penetration tests were carried out using a portable, 31.75 kilogram hammer, which is half of the standard penetration test hammer weight. Samples of the soils encountered were recovered using drive open sampling equipment.

Standpipe piezometers were not installed as part of this investigation; however, free water was recorded in the boreholes at time of drilling to estimate the shallow groundwater level.

The field work was observed throughout by a member of our engineering staff who directed the drilling operations, observed the in-situ testing and logged the samples and boreholes.

Following the borehole drilling work, the soil samples were returned to our laboratory for examination by a geotechnical engineer. Selected samples of the soil were tested for water content and grain size distribution.

Descriptions of the subsurface conditions logged in the boreholes are provided on the Record of Borehole sheets in Appendix A. Please note that the N values reported on the borehole logs have not been corrected to account for the one-half weight sampling hammer. The approximate locations of the boreholes are shown on the Borehole Location Plan on Figure 1. The results of the laboratory testing are provided on the Record of Borehole sheets in Appendix A.

The borehole locations were positioned at the site relative to existing site features. The ground surface elevations at the boreholes were determined using a Trimble R10 GPS survey instrument. The elevations are referenced to Geodetic datum.

5.0 SUBSURFACE CONDITIONS

5.1 General

As previously indicated, the soil and groundwater conditions identified in the boreholes are given on the Record of Borehole sheets in Appendix A. The logs indicate the subsurface conditions at the specific test locations only. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted. The precision with which subsurface conditions are indicated depends on the method of drilling, the frequency and recovery of samples, the method of sampling, and the uniformity of the subsurface conditions. Subsurface conditions at other than the test locations may vary from the conditions encountered in the boreholes. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties.

The soil descriptions in this report are based on commonly accepted methods of classification and identification employed in geotechnical practice. Classification and identification of soil

involves judgement and GEMTEC does not guarantee descriptions as exact but infers accuracy to the extent that is common in current geotechnical practice.

The groundwater conditions described in this report refer only to those observed at the place and time of observation noted in the report. Groundwater conditions may vary seasonally or because of construction activities in the area.

The following presents an overview of the subsurface conditions encountered in the boreholes advanced during this investigation.

5.2 Topsoil, Topsoil Fill

Topsoil was encountered from ground surface in Boreholes 16-1, 16-4, 16-5, and 16-6 to 16-8. The topsoil is generally composed of dark brown silty sand with some organic material and ranges in thickness from about 100 to 200 millimetres.

5.3 Peat

A deposit of dark brown, fibrous peat were encountered from ground surface in Boreholes 16-2 and 16-3. The thickness of the peat deposits ranges from about 150 to 230 millimetres.

5.4 Fill Material

Fill material was encountered below the topsoil fill in Boreholes 16-7, and 16-8. The fill material is composed of grey brown silty sand with variable amounts of gravel and cobbles. Practical refusal to advancement of the split barrel sampler was encountered in the fill material in Borehole 16-8, at 0.6 metres below ground surface. The refusal may represent the presence of boulders within the fill material.

5.5 Sand

A native deposit of grey brown fine to medium grained sand with trace silt was encountered at Borehole 16-1, at a depth of about 0.2 metres below ground surface. The sand deposit was about 1.6 metres thick. Borehole 16-1 was terminated within the sand deposit at a depth of about 1.8 metres below ground surface.

Penetration tests carried out in the sand deposits with the “half-weight” hammer gave values ranging from 10 to 17 blows per 0.3 metres of penetration, which corresponds to standard penetration test “N” values of 5 to 9, which reflects a loose relative density.

The results of grain size distribution tests carried out on a sample of the sand from Borehole 16-1, are provided in Appendix B.

5.6 Silty Sand/Sandy Silt

Native deposits of silty sand and sandy silt with trace to some clay were encountered in Boreholes 16-2 to 16-7, at depths ranging from about 0.1 to 0.2 metres below ground surface. Where fully penetrated, the thickness of the silty sand/sandy silt deposits ranges from about 0.8 to 1.6 metres. Boreholes 16-5 and 16-6, were terminated within the silty sand at a depth of about 1.5 metres below ground surface.

Penetration tests carried out in the silty sand/sandy silt deposits with the "half-weight" hammer gave values ranging from 10 to 51 blows per 0.3 metres of penetration, which corresponds to standard penetration test "N" values of 5 to 25, which reflects a loose to compact relative density.

The results of grain size distribution tests carried out on samples of the silty sand/sandy silt from Boreholes 16-2, 16-4, 16-6, and 16-7, are provided on in Appendix B.

5.7 Silty Clay

Native deposits of silty clay were encountered in Boreholes 16-2, 16-3, and 16-7, at depths ranging from about 1 to 1.8 metres below ground surface. At the location of Borehole 16-3, the thickness of the silty clay deposit is about 0.3 metres. Boreholes 16-2 and 16-7, were terminated within the silty clay deposits at a depth of about 1.8 metres below ground surface.

Based on our review of the recovered samples, the silty clay has an estimated firm to very stiff consistency.

5.8 Glacial Till

Native deposits of glacial till were encountered in Boreholes 16-3 and 16-4 at depths of 1.3 and 1.6 metres below ground surface, respectively. These boreholes were terminated within the glacial till at about 1.5 to 1.8 metres below ground surface. Glacial till is a heterogeneous mixture of all grain sizes, which at this site can be described as a silty sand with some clay and gravel. Cobbles and boulders should be anticipated within the glacial till deposits.

5.9 Groundwater Conditions

The following table provides details on our observations of the recovered samples with respect to the groundwater conditions at the time of the borehole investigation (July 7 and 8, 2016).

Table 5.1 - Groundwater Observations (July 7 and 8, 2016)

Borehole	Depth Below Existing Ground Surface (metres) where Soil was Saturated	Elevation (metres, geodetic datum) where Soil was Saturated
16-1	1.2	87.7

Borehole	Depth Below Existing Ground Surface (metres) where Soil was Saturated	Elevation (metres, geodetic datum) where Soil was Saturated
16-2	0.4	87.3
16-3	0.6	88.3
16-4	0.4	88.7
16-5	0.6	89.5
16-6	0.8	89.4
16-7	0.8	90.1
16-8	-[1]	-

Note:

1. "-"no indication of groundwater inflow within the depth of the borehole at the time of the field investigation.

6.0 REVIEW OF PREVIOUSLY CONSTRUCTED MULTI-USE PATHWAY

A site visit was carried out on August 19, 2024, to assess the condition of the existing multi-use pathway located between Settlers Trail and County Road 43 a distance of approximately 1.7 kilometres. Overall, the pavement condition is considered fair to good, with some settlement and cracking observed in areas where underground infrastructure is located, which is assumed to be due to settling of the trench backfill material.

7.0 GEOTECHNICAL GUIDELINES AND RECOMMENDATIONS

7.1 General

The information in the following sections is provided for the guidance of the design engineers and is intended for the design of this project only. Contractors bidding on or undertaking the works should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of the factual data as it affects their construction techniques, schedule, safety and equipment capabilities.

The professional services retained for this project include only the geotechnical aspects of the subsurface conditions. The implications of possible surface and/or subsurface contamination resulting from previous uses or activities of this site or adjacent properties, and/or resulting from the introduction onto the site from materials from offsite sources are outside the terms of reference for this report and have not been addressed.

7.2 Subgrade Preparation

In preparation for the construction of the pathway, all surficial topsoil, and any loose/soft, wet, organic or deleterious materials should be removed from the proposed subgrade surface. This will include the removal of the fibrous peat encountered at the locations of Boreholes 16-2 and 16-3.

In 2015, we observed the placement and compaction of granular material for the short section of the pathway constructed south of Equinelle Drive. At that time, the use of earth fill as grade raise fill material in a low, wet area resulted in severe pumping of the subgrade and prevented proper compaction of the granular base material. This would have resulted in significant delays in the placement of asphaltic concrete. Based on this experience, the following recommendations for subgrade preparation are provided for low lying, wet areas as well as areas where the subgrade is in a dry condition.

7.2.1 Subgrade Preparation - Low Lying, Wet Areas

If the subgrade is wet at the time of construction, proof rolling may not be practicable. In this case, any soft or disturbed material should be removed from the subgrade surface with a shovel equipped with a flat blade and the subgrade should be covered with a woven geotextile separator meeting Ontario Provincial Standard Specification Municipal (OPSS.MUNI) 1860 Class I requirements. The grade should be raised to the underside of the base material using imported crushed stone such as that meeting OPSS requirements for Granular B Type II.

Any imported material should be placed in maximum 300 millimetre thick lifts and compacted to at least 98 percent of the standard Proctor maximum dry density value. The placement of the first lift of granular material should be monitored closely. It may be necessary to compact the first lift under static conditions, increase the lift thickness to up to 600 millimetres, or both to avoid disturbance of the subgrade material. Subsequent lifts should be compacted using vibratory compaction equipment.

7.2.2 Subgrade Preparation - Dry Conditions

Where dry conditions exist at the subgrade level, the subgrade surface for the pathway should be proof rolled with a large (8 tonne minimum) steel drum roller. Any soft areas exposed from the proof rolling should be sub excavated and replaced with OPSS Select Subgrade Material. This material could also be used to raise the grade to the underside of the granular base material.

Any imported material should be placed in maximum 200 millimetre thick lifts and compacted to at least 98 percent of the standard Proctor maximum dry density value using vibratory compaction equipment.

7.3 Pavement Structure

The following minimum pavement structure is recommended for the proposed multi-use pathway:

- 50 millimetres of HL3 Fine Hot Mix Asphaltic Concrete; over,
- 150 millimetres of OPSS Granular A base; over,
- 200 millimetres of OPSS Granular B, Type II subbase.

This pavement structure is based on the subgrade being prepared as described above. As indicated, the use of a woven geotextile (OPSS.MUNI 1860, Class I) may be required depending on the subgrade conditions at the time of construction.

If the granular pavement materials are to be used by construction traffic, it may be necessary to increase the thickness of the granular subbase material, install a woven geotextile separator between the subgrade surface and the granular material, or a combination, to prevent pumping and disturbance to the subgrade material. The contractor should be made responsible for their construction access.

7.3.1 Asphalt Cement Type

The HMA should conform to the requirements of OPSS.MUNI 1150. HMA material should contain PG 58-34 asphalt conforming to the requirements of OPSS.MUNI 1101. All HMA materials should be placed and compacted to the requirements of OPSS.MUNI 310.

7.3.2 Transitions

As part of the pathway construction, the new pathway may abut sidewalks, the existing Multi-Use Pathways and existing roadway pavement structures. It is recommended that the granular depth for the MUP be tapered up or down at 5 horizontal to 1 vertical, or flatter, to match the granular thicknesses for the existing trail and sidewalks.

7.3.3 Compaction Requirements

All imported granular materials should be placed in maximum 200 millimetre thick lifts and compacted to at least 98 percent of the standard Proctor dry density value using suitable vibratory compaction equipment.

7.3.4 Pavement Drainage

Adequate drainage of the pavement granular materials and subgrade is important for the long-term performance of the pavement at this site. The subgrade surfaces should be crowned and shaped to promote drainage of the pavement granular materials.

8.0 ADDITIONAL CONSIDERATIONS

8.1 Effects of Construction Induced Vibration

Some of the construction operations (such as excavation and granular material compaction, etc.) will cause ground vibration on and off of the site. The vibrations will attenuate with distance from the source but may be felt at nearby structures. Assuming that any excavating is carried out in accordance with the guidelines in this report, the magnitude of the vibrations will be much less than that required to cause damage to the nearby structures or services in good condition, but may be felt at the nearby structures.

8.2 Design Review

It is recommended that the final design drawings be reviewed by the geotechnical engineer to ensure that the guidelines provided in this report have been interpreted as intended.

The engagement of the services of the geotechnical consultant during construction is recommended to confirm that the subsurface conditions throughout the proposed excavations do not materially differ from those given in the report and that the construction activities do not adversely affect the intent of the design. The subgrade surfaces for the proposed pathway should be inspected by experienced geotechnical personnel to ensure that suitable materials have been reached and properly prepared. The placing and compaction of imported granular materials should be inspected to ensure that the materials used conform to the grading and compaction specifications.

9.0 CLOSURE

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

Best regards,

GEMTEC Consulting Engineers and Scientists Limited

Pat Baxter
Senior Technologist and Project Manager

John Hagan, P.Eng.
Senior Pavement Engineer

GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

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4. **Basis of Report:** This Report has been prepared for the specific site, development, design objectives and purposes that were described to GEMTEC by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document, subject to the limitations provided herein, are only valid to the extent that this report expressly addresses the proposed development, design objectives and purposes. Any change of site conditions, purpose or development plans may alter the validity of the report and GEMTEC cannot be responsible for use of this report, or portions thereof, unless GEMTEC is requested to review any changes and, if necessary, revise the report.
5. **Time Dependence:** If the proposed project is not undertaken by the Client within 18 months following the issuance of this report, or within the timeframe understood by GEMTEC to be contemplated by the Client, the guidance and recommendations within the report should not be considered valid unless reviewed and amended or validated by GEMTEC in writing.
6. **Use of This Report:** The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without GEMTEC's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, GEMTEC may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process.

   Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.
7. **No Legal Representations:** GEMTEC makes no representations whatsoever concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

8. **Decrease in property value:** GEMTEC shall not be responsible for any decrease, real or perceived, of the property or site's value or failure to complete a transaction, as a consequence of the information contained in this report.
9. **Reliance on Provided Information:** The evaluation and conclusions contained in this report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations. information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations. or fraudulent acts of the Client or other persons providing information relied on by us. We are entitled to rely on such representations, information and instructions and are not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
10. **Investigation Limitations:** Site investigation programs are a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions but even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions.

    The data derived from the site investigation program and subsequent laboratory testing are interpreted by trained personnel and extrapolated across the site to form an inferred geological representation and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Conditions between and beyond the borehole/test hole locations may differ from those encountered at the borehole/test hole locations and the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. Accordingly, GEMTEC does not warrant or guarantee the exactness of of the subsurface descriptions.

    Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination-or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

    In addition, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.
11. **Sample Disposal:** GEMTEC will dispose of all uncontaminated soil and/or rock samples 60 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.
12. **Follow-Up and Construction Services:** All details of the design were not known at the time of submission of GEMTEC's report. GEMTEC should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of GEMTEC's report.

    During construction, GEMTEC should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not

materially differ from those interpreted conditions considered in the preparation of GEMTEC's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in GEMTEC's report. Adequate field review, observation and testing during construction are necessary for GEMTEC to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, GEMTEC's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

13. **Changed Conditions:** Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that GEMTEC be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that GEMTEC be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.
14. **Drainage:** Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. GEMTEC takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

LEGEND

- BH # — BOREHOLE ID
- XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM
- BOREHOLE LOCATION (previous investigation by GEMTEC)

GENERAL NOTE(S)

1. Coordinate system: MTM ZONE 9
2. Distances, elevetions, end coordinates are shown in metras unless denoted otherwise
3. This drawing is a schematic representation end should not be taken es a substitute for a legal survey.
4. Image @2024 Google Maps, CNES / Airbus, First Bese Solutions, Maxar Technologies
5. Contains information licensed under tha Open Government Licence – Ontario
6. Geographic dataset source: Ontario GeoHub

SCALE 1:7,500

0 150 300 450m

DRAWING
SITE PLAN

CLIENT
Novatech

PROJECT
GEOTECHNICAL INVESTIGATION
COUNTY ROAD 43
KEMPVILLE, ONTARIO

DRAWN BY	CHECKED BY
S.L.	P.B.
PROJECT NO.	REVISION NO.
100011.070	0
DATE	FIGURE NO.
AUGUST 2024	**FIGURE 1**

GEMTEC
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APPENDIX A

List of Abbreviations and Terminology
Record of Borehole Sheets

ABBREVIATIONS AND TERMINOLOGY USED ON RECORDS OF BOREHOLES AND TEST PITS

SAMPLE TYPES	
AS	Auger sample
CA	Casing sample
CS	Chunk sample
BS	Borros piston sample
GS	Grab sample
MS	Manual sample
RC	Rock core
SS	Split spoon sampler
ST	Slotted tube
TO	Thin-walled open shelby tube
TP	Thin-walled piston shelby tube
WS	Wash sample

SOIL TESTS	
w	Water content
PL, w_p	Plastic limit
LL, w_L	Liquid limit
C	Consolidation (oedometer) test
D_R	Relative density
DS	Direct shear test
G_S	Specific gravity
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	Organic content test
UC	Unconfined compression test
γ	Unit weight

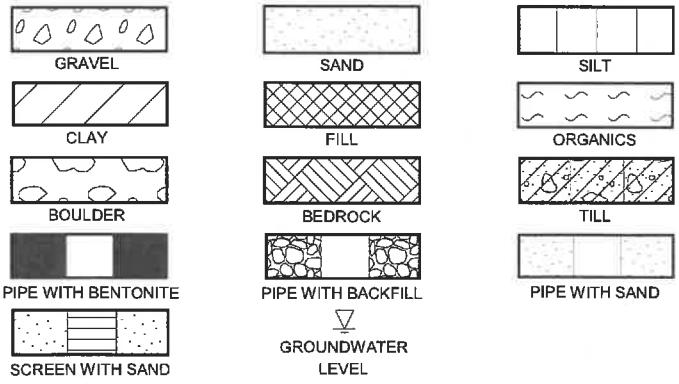
PENETRATION RESISTANCE

Standard Penetration Resistance, N
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 millimetres (30 in.) required to drive a 50 mm split spoon sampler for a distance of 300 mm (12 in.). For split spoon samples where less than 300 mm of penetration was achieved, the number of blows is reported over the sampler penetration in mm.

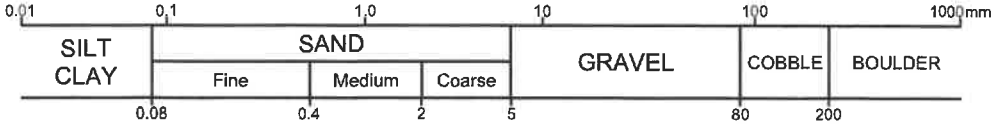
Dynamic Penetration Resistance
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive a 50 mm (2 in.) diameter 60° cone attached to 'A' size drill rods for a distance of 300 mm (12 in.).

WH	Sampler advanced by static weight of hammer and drill rods
WR	Sampler advanced by static weight of drill rods
PH	Sampler advanced by hydraulic pressure from drill rig
PM	Sampler advanced by manual pressure

COHESIONLESS SOIL Compactness		COHESIVE SOIL Consistency	
SPT N-Values	Description	Cu, kPa	Description
0-4	Very Loose	0-12	Very Soft
4-10	Loose	12-25	Soft
10-30	Compact	25-50	Firm
30-50	Dense	50-100	Stiff
>50	Very Dense	100-200	Very Stiff
		>200	Hard

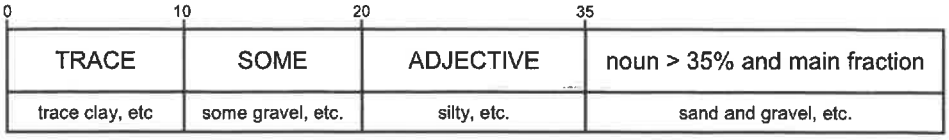


GRAIN SIZE



DESCRIPTIVE TERMINOLOGY

(Based on the CANFEM 4th Edition)



PROJECT: 64153.43

RECORD OF BOREHOLE 16-1

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat. V - +, rem. V - ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp, W, Wl) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment / Continuous Sampling	Ground Surface		88.90							Slough
		Dark brown, fine to medium grained sand, some silt and organic material (TOPSOIL)		88.67 / 0.23							
		Brown, fine to medium grained SAND, trace silt			1	50 D.O.	5				
1					2	50 D.O.	17			(Sieve See Fig. A3)	
				87.71 / 1.19							
		Grey brown, fine to medium grained SAND, trace silt			3	50 D.O.	10			(Sieve See Fig. A3)	
				87.25 / 1.65							
		Grey, fine to medium grained SAND, trace silt		87.07							
		End of borehole		1.83							Soil saturated at about 1.2 metres below ground surface
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

LOGGED: A.N.

CHECKED:

BOREHOLE LOG 6415343 BOREHOLE LOGS GNT_V01_2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

RECORD OF BOREHOLE 16-2

PROJECT: 64153.43
LOCATION: See Borehole Location Plan, Figure 2
BORING DATE: July 7, 2016

SHEET 1 OF 1
DATUM: Geodetic
SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	WATER CONTENT, PERCENT	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment / Continuous Sampling	Ground Surface	87.73						Slough
		Dark brown, fibrous PEAT							
		Brown SILTY SAND	87.50 / 0.23	1	50 D.O.	8	○		
		Grey brown SANDY SILT, some silty clay seams	87.12 / 0.61	2	50 D.O.	22	○	(Sieve See Fig. A2)	
				3	50 D.O.	17	○		
		Stiff, grey SILTY CLAY	85.95 / 1.78						
		End of borehole	1.83						Soil saturated at about 0.4 metres below ground surface

Chart headings: DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80); SHEAR STRENGTH Cu, kPa nat. V - + Q - ● rem. V - ⊕ U - ○ (20, 40, 60, 80); HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5}, 10^{-4}, 10^{-3}, 10^{-2}); WATER CONTENT, PERCENT Wp — W — Wl (20, 40, 60, 80)

DEPTH SCALE
1 to 20

Houle Chevrier Engineering

LOGGED: A.N.
CHECKED:

PROJECT: 64153.43

RECORD OF BOREHOLE 16-3

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (20 40 60 80) nat. V - + Q - ● rem. V - ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp W Wl; 20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment / Continuous Sampling	Ground Surface		88.91							
		Dark brown, fibrous PEAT		88.76							
		Grey brown SILTY SAND, some silty clay seams		0.15	1	50 D.O.	8		O		Slough
									O		
1					2	50 D.O.	20				
		Stiff to very stiff, grey SILTY CLAY		87.92 0.99					O		
		Grey silty sand, some clay and gravel (GLACIAL TILL)		87.59 1.32	3	50 D.O.	35 for 0.25m		O		
		Refusal to sampler advancement End of borehole		87.44 1.47							Soil saturated at about 0.6 metres below ground surface
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

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CHECKED:

BOREHOLE LOG 6415343 BOREHOLE LOGS GNT V01 2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

PROJECT: 64153.43

RECORD OF BOREHOLE 16-4

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (20 40 60 80) nat. V - + Q -● rem. V - ⊕ U -○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp W Wl; 20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment, Continuous Sampling	Ground Surface		89.09							Slough
		Dark brown silt, trace clay and sand, some organic material (TOPSOIL)		88.86							
		Grey brown to grey SANDY SILT, occasional silty clay seam		0.23	1	50 D.O.	16		○	(Sieve See Fig. A2)	
1					2	50 D.O.	23		○		
					3	50 D.O.	35		○		
		Grey silty sand, some clay and gravel (GLACIAL TILL)		87.49 1.60							
		End of borehole		87.26 1.83							Soil saturated at about 0.4 metres below ground surface
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

LOGGED: A.N.

CHECKED:

BOREHOLE LOG 6415343 BOREHOLE LOGS GNT V01 2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

PROJECT: 64153.43

RECORD OF BOREHOLE 16-5

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat. V - +, rem. V - ⊕, Q -●, U -○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp, W, Wl) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment, Continuous Sampling	Ground Surface		90.13							
		Dark brown sandy silt, some organic material (TOPSOIL)		90.00							Slough
		Grey brown to grey SILTY SAND		0.13	1	50 D.O.	6		W		
1					2	50 D.O.	23		W		
					3	50 D.O.	51		W		Soil saturated at 0.6 metres below ground surface
				88.61							
		End of borehole		1.52							
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

LOGGED: A.N.

CHECKED:

BOREHOLE LOG 6415343 BOREHOLE LOGS GNT V01 2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

PROJECT: 64153.43

RECORD OF BOREHOLE 16-6

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat. V - +, rem. V - ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp, W, Wl; 20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment / Continuous Sampling	Ground Surface		90.18							Slough
		Dark brown sandy silt, some organic material (TOPSOIL)		89.98							
		Grey brown to grey SILTY SAND		0.20	1	50 D.O.	8			(Sieve See Fig. A2)	
1					2	50 D.O.	10				
					3	50 D.O.	30				Soil saturated at about 0.8 metres below ground surface
		End of borehole		88.66 1.52							
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

LOGGED: A.N.

