DRAINAGE REPORT
FOR THE

TULLY MELEG DRAIN

IN THE

FORMER TOWNSHIP OF GOSFIELD NORTH

TOWN OF KINGSVILLE

DILLON CONSULTING

FINAL REPORT
15 NOVEMBER 2024
OLIVER E.T. MOIR, P. ENG.
FILE No. 21-3142

File No. 21-3142

Mayor and Members of Council
Town of Kingsville
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Kingsville, Ontario
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Drainage Report for the

TULLY MELEG DRAIN

In the Former Township of Gosfield North
Town of Kingsville

Mayor and Members of Council:

Instructions

The Municipality received a request on 29 June 2023 from the Ministry of Transportation Ontario for the Tully Award Drain. The proposed drainage works are required to facilitate the new road realignment for County Road No. 29. Council accepted the request under Section 78(1) of the Drainage Act for major improvements to a drainage works and on 14 August, 2023 appointed Dillon Consulting Limited to prepare a report.

Watershed Description

The Tully Award Drain consists of an open channel commencing in the northeast part of Lot 265, South Talbot Road Concession along the west side of property Roll No. 560-10000. The drain flows southerly for approximately 1,030 metres to its outlet into the No. 5 Drain. The upstream drainage area for the said works described herein is approximately 31.8 hectares (approximately 78.7 acres). The surficial soils are predominately Brookston Clay which is defined as having poor natural drainage.

Drain History

The Tully Award Drain was originally constructed in 1923 under the provisions of the Ditches and Watercourses Act, under a report by Calvin B. Allison, P.Eng. appointed by the former Township of Gosfield North, dated May 15, 1923.

Award drains constructed under the Ditches and Watercourses Act do not fall under the jurisdiction of the Town until a by-law is passed under the provisions of the Drainage Act. Until such time, the maintenance and repair of the Tully Award Drain is the responsibility of the landowner on which the drain resides.

We recommend the subject portion of drain in this report be renamed the Tully Meleg Drain.

On-Site Meeting

An on-site meeting was held on 20 March 2024 to discuss the Tully Meleg Drain. A summary of the meeting is provided within Schedule ‘A’ herein.

Survey

Our survey and examination of the Tully Meleg Drain was carried out in July 2023. The survey comprised the recording of topographic data and examining the channel for available depth necessary to provide sufficient drainage.

Design Considerations

To provide sufficient depth and improved design capacity to better serve the upstream lands and associated new drain crossing required for the future County Road No. 29, a deepening and widening of the existing drain is required. The improvements start at the drain's outlet into the No. 5 Drain and continue northerly across the future road. Beyond the roadway, the drain improvement extends northerly to accommodate the realignment of the existing pond. The drain spoils removed as part of the drain excavation are to be levelled on adjacent lands within the designated working corridors. The works include the replacement of an existing 900 mm diameter farm access culvert on the drain that is interconnecting adjacent properties Roll No. 560-05405 and Roll No. 560-00210, referred to as Culvert No. 1 throughout this report. The existing culvert is too high and is required to be lowered to provide a sufficient drain depth for the new roadway. We recommend Culvert No. 1 be replaced with a 900 mm diameter corrugated steel pipe culvert, providing a 7.3 m wide driveway access. The culvert is designed to convey drainage flows from a 1 in 2-year storm event.

Culvert No. 2 recommended herein is a new culvert serving both the future County Road No. 29, and to provide partial drain enclosure for the realigned corner of the existing pond. The proposed culvert is a new 61 m long, 1200 mm diameter concrete culvert having a capacity to convey drainage flows from a 1 in 25-year storm event such that the headwaters do not overtop the adjacent drainage swales for the said roadway.

Allowances

In accordance with Section 29 of the Drainage Act, we have determined that the landowner on the west side of the drain (Roll No. 560-05405) receive compensation for additional lands required to marginally widen the drain and to establish a new 6.0 m wide corridor along the drain's length from Station 0+000 to Station 0+137. We have also determined that the landowner on the east side of the drain (Roll No. 560-00200) receive compensation for additional lands required to realign the drain and to establish a new 6.0 m wide corridor along the drain's length from Station 0+198 to Station 0+275.

Schedule 'B' herein, shows the distribution of these allowances in the total amount of $3,500.00 for the Tully Meleg Drain.

Recommendations and Cost Estimate

Based on our review of the history, the information obtained from our examination and analysis of the survey data, we recommend that the drainage works be repaired and improved as described below:

Item	Description	Amount
	TULLY MELEG DRAIN	
1.	Brushing of the drain including clearing and grubbing as required to accommodate the drainage works.	$10,000.00

Item	Description	Amount
2.	Excavation and levelling of excavated material, as follows:	
	a) Excavation to cleanout drain channel from Station 0+000 to Station 0+275, totalling approximately 275 linear metres of drain and approximately 525 m^3 of material.	$10,000.00
3.	Hydroseeding of excavated drain channel side slopes, as follows:	
	a) Supply and placement of fibre reinforced matrix hydraulic mulch seed on drain from Station 0+004 to Station 0+137 and from Station 0+198 to Station 0+275, approx. 950 m^2.	$7,500.00
4.	Stone erosion protection, as follows:	
	a) Supply and placement of R-50 rip rap stone erosion protection at Tully Meleg Drain outlet, minimum 350 mm thickness, complete with filter fabric underlay, approx. 20 m^2.	$2,000.00
6.	New Culvert Work, as follows:	
	a) Culvert No. 1 (Roll No. 560-05405) – Remove and dispose of existing 900 mm diameter, 9.2 m long corrugated steel pipe (CSP) culvert off site. Supply and place a new 14.0 m long, 900 mm diameter aluminized corrugated steel pipe (CSP) culvert with 125 mm x 25 mm corrugations and 2.0 mm thickness including coupler and hardware. Clear stone bedding below the culvert, minimum 150 mm thickness (approximately 10 tonnes), full Granular 'B' bedding and backfill material (approximately 80 tonnes) compacted, Granular 'A' (crushed limestone) compacted driveway surface, minimum 200 mm thickness (approximately 25 tonnes) and sloping stone erosion protection R-50 rip rap, minimum 350 mm thickness pipe end treatment, (approximately 20 m^2).	$18,500.00
	b) Culvert No. 2 (Future County Road No. 29) – Supply and installation of a new 61 m long, 1200 mm diameter reinforced concrete pipe (Class 65-D). Clear stone bedding below the culvert, minimum 150 mm thickness (approximately 55 tonnes), within roadway full Granular 'A' (crushed limestone) backfill material (approximately 365 tonnes) compacted, Granular 'A' (crushed limestone) backfill up to pipe springline (approximately 90 tonnes) and clean native or imported clean native backfill material beyond roadway compacted (approximately 500 m^3) and sloping stone erosion protection R-50 rip rap, minimum 350 mm thickness pipe end treatment, approximately 60 m^2.	$130,000.00
7	Temporary silt control measures during construction.	$1,000.00
	SUB-TOTAL	**$179,000.00**
8.	Allowances as per Sections 29 of the Drainage Act	$3,500.00
9.	Report, Assessments and Final Inspection	$19,000.00

Item	Description	Amount
10.	Expenses and Incidentals	$1,000.00
11.	ERCA review and permit fee.	$800.00
	TOTAL ESTIMATE - TULLY MELEG DRAIN	**$203,300.00**

The estimate provided in this report was prepared according to current materials and installation prices as of the date of this report. In the event of delays from the time of filing of the report by the Engineer to the time of tendering the work, it is understood that the estimate of cost is subject to inflation. The rate of inflation shall be calculated using the Consumer Price Index applied to the cost of construction from the date of the report to the date of tendering.

Assessment of Costs

The individual assessments are comprised of three (3) assessment components:

i. Benefit (*advantages relating to the betterment of lands, roads, buildings, or other structures resulting from the improvement to the drain).*
ii. Outlet Liability *(part of cost required to provide outlet for lands and roads).*
iii. Special Benefit *(additional work or feature that may not affect function of the drain).*

We have assessed the estimated costs for the Tully Meleg Drain against the affected roads as listed in Schedule 'C' under "Special Benefit." Details of the Special Benefit assessment listed are provided in the Assessment Rationale below.

