DRAINAGE REPORT
FOR THE

IMPROVEMENTS TO THE
UPPER PORTION OF THE
NO. 5 DRAIN

FORMER TOWNSHIP OF GOSFIELD NORTH

TOWN OF KINGSVILLE

FINAL REPORT
23 JULY 2024
TIM R. OLIVER, P. ENG.
FILE No. 21-3142

DILLON
CONSULTING

File No. 21-3142

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Drainage Report for the

IMPROVEMENTS TO THE UPPER PORTION OF THE NO. 5 DRAIN

Former Township of Gosfield North
Now In the Town of Kingsville

Mayor and Members of Council:

Instructions

The Municipality received a request on 10 July 2023 from the Ministry of Transportation Ontario for the improvements to the No. 5 Drain to provide a sufficient outlet for new lateral drains serving lands to the north side of South Talbot Road including new road culverts, highway culvert extensions and the replacement of some existing access culverts. The proposed drainage works are required to facilitate the King's Highway No. 3 widening. 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 upper portion of the No. 5 Drain consists of an open channel commencing in the south part of Lot 264, South Talbot Road Concession and flowing north across King's Highway No. 3 and proceeding westerly along the north side of South Talbot Road for approximately 1785 metres before crossing back over the highway and continuing southerly through Concession 6 to the nearest existing access culvert within Lot 9. The length of the upper portion of the drain, as described herein, being approximately 2643 metres. The drainage area for the upper portion of the No. 5 Drain, upstream of Lot 9, Concession 6 is approximately 325.5 hectares (804 acres). The surficial soils are predominately Brookston Clay which is defined as having poor natural drainage.

The lower portion of the No. 5 Drain continues downstream to McCain Sideroad and then follows along the north side of the 6th Concession Road to its outlet into Elford Creek.

Drain History

The recent history of Engineers' reports for the No. 5 Drain follows:

- **28 July 2006 by Nick J. Peralta, P.Eng.:** This report contains a new assessment for the No. 5 Drain so that the cost of future maintenance works on the drain may be more fairly assessed. The report serves as the current governing bylaw for assessing maintenance costs for the entire length of drain. The technical aspects for portions of the drain in terms of design profile, bridges and culverts are governed by previous reports dating back to 1967, 1972 and 1978.

- **7 September 1978 by William J. Setterington, P.Eng.:** This report contains the technical aspects of the No. 5 Drain from the downstream limit at McCain Sideroad continuing upstream to the confluence with the Schiller Drain.
- **12 May 1972 by William J. Setterington, P.Eng.:** This report contains the technical aspects of the most upper part of the No. 5 Drain from the confluence with the Schiller Drain to the upstream end of the drain.
- **19 October 1967 by William J. Setterington, P.Eng.:** This report contains the technical aspects of the lower part of the No. 5 Drain from McCain Sideroad continuing downstream to the drain's outlet into Elford Creek.

Landowner Meeting

A landowner meeting was held on July 18, 2024 to discuss the proposed improvements to the No. 5 Drain. A summary of the on-site meeting is provided within Schedule 'A' herein.

Survey

Our survey and examination of the No. 5 Drain was carried out in June 2023. The survey comprised the recording of topographic data and examining the channel for available depth necessary to provide sufficient drainage. The extents of our survey started at the existing access culvert in Lot 9, Concession 6 and proceeded upstream approximately 2643 metres to the upper end of the drain.

Design Considerations

Drain Cleanout (Modified Drain Bottom Profile)

A minor design adjustment to the drain bottom gradient has been made to more closely match in with the existing access culvert elevations as per our survey. Downstream of the highway, the drain gradient was reduced from the 0.04% slope (1978 report) to a new slope of 0.03%. Upstream of the highway, the drain slope for the No. 5 Drain to the Schiller Branch Drain confluence was increased from 0.025% (1978) to 0.03% slope.

For the remaining upper part of the No. 5 Drain, the drain slope of 0.06% (1972 report) was increased to 0.10% slope and extending approximately 300 metres up to the proposed new County Road No. 29 crossing. This grade adjustment will improve the hydraulic performance of the drain upstream of the Schiller Branch Drain where there is a higher concentration of access culverts in addition to the introduction of two new culverts associated with the highway improvements. Beyond this point, the drain gradient is reduced to 0.04% up to the highway crossing to best align with these existing and new culverts situated within the No. 5 Drain.