CHECKED:

BOREHOLE LOG 6415343_BOREHOLE LOGS_GNT_V01_2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

PROJECT: 64153.43

RECORD OF BOREHOLE 16-7

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (20 40 60 80) nat. V - + Q -● rem. V - ⊕ U -○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp W Wl; 20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment, Continuous Sampling	Ground Surface		90.88							Slough
		Dark brown sandy silt, some organic material (TOPSOIL / FILL)		90.78							
		Grey brown silty sand (FILL)		0.10							
		Dark brown sandy silt, some organic material (TOPSOIL)		0.15 0.20							
		Grey brown SILTY SAND			1	50 D.O.	4		○		
1					2	50 D.O.	11		○	(Sieve See Fig. A2)	
				89.61							
		Grey brown SILTY SAND, some gravel, trace shells		1.27					○		
					3	50 D.O.	16				
				89.28							
		Stiff, grey SILTY CLAY		1.60					○		
				89.05							
2		End of borehole		1.83							Soil saturated at about 0.8 metres below ground surface
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

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PROJECT: 64153.43

RECORD OF BOREHOLE 16-8

SHEET 1 OF 1

LOCATION: See Borehole Location Plan, Figure 2

DATUM: Geodetic

BORING DATE: July 7, 2016

SPT HAMMER: 31.75 kg; drop 0.76 metres

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat. V - +, rem. V - ⊕, Q - ●, U - O)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-5} 10^{-4} 10^{-3} 10^{-2}) / WATER CONTENT, PERCENT (Wp, W, Wl; 20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Manual Equipment / Continuous Sampling	Ground Surface		93.58							
		Dark brown silty sand, some organic material (TOPSOIL / FILL)		93.45							
		Grey brown silty sand and gravel, with cobbles and possible boulders (FILL)		0.13	1	50 D.O.	19		O		Slough
				92.97							
		Refusal to sampler advancement End of borehole		0.61							No groundwater inflow observed on completion of drilling
1											
2											
3											
4											

DEPTH SCALE

1 to 20

Houle Chevrier Engineering

LOGGED: A.N.

CHECKED:

BOREHOLE LOG 6415343 BOREHOLE LOGS GNT V01 2016-07-12.GPJ HOULE CHEVRIER 2015.GDT 11/8/16

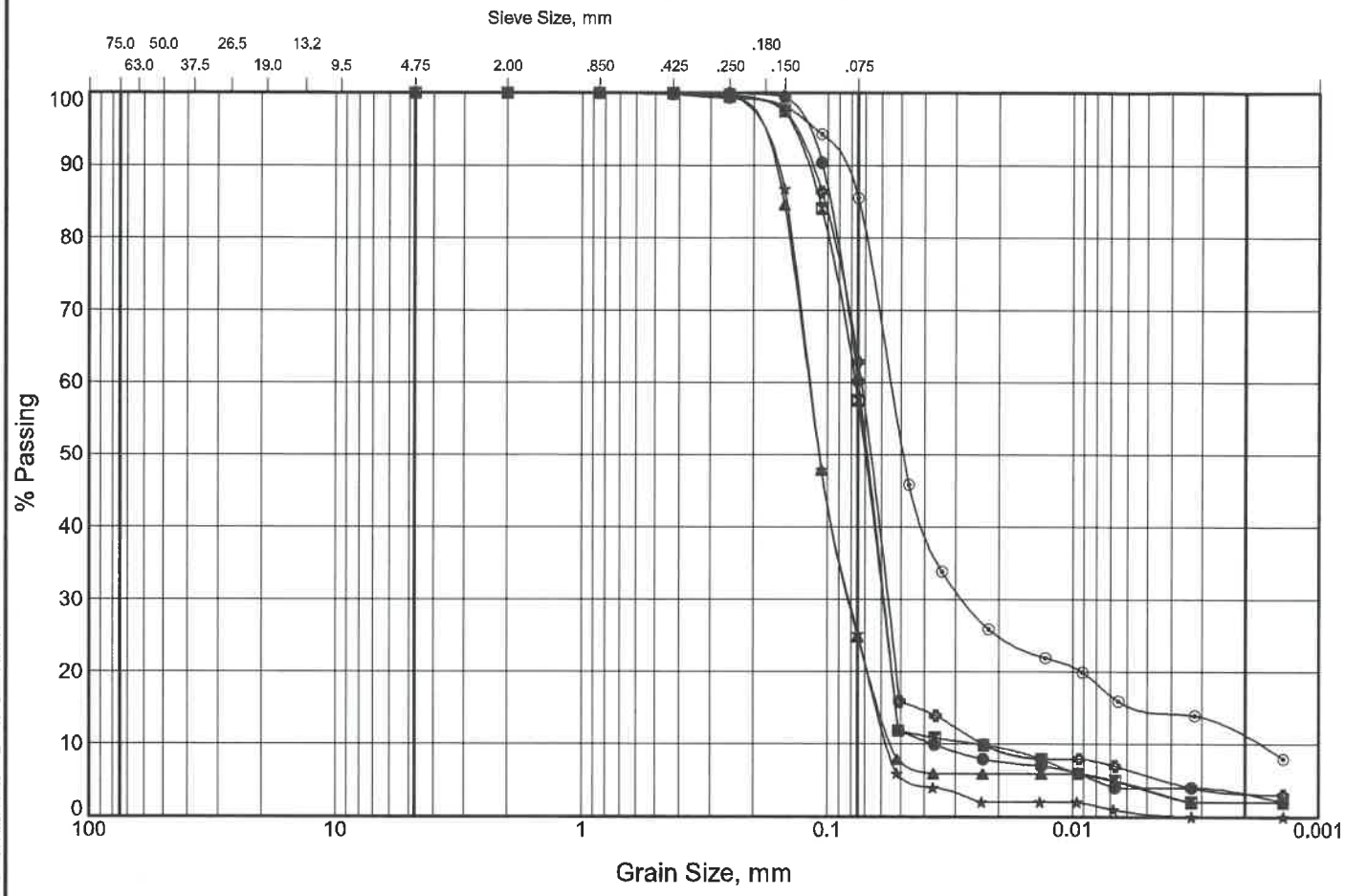
APPENDIX B

Laboratory Testing Results

GRAIN SIZE DISTRIBUTION

SILTY SAND/SANDY SILT

FIGURE A2



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

Legend	Borehole	Sample	Depth (m)	% Gravel	% Sand	% Silt	% Clay
●	16-2	2	0.6 - 1.2	0	40	57	3
⊠	16-4	1B	0.0 - 0.6	0	42	56	2
▲	16-6	1B	0.0 - 0.6	0	75	23	2
★	16-7	2	0.6 - 1.2	0	75	25	0
⊙	16-10	2	0.6 - 1.2	0	15	75	11
✿	16-12	2B	0.9 - 1.2	0	37	59	3

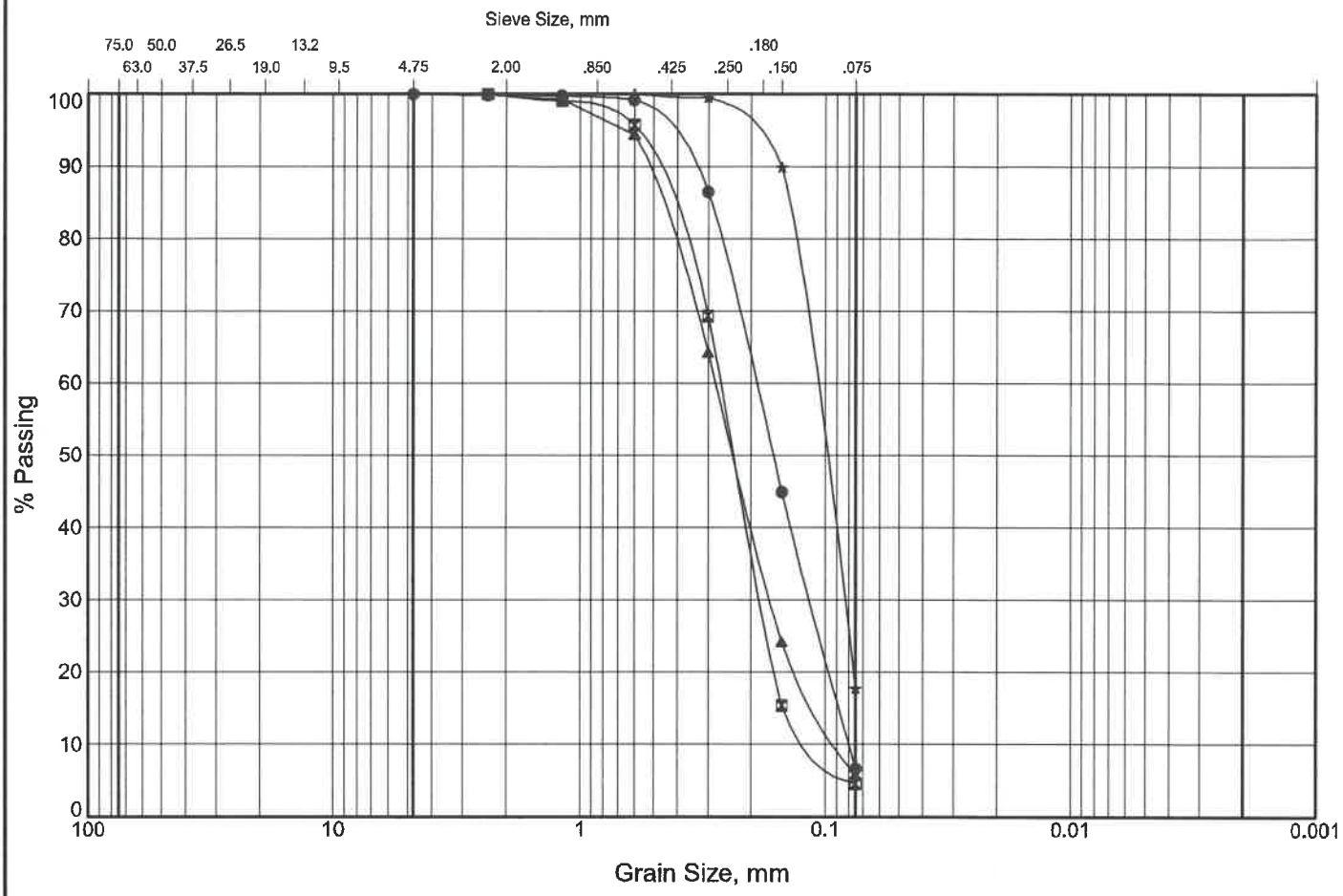
Houle Chevrier Engineering

Date: August 2016

Project: 64153.43

GRAIN SIZE DISTRIBUTION
SAND

FIGURE A3



COBBLES	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Legend	Borehole	Sample	Depth (m)	% Gravel	% Sand	% Silt & Clay
●	16-1	2A	0.6 - 1.2	0	93	7
⊠	16-1	3A	1.2 - 1.5	0	95	5
▲	16-12	1B	0.0 - 0.6	0	94	6
★	16-14	1B	0.3 - 0.6	0	82	18

Houle Chevrier Engineering

Date: August 2016

Project: 64153.43

experience • knowledge • integrity

civil
geotechnical
environmental
field services
materials testing

civil
géotechnique
environnementale
surveillance de chantier
service de laboratoire des matériaux

expérience • connaissance • intégrité

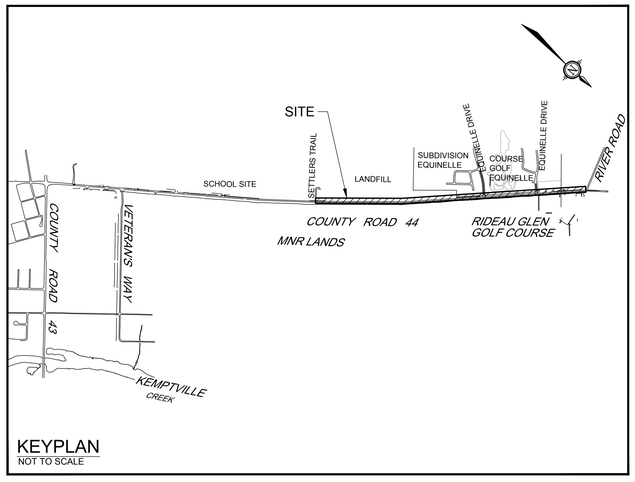
SECTION G

DRAWINGS

COUNTY ROAD 44
MULTI USE PATHWAY

MUNICIPALITY OF NORTH GRENVILLE

ASPHALT PATHWAY



KEYPLAN
NOT TO SCALE

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

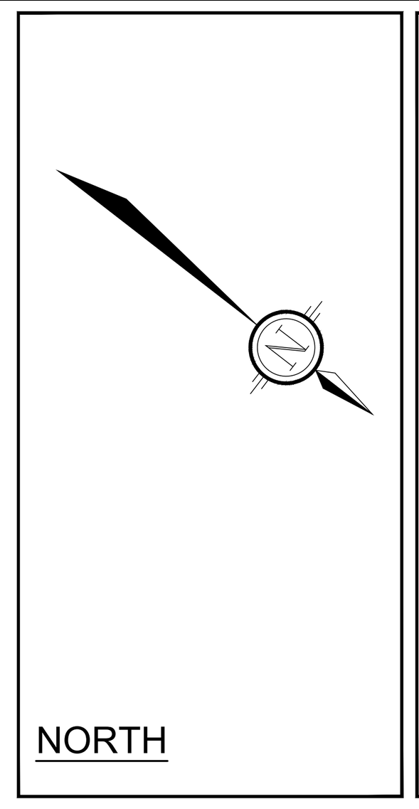
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

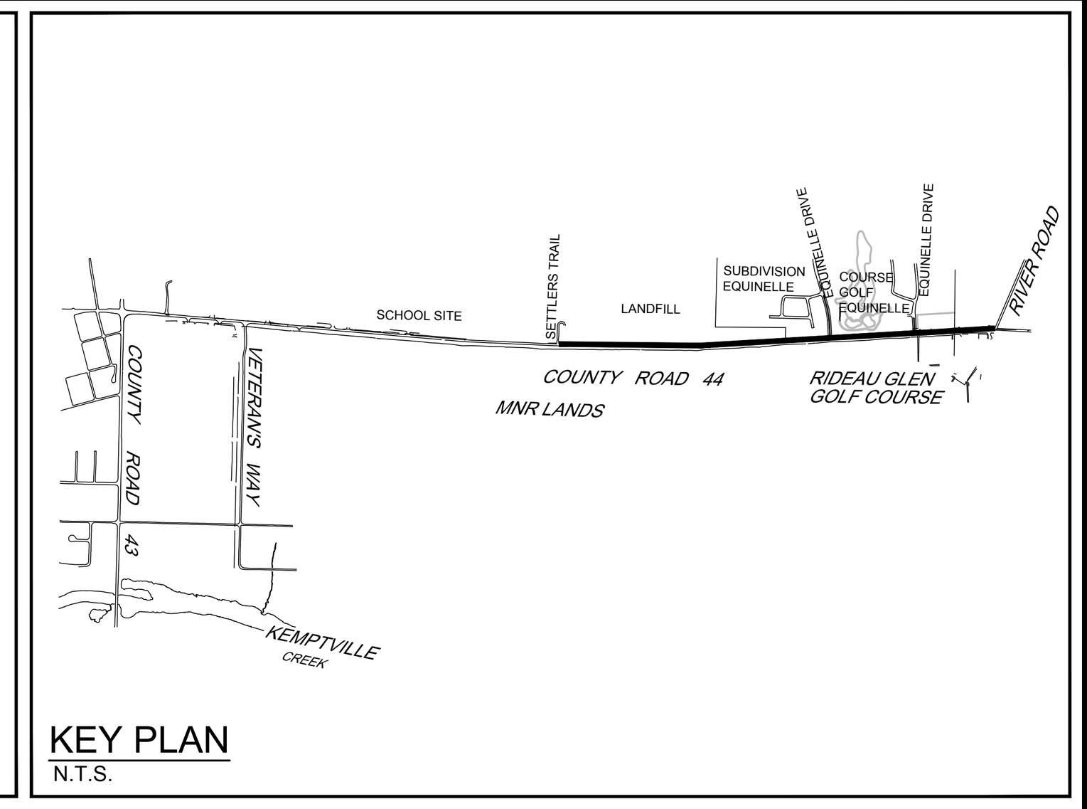
North Grenville

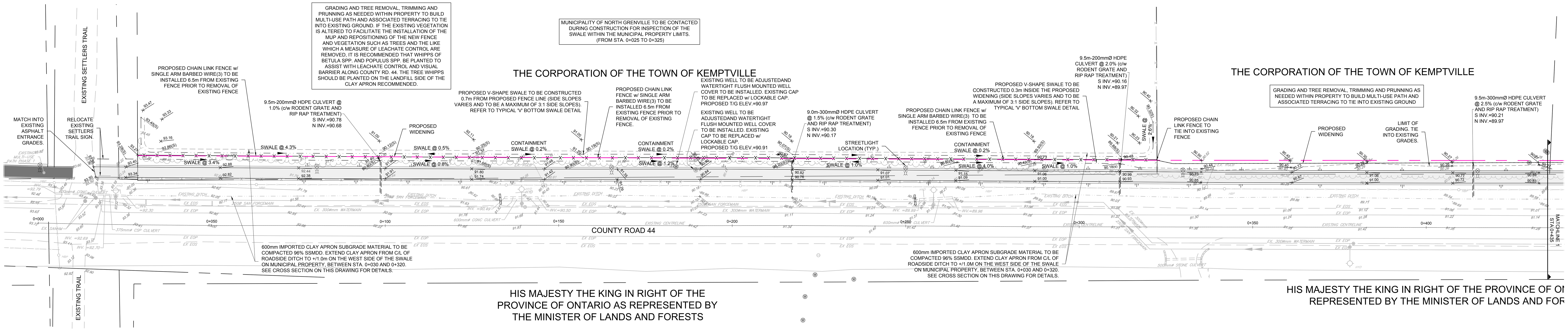
PROJECT No. 123066

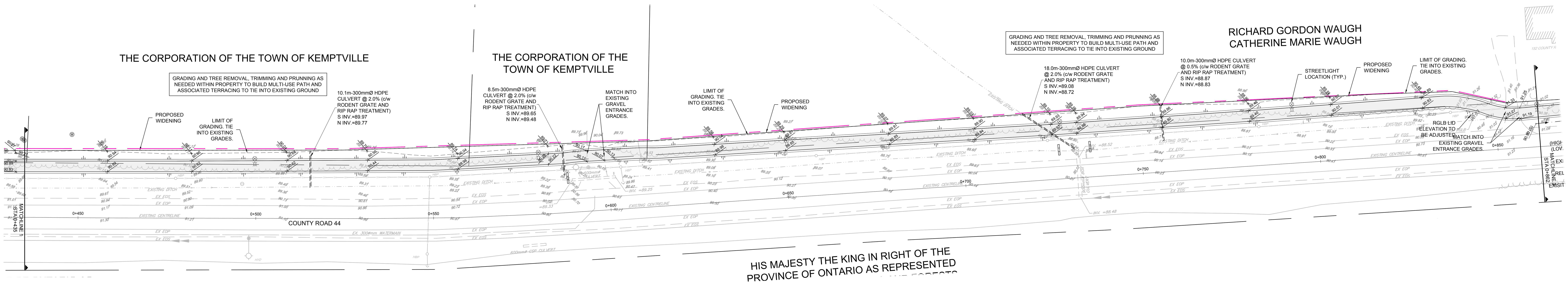
INDEX

ISSUED FOR TENDER



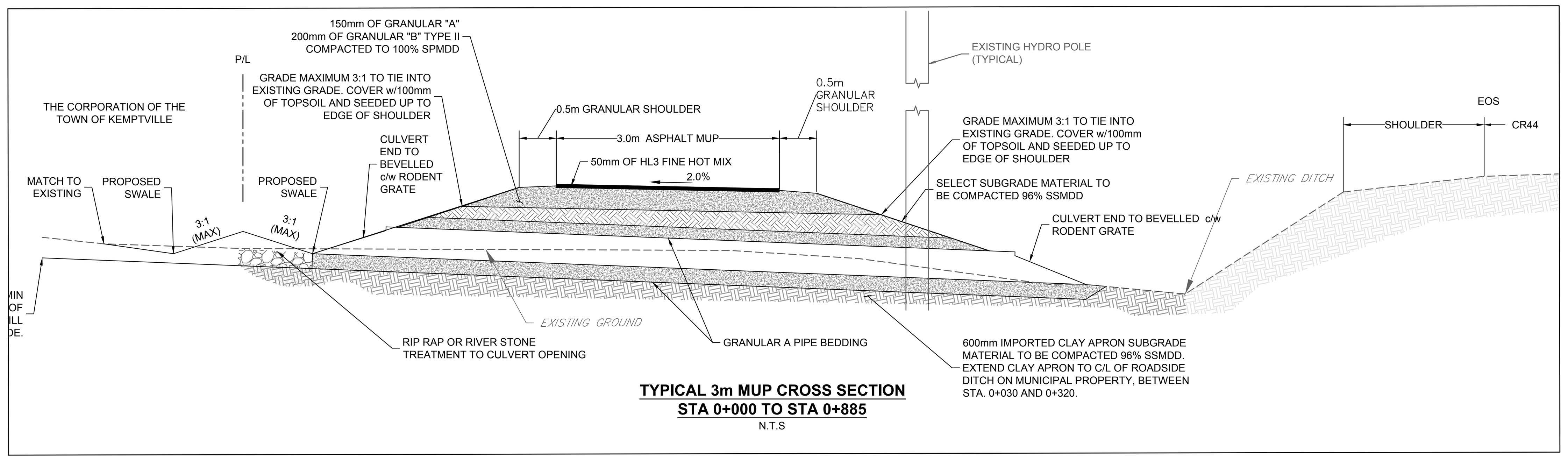




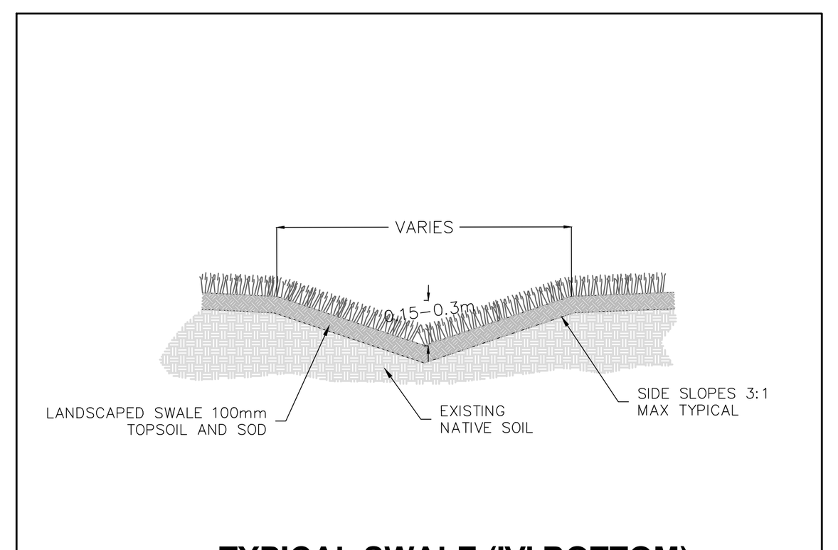


LEGEND

Symbol	Description
90.70	PROPOSED ELEVATION
75.1	EXISTING ELEVATION
90.70 (S)	PROPOSED SWALE ELEVATION
90.70 TC	PROPOSED TOP OF CURB ELEVATION
2.0%	GRADE AND DIRECTION
	PROPOSED BARRIER CURB
	PROPOSED SUBDRAIN / CB LEAD
	PROPOSED CULVERT
	PROPOSED FENCE
	PROPOSED DITCH/ DIRECTION OF FLOW
	PROPERTY LINE
	ADJUSTED PROPERTY LINE
	PROPOSED LIMIT OF GRADING
	3.0m ASPHALT MULTI-USE PATHWAY (c/w 0.5m SHOULDER)
	3.0m ASPHALT MULTI-USE PATHWAY (c/w MOUNTABLE CURB)
CB 1	PROPOSED CATCHBASIN / LAWN CATCHBASIN
DICB	PROPOSED DICB
	RIP RAP TREATMENT FOR END CULVERT AND TRANSITIONS
	PROPOSED SILT FENCE
	PROPOSED RETAINING WALL
	STRAW BALE CHECK DAM OPSD 219.180
	PROPOSED STREETLIGHT
	EXISTING CHAIN LINK FENCE
	EXISTING WOODEN FENCE
	EXISTING WOODEN GUARDRAIL
	EXISTING OVERHEAD WIRES
	EXISTING GAS
	EXISTING DITCH DIRECTION OF FLOW
	EXISTING EDGE OF SHOULDER
	EXISTING EDGE OF PAVEMENT
	EXISTING WATERMAIN
	EXISTING SANITARY MAIN
	EXISTING CENTRELINE
	EXISTING EDGE OF PAVEMENT
	EXISTING GRAVEL PATH
	EXISTING BUSHES AND VEGETATION
	EXISTING WELL
	EXISTING WATER SAMPLING LOCATION
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING CATCHBASIN
T/G	EXISTING TOP OF GRATE
	EXISTING VALVE & VALVE BOX
	EXISTING LIGHT STANDARD
	EXISTING UTILITY POLE C/W GUY WIRES
	EXISTING HYDRANT
	EXISTING GUY WIRE