Assessment Rationale

Special Benefit assessment shown in Schedule 'C' was derived as follows:

1. Deepening and widening of the drain is necessary to facilitate the proposed highway project and installation of Culvert No. 2 which will serve the road. We have therefore assessed 100% of the costs to the Ministry of Transportation Ontario in accordance with Section 26 of the Drainage Act as a non-proratable assessment. Since there are no special benefit assessments to other landowners, Schedule 'D' for the purposes of Special Benefit details has been omitted from this report.

Future Maintenance (Culverts No. 1 & 2)

Culvert No. 1 shall be maintained by the Town of Kingsville. Costs associated with the future repair and maintenance shall be assessed 50% to the abutting property Roll No. 560-05405 as a Special Benefit assessment and 50% to upstream lands as an Outlet liability assessment. Culvert No. 2 shall be maintained by the County of Essex Road Authority for 100% of the costs. These assessments are subject of course, to any variations that may be made under the authority of the Drainage Act.

Future Maintenance (Station 0+000 to 0+137 & Station 0+198 to 0+275)

The open drain portion shall be maintained by the Town of Kingsville. The future repair and maintenance costs shall be assessed to the lands and the roads for Benefit and Outlet assessments in the same relative proportions as listed in Schedule 'E' herein, subject of course to any variations that may be made under the authority of the Drainage Act. The assessment schedule is based on an arbitrary $10,000.00 of future maintenance costs for which actual costs would be prorated.

Drawings and Specifications

Attached to this report is Schedule 'F', which are Specifications setting out the details of the recommended works and Schedule 'G' which represent the drawings that are attached to this report.

Page 1 of 5 – **Overall Plan**
Page 2 of 5 – **Detail Plan**
Page 3 of 5 – **Profile & Sections**
Page 4 of 5 – **Culvert No. 1 Details**
Page 5 of 5 – Culvert No. 2 Details

Construction Drawings and Specifications

The work included in this report will be performed under the provincial contract for the Widening of King's Highway No. 3 starting from 0.8 km west of Cameron Sideroad and continuing easterly to 1.8 km west of County Road No. 31. Contract drawings for the roadworks including drain realignment, Culvert No. 3 (Hwy 3 crossing) and other associated road culverts under County Road No. 27 have been prepared complete with associated specifications which shall adhere to the elevations, alignment, sizes, materials and location and be generally in compliance with this report.

Approvals

The construction and/or improvement to a drainage works, including repair and maintenance activities, and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced by the proposed works. Prior to any construction or maintenance works, the Municipality or proponent designated on the Municipality's behalf shall obtain all required approvals/permits and confirm any construction limitations including timing windows, mitigation/off-setting measures, standard practices or any other limitations related to in-stream works.

Agency Reviews

The Essex Region Conservation Authority (ERCA) has been previously notified and provided the opportunity to review the proposed drainage works as outlined within this report. An application for permit has been made for the proposed undertakings associated with this municipal drain. The Town of Kingsville will subsequently give notice to ERCA and other prescribed persons of an upcoming meeting of Council that will consider and adopt the final report, at which time this meeting is an opportunity to provide input.

Respectfully submitted,

DILLON CONSULTING LIMITED

Oliver E.T. Moir, P.Eng.

OEM:wlb:lld

SCHEDULE 'A'

SUMMARY OF LANDOWNER MEETING

March 20, 2024 @ 9:00 a.m.

Unico Hall, Kingsville

Present:

Reina Neumann	Landowner
John Meleg	Landowner
Mark Fishleigh	County of Essex Roads Dept.
Siva Tharmabala	Ministry of Transportation Ontario
Sinisa Sakic	Ministry of Transportation Ontario
Danuta Mahabir	Ministry of Transportation Ontario
Orion Raes	Green Infrastructure Partners Inc.
Carlo DiMambro	Green Infrastructure Partners Inc.
Heide Mikelsen	Peralta Engineering
Chad Sinkevitch	Peralta Engineering
Clarke Campbell	Dillon Consulting Limited
Tim Oliver	Dillon Consulting Limited

Tim Oliver provided an overview of relevant drainage history of the Tully Award Drain referring to its original establishment in 1923 under the old Ditches and Watercourse Act that has since been repealed going back in the 1960's and therefore any improvements being made now to the drain would need to go through Section 78 of the Drainage Act legislation. In June of 2023 the Ministry of Transportation made this request to improve the drain that would accommodate two new culverts being placed within the drain to align with the proposed County Road No. 29 extension to cross over and to permit relocation of an existing pond that is presently infringing on the location for the future roadworks.

Discussion continued on the possible future relocation of the lower southerly portion of the Tully Award Drain and the given support behind this consideration by adjacent landowners. Given the timing of the roadworks to construct the County Road No. 29 easterly extension and continuing east to Inman Sideroad within 1 to 2 years' time, the relocation of the Tully Award Drain would be considered by other means under the Drainage Act such as a Mutual Agreement Drain so as not to hold up the planned roadworks.

Meeting summary prepared by Tim Oliver, P. Eng.

"SCHEDULE B"

SCHEDULE OF ALLOWANCES

TULLY MELEG DRAIN

TOWN OF KINGSVILLE

Roll No.	Con.	Description	Owner	Section 30 Damages	Section 29 Land	Total Allowances
560-00200	STR	Pt. Lots 264 & 265	Domric Enterprises Inc.	$0.00	$1,500.00	$1,500.00
560-05405	STR	Pt. Lots 264 & 265	Neumar Corp. & 1118524 Ontario Inc.	$0.00	$2,000.00	$2,000.00
TOTAL ALLOWANCES				**$0.00**	**$3,500.00**	**$3,500.00**

"SCHEDULE C"
SCHEDULE OF ASSESSMENT
TULLY MELEG DRAIN
TOWN OF KINGSVILLE

ONTARIO LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
King's Highway No. 3	0.00	0.00	Ministry of Transportation	$203,300.00	$0.00	$0.00	$203,300.00
Total on Ontario Lands				$203,300.00	$0.00	$0.00	$203,300.00
TOTAL ASSESSMENT				**$203,300.00**	**$0.00**	**$0.00**	**$203,300.00**

	(Acres)	(Ha.)
Total Area:	**0.00**	**0.00**

"SCHEDULE E-1"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE (STA. 0+000 TO STA. 0+275)
TULLY MELEG DRAIN
TOWN OF KINGSVILLE

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-00200	STR	Pt. Lots 264 & 265	2.47	1.00	Domric Enterprises Inc.	$0.00	$1,176.00	$232.00	$1,408.00
560-00210	STR	Pt. Lots 264 & 265	1.46	0.59	Neumar Corp. & 1118524 Ontario Inc.	$0.00	$1,536.00	$140.00	$1,676.00
560-05405	STR	Pt. Lots 264 & 265	0.20	0.08	Neumar Corp. & 1118524 Ontario Inc.	$0.00	$112.00	$12.00	$124.00
660-00502	-	-	5.00	2.02	Hydro One Networks Inc.	$0.00	$0.00	$412.00	$412.00
Total on Privately-Owned - Non-Agricultural Lands						$0.00	$2,824.00	$796.00	$3,620.00

PRIVATELY-OWNED - AGRICULTURAL LANDS (GRANTABLE)

Roll No.	Con.	Description	Area Affected (Acres)	Area Affected (Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-00300	STR	Pt. Lots 264 & 265	5.56	2.25	Domric Enterprises Inc.	$0.00	$1,176.00	$459.00	$1,635.00
560-10000	STR	Pt. Lots 264 & 265	34.00	13.76	John R. Meleg	$0.00	$0.00	$2,807.00	$2,807.00
560-10100	STR	Pt. Lots 264 & 265	17.00	6.88	Matteo & Livia Coppola	$0.00	$0.00	$1,402.00	$1,402.00
560-10101	STR	Pt. Lot 264	13.00	5.26 *	Matteo & Livia Coppola	$0.00	$0.00	$536.00	$536.00
Total on Privately-Owned - Agricultural Lands (Grantable)						$0.00	$1,176.00	$5,204.00	$6,380.00
TOTAL ASSESSMENT						**$0.00**	**$4,000.00**	**$6,000.00**	**$10,000.00**