Given the existing sediment build up that presently exists within the drain, a clean out of the upper portion to establish the new drain gradient is warranted to improve the drain's performance. When cleaned out to its full cross section, the open channel for the upper portion of the No. 5 Drain will for the most part convey the peak flows from a 1 in 10 year design storm with minimal overtopping of the drain banks.

There is also an interconnection between the upper portion of the No. 5 Drain and the Boose Drain that is located just downstream of the where the Schiller Branch Drain enters the No. 5 Drain. This offers some drainage relief and provides a secondary outlet for the No. 5 Drain during larger storm events. Although it is beyond the scope of the proposed improvements recommended under this report, regular maintenance of both the Boose Drain and No. 5 Drain are essential for an optimum level of service.

Culvert Works

A hydraulic analysis was performed on the existing and new culverts situated along the upper portion of the No. 5 Drain and the level of service is described below:

Culvert No. 1 is an existing 1800 mm dimeter CSP private access culvert in fair condition and has adequate capacity to convey a 1 in 2 year design storm which is typical for agricultural crossings over municipal drains.

Culvert No. 2, an existing 2440 mm span x 1830 mm rise concrete culvert for the King's Highway No. 3 crossing, 30 m in length. The proposed downstream culvert extension is a similar 2440 mm x 1830 mm culvert that is to be connected to the existing culvert and 28.7 m in length. The MTO design criteria for rural arterial road bridges is to convey a 1 in 25 year event such that approximately 1 metre of freeboard is provided from the high water level to the edge of the travelled lane. This criterion was used to assess the affects the culvert extensions may have on the upstream high water level. The highway culvert is located within the upper half of the No. 5 Drain and upstream of South Talbot Road, the said portion of drain has less than a 1 in 25 year storm capacity with flows overtopping the drain banks both upstream and downstream of the highway culvert.

A Drainage, Hydrology/Hydraulics and Stormwater Management Report was completed by Dillon Consulting Limited (August 2023) to document the expected high water levels in the drain upstream in both an existing and proposed condition. The report identified that the existing culvert currently does meet the MTO freeboard design criteria, despite the limited capacity of the downstream No. 5 Drain being less than the flows expected during a 1 in 25 year storm event. The extension of the culvert recommended would have a negligible increase in the 25 year storm water elevation and therefore no adverse impacts to the upstream lands served by the No. 5 Drain.

Culvert No. 3 is an existing 2700 mm span x 1830 mm rise concrete culvert for the South Talbot Road crossing, 13 m in length. Similar to Culvert No. 2 for Highway No. 3, the said road culvert is in fair condition and has adequate capacity to convey a 1 in 25 year design storm.

Culvert No. 4 is an existing 3050 mm x 2440 mm concrete culvert for the County Road No. 29 crossing, 35 m in length. The proposed extension is a similar 3050 mm x 2440 mm concrete box culvert to be connected to the existing culvert and 9.8 m in length. The downstream end of the new culvert section shall consist of cast-in-place concrete headwall. Beyond the headwall, the disturbed drain channel section shall be lined with R-50 riprap, minimum 350 mm thickness for a minimum distance of 3 metres beyond the culvert. Similar to Culvert No. 2 for Highway No. 3, the said road culvert is in fair condition and with the extension in length downstream it remains with adequate capacity to convey a 1 in 25 year design storm.

Culvert No. 5 is an existing 1350 mm CSP private access culvert in fair condition, however it is perched about the drain bottom and is under capacity. With the future roadworks and modifications being made to both County Road No. 29 and South Talbot Road to suit the new Highway No. 3 improvements, a new access culvert is proposed and to be relocated further upstream. The proposed culvert is a 13.0 m long, 1600 mm diameter aluminized corrugated steel pipe complete with sloping stone end treatment and providing a minimum 9.0 m driveable top width. In terms of level of service, the new culvert is designed to adequately convey a 1 in 10 year design storm within the culvert profile without an increased headwater upstream of the culvert. For properties fronting South Talbot Road which are

presently zoned for future light industrial use, a minimum 1 in 10 year design capacity for this crossing is typical.