TYPICAL 3m MUP CROSS SECTION
STA 0+000 TO STA 0+885
N.T.S



TYPICAL SWALE ('V' BOTTOM)
N.T.S

FOR STREETLIGHT DETAILS REFER TO:
- 123066-SL1
- 123066-SL2
- 123066-SL3

REFER TO 123066-ND FOR ADDITIONAL NOTES

NOTE:
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2.	ISSUED FOR TENDER	JAN 31/25	CJR
1.	PRELIMINARY DRAWINGS ISSUED TO MUNICIPALITY	AUG 23/24	CJR

SCALE 1:500

DESIGN CJR | CHECKED CJR | DRAWN LPA | CHECKED JLS | APPROVED CJR

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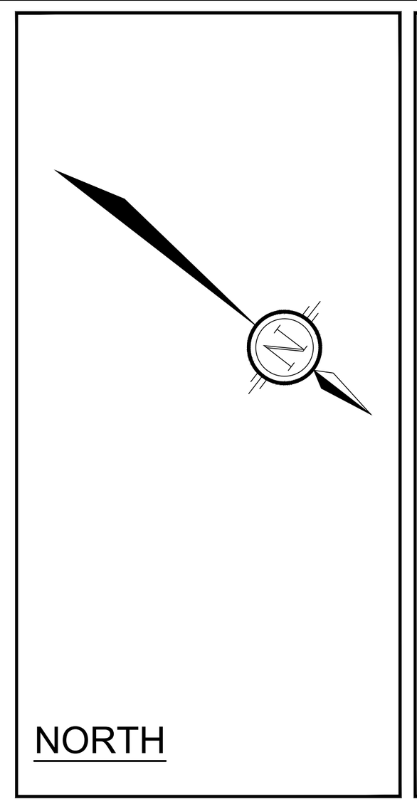
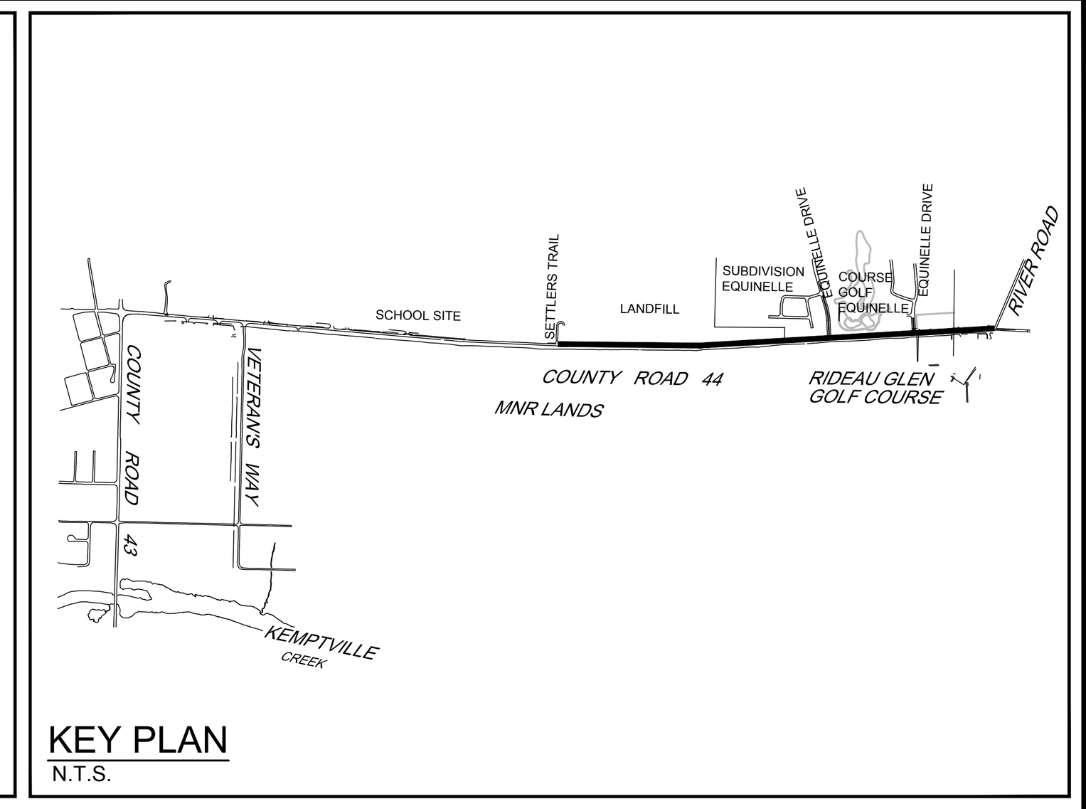
Website www.novatech-eng.com

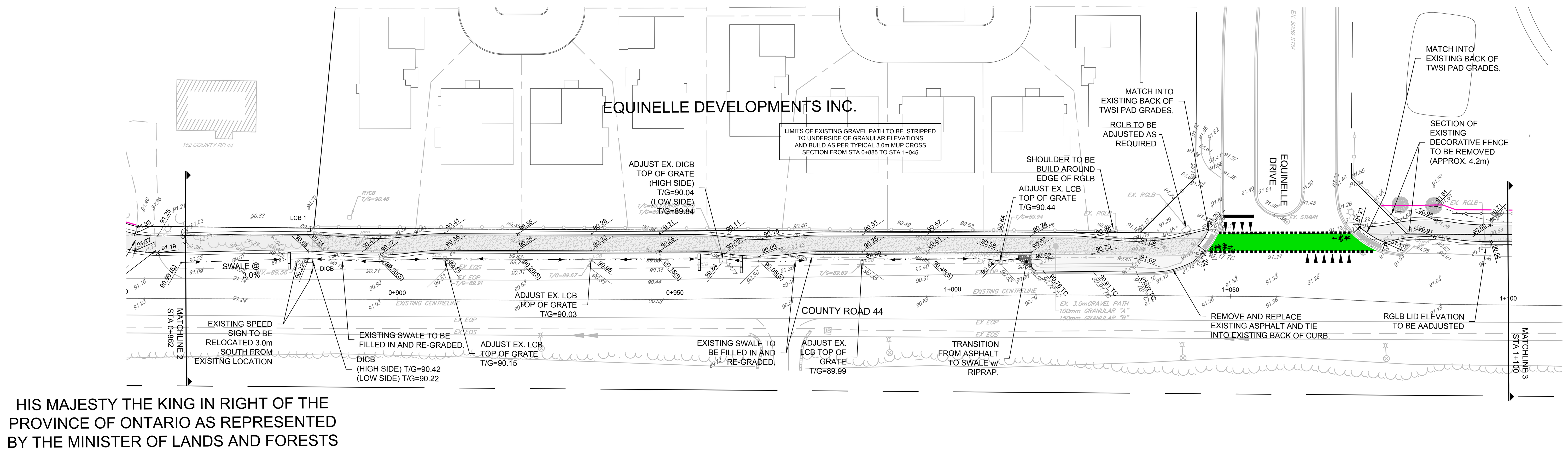
LOCATION
TOWN OF KEMPTVILLE
MUNICIPALITY OF NORTH GRENVILLE

DRAWING NAME
COUNTY RD 44 MULTI USE PATH
STA 0+000 TO STA 0+855

PROJECT No. 123066
REV # 2
DRAWING No. 123066-GR1





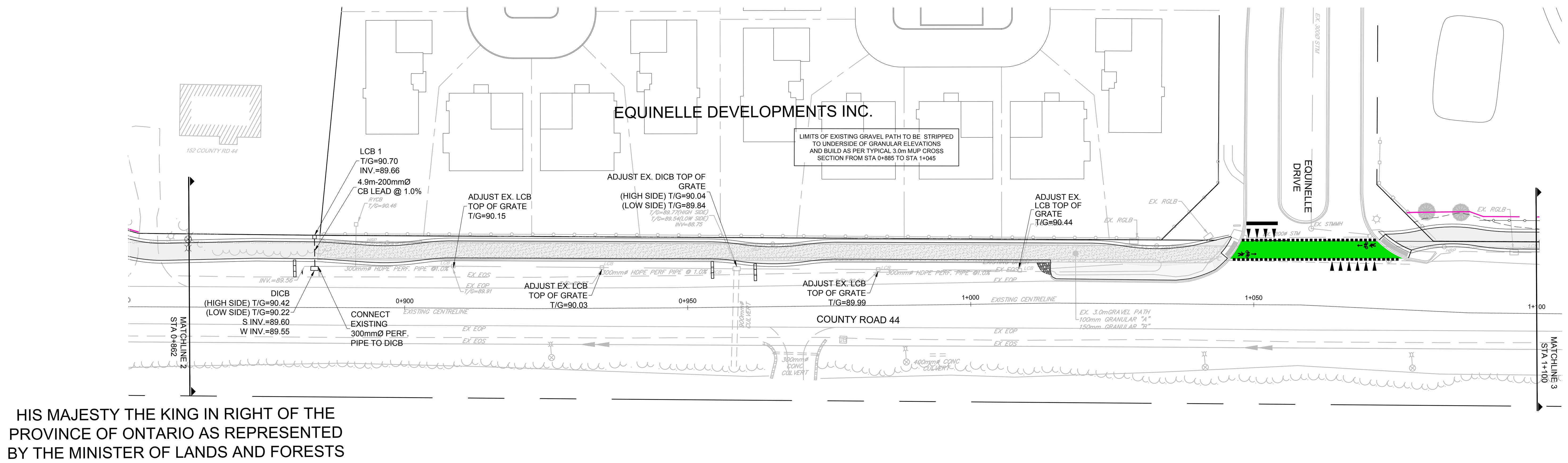


GRADING PLAN

STA. 0+862 TO STA. 1+100

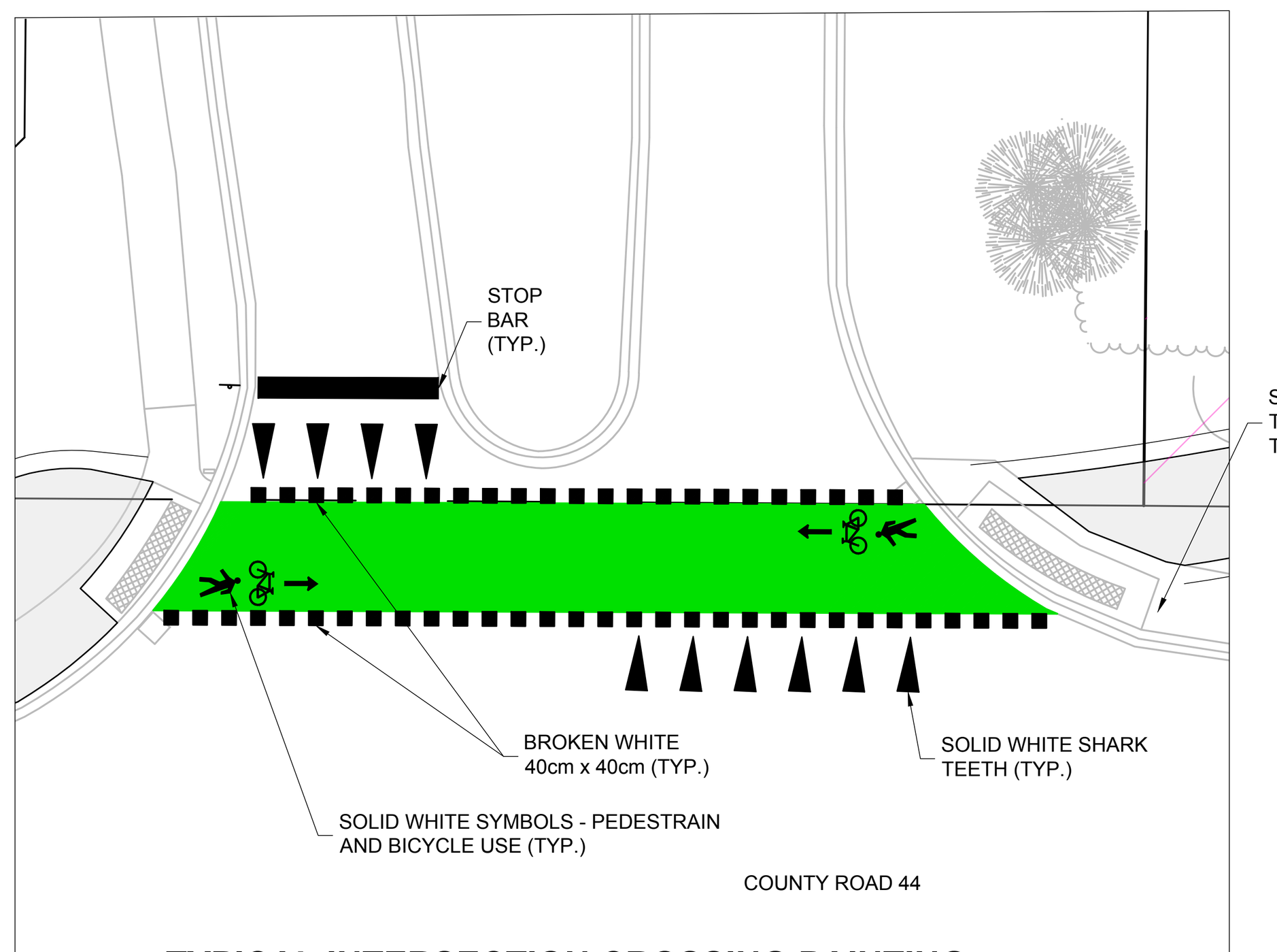
LEGEND

- PROPOSED ELEVATION
- EXISTING ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- GRADE AND DIRECTION
- PROPOSED BARRIER CURB
- PROPOSED SUBDRAIN / CB LEAD
- PROPOSED CULVERT
- PROPOSED FENCE
- PROPOSED DITCH/ DIRECTION OF FLOW
- PROPERTY LINE
- ADJUSTED PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- 3.0m ASPHALT MULTI-USE PATHWAY (c/w 0.5m SHOULDER)
- 3.0m ASPHALT MULTI-USE PATHWAY (c/w MOUNTABLE CURB)
- CB 1 PROPOSED CATCHBASIN / LAWN CATCHBASIN
- DICB PROPOSED DICB
- RIP RAP TREATMENT FOR END CULVERT AND TRANSITIONS
- PROPOSED SILT FENCE
- PROPOSED RETAINING WALL
- STRAW BALE CHECK DAM OPSD 219.180
- PROPOSED STREETLIGHT
- EXISTING CHAIN LINK FENCE
- EXISTING WOODEN FENCE
- EXISTING WOODEN GUARDRAIL
- EXISTING OVERHEAD WIRES
- EXISTING GAS
- EXISTING DITCH /DIRECTION OF FLOW
- EXISTING EDGE OF SHOULDER
- EXISTING EDGE OF PAVEMENT
- EXISTING WATERMAIN
- EXISTING SANITARY MAIN
- EXISTING CENTRELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING GRAVEL PATH
- EXISTING BUSHES AND VEGETATION
- EXISTING WELL
- EXISTING WATER SAMPLING LOCATION
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- EXISTING TOP OF GRATE
- EXISTING VALVE & VALVE BOX
- EXISTING LIGHT STANDARD
- EXISTING UTILITY POLE C/W GUY WIRES
- EXISTING HYDRANT
- EXISTING GUY WIRE



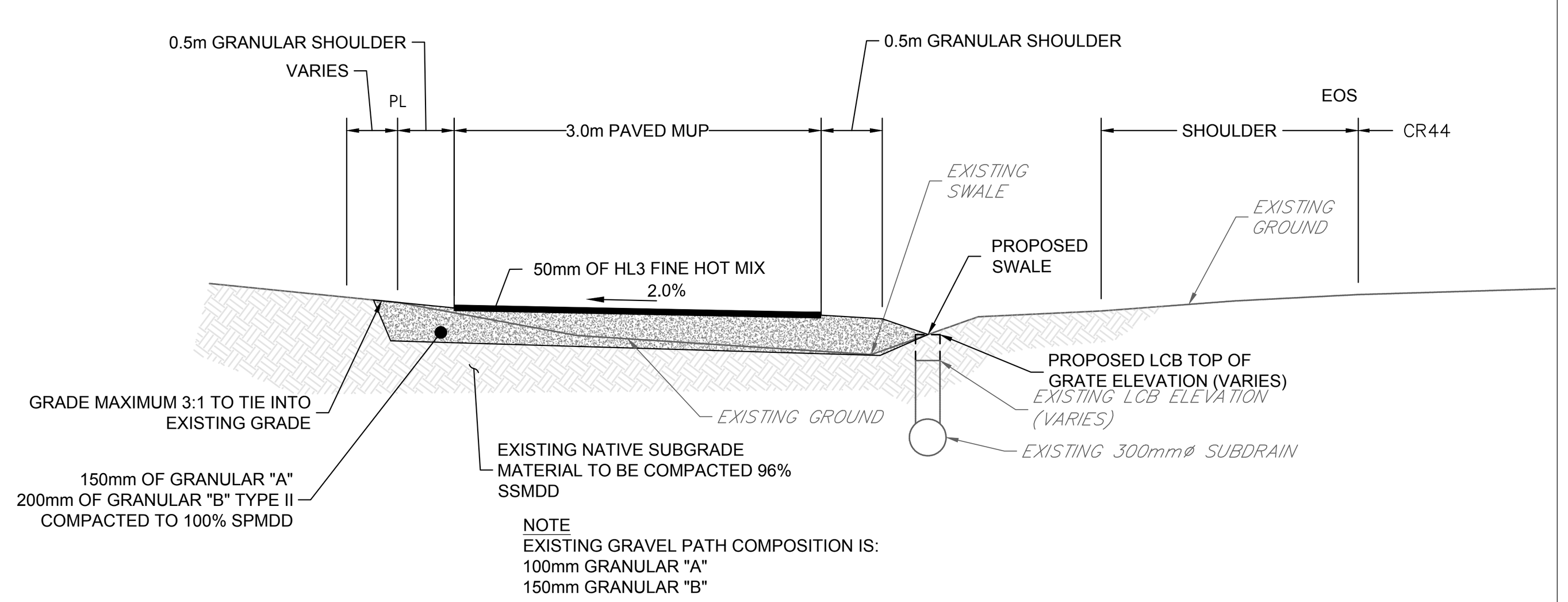
SERVICING PLAN

STA. 0+862 TO STA. 1+100



TYPICAL INTERSECTION CROSSING PAINTING DETAIL

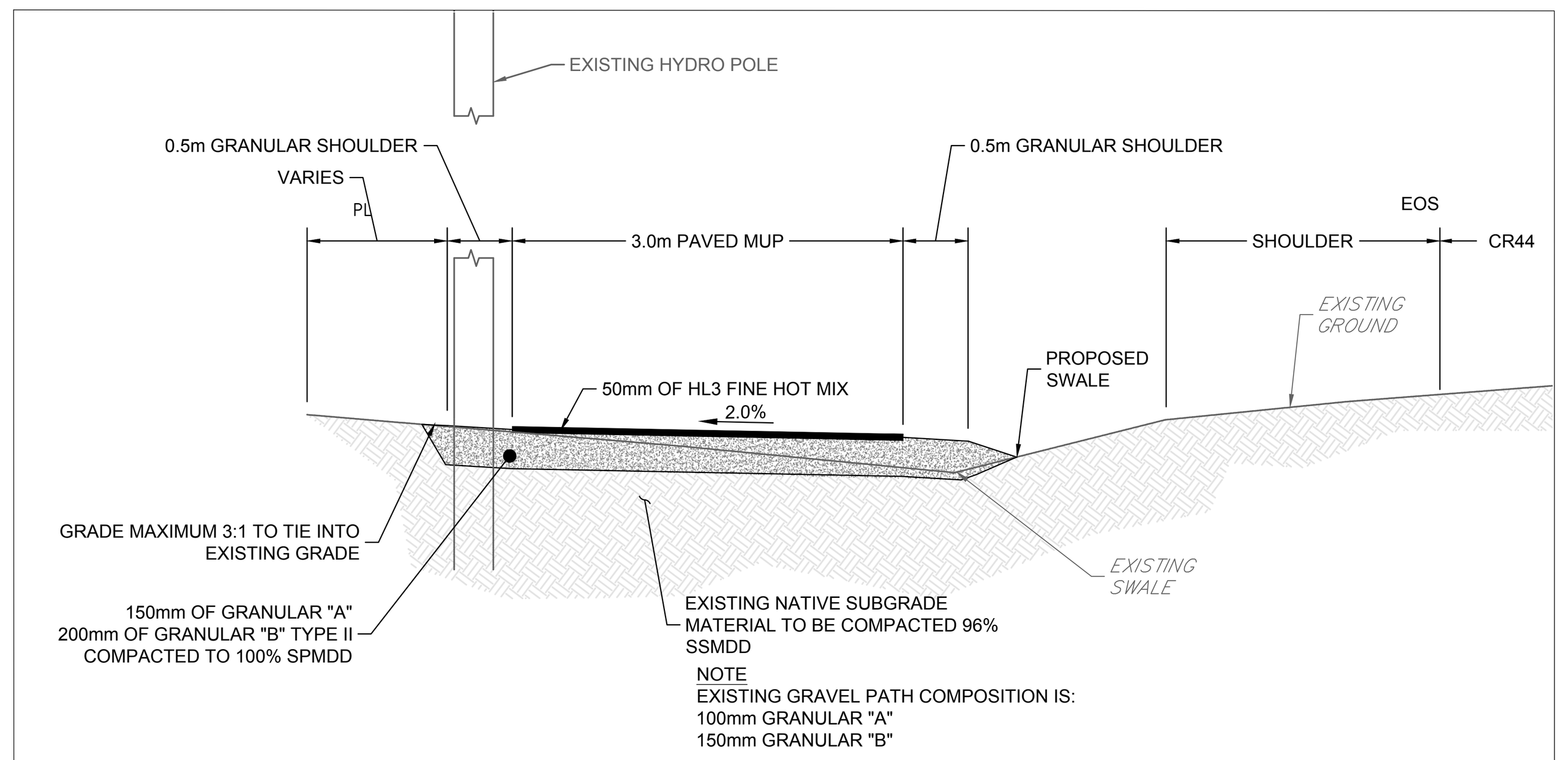
N.T.S



TYPICAL 3.0m MUP CROSS SECTION WITH LAWN CATCH BASINS

STA 0+885 TO STA 1+045

N.T.S



TYPICAL 3.0m MUP CROSS SECTION AROUND HYDRO POLE

STA 0+885 TO STA 1+045

N.T.S

FOR STREETLIGHT DETAILS REFER TO:

- 123066-SL1
- 123066-SL2
- 123066-SL3

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SCALE 1:500

DESIGN CJR | CHECKED CJR | DRAWN LPA | CHECKED CJR | APPROVED JLS

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Telephone (613) 254-9643
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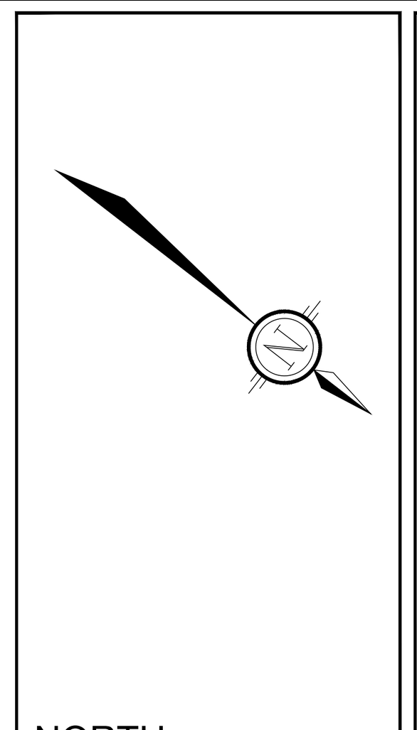
Website www.novatech-eng.com