	(Acres)	(Ha.)
Total Area:	**78.69**	**31.84**

* denotes reduced rate for woodlot

"SCHEDULE E-2"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE (CULVERT No. 1)
TULLY MELEG DRAIN
TOWN OF KINGSVILLE

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-00200	STR	Pt. Lots 264 & 265	2.47	1.00	Domric Enterprises Inc.	$0.00	$0.00	$193.00	$193.00
560-00210	STR	Pt. Lots 264 & 265	1.24	0.50	Neumar Corp. & 1118524 Ontario Inc.	$5,000.00	$0.00	$99.00	$5,099.00
560-05405	STR	Pt. Lots 264 & 265	0.20	0.08	Neumar Corp. & 1118524 Ontario Inc.	$0.00	$0.00	$10.00	$10.00
660-00502	-	-	5.00	2.02	Hydro One Networks Inc.	$0.00	$0.00	$345.00	$345.00
Total on Privately-Owned - Non-Agricultural Lands……						$5,000.00	$0.00	$647.00	$5,647.00

PRIVATELY-OWNED - AGRICULTURAL LANDS (GRANTABLE)

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-00300	STR	Pt. Lots 264 & 265	5.56	2.25	Domric Enterprises Inc.	$0.00	$0.00	$384.00	$384.00
560-10000	STR	Pt. Lots 264 & 265	34.00	13.76	John R. Meleg	$0.00	$0.00	$2,347.00	$2,347.00
560-10100	STR	Pt. Lots 264 & 265	17.00	6.88	Matteo & Livia Coppola	$0.00	$0.00	$1,173.00	$1,173.00
560-10101	STR	Pt. Lot 264	13.00	5.26 *	Matteo & Livia Coppola	$0.00	$0.00	$449.00	$449.00
Total on Privately-Owned - Agricultural Lands (Grantable)……						$0.00	$0.00	$4,353.00	$4,353.00
TOTAL ASSESSMENT						**$5,000.00**	**$0.00**	**$5,000.00**	**$10,000.00**

	(Acres)	(Ha.)
Total Area:	**78.47**	**31.75**

* denotes reduced rate for woodlot

"SCHEDULE F"

DRAINAGE REPORT FOR THE
TULLY MELEG DRAIN
TOWN OF KINGSVILLE

SPECIAL PROVISIONS - GENERAL

1.0 GENERAL SPECIFICATIONS

The General Specifications attached hereto is part of "Schedule F." It also forms part of this specification and is to be read with it, but where there is a difference between the requirements of the General Specifications and those of the Special Provisions which follow, the Special Provisions will take precedence.

2.0 DESCRIPTION OF WORK

The work to be carried out under this Contract includes, but is not limited to, the supply of all **labour, equipment and materials** to complete the following items:

- Brushing of the drain including clearing and grubbing as required to accommodate the drainage works.
- Excavation and levelling of excavated material, as follows:
  - Excavation to cleanout drain channel from Station 0+000 to Station 0+275, totalling approximately 275 linear metres of drain and approximately 525 m^3 of material.
- Hydroseeding of excavated drain channel side slopes, as follows:
  - Supply and placement of fibre reinforced matrix hydraulic mulch seed on drain from Station 0+004 to Station 0+137 and from Station 0+198 to Station 0+275, approx. 950 m^2.
- Stone erosion protection, as follows:
  - Supply and placement of R-50 rip rap stone erosion protection at Tully Meleg Drain outlet, minimum 350 mm thickness, complete with filter fabric underlay, approx. 20 m^2.
- Station 0+031 – Culvert No. 1 - Remove and dispose of existing 900 mm diameter CSP, 7 m long off-site. All surplus materials resulting from culvert removal are to be trucked away to an approved dumping site at the Contractor's expense.
- New Culvert Work, as follows:
  - Culvert No. 1 (Roll No. 560-05405) – Remove and dispose of existing 900 mm diameter, 9.2 m long corrugated steel pipe (CSP) culvert off site. Supply and place a new 14.0 m long, 900 mm diameter aluminized corrugated steel pipe (CSP) culvert with 125 mm x 25 mm corrugations and 2.0 mm thickness including coupler and hardware. Clear stone bedding below the culvert, minimum 150 mm thickness (approximately 10 tonnes), full Granular 'B' bedding and backfill material (approximately 80 tonnes) compacted, Granular 'A' (crushed limestone) compacted driveway surface, minimum 200 mm thickness (approximately 25 tonnes) and sloping stone erosion protection R-50 rip rap, minimum 350 mm thickness pipe end treatment, (approximately 20 m^2).

- Culvert No. 2 (Future County Road No. 29) –Supply and installation of a new 61 m long, 1200 mm diameter reinforced concrete pipe (Class 65-D). Clear stone bedding below the culvert, minimum 150 mm thickness (approximately 55 tonnes), within roadway full Granular 'A' (crushed limestone) backfill material (approximately 365 tonnes) compacted, Granular 'A' (crushed limestone) backfill up to pipe springline (approximately 90 tonnes) and clean native or imported clean native backfill material beyond roadway compacted (approximately 500 m^3) and sloping stone erosion protection R-50 rip rap, minimum 350 mm thickness pipe end treatment, approximately 60 m^2.

- Temporary silt control measures during construction.

3.0 ACCESS TO THE WORK

Access to the drain shall be from the South Talbot Road and future County Road No. 29 right-of-way. The Contractor shall make his/her own arrangements for any additional access for his/her convenience. All grass areas disturbed shall be restored to original conditions at the Contractor's expense.

4.0 WORKING CORRIDORS

For both the construction and future maintenance of the drain the Contractor shall restrict their equipment to the working corridor as specified in this Section. The working corridor for the open drain portion shall be defined as a 6.0 m wide area along the west side of the drain from Station 0+000 to Station 0+137. The working corridor for the open drain portion shall be defined as a 6.0 m wide area along the east side of the drain from Station 0+198 to Station 0+275.

The working area for the construction and future maintenance for Culvert No. 2 shall be within the Future County Road No. 29 road allowance. Any damage resulting from non-compliance with this Section shall be borne by the Contractor.

SPECIAL PROVISIONS – OPEN DRAIN

5.0 BRUSHING

Brushing shall be carried out on the entire drain within the above identified sections of the drain where required and as specified herein. **All** brush and trees located within the drain side slopes shall be cut parallel to the side slopes, as close to the ground as practicable. Tree branches that overhang the drain shall be trimmed. Small branches and limbs are to be disposed of by the Contractor along with the other brush. Tree stumps, where removed to facilitate the drain excavation and reshaping of the drain banks, may be burned by the Contractor where permitted; otherwise, they shall be disposed of, off the site. The Contractor shall make every effort to preserve mature trees which are beyond the drain side slopes, and the working corridors. If requested to do so by the Drainage Superintendent, the Contractor shall preserve certain mature trees within the designated working corridors (see Section 4.0).

Except as specified herein, all brush and trees shall be stockpiled adjacent to the drain within the working corridors. Stockpiles shall not be less than 100 m apart and shall be a minimum of 2.0 m from the edge of the drain bank. All brush, timber, logs, stumps, large stones or other obstructions and deleterious materials that interfere with the construction of the drain, as encountered along the course of the drain are to be removed from the drain by the Contractor.

Large stones and other similar material shall be disposed of by the Contractor off the site.

Following completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which remain standing, disposing of the branches cut off along with other brush and leaving the trees in a neat and tidy condition. Brush and trees removed from the working area are to be put into piles by the Contractor, in locations where they can be safely burned, and to be burned by the Contractor after obtaining the necessary permits, as required. If, in the opinion of the Drainage Superintendent, any of the piles are too wet or green to be burned, he shall so advise the Contractor to haul away the unburned materials to an approved dump site. Prior to, and during the course of burning operations, the Contractor shall comply with the current guidelines prepared by the Air Quality Branch of the Ontario Ministry of Environment and shall ensure that the Environmental Protection Act is not violated. Since the trees and brush that are cut off flush with the earth surface may sprout new growth later, it is strongly recommended that the Municipality make arrangements for spraying this new growth at the appropriate time so as to kill the trees and brush.

As part of this work, the Contractor shall remove any loose timber, logs, stumps, large stones or other debris from the drain bottom and from the side slopes. **Timber, logs, stumps, large stones, or other debris shall be disposed of off-site**.