Culvert No. 6 is an existing 1800 mm x 1220 mm concrete private access culvert in fair condition and has adequate capacity to convey a 1 in 10 year design storm for crossings serving future light industrial use properties.

Culvert No. 7 is a proposed new road culvert for the new County Road 29 alignment and intersection with Highway No. 3. The proposed culvert is a 26.9 m long, 1650 mm diameter concrete pipe culvert complete with sloping stone end treatment. The road culvert has been designed to adequately convey a 1 in 10 year design storm within the culvert profile without an increased headwater upstream of the culvert.

Culvert No. 8 is an existing 15.4 m long 1200 mm diameter CSP private access culvert in fair condition, however to facilitate the construction of a cul-du-sac and road closure of South Talbot Road, a new culvert is required to serve both the existing private access and the cul-de-sac crossing as one longer culvert. The proposed culvert shall consist of a 1500 mm diameter HDPE culvert, 45.0 m in length complete with sloping stone end treatment. It has been designed as a road culvert to adequately convey a 1 in 10 year design storm within the culvert profile without an increased headwater upstream of the culvert.

Culvert No. 9 is an existing 1200 mm CSP private access culvert in fair condition and has adequate capacity to convey a 1 in 10 year design storm for crossings serving future light industrial use properties.

Culvert No. 10 is an existing 1200 mm rise CSP culvert in fair condition serving the South Talbot Road crossing, 22 m in length. The said road culvert has adequate capacity to convey a 1 in 25 year design storm.

Culvert No. 11, an existing 1200 mm diameter CSP culvert for the King's Highway No. 3 crossing, 22 m in length. The proposed upstream culvert extension is a similar 1200 mm diameter culvert that is to be connected to the existing culvert and 29.0 m in length. The MTO design criteria for rural arterial road bridges is to convey a 1 in 25 year event such that approximately 1 metre of freeboard is provided from the high water level to the edge of the travelled lane. This criterion was used to assess the affects the culvert extensions may have on the upstream high water level. The highway culvert is located within the upper half of the No. 5 Drain and upstream of Highway No. 3, the said portion of drain has less than a 1 in 25 year storm capacity.

A Drainage, Hydrology/Hydraulics and Stormwater Management Report was completed by Dillon Consulting Limited (August 2023) to document the expected high water levels in the drain upstream in both an existing and proposed condition. The report identified that the existing culvert currently does meet the MTO freeboard design criteria, despite the limited capacity of the downstream No. 5 Drain being less than the flows expected during a 1 in 25 year storm event. The extension of the culvert recommended would have a negligible increase in the 25 year storm water elevation and therefore no adverse impacts to the upstream lands served by the No. 5 Drain.

Culvert No. 12 is an existing 750 mm diameter concrete private access culvert in fair condition and has adequate capacity to convey a 1 in 2 year design storm which is typical for agricultural crossings over municipal drains.

Allowances

In accordance with Section 30 of the Drainage Act, we determined the compensation to

landowners for damages for the spreading and levelling of drain spoils with the designated working corridor between Station 0+000 and Station 0+615 (east side of drain), from Station 0+725 to Station 1+368 (north side of drain) and from Station 2+278 to Station 2+510 (north side of drain). For the remaining portions of drain to be cleaned, the access to the drain shall be from South Talbot Road and the drain spoils removed and trucked off site. Schedule 'B' herein, shows the distribution of these allowances for damages in the total amount of $3,700.00 for the No. 5 Drain cleanout between Station 0+000 and Station 2+643.