LOCATION
TOWN OF KEMPTVILLE
MUNICIPALITY OF NORTH GRENVILLE

DRAWING NAME
COUNTY RD 44 MULTI USE PATH
STA 0+855 TO STA 1+100

PROJECT No. 123066
REV REV # 2
DRAWING No. 123066-GR2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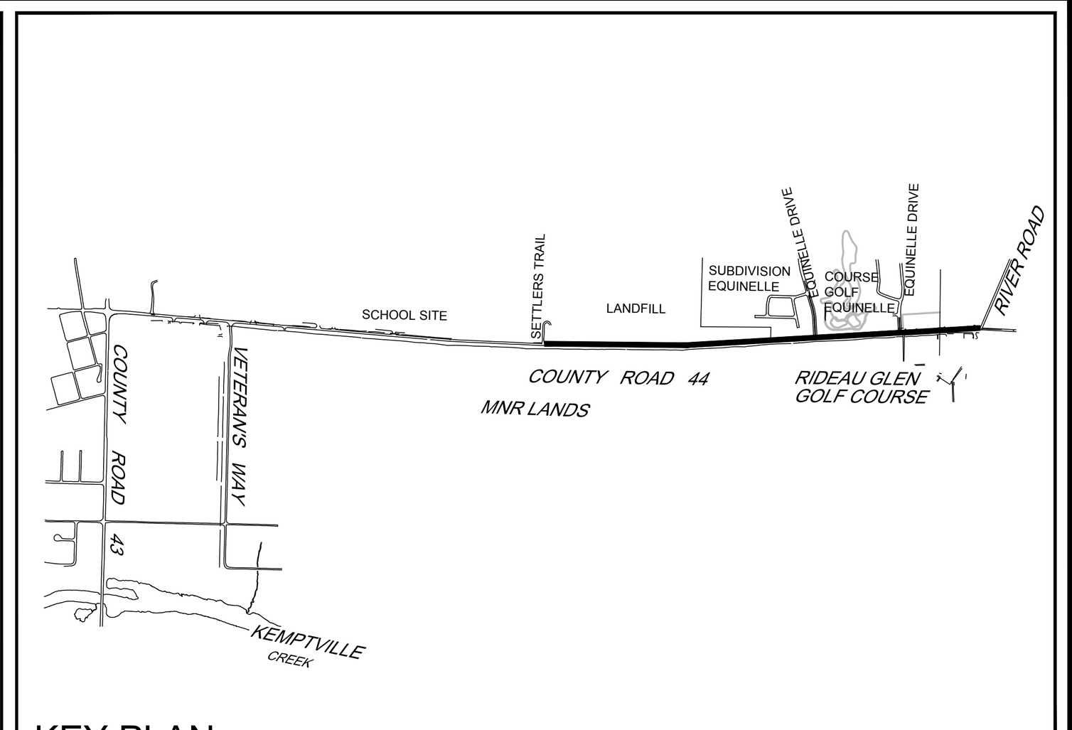
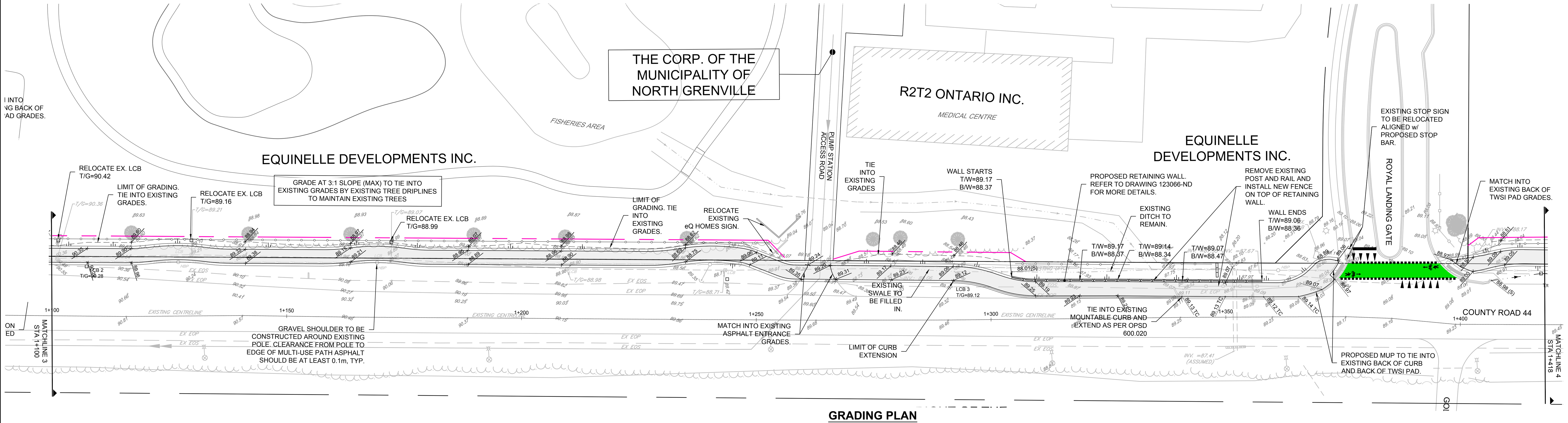


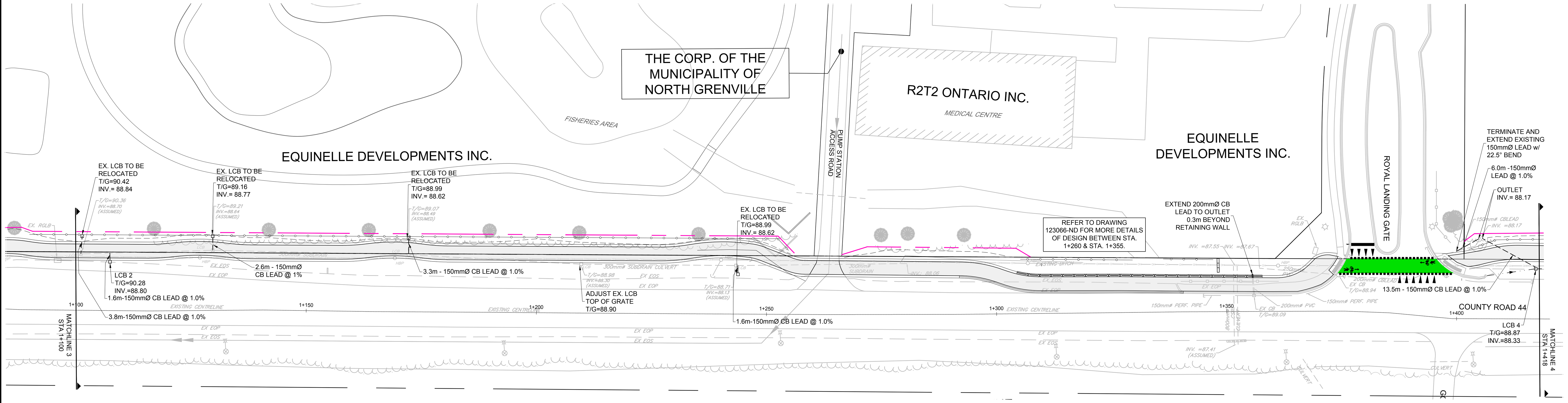
KEY PLAN
N.T.S.

LEGEND

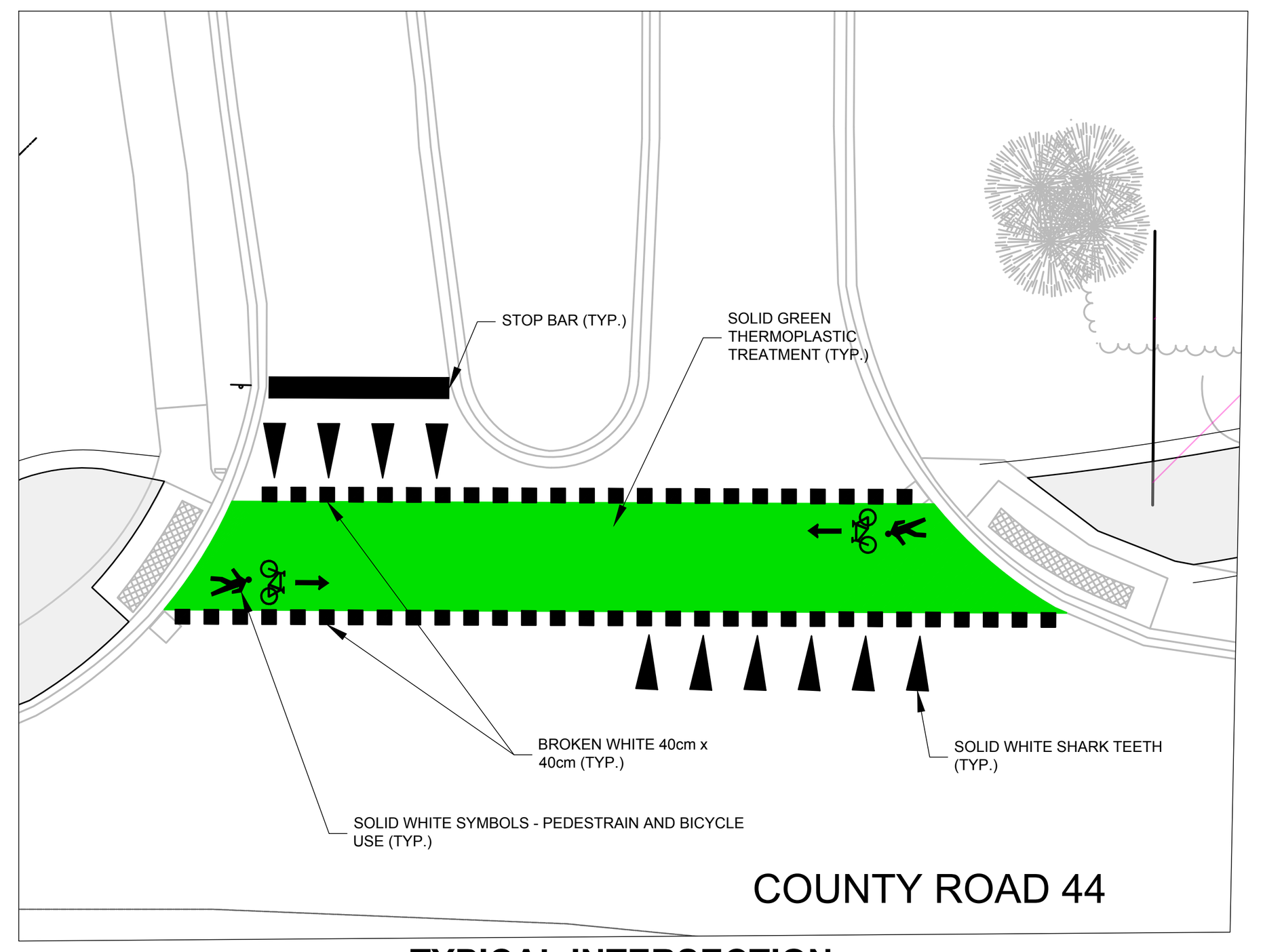
PROPOSED ELEVATION	PROPOSED SILT FENCE	EXISTING BUSHES AND VEGETATION	
EXISTING ELEVATION	PROPOSED RETAINING WALL	EXISTING WELL	
PROPOSED SWALE ELEVATION	STRAW BALE CHECK DAM OPSD 219.180	EXISTING WATER SAMPLING LOCATION	
PROPOSED TOP OF CURB ELEVATION	PROPOSED STREETLIGHT	EXISTING STORM MANHOLE	
GRADE AND DIRECTION	EXISTING CHAIN LINK FENCE	EXISTING SANITARY MANHOLE	
PROPOSED BARRIER CURB	EXISTING WOODEN FENCE	EXISTING CATCHBASIN	
PROPOSED SUBDRAIN / CB LEAD	EXISTING WOODEN GUARDRAIL	EXISTING TOP OF GRATE	
PROPOSED CULVERT	EXISTING OVERHEAD WIRES	EXISTING VALVE & VALVE BOX	
PROPOSED FENCE	EXISTING GAS	EXISTING LIGHT STANDARD	
PROPOSED DITCH/ DIRECTION OF FLOW	EXISTING DITCH /DIRECTION OF FLOW	EXISTING UTILITY POLE C/W GUY WIRES	
PROPERTY LINE	EXISTING EDGE OF SHOULDER	EXISTING HYDRANT	
ADJUSTED PROPERTY LINE	EXISTING EDGE OF PAVEMENT	EXISTING GUY WIRE	
PROPOSED LIMIT OF GRADING	EXISTING WATERMAIN		
3.0m ASPHALT MULTI-USE PATHWAY (c/w 0.5m SHOULDER)	EXISTING SANITARY MAIN		
3.0m ASPHALT MULTI-USE PATHWAY (c/w MOUNTABLE CURB)	EXISTING CENTRELINE		
CB 1 PROPOSED CATCHBASIN / LAWN CATCHBASIN	EXISTING EDGE OF PAVEMENT		
DICB PROPOSED DICB	EXISTING GRAVEL PATH		
RIP RAP TREATMENT FOR END CULVERT AND TRANSITIONS			



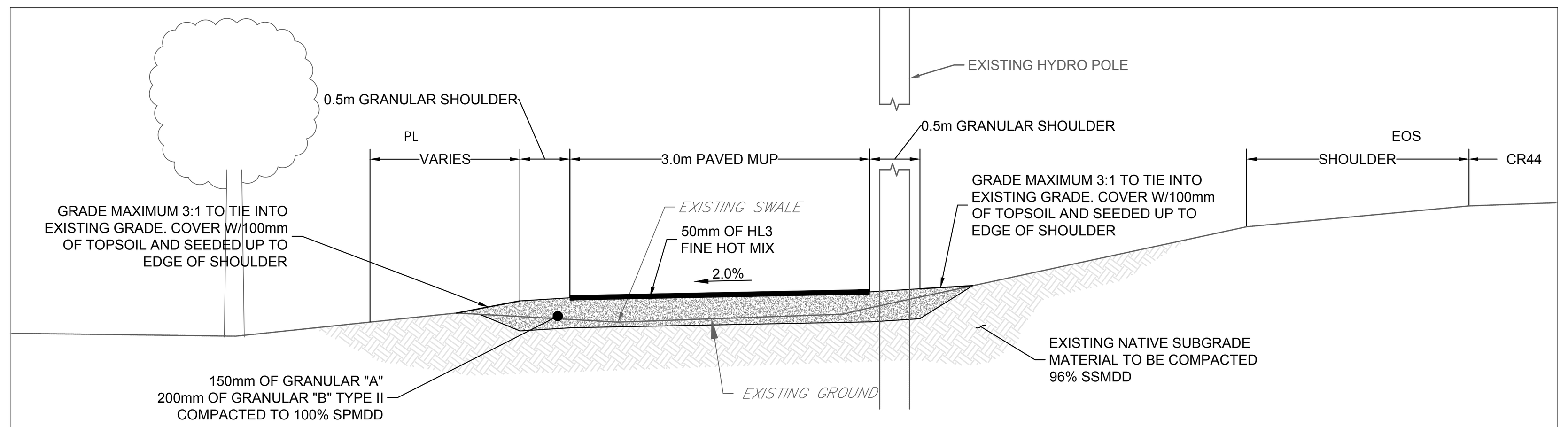
GRADING PLAN
STA. 1+100 TO STA. 1+418



SERVICING PLAN
STA. 1+100 TO STA. 1+418



TYPICAL INTERSECTION CROSSING PAINTING DETAIL
N.T.S



TYPICAL 3.0m MUP CROSS SECTION
STA 1+077 TO STA 1+365
N.T.S

FOR STREETLIGHT DETAILS REFER TO:

- 123066-SL1
- 123066-SL2
- 123066-SL3

REFER TO 123066-ND FOR ADDITIONAL NOTES

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SCALE 1:500

DESIGN	CJR
CHECKED	CJR
DRAWN	LPA
CHECKED	CJR
APPROVED	JLS

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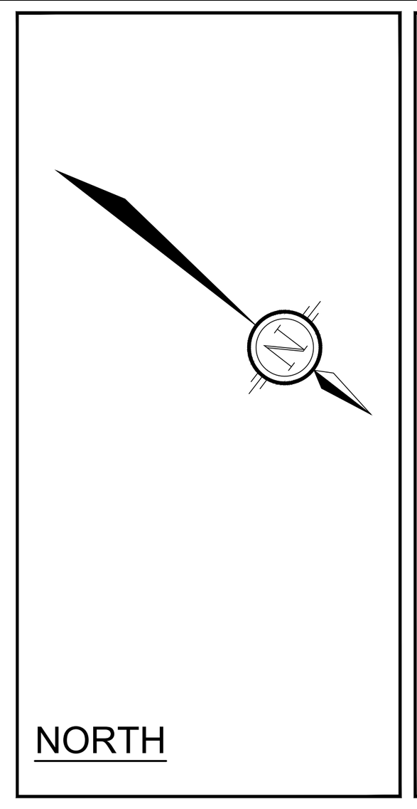
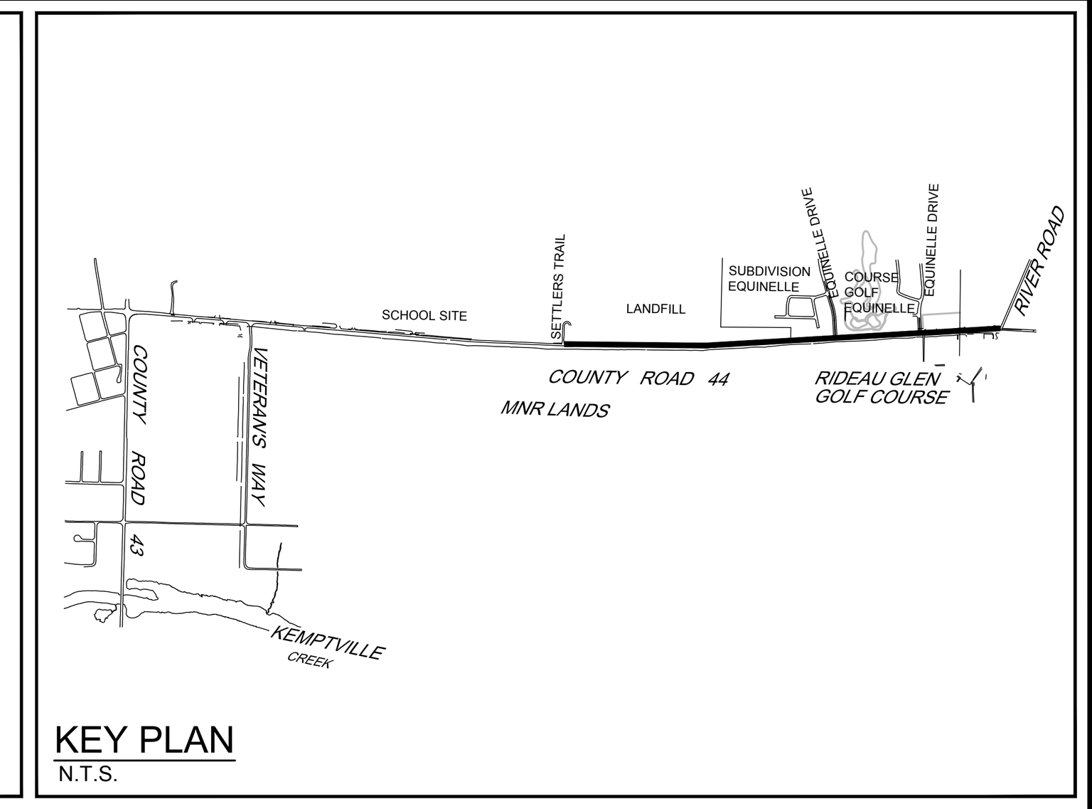
LOCATION
TOWN OF KEMPTVILLE
MUNICIPALITY OF NORTH GRENVILLE