6.0 EXCAVATION AND TRUCKING OF EXCAVATED MATERIALS

6.1 Excavation of Existing Drain Channel

In all cases, the Contractor shall use the benchmarks to establish the proposed grade. However, for convenience, the drawings provide the approximate depth from the surface of the ground and from the existing drain bottom to the proposed grades. **THE CONTRACTOR SHALL NOT EXCAVATE DEEPER THAN THE GRADELINES SHOWN ON THE DRAWINGS**. Should over-excavation of the drain bank occur, the Contractor will **not** be permitted to repair with native material packed into place by the excavator and reshaped. Should over-excavation occur, the Contractor will be required to have a bank repair detail engineered by a Professional Engineer (hired by the Contractor), to ensure long term stability of the bank is maintained. Such repairs shall be subject to approval by the Engineer and will be at no extra cost to the item.

All excavated material shall be handled as specified in Section 6.2. Materials deposited on the farmlands shall be within the working corridors, at least 1.0 m from the top of the drain bank, or as specified on the drawings. Upon allowing drying of excavated materials (if necessary) and as approved by the Drainage Superintendent, the Contractor shall level excavated materials in accordance with Section 6.2. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

Seeding of the disturbed drain banks shall be completed immediately following drain construction and as specified in Section 7.0.

All excavation work shall be done in such a manner as to not harm any vegetation or trees, not identified in this report or by the Drainage Superintendent for clearing. Any damages to trees or vegetation caused by the Contractors work shall be rectified to the satisfaction of the Drainage Superintendent.

The Contractor shall exercise caution around existing tile inlets and shall confirm with the property owners that all tiles have been located and tile ends repaired as specified.

6.2 Levelling of Excavated Materials

Excavation of the drain bottom shall be completed as specified in **Section 6.1**, above and as specified below and as shown on the drawings.

Excavated drain materials shall be spread to a depth not to exceed 300 mm, unless specified otherwise on the drawings. The material shall be sufficiently levelled to allow further working by agricultural implements. All stones and other debris removed from the drain, which may interfere with agricultural implements, shall be disposed of off-site. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.

7.0 HYDRAULIC SEEDING OF NEW DRAIN CHANNEL

The newly established drain banks and all existing grassed areas disturbed by construction shall be hydraulic mulch seeded as specified herein. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

The Contractor shall apply a fibre reinforced matrix (FRM) hydromulch engineered with pasteurized wood fibers and cross-linked with dispersible synthetic fibers and exclusive soil bonding agents for immediate and effective soil erosion control on newly constructed drain channels such as the FlexGuard product by Fibremulch company or approved equal. The hydromulch should be non-toxic and 100% biodegradable with a minimal curing period and up to 12 months longevity. The hydromulch shall be applied at a minimum rate of 3,300 kg of dry product per 10,000 m^2. It shall be thoroughly mixed with water in a hydraulic seeder and mulcher at a rate of 20 kg of dry product to 225 litres of water. Refer to OPSS.PROV 803 for additional specifications on vegetative cover.

Seeding and mulching shall be a one step process in which the seed and hydraulic mulch are applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniform, cohesive mat over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent.

The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly. Grass seed shall be MTO Modified Native Standard roadside seed mixture meeting the requirements as follows:

Creeping Red Fescue	*60%*
Intermediate Ryegrass	*20%*
Colonial Bentgrass	*20%*
Canada Bluegrass	*10%*

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 170 kg per 10,000 m^2. **The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be taken into consideration to achieve the end result and the costs shall be incidental to the works.**

8.0 STONE EROSION PROTECTION

Erosion protection, within the drain channel, shall be constructed of quarry stone rip-rap (R-50) as shown on the drawings and as specified herein. The size of the rip-rap shall mostly vary between 150 mm and 250 mm. The rip-rap shall be sloped 1 vertical to 1.5 horizontal, with filter fabric underlay spanning across the entire width of the drain.

The minimum thickness requirement of the erosion stone layer is 350 mm with no portion of the filter fabric to be exposed.

Geotextile shall be placed uniformly, free of folds, tears or punctures and as specified in the Contract Documents. The geotextile shall be joined so that the material overlaps a minimum of 500 mm and shall be pinned together. Alternatively, the geotextile shall be joined to conform to the seam requirements of OPSS 1860. Geotextile shall be fixed to prevent movement during installation.

9.0 CULVERT CONSTRUCTION

9.1 Location

The new culvert denoted as Culvert No. 2 herein shall be located and installed as shown on the drawings attached hereto.

9.2 Removal of Existing Culvert (Culvert No. 1)

The Contractor shall exercise caution when removing these materials as to minimize damage to the drain banks. Any damage to the drain shall be restored to original conditions at the expense of the Contractor. The removed materials (existing culvert debris and end wall materials) shall be hauled away off-site.

9.3 Culvert No. 1 Materials

Materials shall be as follows:

Culvert No. 1	*New 14.0 m long, 900 mm diameter aluminized Type II corrugated steel pipe (CSP) wall thickness of 2.8 mm and 125 mm x 25 mm corrugations with rerolled ends. New culvert shall be joined with annular aluminized corrugated wide bolt and angle couplers (minimum of 8 corrugation overlap and 2.0 mm wall thickness) and no single pipe less than 6.0 m in length. All pipes connected with couplers shall abut to each other with no more than a 25 mm gap between pipes prior to installation of the coupler and wrapped with filter fabric.*
Bedding below culvert pipes	*19 mm clear stone conforming to OPSS Division 10.*
Culvert Backfill	*Granular 'B' conforming to OPSS Division 10.*
Driveway Surface	*Granular 'A' made from crushed limestone conforming to OPSS Division 10. Minimum 200 mm thickness.*
Buffer Strips	*Dry native material free of topsoil, organic matter, broken concrete, steel, wood and deleterious substances.*

Erosion Stone	*All stone to be used for erosion protection shall be R-50 clear quarried rock per OPSS 1004, minimum 350 mm thickness.*
Filter Fabric	*"Non-Woven" geotextile filter fabric with a minimum strength equal or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC, or approved equivalent.*

9.4 Culvert No. 2 Materials

Materials shall be as follows:

Culvert No. 2	*New 61 m long, 1200 mm diameter high quality reinforced concrete pipe (CSA A-257.2, Class 65-D) complete with rubber gasket joints.*
Bedding below culvert pipes	*Granular 'A' conforming to OPSS Division 10 or 19 mm clearstone, minimum 150 mm thickness.*
Culvert Backfill	*Granular 'A' conforming to OPSS Division 10.*
Erosion Stone	*All stone to be used for erosion protection shall be R-50 clear quarried rock per OPSS 1004, minimum 350 mm thickness.*
Filter Fabric	*"Non-Woven" geotextile filter fabric with a minimum strength equal or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC, or approved equivalent.*

9.5 Culvert Installation

Suitable dykes shall be constructed in the drain so that the installation of the culvert can be accomplished in the dry. The drain bottom shall be cleaned, prepared, shaped, and compacted to suit the new culvert configuration, as shown on the drawings. Granular materials shall be compacted to 100% of their maximum dry density; imported clean native materials shall be supplied, placed, and compacted to 95% of their maximum dry density.

9.6 Sloping Stone End Walls

Sloping stone end walls shall be constructed of quarry stone rip rap (R-50), as shown on the drawings and as specified herein. The rip rap shall be sloped 1 vertical to 1.5 horizontal, with filter fabric underlay and spanning across the entire drain. The minimum thickness requirement of the erosion stone layer is 350 mm with no portion of the filter fabric to be exposed.

GENERAL SPECIFICATIONS

1.0 AGREEMENT AND GENERAL CONDITIONS

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

Where the word "Drainage Superintendent" is used in this specification, it shall mean the person, or persons appointed by the Council of the Municipality having jurisdiction to superintend the work.

Tenders will be received, and contracts awarded only in the form of a lump sum contract for the completion of the whole work or of specified sections thereof. The Tenderer agrees to enter into a formal contract with the Municipality upon acceptance of the tender. The General Conditions of the contract and Form of Agreement shall be those of the Stipulated Price Contract CCDC2-Engineers, 1994 or the most recent revision of this document.