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
	No 5 DRAIN	
1.	Brushing of the drain from Station 0+000 to Station 2+643 including removal off-site with trimming and/or removal of existing trees within the drain as required to accommodate the drainage works. The work shall include disposal of brush by means of stockpiling and burning where permitted or alternatively to be trucked off-site. Working corridor confined to the South Talbot Road right-of-way between Station 1+368 and Station 2+233.	$ 35,000.00
2.	Drain excavation and levelling of drain spoils within designated working corridors, as follows:	
	a) Excavation of drain bottom from Station 0+000 to Station 0+615, and levelling of drain spoils on east side of drain, totaling 615 lineal metres and approx. 400 m^3.	$ 16,500.00
	b) Excavation of drain bottom from Station 0+725 to Station 0+794 and levelling of drain spoils on north side of drain, totaling 69 lineal metres and approx. 20 m^3.	$ 2,000.00
	c) Excavation of drain bottom from Station 2+233 to Station 2+510 and levelling of drain spoils on north side of drain, totaling 277 lineal metres and approx. 185 m^3.	$ 7,500.00
3.	Drain excavation and trucking of drain spoils off-site to an approved soil management disposal area, as follows:	
	a) Excavation of drain bottom from Station 0+794 to Station 1+368, from South Talbot Road totaling 574 lineal metres and approx. 155 m^3.	$30,000.00
	b) Excavation of drain bottom from Station 1+368 to Station 2+233, from South Talbot Road totaling 865 lineal metres and approx. 350 m^3.	$ 58,500.00
	c) Excavation of drain bottom from Station 2+594 to Station 2+638, from east side of drain, totaling 44 lineal metres and approx. 30 m^3.	$ 4,500.00

Item	Description	Amount
4.	Culvert Extension Work, as follows:	
	a) Culvert No. 2 D/S Extension - (King's Highway No. 3) – Supply and installation of a new 28.7 m long 2440 mm x 1830 mm concrete box culvert with footings connected to the existing culvert with skewed end, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, Granular 'A' road sub-base, gabion basket headwall and R-50 riprap within the drain channel beyond fully lined for a minimum 5 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 30.1 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.	$ 340,000.00
	b) Culvert No. 4 D/S Extension - (County Road No. 29): Supply and installation of a new 9.8 m long 3050 mm x 2440 mm concrete box culvert with footings connected to the existing culvert, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, Granular 'A' road sub-base, cast in place concrete headwall and R-50 riprap within the drain channel beyond fully lined for a minimum 3 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 33.4 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.	$ 180,000.00
	c) Culvert No. 11 U/S Extension - (King's Highway No. 3) – Supply and installation of a new 29 m long 1200 mm diameter CSP culvert, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, Granular 'A' road sub-base, gabion basket headwall and R-50 riprap within the drain channel beyond fully lined for a minimum 3 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 22 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.	$ 25,000.00
5.	Culvert Replacement Work as follows:	
	a) Culvert No. 5 - (Private Access Culvert): Remove existing 1350	$ 37,500.00

Item	Description	Amount
	mm diameter CSP culvert and headwalls, 7.3 m long including disposal of debris off-site and replace with a new 13.0 m long, 1600 mm diameter CSP culvert complete with compacted Granular 'A' bedding, compacted full Granular 'B' Type II backfill up to road subgrade, Granular 'A' driveway surface (min. 200 mm thickness) and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.	
	b) Culvert No. 8 – (South Talbot Road/Private Access Culvert): Remove existing 1200 mm diameter CSP culvert and headwalls, 15.3 m long including disposal of debris off-site and replace with new 45.0 m long 1500 mm diameter CSP culvert complete with compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, Granular 'A' road sub-base and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.	$ 155,000.00
6.	New Culvert Work as follows:	
	a) Culvert No. 7 - (County Road No. 29): Supply and installation of a new 26.9 m long 1650 mm diameter 100-D Concrete pipe culvert complete with compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'A' backfill up to road sub-base, and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.	$ 140,000.00
7.	Culvert Cleaning Work, as follows:	
	a) Culvert No. 1 – (Private Access Culvert) – 6 m long, 1800 mm diameter CSP culvert including disposal of sediments off-site.	$1,000.00
	b) Culvert No. 3 – (South Talbot Road) - 13 m long, 2700 mm x 1830 mm concrete culvert including disposal of sediments off-site.	$2,500.00
	c) Culvert No. 9 – (Private Access Culvert) – 19 m long, 1200 mm diameter CSP culvert including disposal of sediments off-site.	$2,000.00
	d) Culvert No. 10 – (South Talbot Road) – 22 m long, 1200 mm diameter CSP culvert including disposal of sediments off-site.	$2,000.00
8.	Temporary silt control measures during construction.	$ 5,000.00
	SUB-TOTAL	**$1,044,000.00**
9.	Allowances under Section 30 of Drainage Act	$3,700.00