DRAWING NAME
COUNTY RD 44 MULTI USE PATH
STA 1+100 TO STA 1+418

PROJECT No. 123066
REV # 2
DRAWING No. 123066-GR3

M:\2023\123066\CAD\Design\123066-GR.dwg, GR3, Jan 24, 2025 - 1:39pm, cvisser





LEGEND

- PROPOSED ELEVATION
- EXISTING ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- GRADE AND DIRECTION
- PROPOSED BARRIER CURB
- PROPOSED SUBDRAIN / CB LEAD
- PROPOSED CULVERT
- PROPOSED FENCE
- PROPOSED DITCH/ DIRECTION OF FLOW
- PROPERTY LINE
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- PROPOSED LIMIT OF GRADING
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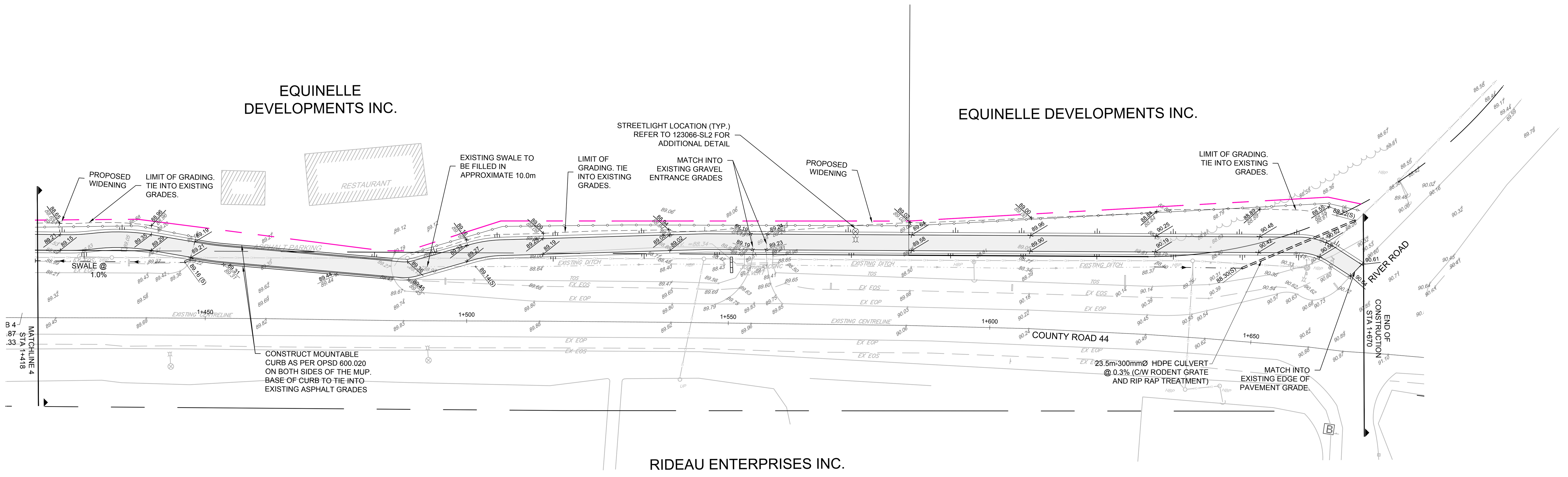
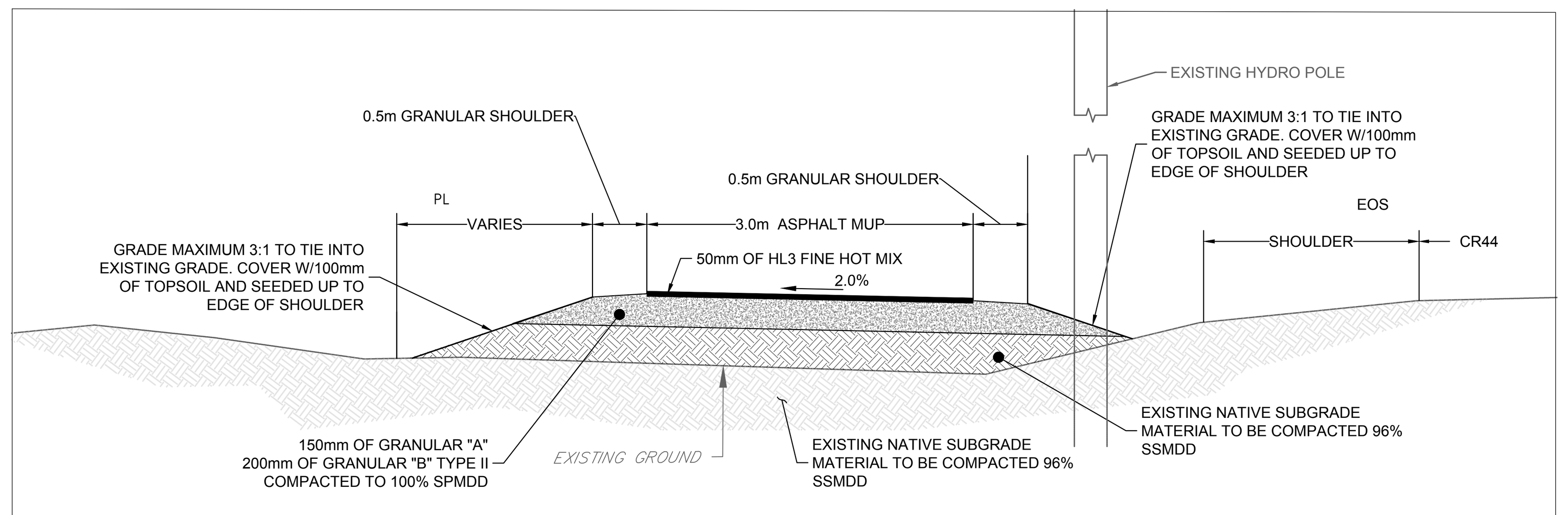
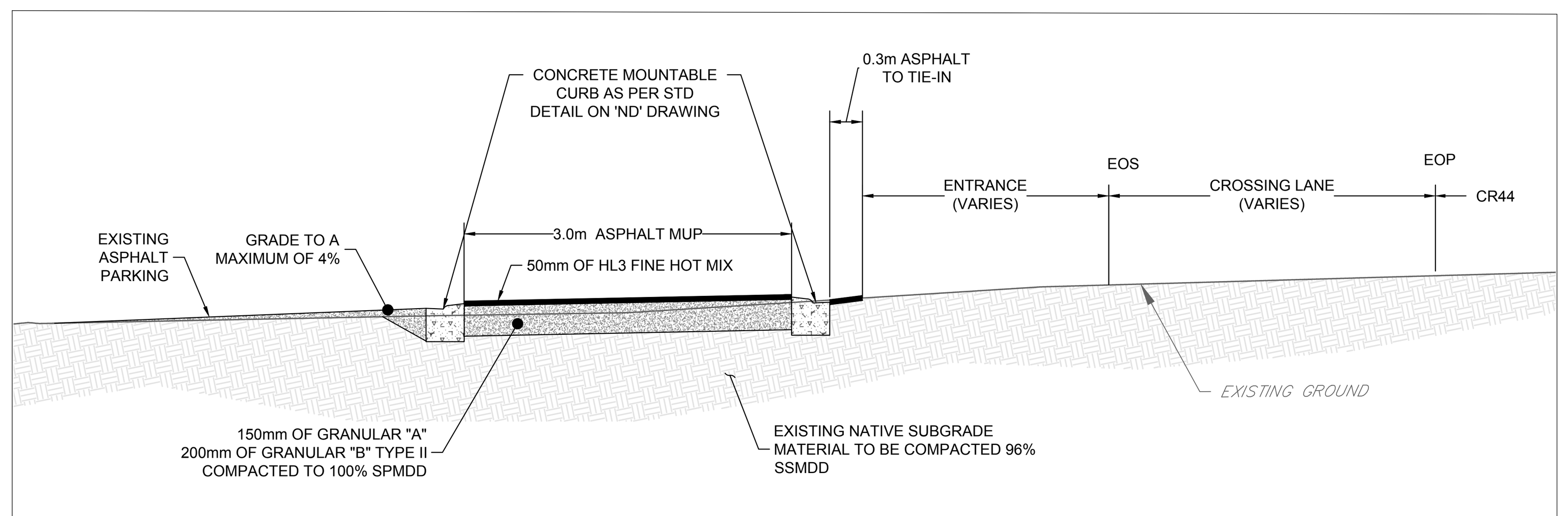
- EXISTING HYDRANT
- EXISTING GUY WIRE

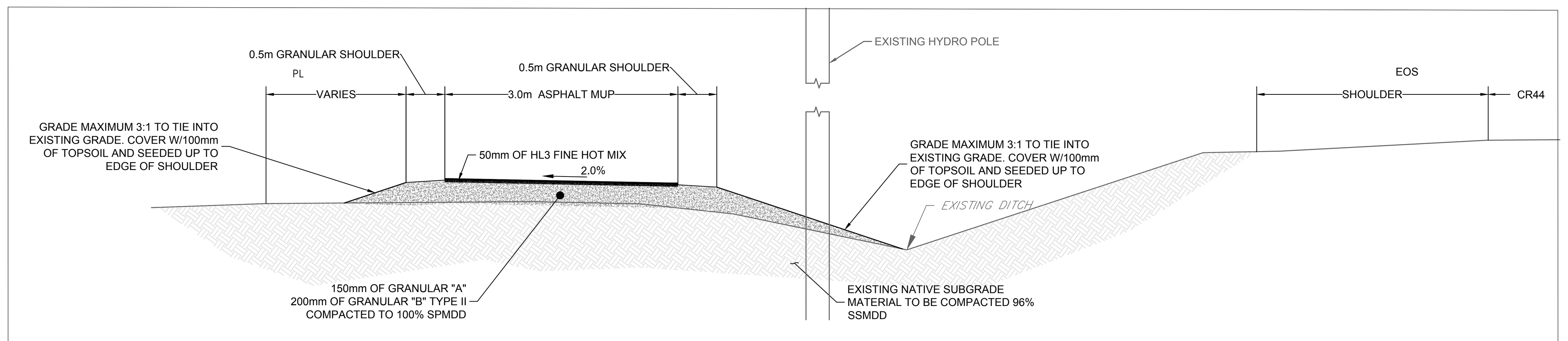




TYPICAL 3.0m MUP CROSS SECTION
STA 1+400 TO STA 1+447
N.T.S



TYPICAL 3.0m MUP CROSS SECTION
STA 1+447 TO STA 1+485
N.T.S



TYPICAL 3.0m MUP CROSS SECTION
STA 1+485 TO STA 1+670
N.T.S

FOR STREETLIGHT DETAILS REFER TO:
- 123066-SL1
- 123066-SL2
- 123066-SL3

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SCALE 1:500 (0 5 10 15 20)

DESIGN	CJR
CHECKED	CJR
DRAWN	LPA
CHECKED	CJR
APPROVED	JLS

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LOCATION
TOWN OF KEMPTVILLE
MUNICIPALITY OF NORTH GRENVILLE

DRAWING NAME
COUNTY RD 44 MULTI USE PATH
STA 1+418 TO STA 1+670

PROJECT No. 123066
REV # 2
DRAWING No. 123066-GR4

NOTES: GENERAL

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH TOWN OF KEMPTVILLE (MUNICIPALITY OF NORTH GRENVILLE) AND OPSD DRAWINGS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED.
2. CONTRACTOR IS TO PROCURE COPIES OF THE STANDARDS AND KEEP ON SITE.
3. DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION SHOWN ON THIS PLAN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED FROM THIS PLAN.
5. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
6. BEFORE COMMENCING CONSTRUCTION, PROVIDE PROOF OF COMPREHENSIVE ALL RISK AND OPERATIONAL LIABILITY INSURANCE INCLUDING BLASTING. INSURANCE POLICY TO NAME THE OWNER, ENGINEER, MUNICIPALITY AND THE COUNTY AS CO-INSURED. AMOUNT OF INSURANCE TO BE SPECIFIED BY OWNER'S AGENT.
7. PRIOR TO ANY ROCK EXCAVATION, CONTRACTOR IS REQUIRED TO COMPLETE A PRE-CONSTRUCTION SURVEY.
8. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS.
9. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPALITY OF NORTH GRENVILLE BEFORE COMMENCING CONSTRUCTION.
10. RESTORE ALL SURFACE FEATURES TO EXISTING CONDITIONS OR BETTER AND TO THE SATISFACTION OF THE MUNICIPALITY OF NORTH GRENVILLE AUTHORITIES.
    - THICKNESS OF GRANULAR MATERIAL AND ASPHALT LAYERS SHALL BE IN ACCORDANCE WITH EXISTING PAVEMENT STRUCTURE. TIE IN AT 3:1 SLOPES.
    - BOULEVARDS SHALL BE REINSTATED WITH 100mm OF TOPSOIL AND SEED AND MULCH.
11. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
12. REFER TO GEOTECHNICAL REPORT #100011.070, PROPOSED COUNTY ROAD 44 MULTI-USE PATHWAY, PREPARED BY GEMTEC. DATED SEPTEMBER 3, 2024 FOR SUBSURFACE CONDITIONS AND CONSTRUCTION RECOMMENDATIONS. SIDE SLOPES FOR ALL EXCAVATIONS ARE TO BE IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT (ONTARIO REGULATION 213/91).
13. ALL EXCESS MATERIAL IS TO BE DISPOSED OF OFF-SITE.

NOTES: EROSION AND SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE MUNICIPALITY, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
2. TO PREVENT SURFACE EROSION FROM ENTERING THE STORM SYSTEM DURING CONSTRUCTION, FILTER CLOTH WILL BE PLACED UNDER ALL PROPOSED CATCHBASINS AND MANHOLES. THE FILTER CLOTH WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
3. ANY ON-SITE STOCKPILES SHALL BE LOCATED IN AREAS TO BE DESIGNATED BY THE ENGINEER AND WELL AWAY FROM DRAINAGE SWALES, OUTLET DITCHES AND REARYARD CATCHBASINS.
4. CONTRACTOR IS TO INSTALL LIGHT DUTY SILT FENCE AS PER OPSD 219.10 AS SHOWN PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SILT FENCE TO BE INSTALLED EITHER ALONG THE PROPERTY LINE OR ALONG BOUNDARIES OF VEGETATION TO REMAIN. THE SILT FENCE OS TO BE MAINTAINED TO THE SATISFACTION OF THE ENGINEER FOR THE DURATION OF THE CONTRACT, THROUGHOUT CONSTRUCTION ADDITIONAL SILT FENCE MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
5. CONTRACTOR IS TO INSTALL STRAW BALES AS PER OPSD 219.100 AS INDICATED AND DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. STRAW BALES ARE TO BE MAINTAINED THROUGHOUT CONSTRUCTION. CONTRACTOR IS TO ENSURE THAT DRAINAGE CONTINUES TO FLOW.
6. ALL STREETS ARE TO BE SWEPT ONCE ROADWAYS ARE PAVED AND TO CONTINUE FOR THE DURATION OF HOUSING CONSTRUCTION ACTIVITY. STREETS ARE TO BE SWEPT REGULARLY AS DIRECTED BY THE ENGINEER.
7. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

GRADING NOTES:

1) ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS.

2) EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL CONSULTANT.

3) ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS.

4) THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.

5) GRADE AND/OR FILL WHERE REQUIRED TO PROVIDE POSITIVE DRAINAGE.

6) MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.

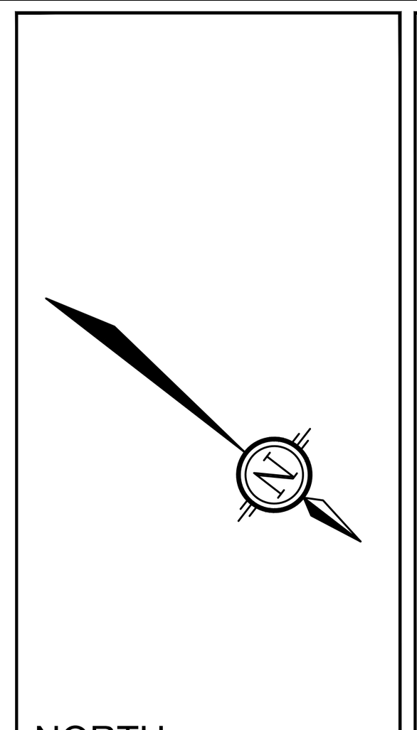
7) ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.

8) ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER MUNICIPALITY OF NORTH GRENVILLE STANDARDS

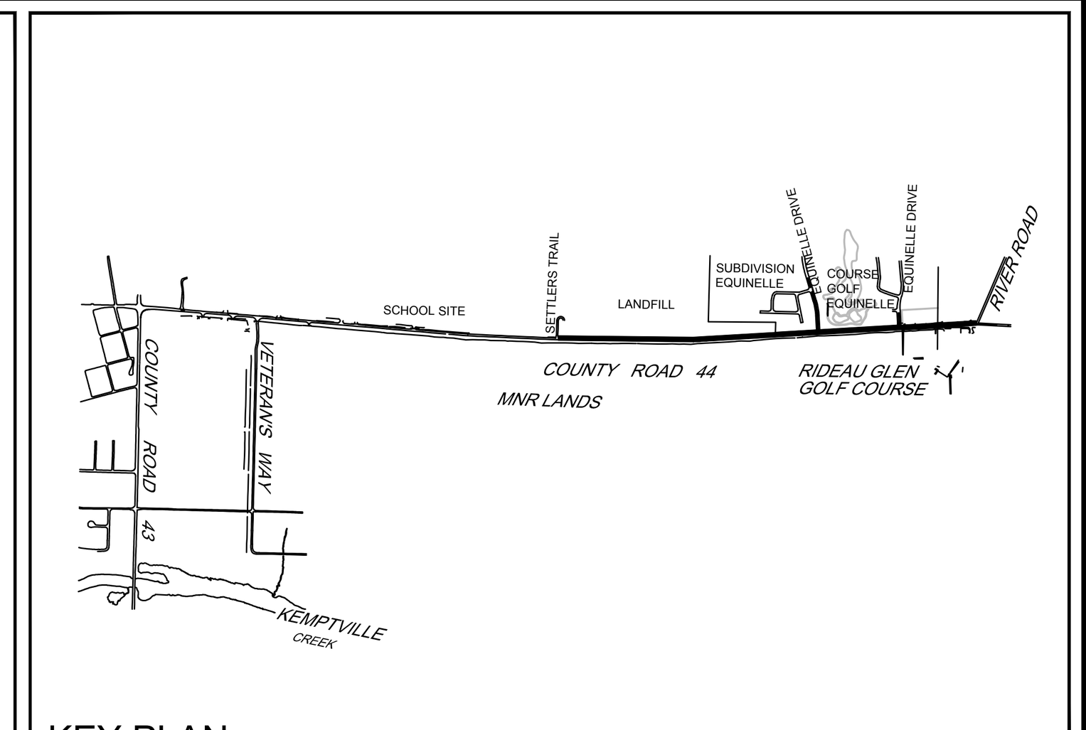
9) CONTRACTOR REQUIRED TO PROVIDE ELEVATION AS-BUILT GRADES AT ALL DESIGN GRADE ELEVATIONS.

10) CULVERTS TO BE 300mmØ MAX WITH MINIMUM 300mm COVER. INVERTS SHOWN ARE ESTIMATED AND ARE TO BE CONFIRMED PRIOR TO CONSTRUCTION.

11) MUP GRANULARS ARE TO BE TAPERED UP OR DOWN AT 5H:1V (OR FLATTER) TO MATCH GRANULAR THICKNESS OF EXISTING TRAIL AND SIDEWALK.



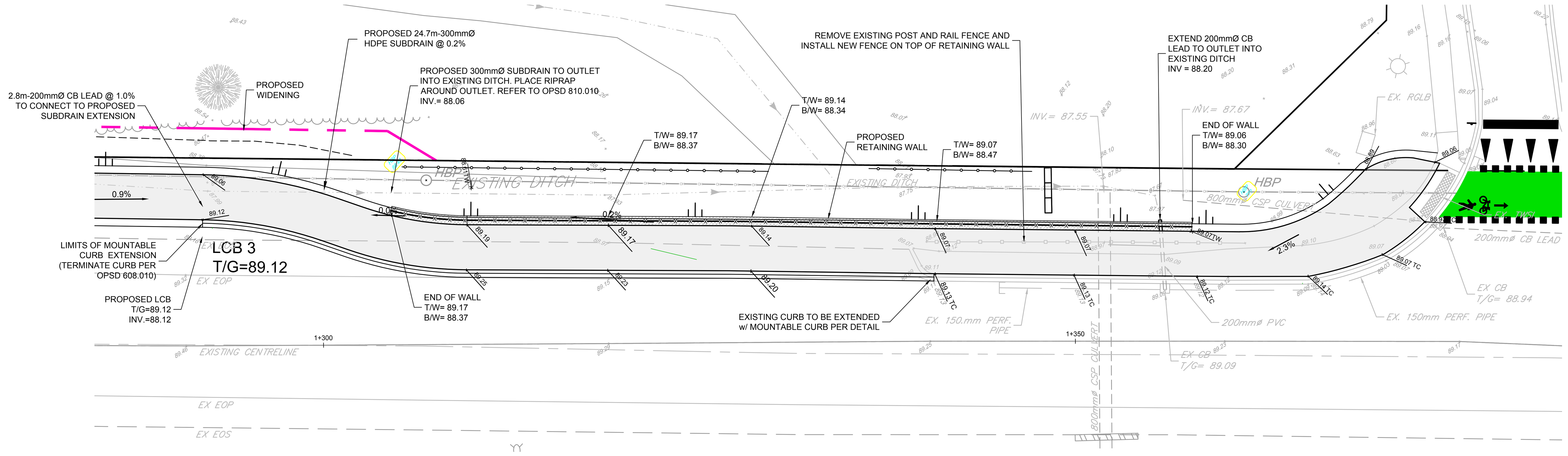
NORTH



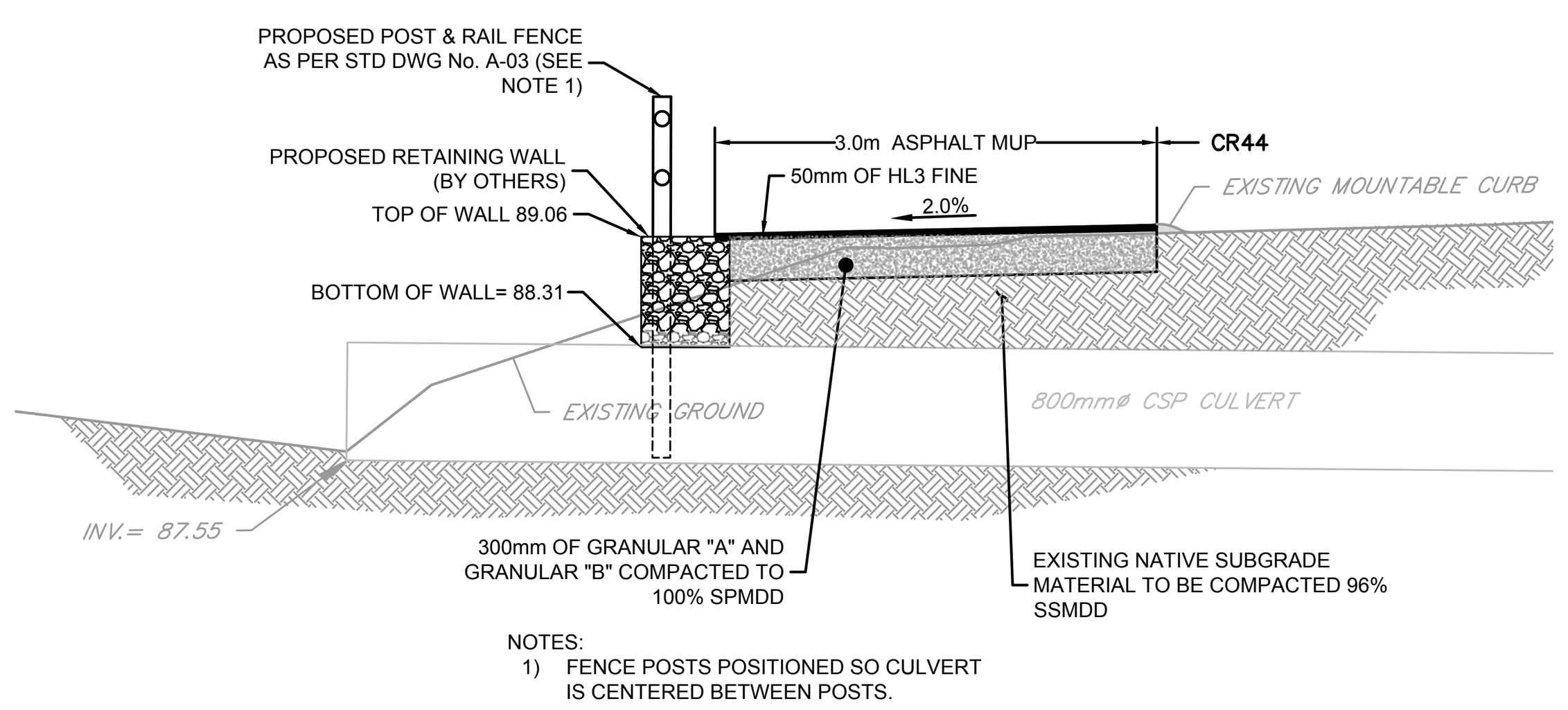
KEY PLAN
N.T.S.