2.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Each tenderer must visit the site and review the plans and specifications before submitting his/her tender and must satisfy himself/herself as to the extent of the work and local conditions to be met during the construction. Claims made at any time after submission of his/her tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions, will not be allowed. The Contractor will be at liberty, before bidding to examine any data in the possession of the Municipality or of the Engineer.

The quantities shown or indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking the quantities for accuracy prior to submitting his/her tender.

3.0 MAINTENANCE PERIOD

The successful Tenderer shall guarantee the work for a period of one (1) year from the date of acceptance thereof from deficiencies that, in the opinion of the Engineer, were caused by faulty workmanship or materials. The successful Tenderer shall, at his/her own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Engineer. Should the successful Tenderer for any cause, fail to do so, then the Municipality may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges, and expense so incurred may be deducted from any amount due to the Tenderer or may be collected otherwise by the Municipality from the Tenderer.

4.0 GENERAL CO-ORDINATION

The Contractor shall be responsible for the coordination between the working forces of other organizations and utility companies in connection with this work. The Contractor shall have no cause of action against the Municipality or the Engineer for delays based on the allegation that the site of the work was not made available to him by the Municipality or the Engineer by reason of the acts, omissions, misfeasance or non-feasance of other organizations or utility companies engaged in other work.

5.0 RESPONSIBILITY FOR DAMAGES TO UTILITIES

The Contractor shall note that overhead and underground utilities such as hydro, gas, telephone and water are not necessarily shown on the drawings. It is the Contractor's responsibility to contact utility companies for information regarding utilities, to exercise the necessary care in construction operations and to take other precautions to safeguard the utilities from damage.

All work on or adjacent to any utility, pipeline, railway, etc., is to be carried out in accordance with the requirements of the utility, pipeline, railway, or other, as the case may be, and its specifications for such work are to be followed as if they were part of this specification. The Contractor will be liable for any damage to utilities.

6.0 CONTRACTOR'S LIABILITY

The Contractor, his/her agents and all workmen or persons under his/her control including sub-contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work. The Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect to any injury to persons or property of whatever description and in respect of any infringement of any right, privilege or easement whatever, occasioned in the carrying on of the work, or by any neglect on the Contractor's part.

The Contractor shall indemnify and hold harmless the Municipality and the Engineer, their agents, and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the contract.

7.0 PROPERTY BARS AND SURVEY MONUMENTS

The Contractor shall be responsible for marking and protecting all property bars and survey monuments during construction. All missing, disturbed, or damaged property bars and survey monuments shall be replaced at the Contractor's expense, by an Ontario Land Surveyor.

8.0 MAINTENANCE OF FLOW

The Contractor shall, at his/her own cost and expense, permanently provide for and maintain the flow of all drains, ditches and water courses that may be encountered during the progress of the work.

9.0 ONTARIO PROVINCIAL STANDARDS

Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) shall apply and govern at all times unless otherwise amended or extended in these Specifications or on the Drawing. Access to the electronic version of the Ontario Provincial Standards is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to http://www.mto.gov.on.ca/english/transrd/. Under the title Technical Manuals is a link to the Ontario Provincial Standards. Users require Adobe Acrobat to view all pdf files.

10.0 APPROVALS, PERMITS AND NOTICES

The construction of the works and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced in this Contract. The Contractor shall obtain all approvals and permits and notify the affected authorities when carrying out work in the vicinity of any public utility, power, underground cables, railways, etc.

11.0 SUBLETTING

The Contractor shall keep the work under his/her personal control, and shall not assign, transfer, or sublet any portion without first obtaining the written consent of the Municipality.

12.0 TIME OF COMPLETION

The Contractor shall complete all work on or before the date fixed at the time of tendering. The Contractor will be held liable for any damages or expenses occasioned by his/her failure to complete the work on time and for any expenses of inspection, superintending, re-tendering or re-surveying, due to their neglect or failure to carry out the work in a timely manner.

13.0 TRAFFIC CONTROL

The Contractor will be required to always control vehicular and pedestrian traffic along roads and shall, at his/her own expense, provide for placing and maintaining such barricades, signs, flags, lights and flag persons as may be required to ensure public safety. The Contractor will be solely responsible for controlling traffic and shall appoint a representative to maintain the signs and warning lights at night, on weekends and holidays and at all other times that work is not in progress. All traffic control during construction shall be strictly in accordance with the **Occupational Health and Safety Act** and the current version of the **Ontario Traffic Manuals**. Access to the electronic version of the **Ontario Traffic Manual** is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to http://www.mto.gov.on.ca/english/transrd/, click on "Library Catalogue," under the "Title," enter "Ontario Traffic Manual" as the search. Open the applicable "Manual(s)" by choosing the "Access Key," once open look for the "Attachment," click the pdf file. Users require Adobe Acrobat to view all pdf files.

Contractors are reminded of the requirements of the Occupational Health and Safety Act pertaining to Traffic Protection Plans for workers and Traffic Control Plan for Public Safety.

14.0 SITE CLEANUP AND RESTORATION

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

15.0 UTILITY RELOCATION WORKS

In accordance with Section 26 of the Drainage Act, if utilities are encountered during the installation of the drainage works that conflict with the placement of the new culvert, the operating utility company shall relocate the utility at their own costs. The Contractor however will be responsible to co-ordinate these required relocations (if any) and their co-ordination work shall be considered incidental to the drainage works.