LEGEND

90.70	PROPOSED ELEVATION
78.17	EXISTING ELEVATION
90.70 (S)	PROPOSED SWALE ELEVATION
90.70 TC	PROPOSED TOP OF CURB ELEVATION
2.0%	GRADE AND DIRECTION
	PROPOSED BARRIER CURB
	PROPOSED SUBDRAIN / CB LEAD
	PROPOSED CULVERT
	PROPOSED FENCE
	PROPOSED DITCH/ DIRECTION OF FLOW
	PROPERTY LINE
	3.0m ASPHALT MULTI-USE PATHWAY (c/w 0.5m SHOULDER)
CB 1	PROPOSED CATCHBASIN / LAWN CATCHBASIN
DICB	PROPOSED DICB
	RIP RAP TREATMENT FOR END CULVERT AND TRANSITIONS
	PROPOSED RETAINING WALL
	STRAW BALE CHECK DAM OPSD 219.180
	PROPOSED SILT FENCE
	PROPOSED STREETLIGHT
	EXISTING FENCE
	EXISTING GUARDRAIL
	EXISTING OVERHEAD WIRES
	EXISTING GAS
	EXISTING DITCH /DIRECTION OF FLOW
	EXISTING EDGE OF SHOULDER
	EXISTING EDGE OF PAVEMENT
	EXISTING WATERMAIN
	EXISTING SANITARY MAIN
	EXISTING BUSHES AND VEGETATION
	EXISTING CENTRELINE
	EXISTING EDGE OF PAVEMENT
	EXISTING GRAVEL PATH
	EXISTING WELL
WDS	EXISTING WATER SAMPLING LOCATION
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
EX.CB	EXISTING CATCHBASIN
T/G	EXISTING TOP OF GRATE
VB	EXISTING VALVE & VALVE BOX
LS	EXISTING LIGHT STANDARD
HBP	EXISTING UTILITY POLE C/W GUY WIRES
HYD	EXISTING HYDRANT
	EXISTING GUY WIRE

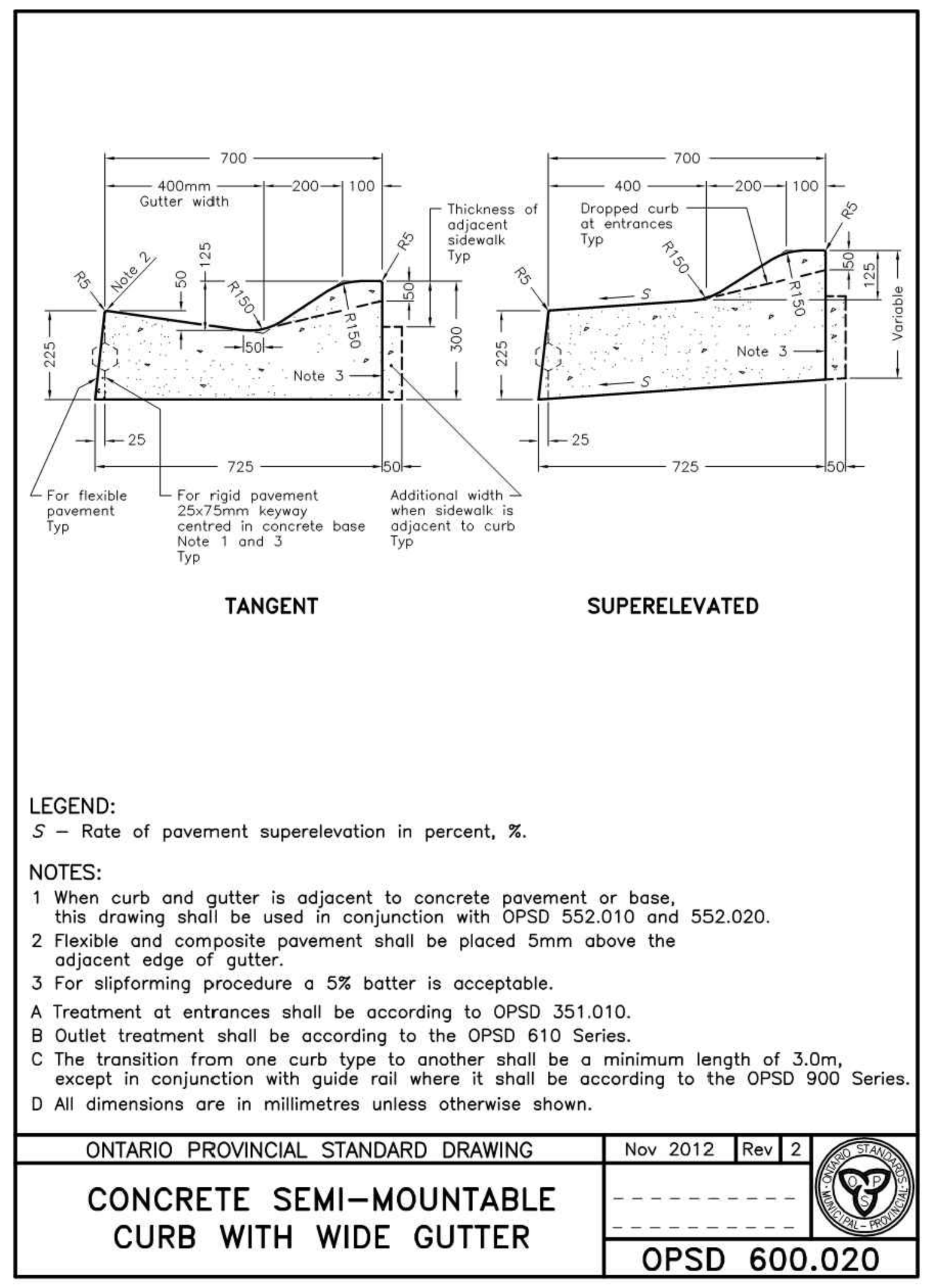


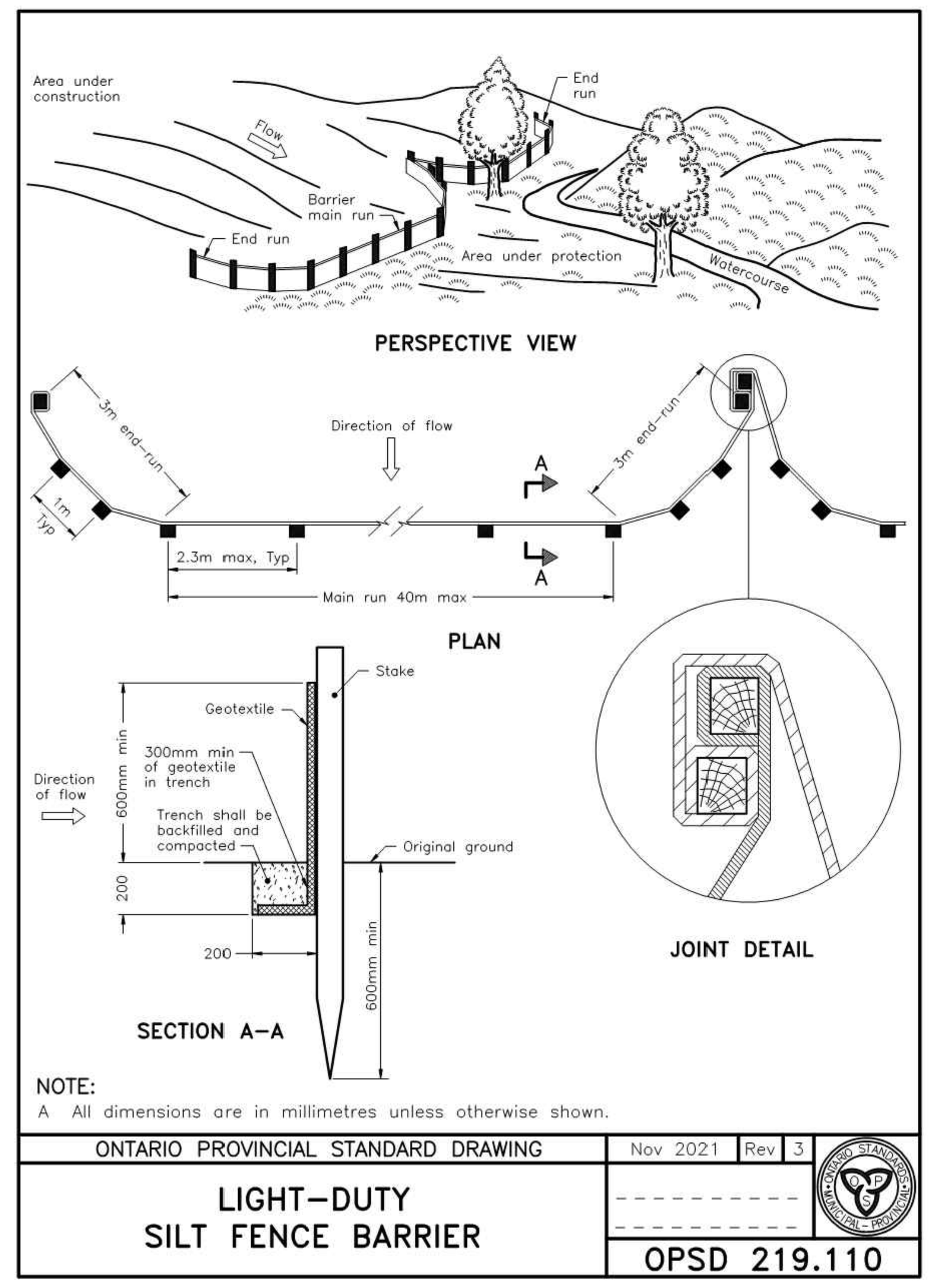
GRADING DETAIL
STA 1+310 TO STA 1+376
SCALE 1:200

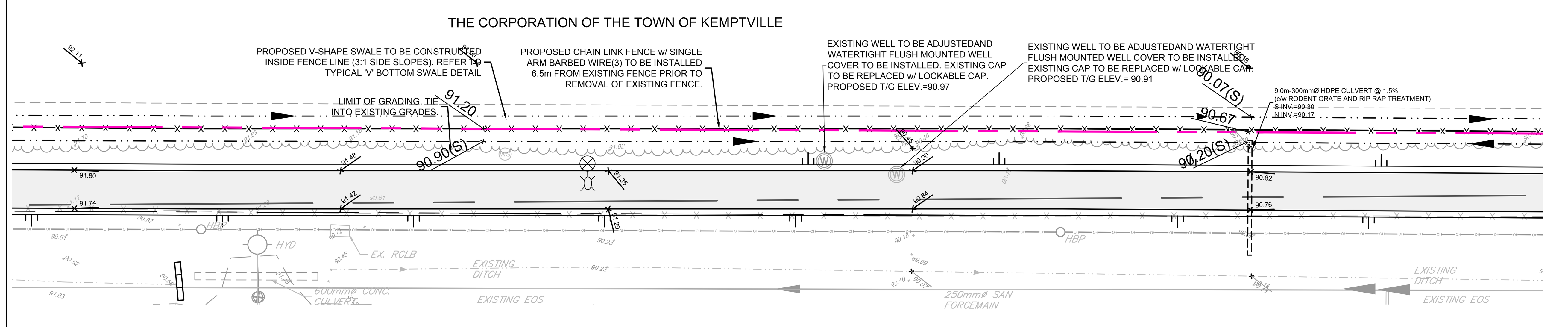


NOTES:
1) FENCE POSTS POSITIONED SO CULVERT IS CENTERED BETWEEN POSTS.

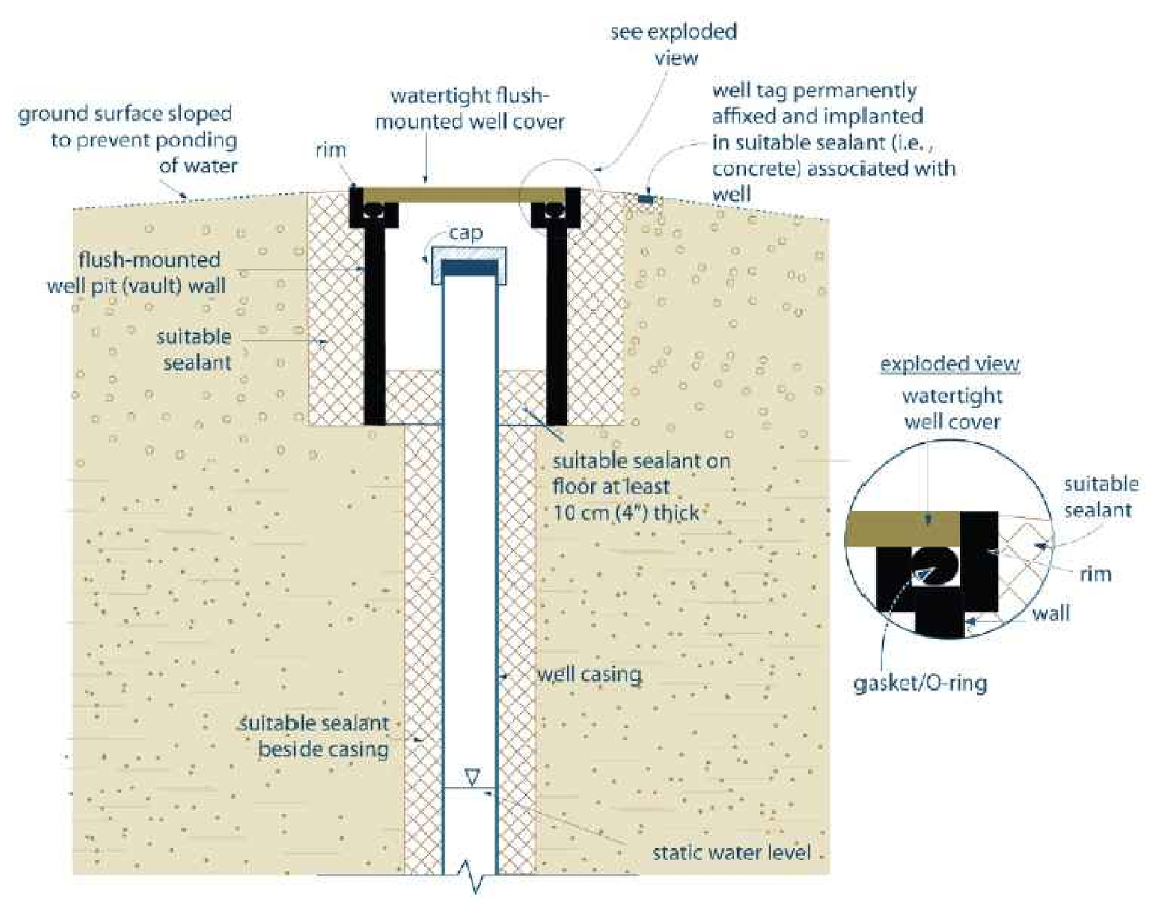
SECTION A-A - GRADING DETAIL
STA 1+352
SCALE 1:50







LANDFILL SWALE AND WELLS DETAIL
SCALE 1:500



FLUSH MOUNTED WELL COVER DETAIL
SCALE N.T.S

NOTE:
DETAILED SHOP DRAWING TO BE PROVIDED BY LICENSED WELL DRILLER FOR APPROVAL PRIOR TO CONSTRUCTION.

FOR GRADING PLAN DETAILS REFER TO:
123066-GR1, 123066-GR2, 123066-GR3 & 123066-GR4

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
2.	ISSUED FOR TENDER	JAN 31/25	CJR
1.	PRELIMINARY DRAWINGS ISSUED TO MUNICIPALITY	AUG 23/24	CJR

SCALE: AS NOTED

DESIGN	CJR
CHECKED	CJR
DRAWN	LPA
CHECKED	CJR
APPROVED	JLS

FOR REVIEW ONLY

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Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
TOWN OF KEMPTVILLE
MUNICIPALITY OF NORTH GRENVILLE

DRAWING NAME
NOTES AND DETAILS

PROJECT No. 123066
REV: REV # 2
DRAWING No. 123066-ND

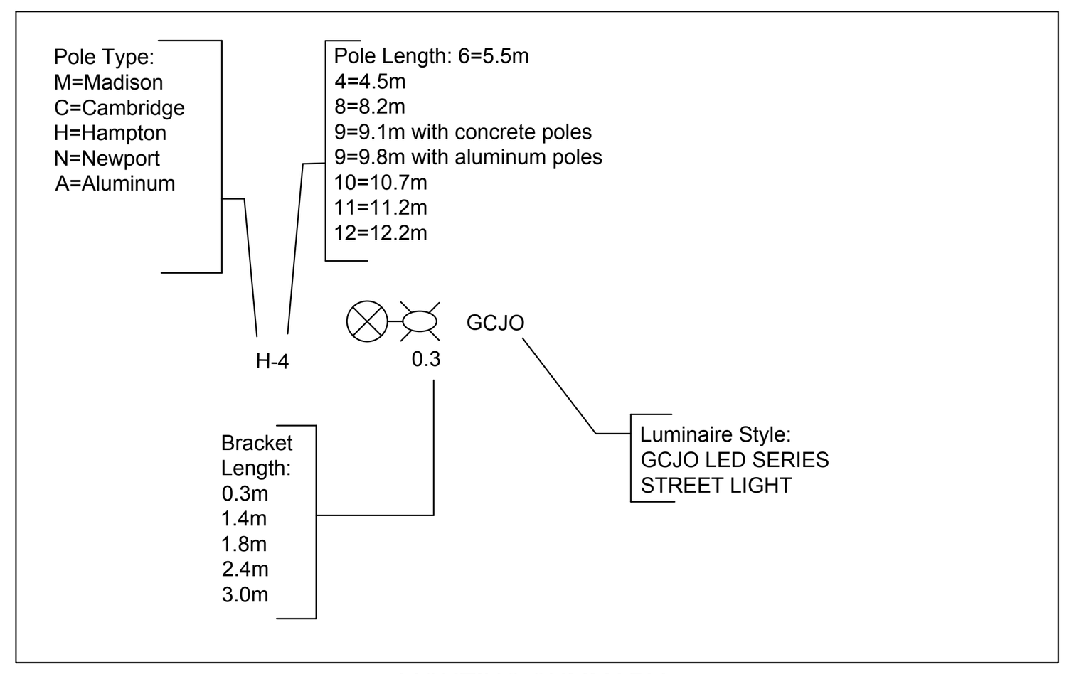
PLAN81.DWG - 1000mmx707mm

STREETLIGHTING NOTES:

1. HYDRO ONE WILL PROVIDE CONNECTION OF SECONDARY FEEDER TO STREETLIGHT DISCONNECT.
2. DISCONNECT SWITCH AND ITS INSTALLATION SHALL STRICTLY CONFORM TO CITY OF OTTAWA DESIGN STANDARDS.
3. ALL WIRING TO BE INSTALLED IN CONTINUOUS 3" (75mm) PVC STREETLIGHT DUCT.
4. EACH CIRCUIT PROTECTED BY MAIN FUSE IN DISCONNECT SWITCH AND EACH LUMINAIRE ADDITIONALLY PROTECTED BY INDIVIDUAL FUSE IN POLE HANDHOLE.
5. EACH SYSTEM TO BE EQUIPPED WITH APPROVED GROUNDING ROD AT DISCONNECT SWITCH, PROPER BONDING CONDUCTOR, AND APPROVED GROUNDING ROD AT EVERY FIFTH POLE AND LAST POLE IN CIRCUIT.
6. WIRING FROM POLE HANDHOLE/IN-LINE FUSING TO LUMINAIRE TO BE MIN. 2#10+GND.
7. LUMINARIES TO BE LEVELED IN TWO DIRECTIONS USING BUBBLE LEVELING PAD ON THE LUMINAIRE.
8. INSTALLATION OF WIRING IN TRENCHES TO CONFORM TO APPROVED CITY OF OTTAWA DETAILS.
9. ALL STREETLIGHTS TO BE COMPLIANT WITH THE CITY OF OTTAWA GUIDELINES FOR THE CONTROL OF LIGHT POLLUTION TO ENSURE THE CONSERVATION OF THE NIGHT SKY ENVIROMENT.
10. STREETLIGHT DUCTS TO BE LOCATED 0.3m FROM THE MULTI-USE PATH EDGE (WITHIN RIGHT OF WAY). STREET LIGHT LINEWORK SHOWN SCHEMATICALLY ON DRAWINGS.
11. STREETLIGHTS TO BE LOCATED 0.6m FROM THE MULTI-USE PATH EDGE.

STREET LIGHT SCHEDULE

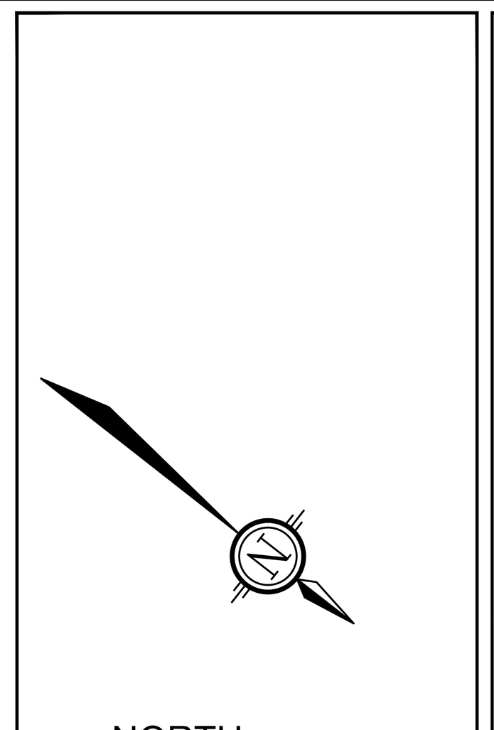
TYPE	VOLTAGE	LAMP	DESCRIPTION
GCJO H-4 0.3	120V	35W LED	PROPOSED LEOTEK GREENCOBRA Jr. LED STREET LIGHT ON A 0.3m BRACKET AND 4.5m HAMPTON POLE, REFER TO THE FOLLOWING CATALOGUE NUMBERS : • GCJO - 15H-MV-WW-2R-GY-700-PCR7-CR (LUMINAIRE) • 0.3m (BRACKET) • HA-200-B-1-PG-X (POLE)



LIGHTING SUMMARY

LEGEND

- ELECTRICAL GROUND ROD
- DIRECT BURIED STREETLIGHT DUCT AND WIRE
- PROPOSED OVERHEAD WIRE
- CONCRETE ENCASED STREETLIGHT DUCT AND WIRE
- EXISTING STREETLIGHT POLE
- GCJO H-4 0.3 SL 10 — STREETLIGHT POLE, BRACKET AND LUMINAIRE. REFER TO LIGHT SCHEDULE AND SUMMARY
- PROPOSED STREETLIGHT CIRCUIT (TRANSFORMER-CIRCUIT)
- 75 — UNDER GROUND STREETLIGHT CABLE
- EXISTING HYDRO POLE
- PROPOSED PROPERTY LINE
- PROPOSED CULVERT
- PROPOSED POLE MOUNTED TRANSFORMER
- PROPOSED POLE MOUNTED DISCONNECT



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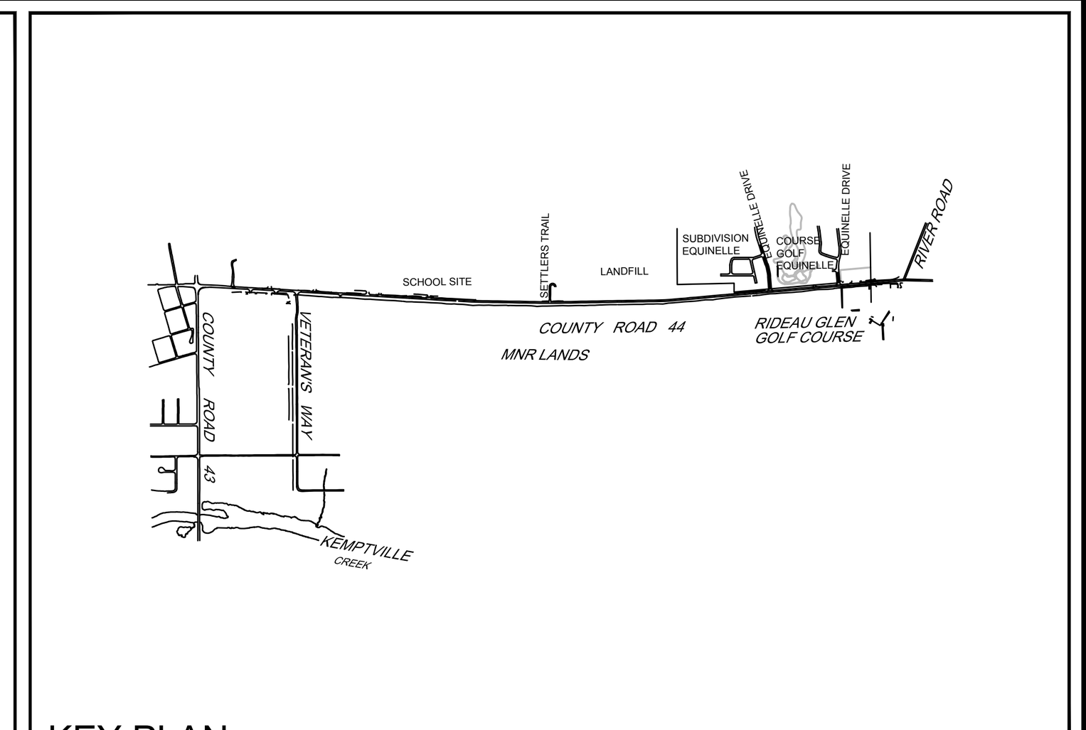
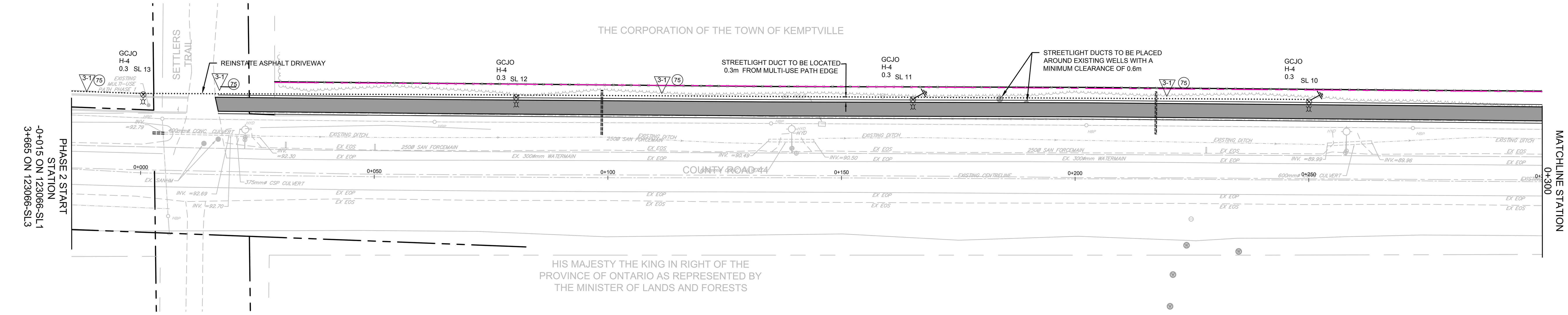
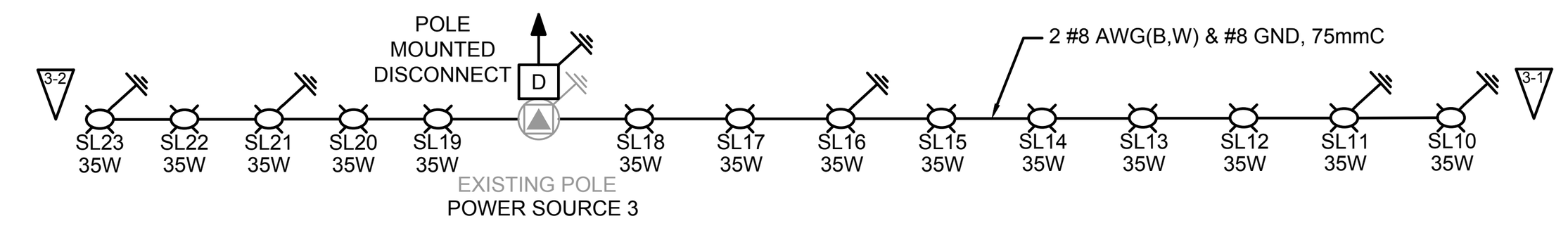


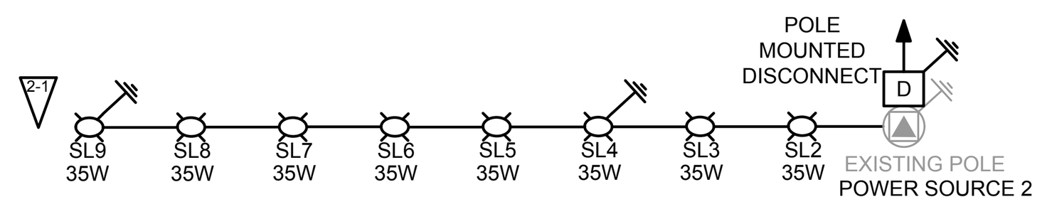
KEY PLAN
N.T.S.





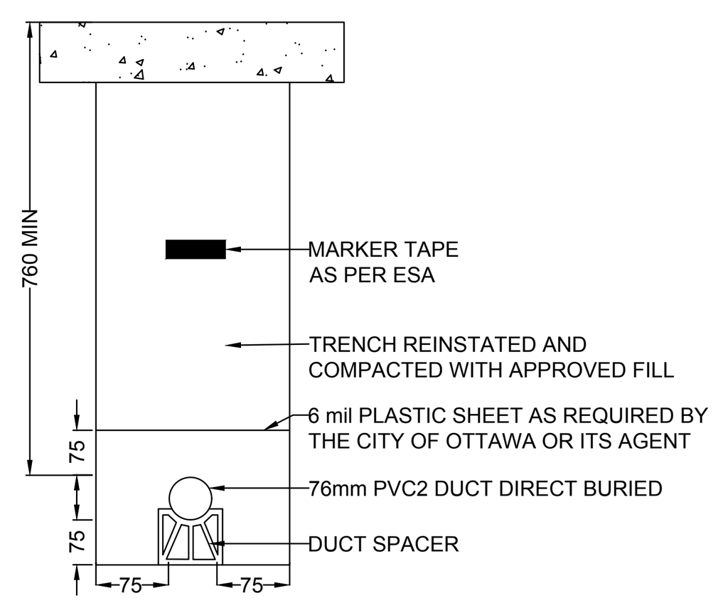
NOTE:
1. ALL WIRING TO BE RWU-90 (Cu.).
2. STREETLIGHT EQUIPMENT TO BE IN ACCORDANCE WITH MUNICIPALITY OF NORTH GREENVILLE DETAILS.

LIGHTING SCHEMATICS (POWER SOURCE 3)
(NTS)



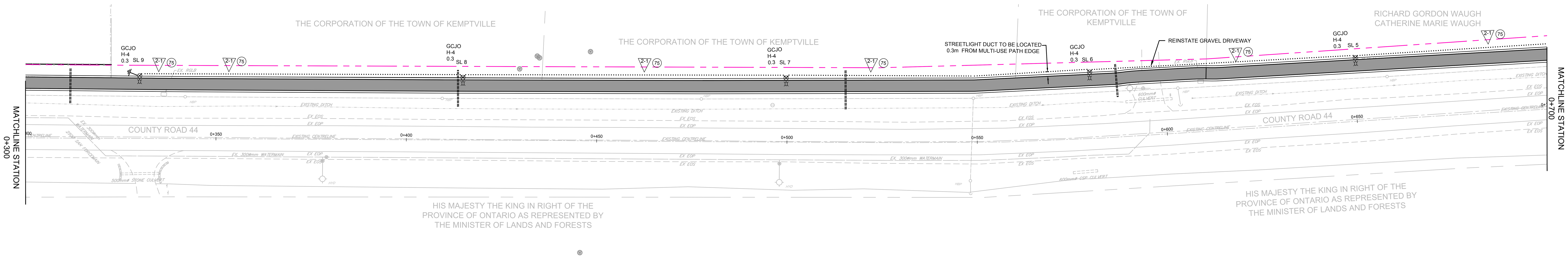
NOTE:
1. ALL WIRING TO BE RWU-90 (Cu.).
2. STREETLIGHT EQUIPMENT TO BE IN ACCORDANCE WITH MUNICIPALITY OF NORTH GREENVILLE DETAILS.

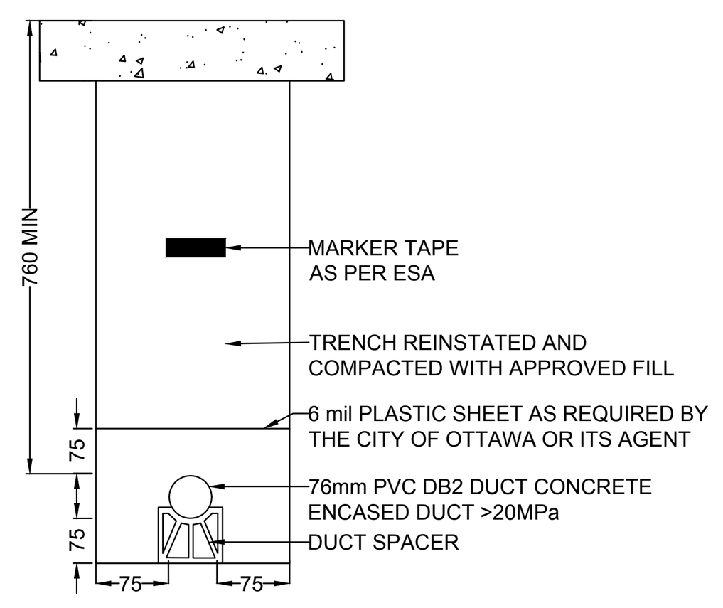
LIGHTING SCHEMATICS (POWER SOURCE 2)
(NTS)



NOTE:
- ALL STREETWIRE TRENCHING TO CROSS BELOW CULVERTS WITH 0.3m MINIMUMUM CLEARANCE UNLESS OTHERWISE NOTED.

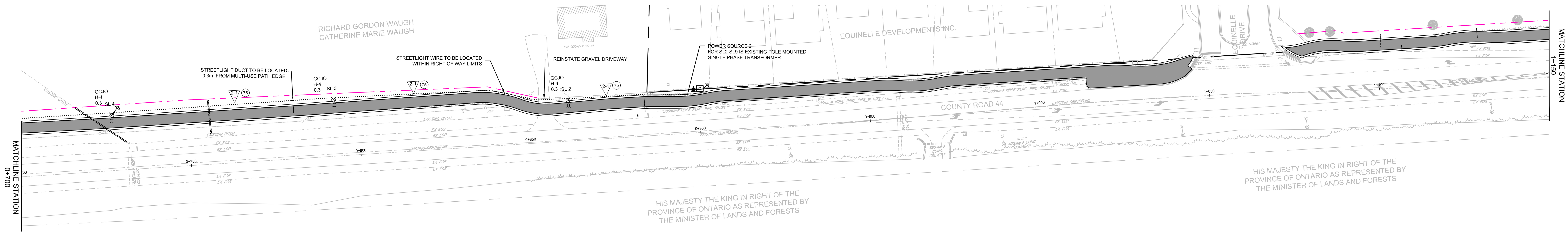
DUCT DETAIL
UNDER DRIVEWAYS
(NTS)





NOTE:
- ALL STREETWIRE TRENCHING TO CROSS BELOW CULVERTS WITH 0.3m MINIMUMUM CLEARANCE UNLESS OTHERWISE NOTED.

DUCT DETAIL
UNDER ROADS and MAJOR DRIVEWAYS
(NTS)



NOTE:
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No.	REVISION	DATE	BY
1.	ISSUED FOR TENDER	JAN 31/25	CJR

SCALE: 1:500

DESIGN	MWB
CHECKED	MWB
DRAWN	LP
CHECKED	CJR
APPROVED	

NOVATECH
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Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
MUNICIPALITY OF NORTH GRENVILLE
COUNTY ROAD 44

DRAWING NAME
STREETLIGHT LOCATION PLAN
STA -0+015 TO STA 1+150

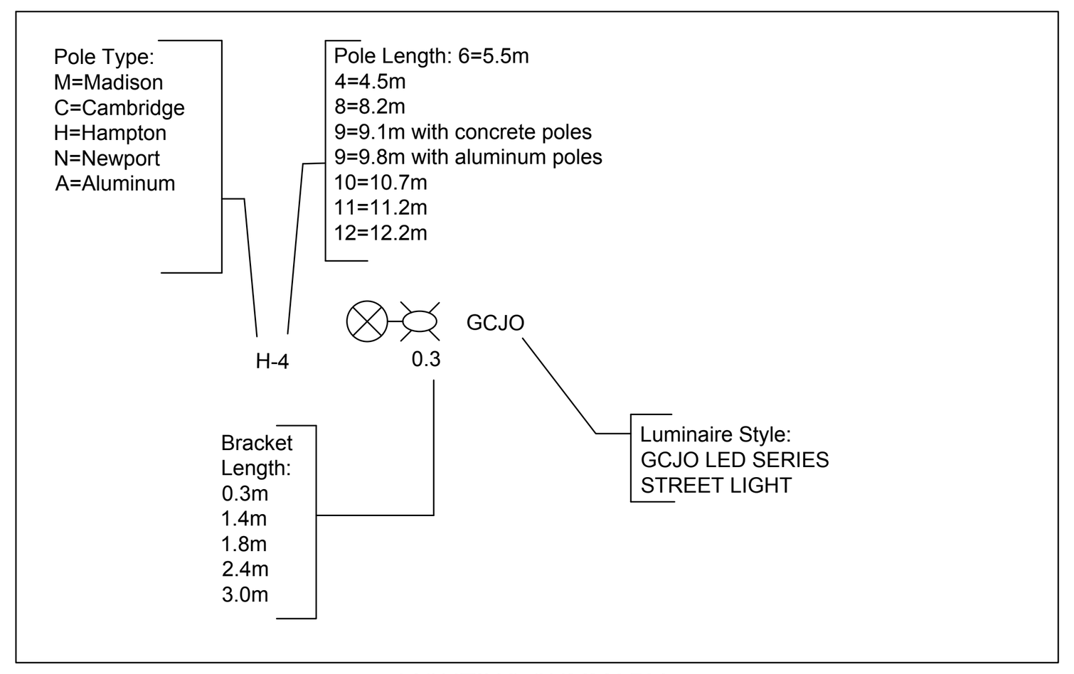
PROJECT No. 123066
REV: REV # 1
DRAWING No. 123066-SL1

STREETLIGHTING NOTES:

1. HYDRO ONE WILL PROVIDE CONNECTION OF SECONDARY FEEDER TO STREETLIGHT DISCONNECT.
2. DISCONNECT SWITCH AND ITS INSTALLATION SHALL STRICTLY CONFORM TO CITY OF OTTAWA DESIGN STANDARDS.
3. ALL WIRING TO BE INSTALLED IN CONTINUOUS 3" (75mm) PVC STREETLIGHT DUCT.
4. EACH CIRCUIT PROTECTED BY MAIN FUSE IN DISCONNECT SWITCH AND EACH LUMINAIRE ADDITIONALLY PROTECTED BY INDIVIDUAL FUSE IN POLE HANDHOLE.
5. EACH SYSTEM TO BE EQUIPPED WITH APPROVED GROUNDING ROD AT DISCONNECT SWITCH, PROPER BONDING CONDUCTOR, AND APPROVED GROUNDING ROD AT EVERY FIFTH POLE AND LAST POLE IN CIRCUIT.
6. WIRING FROM POLE HANDHOLE/IN-LINE FUSING TO LUMINAIRE TO BE MIN. 2#10+GND.
7. LUMINARIES TO BE LEVELED IN TWO DIRECTIONS USING BUBBLE LEVELING PAD ON THE LUMINAIRE.
8. INSTALLATION OF WIRING IN TRENCHES TO CONFORM TO APPROVED CITY OF OTTAWA DETAILS.
9. ALL STREETLIGHTS TO BE COMPLIANT WITH THE CITY OF OTTAWA GUIDELINES FOR THE CONTROL OF LIGHT POLLUTION TO ENSURE THE CONSERVATION OF THE NIGHT SKY ENVIROMENT.
10. STREETLIGHT DUCTS TO BE LOCATED 0.3m FROM THE MULTI-USE PATH EDGE (WITHIN RIGHT OF WAY). STREET LIGHT LINEWORK SHOWN SCHEMATICALLY ON DRAWINGS.
11. STREETLIGHTS TO BE LOCATED 0.6m FROM THE MULTI-USE PATH EDGE.

STREET LIGHT SCHEDULE

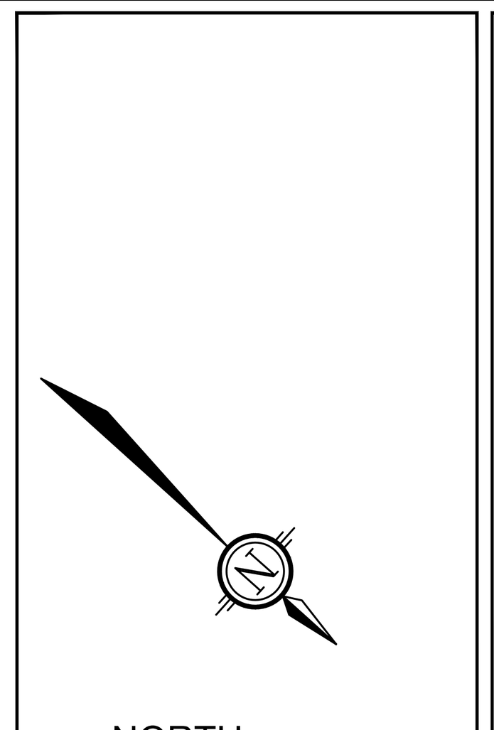
TYPE	VOLTAGE	LAMP	DESCRIPTION
GCJO H-4 0.3	120V	35W LED	PROPOSED LEOTEK GREENCOBRA Jr. LED STREET LIGHT ON A 0.3m BRACKET AND 4.5m HAMPTON POLE, REFER TO THE FOLLOWING CATALOGUE NUMBERS : • GCJO - 15H-MV-WW-2R-GY-700-PCR7-CR (LUMINAIRE) • 0.3m (BRACKET) • HA-200-B-1-PG-X (POLE)



LIGHTING SUMMARY

LEGEND

- ELECTRICAL GROUND ROD
- DIRECT BURIED STREETLIGHT DUCT AND WIRE
- PROPOSED OVERHEAD WIRE
- CONCRETE ENCASED STREETLIGHT DUCT AND WIRE
- EXISTING STREETLIGHT POLE
- GCJO H-4 0.3 SL 10 — STREETLIGHT POLE, BRACKET AND LUMINAIRE. REFER TO LIGHT SCHEDULE AND SUMMARY
- 1-1 — PROPOSED STREETLIGHT CIRCUIT (TRANSFORMER-CIRCUIT)
- 75 — UNDER GROUND STREETLIGHT CABLE
- HBP — EXISTING HYDRO POLE
- PROPOSED PROPERTY LINE
- PROPOSED CULVERT
- PROPOSED POLE MOUNTED TRANSFORMER
- D — PROPOSED POLE MOUNTED DISCONNECT



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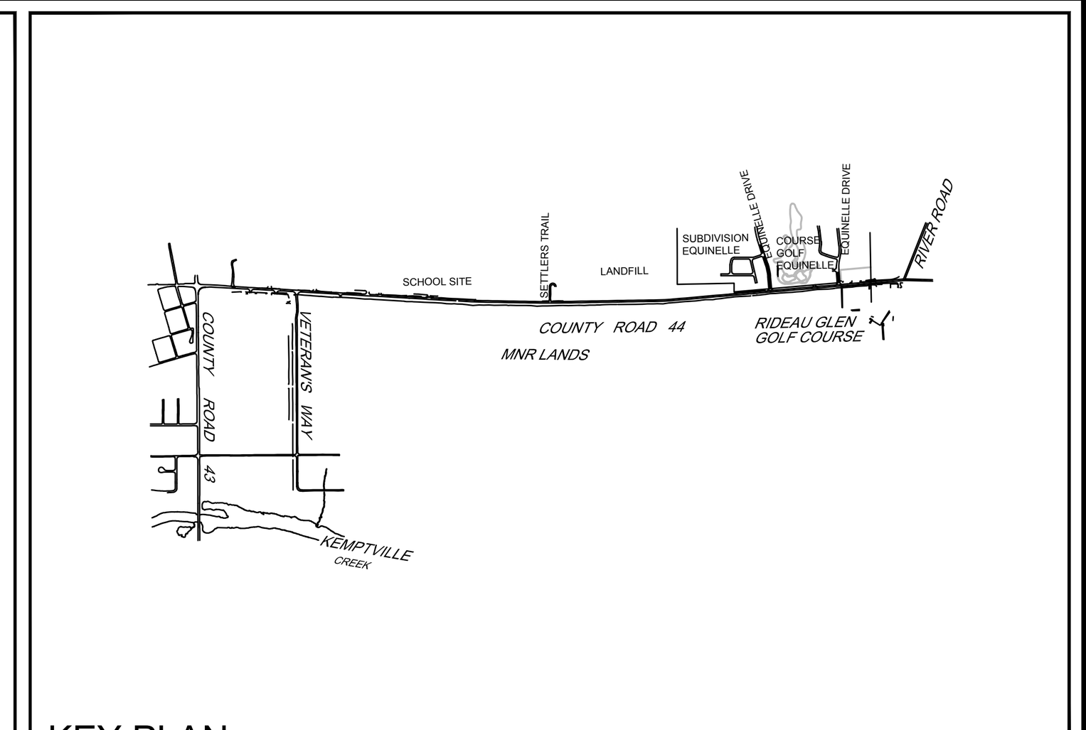
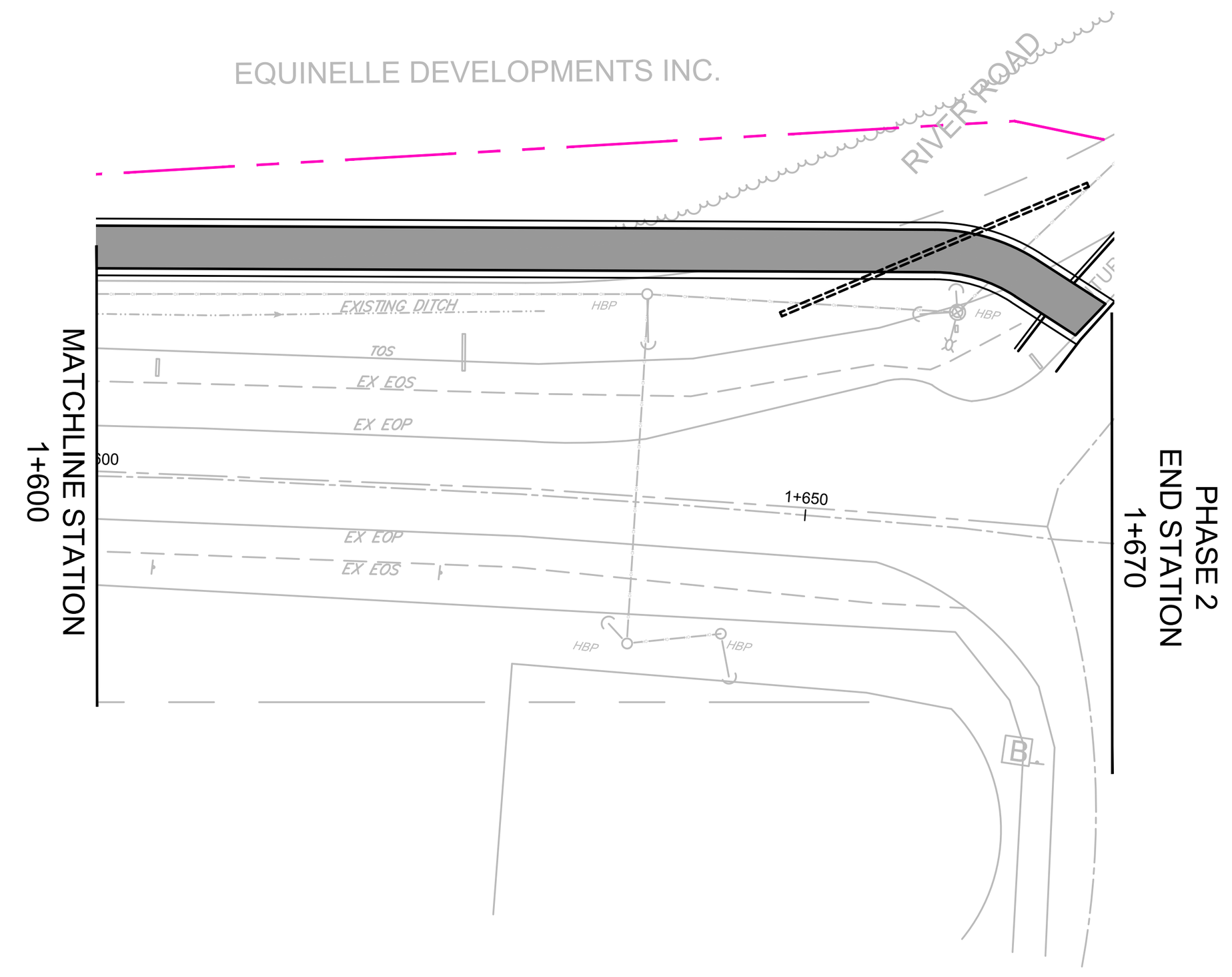
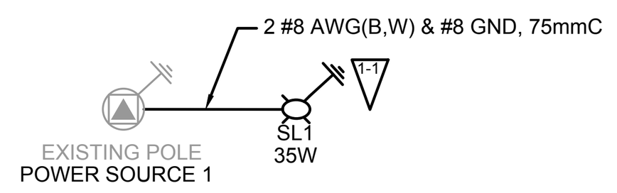


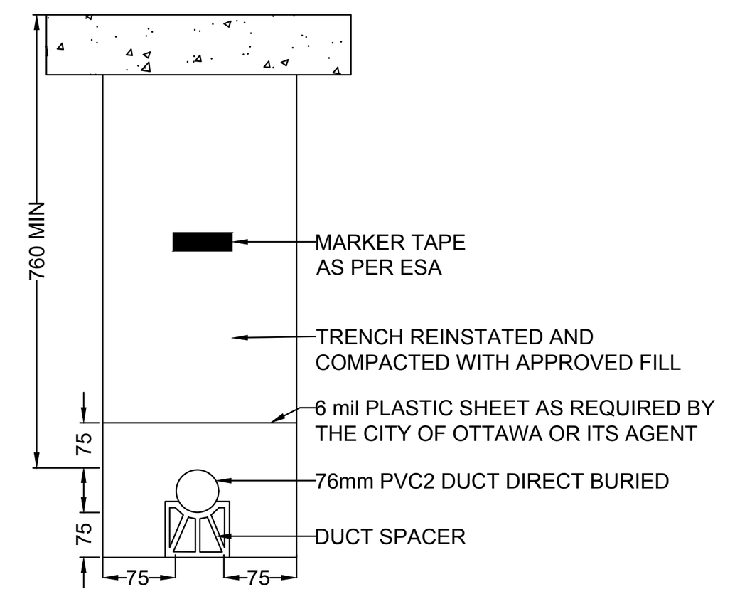
KEY PLAN
N.T.S.