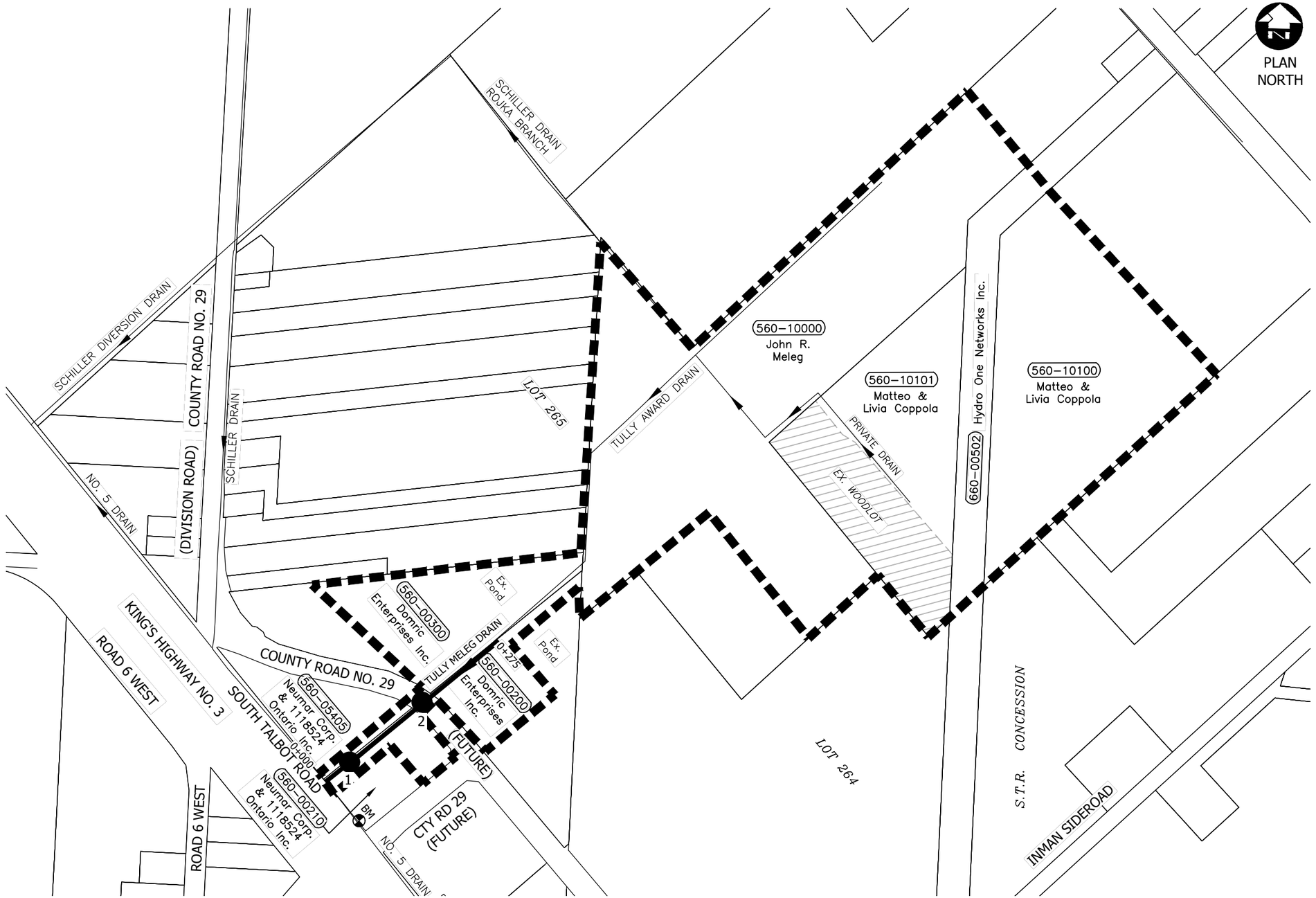
16.0 FINAL INSPECTION

All work shall be carried out to the satisfaction of the Drainage Superintendent for the Municipality, in compliance with the specifications, drawings and the Drainage Act. Upon completion of the project, the work will be inspected by the Engineer and the Drainage Superintendent. Any deficiencies noted during the final inspection shall be immediately rectified by the Contractor.

Final inspection will be made by the Engineer within 20 days after the Drainage Superintendent has received notice in writing from the Contractor that the work is completed, or as soon thereafter as weather conditions permit.

17.0 FISHERIES CONCERNS

Standard practices to be followed to minimize disruption to fish habitat include embedment of the culvert a minimum 10% below grade, constructing the work 'in the dry' and cutting only trees necessary to do the work (no clear-cutting). No in-water work is to occur during the timing window unless otherwise approved by the appropriate authorities.



OVERALL PLAN
SCALE=1:5,000

LEGEND

- WATERSHED BOUNDARY
- TULLY MELEG DRAIN
- OTHER DRAINS
- EXISTING WOODLOT
- NEW CULVERT

SITE BENCHMARK

BM

BM– TOP OF NORTHEAST CORNER OF EXISTING CONCRETE CULVERT OVER NO. 5 DRAIN SERVING DRIVEWAY ACCESS TO MUN. NO. 39 SOUTH TALBOT ROAD (ROYAL BRINKMAN)
ELEVATION=194.78m

NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.

LICENSED PROFESSIONAL ENGINEER
O. E. T. MOIR
100505851
2024/11/15
PROVINCE OF ONTARIO

Conditions of Use

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Do not scale dimensions from drawing.

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2	FINAL REPORT SUBMISSION	NOV. 15/24	OEM
1	CLIENT REVIEW	NOV. 8/24	OEM

DESIGN	TRO
REVIEWED BY	CBC
DRAWN	WLB
CHECKED BY	OEM
DATE	November 15, 2024
SCALE	AS SHOWN

DILLON CONSULTING

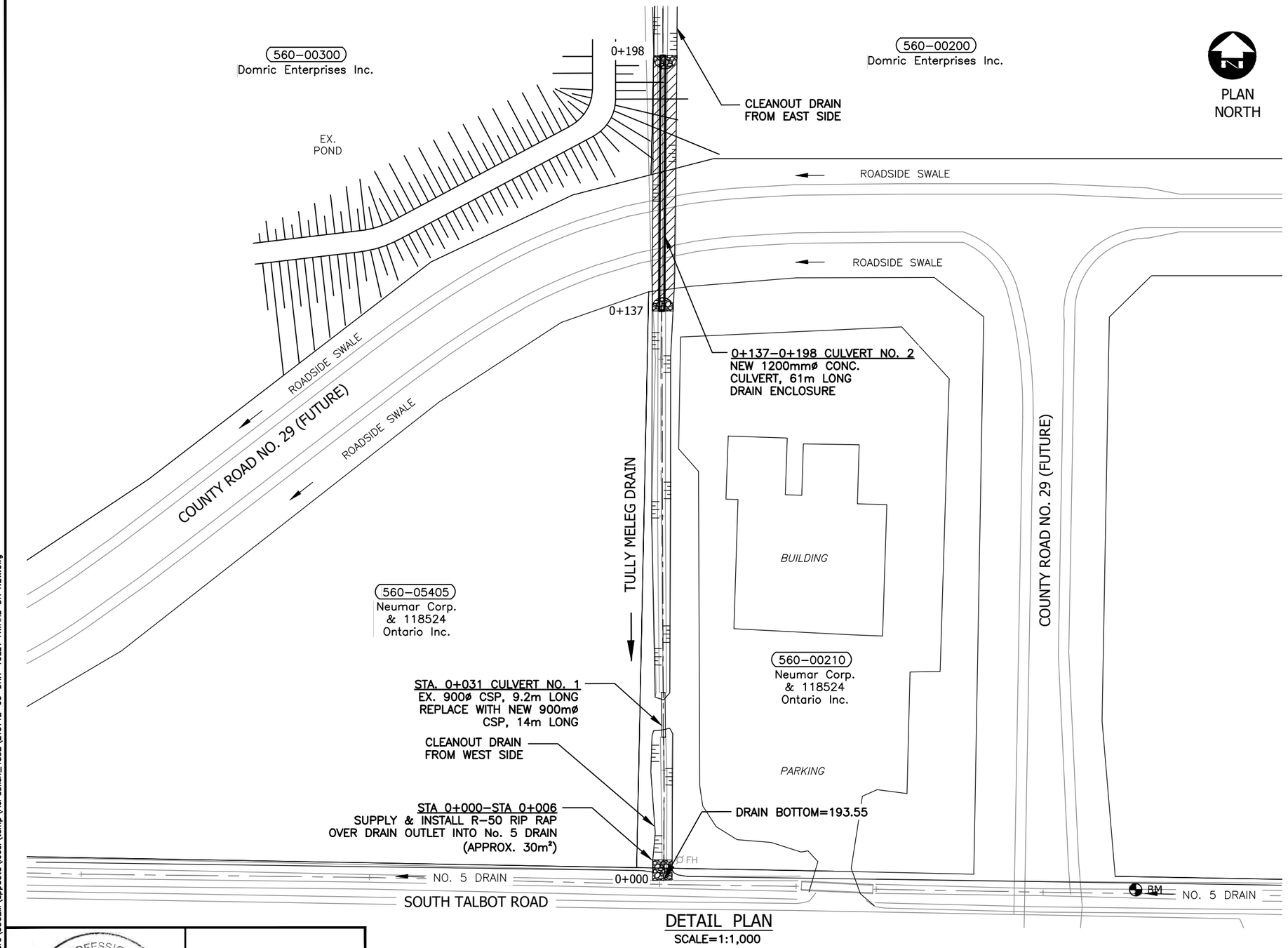
PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for the
TULLY MELEG DRAIN
Town of Kingsville

SHEET TITLE
OVERALL PLAN

PAGE NO. 1 of 5



DETAIL PLAN
SCALE=1:1,000

LICENSED PROFESSIONAL ENGINEER
O. E. T. MOIR
100505851
2024/11/15
PROVINCE OF ONTARIO

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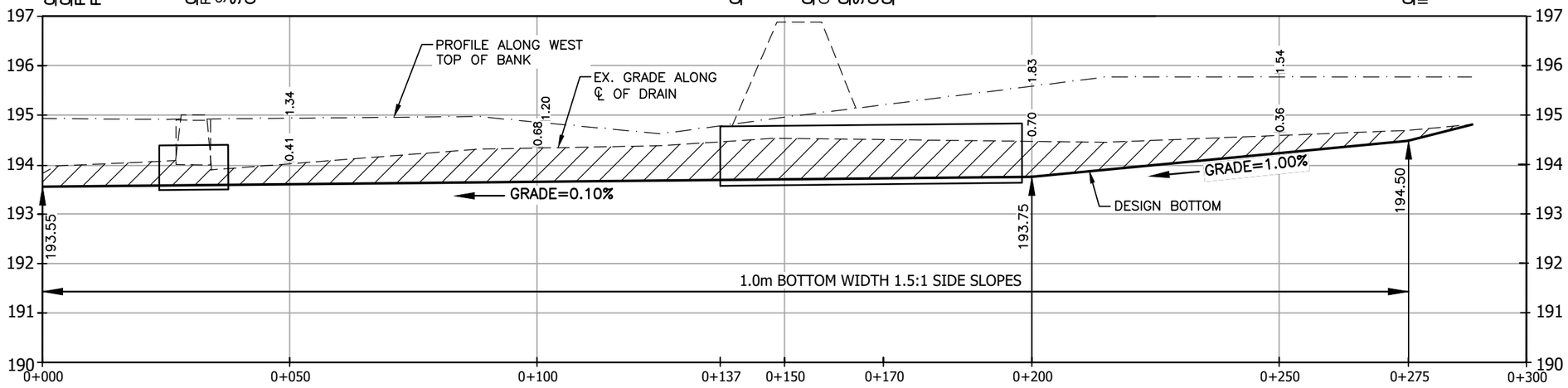
TULLY MELEG DRAIN
Town of Kingsville

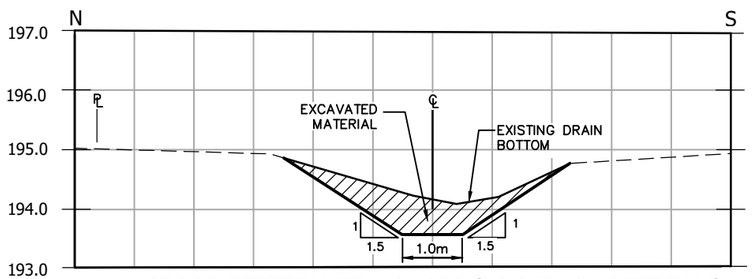
SHEET TITLE: DETAIL PLAN

PAGE NO. 2 of 5

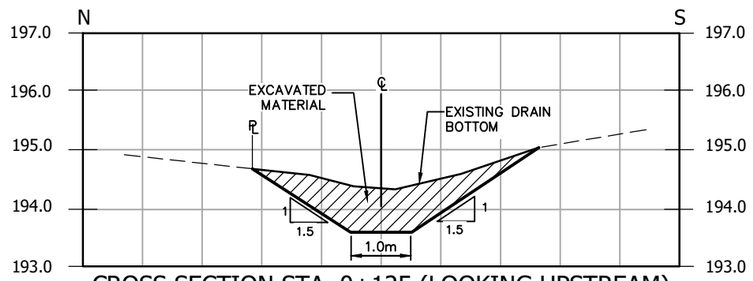


PROFILE

SCALE–HORIZ.=1:1,000
VERT.=1:100



CROSS SECTION STA. 0+020 (LOOKING UPSTREAM)
SCALE–1:100



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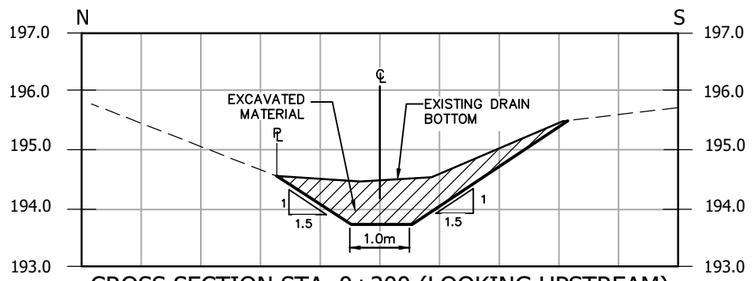

CROSS SECTION STA. 0+200 (LOOKING UPSTREAM)
SCALE–1:100

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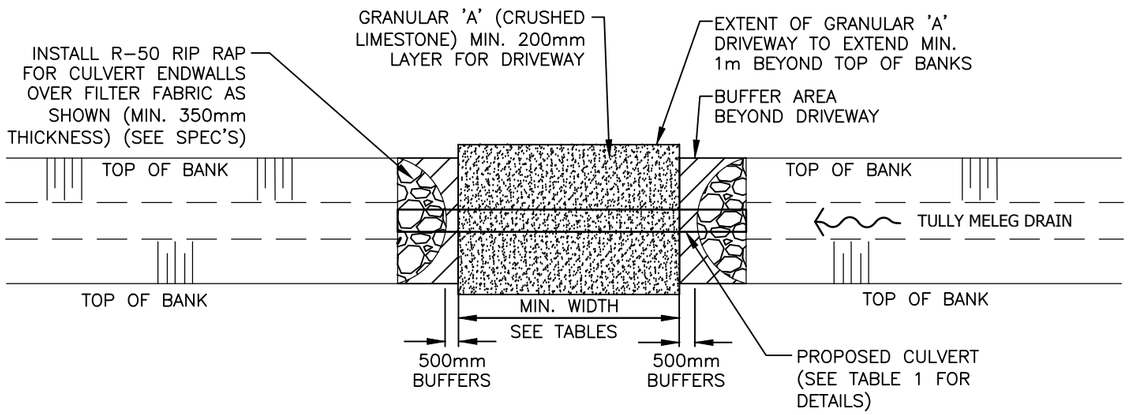
DRAWING SCALES BASED ON A 11" X 17" SHEET

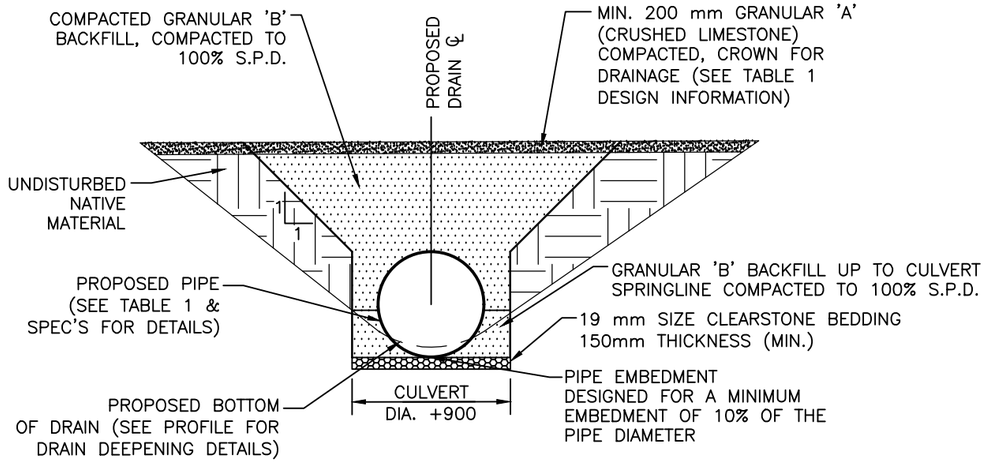
Drainage Report for the
TULLY MELEG DRAIN
Town of Kingsville