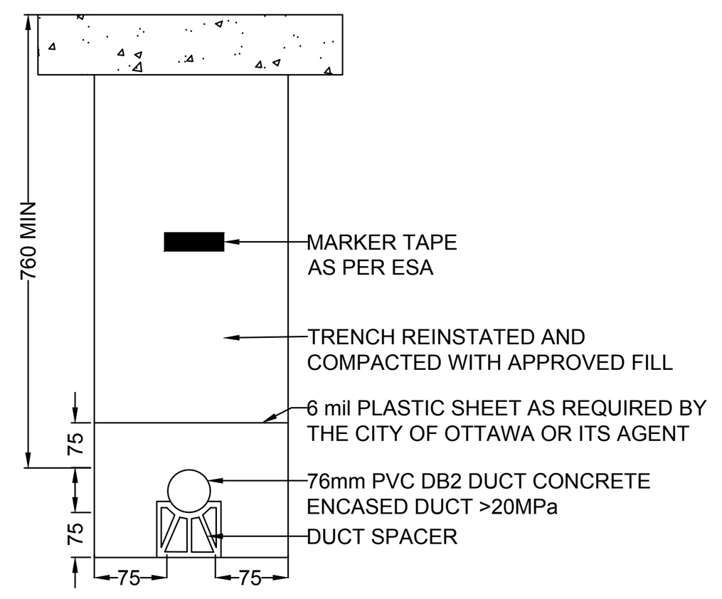
NOTE:
1. ALL WIRING TO BE RWU-90 (Cu.)
2. STREETLIGHT EQUIPMENT TO BE IN ACCORDANCE WITH CITY OF OTTAWA DETAILS

LIGHTING SCHEMATICS (POWER SOURCE 1)
(NTS)



NOTE:
- ALL STREETWIRE TRENCHING TO CROSS BELOW CULVERTS WITH 0.3m MINIMUMUM CLEARANCE UNLESS OTHERWISE NOTED.

DUCT DETAIL
UNDER DRIVEWAYS
(NTS)



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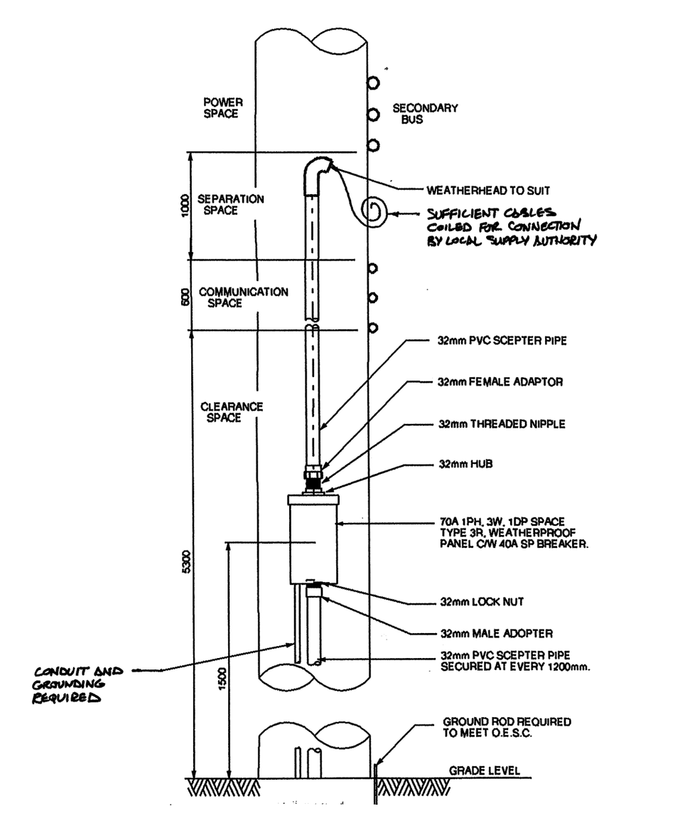
DUCT DETAIL
UNDER ROADS and MAJOR DRIVEWAYS
(NTS)



POLE MOUNTED DISCONNECT DETAIL
(NTS)

NOTE:
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No.	REVISION	DATE	BY
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SCALE 1:500

DESIGN	MWB
CHECKED	MWB
DRAWN	LP
CHECKED	CJR
APPROVED	

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
MUNICIPALITY OF NORTH GRENVILLE
COUNTY ROAD 44

DRAWING NAME
STREETLIGHT LOCATION PLAN
STA 1+150 TO STA 1+670

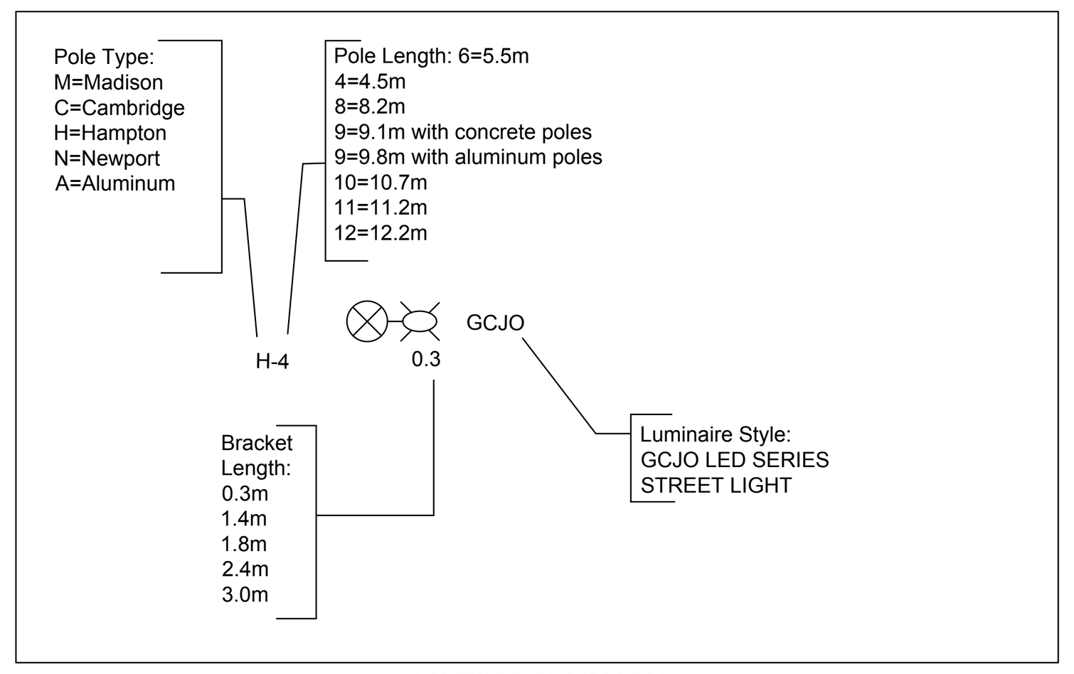
PROJECT No. 123066
REV: REV # 1
DRAWING No. 123066-SL2

STREETLIGHTING NOTES:

1. HYDRO ONE WILL PROVIDE CONNECTION OF SECONDARY FEEDER TO STREETLIGHT DISCONNECT.
2. DISCONNECT SWITCH AND ITS INSTALLATION SHALL STRICTLY CONFORM TO CITY OF OTTAWA DESIGN STANDARDS.
3. ALL WIRING TO BE INSTALLED IN CONTINUOUS 3" (75mm) PVC STREETLIGHT DUCT.
4. EACH CIRCUIT PROTECTED BY MAIN FUSE IN DISCONNECT SWITCH AND EACH LUMINAIRE ADDITIONALLY PROTECTED BY INDIVIDUAL FUSE IN POLE HANDHOLE.
5. EACH SYSTEM TO BE EQUIPPED WITH APPROVED GROUNDING ROD AT DISCONNECT SWITCH, PROPER BONDING CONDUCTOR, AND APPROVED GROUNDING ROD AT EVERY FIFTH POLE AND LAST POLE IN CIRCUIT.
6. WIRING FROM POLE HANDHOLE/IN-LINE FUSING TO LUMINAIRE TO BE MIN. 2#10+GND.
7. LUMINARIES TO BE LEVELED IN TWO DIRECTIONS USING BUBBLE LEVELING PAD ON THE LUMINAIRE.
8. INSTALLATION OF WIRING IN TRENCHES TO CONFORM TO APPROVED CITY OF OTTAWA DETAILS.
9. ALL STREETLIGHTS TO BE COMPLIANT WITH THE CITY OF OTTAWA GUIDELINES FOR THE CONTROL OF LIGHT POLLUTION TO ENSURE THE CONSERVATION OF THE NIGHT SKY ENVIROMENT.
10. STREETLIGHT DUCTS TO BE LOCATED 0.3m FROM THE MULTI-USE PATH EDGE (WITHIN RIGHT OF WAY). STREET LIGHT LINEWORK SHOWN SCHEMATICALLY ON DRAWINGS.
11. STREETLIGHTS TO BE LOCATED 0.6m FROM THE MULTI-USE PATH EDGE.

STREET LIGHT SCHEDULE

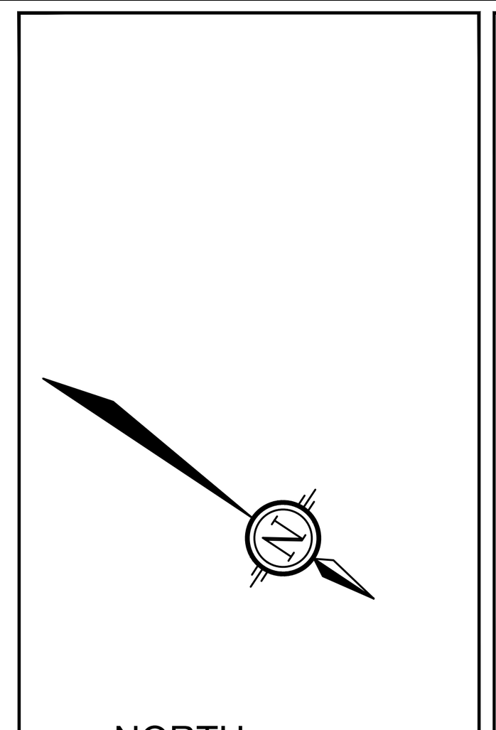
TYPE	VOLTAGE	LAMP	DESCRIPTION
GCJO H-4 0.3	120V	35W LED	PROPOSED LEOTEK GREENCOBRA Jr. LED STREET LIGHT ON A 0.3m BRACKET AND 4.5m HAMPTON POLE, REFER TO THE FOLLOWING CATALOGUE NUMBERS : • GCJO - 15H-MV-WW-2R-GY-700-PCR7-CR (LUMINAIRE) • 0.3m (BRACKET) • HA-200-B-1-PG-X (POLE)



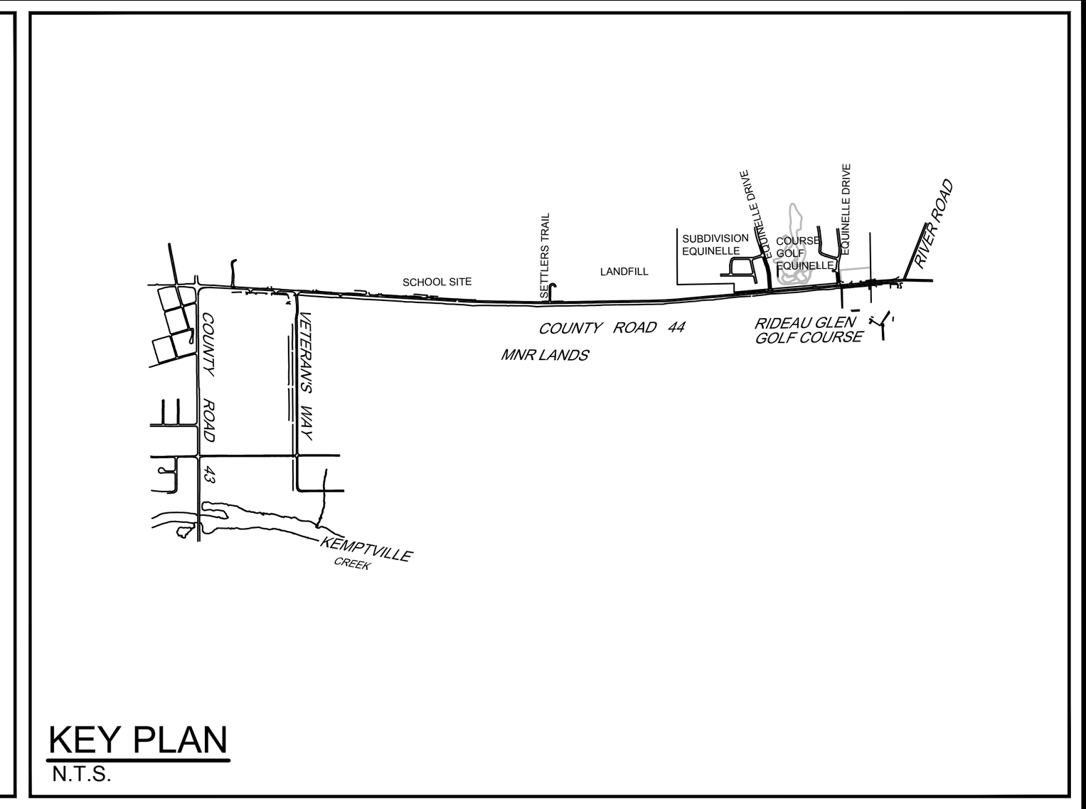
LIGHTING SUMMARY

LEGEND

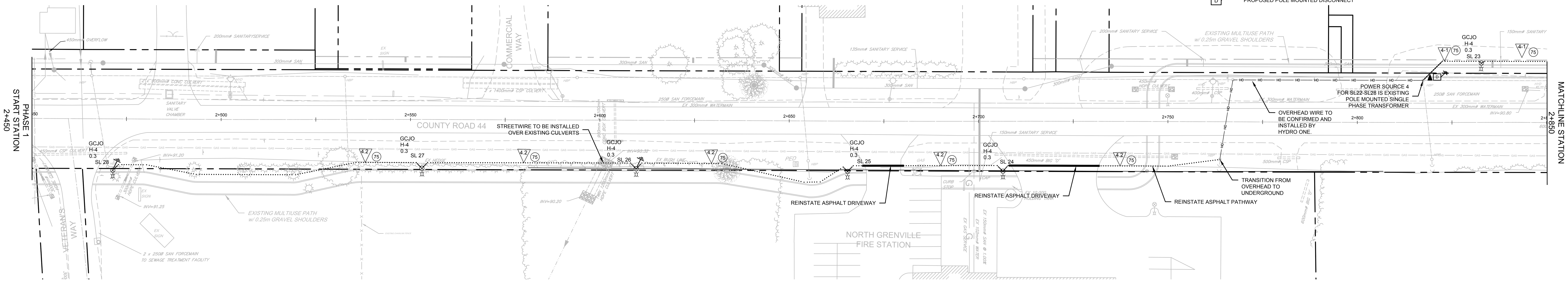
	ELECTRICAL GROUND ROD
	DIRECT BURIED STREETLIGHT DUCT AND WIRE
OH OH OH	PROPOSED OVERHEAD WIRE
	CONCRETE ENCASED STREETLIGHT DUCT AND WIRE
	EXISTING STREETLIGHT POLE
GCJO H-4 0.3 SL 10	STREETLIGHT POLE, BRACKET AND LUMINAIRE. REFER TO LIGHT SCHEDULE AND SUMMARY
1-1	PROPOSED STREETLIGHT CIRCUIT (TRANSFORMER-CIRCUIT)
75	UNDER GROUND STREETLIGHT CABLE
HBP	EXISTING HYDRO POLE
	PROPOSED PROPERTY LINE
	PROPOSED CULVERT
	PROPOSED POLE MOUNTED TRANSFORMER
D	PROPOSED POLE MOUNTED DISCONNECT

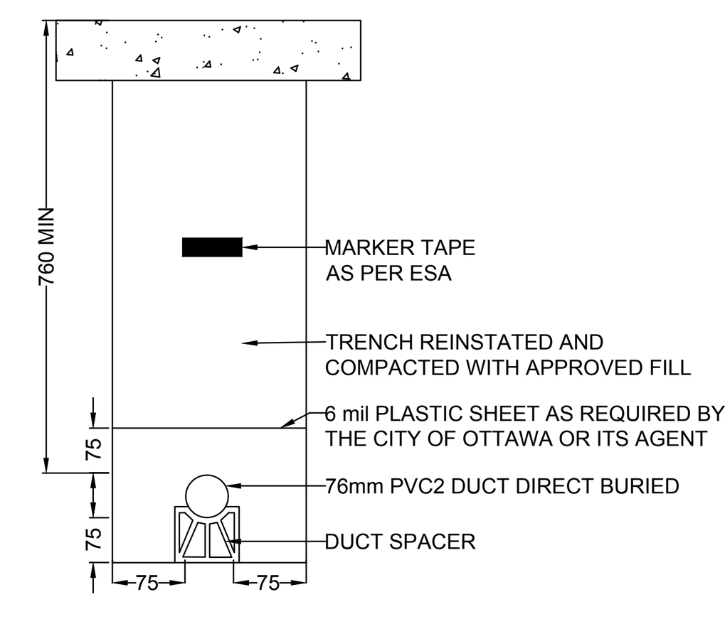


NORTH



KEY PLAN
N.T.S.





NOTE:
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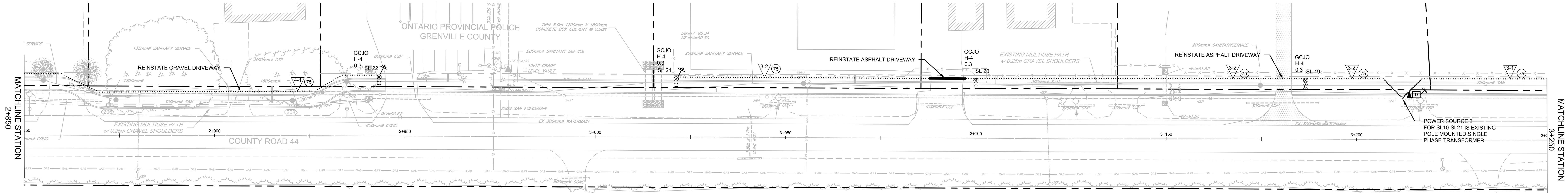
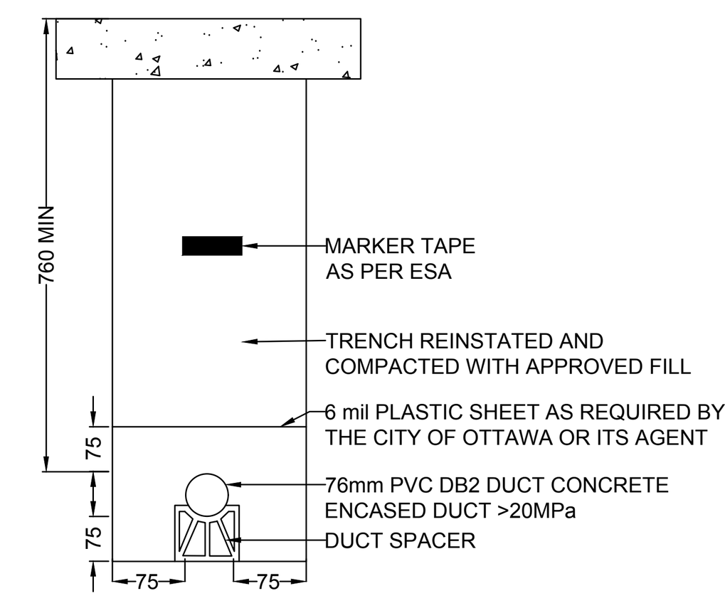
DUCT DETAIL
UNDER DRIVEWAYS
(NTS)





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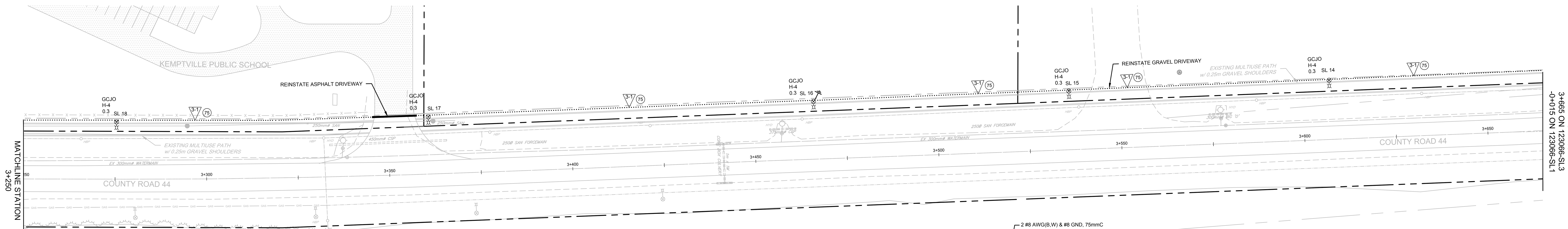
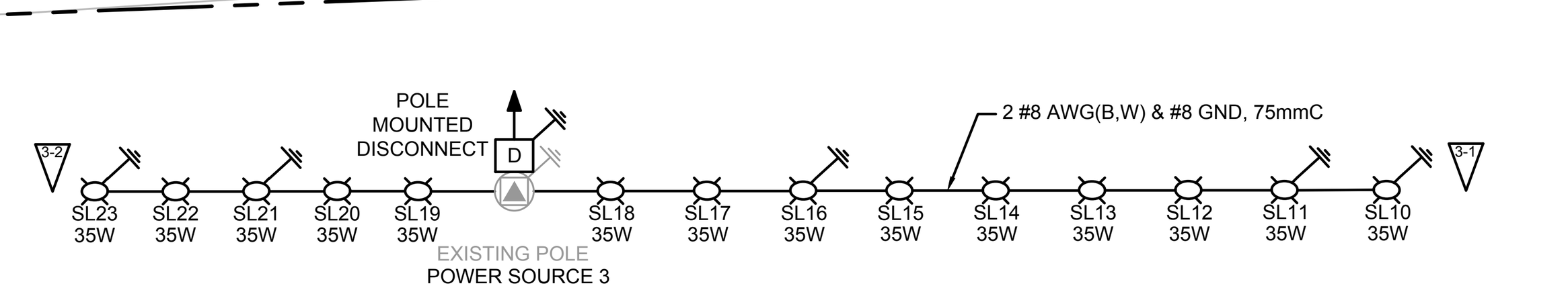
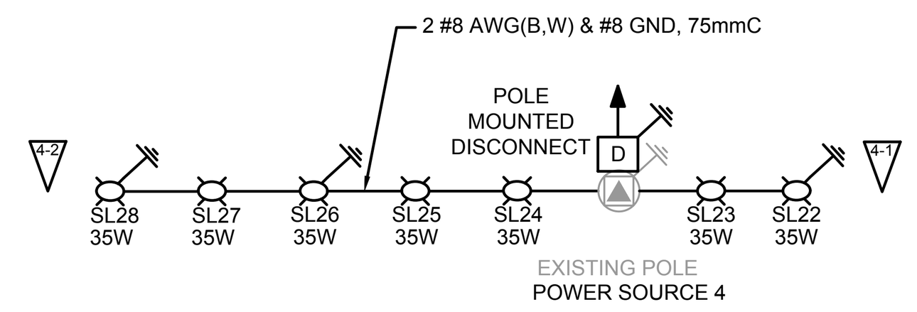
DUCT DETAIL
UNDER ROADS and MAJOR DRIVEWAYS
(NTS)





NOTE:
1. ALL WIRING TO BE RWU-90 (Cu.).
2. STREETLIGHT EQUIPMENT TO BE IN ACCORDANCE WITH MUNICIPALITY OF NORTH GREENVILLE DETAILS.

LIGHTING SCHEMATICS (POWER SOURCE 3)
(NTS)



NOTE:
1. ALL WIRING TO BE RWU-90 (Cu.).
2. STREETLIGHT EQUIPMENT TO BE IN ACCORDANCE WITH CITY OF OTTAWA DETAILS

LIGHTING SCHEMATICS (POWER SOURCE 4)
(NTS)

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LOCATION
MUNICIPALITY OF NORTH GRENVILLE
COUNTY ROAD 44

DRAWING NAME
STREETLIGHT LOCATION PLAN
STA 2+450 TO STA 3+665

PROJECT No. 123066
REV: REV # 1
DRAWING No. 123066-SL3

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