SHEET TITLE: PROFILE & SECTIONS

PAGE NO. 3 of 5

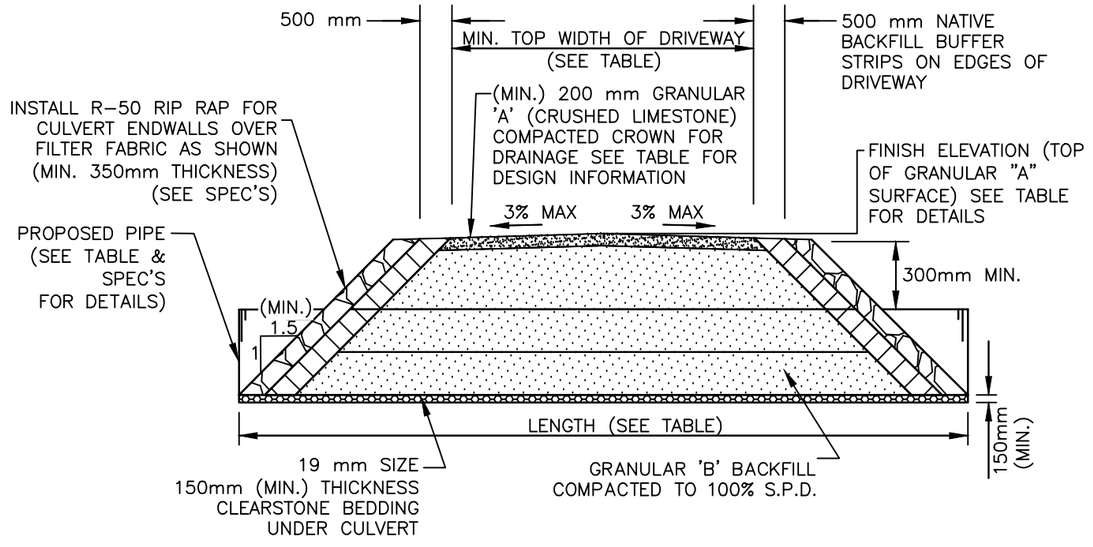


CULVERT NO. 1 PLAN
NOT TO SCALE



CULVERT NO. 1 CROSS SECTION
NOT TO SCALE

NOTE: CULVERT ALIGNMENT TO MATCH CENTERLINE OF DEEPENED DRAIN. SEE PLAN AND PROFILE FOR DETAILS



CULVERT NO. 1 LONGITUDINAL SECTION
NOT TO SCALE

TABLE 1 – CULVERT DESIGN INFORMATION	
DESCRIPTION	CULVERT NO. 1
PIPE INVERT ELEV. U/S SIDE(m)	193.50
PIPE INVERT ELEV. D/S SIDE(m)	193.48
TOP OF ℄ DRIVEWAY SURFACE ELEV. (m)	195.04
DRAIN BOTTOM (m) (DESIGN) (AT CENTRELINE OF CULVERT)	193.58
MIN. TOP WIDTH OF DRIVEWAY (m)	7.3
MIN. CULVERT GRADE (%)	0.10
CULVERT TYPE	CSP
CULVERT MATERIAL	ALUM.
CULVERT LENGTH (m)	14
CULVERT THICKNESS (mm)	2.8
CULVERT CORRUGATIONS (mm)	125x25
CULVERT SIZE (mm)	900
CULVERT ENDWALL TYPE	SLOPING

LICENSED PROFESSIONAL ENGINEER
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2024/11/15
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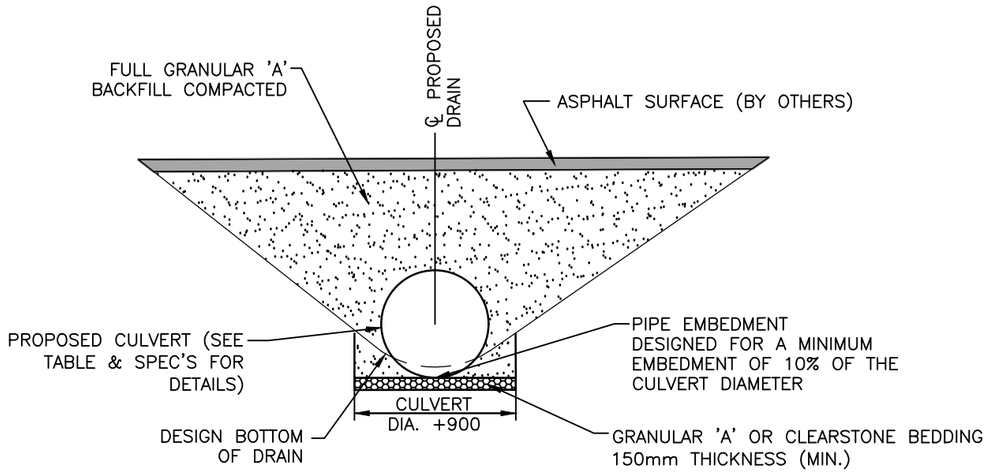
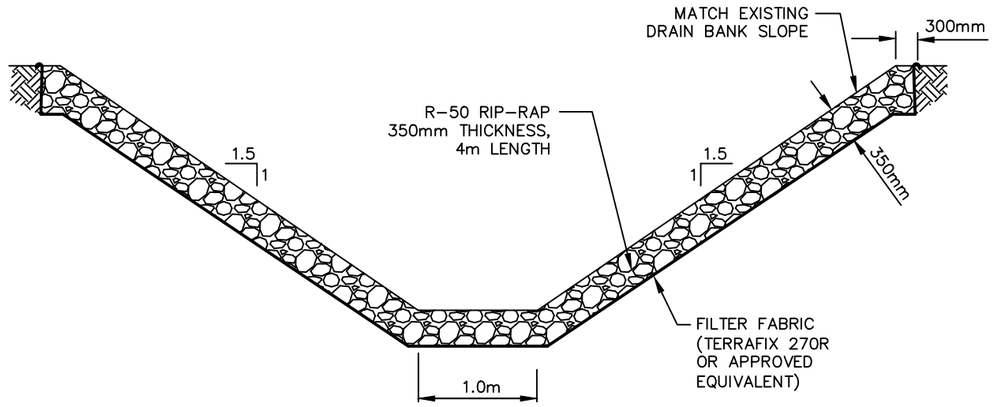
Drainage Report for the
TULLY MELEG DRAIN
Town of Kingsville

SHEET TITLE
CULVERT NO. 1 DETAILS

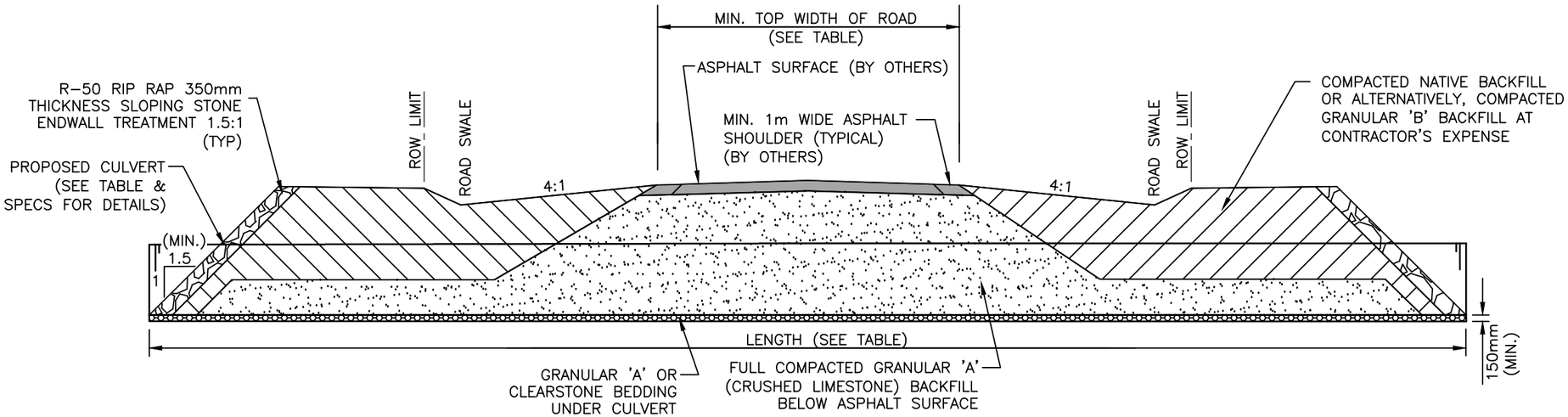
PAGE NO. 4 of 5



CULVERT NO. 2 SECTION (BELOW ROAD)
N.T.S.



STONE EROSION PROTECTION AT DRAIN OUTLET
N.T.S.



CULVERT NO. 2 LONGITUDINAL SECTION
NOT TO SCALE

TABLE 2 – CULVERT DESIGN INFORMATION

DESCRIPTION	CULVERT NO. 2
PIPE INVERT ELEV. U/S SIDE(m)	193.63
PIPE INVERT ELEV. D/S SIDE(m)	193.57
DRAIN BOTTOM (m) (DESIGN) (AT CENTRELINE OF CULVERT)	193.72
MIN. TOP WIDTH OF ROADWAY (m)	9.0
MIN. CULVERT GRADE (%)	0.10
CULVERT TYPE	65-D
CULVERT MATERIAL	CONCRETE
CULVERT LENGTH (m)	61
CULVERT SIZE (mm)	1200
CULVERT ENDWALL TYPE	SLOPING

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Town of Kingsville

SHEET TITLE
CULVERT NO. 2 DETAILS

PAGE NO. 5 of 5