Item	Description	Amount
10.	Report, Assessments and Final Inspection.	$ 44,000.00
11.	Expenses and Incidentals.	$ 1,500.00
12.	ERCA application and permit fee.	$800.00
	TOTAL ESTIMATE – No. 5 DRAIN (excluding Net HST)	**$1,094,000.00**

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 improvements to the No. 5 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. As the realignment works are only required for the proposed highway widening including associative drain bottom excavation, realignment and culvert work beyond the highway corridor limits, we have 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 (Upper Portion of Drain Sta. 0+000 to Sta. 2+643)

For the upper portion of open drain, the future maintenance costs shall be assessed in the same relative proportions as outlined within Schedule 'E-1' appended hereto. The assessment of costs is based on an arbitrary $10,000.00. Where there is trucking of excavated drain spoils to be hauled away as opposed to levelling within the adjacent designated working corridor on agricultural lands, 100% of the trucking costs including any excess soils permits and/or approvals through the Excess Soils Regulations shall be assessed to the affected landowner. Where the No. 5 Drain resides alongside South Talbot Road and abuts non-agricultural lands, 50% of the associative costs for drain spoils removed in front of each property shall be assessed to the affected landowners fronting the said portion of drain and the remaining 50% assessed to the Town of Kingsville road authority.

Future Maintenance (Private Access Replacement Culvert Crossings)

For private access replacement culverts, denoted herein as Culvert No. 5, Culvert No. 6 and Culvert No. 9, the future maintenance costs shall be assessed 50% to property being accessed over the drain by the crossing and the remaining 50% as an outlet assessment against the lands and roads using the drain upstream of the affected crossing. Schedule 'E-2' represents the most downstream Culvert No. 5 outlet assessment portion. The outlet assessment portion shall be assessed in the same relative proportions as outlined within Schedule 'E-2' appended hereto for the other Culverts No. 6 and No. 9 to the affected upstream lands and roads only. The assessment of costs is based on an arbitrary $1,000.00.

Future Maintenance (Road Culvert Crossings of South Talbot Road)

For the road culverts across South Talbot Road, denoted herein as Culvert No. 3, No. 8 and No. 10, the future maintenance costs shall be assessed 100% to the Town of Kingsville Road Authority, in accordance with Section 26 of the Drainage Act.

Future Maintenance (Road Culvert Crossings of County Road No. 29)

For the road culverts across County Road No. 29, denoted herein as Culvert No. 4 and No. 7, the future maintenance costs shall be assessed 100% to the County of Essex Road Authority, in accordance with Section 26 of the Drainage Act.

Future Maintenance (Road Culvert Crossings of King's Highway No. 3)

For the road culverts across King's Highway No. 3, denoted herein as Culvert No 2 and Culvert No. 11, the future maintenance costs shall be assessed 100% to the Ministry of Transportation Ontario, in accordance with Section 26 of the Drainage Act.

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 9 – Overall Plan
Page 2 of 9 – Property Information
Page 3 of 9 – Culvert No. 2 Details
Page 4 of 9 – Culvert No. 4 – 8 Details
Page 5 of 9 – Culvert No. 11 Details
Page 6 of 9 – Profile 1
Page 7 of 9 – Profile 2
Page 8 of 9 – Profile 3
Page 9 of 9 – Profile 4 and Cross Sections

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. Culvert drawings have been prepared for the construction 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 outlined within this report. An application for permit shall be made by the Town of Kingsville for the proposed undertakings associated with this municipal drain.

In 2021, a Fish and Fish Habitat Impact assessment was undertaken to identify the impacts of the approved improvements to fish and fish habitat within the Highway 3 Study Area. The assessment was completed in accordance with the requirements of the Interim 2020 MTO/DFO/NDMNRF Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings, Version 4 (Fisheries Protocol) and the guidance provided in MTO's (2020) Interim Environmental Guide for Fish and Fish Habitat (Fish Guide).

As per the direction received from Mr. Chris Evans, Environmental Planner MTO, all documentation (i.e., forms and templates) has been prepared so as to be compliant with the Interim Fish Guide (April 2020). The Fish and Fish Habitat Existing Conditions and Impact Assessment Report, Highway 3 Widening and Safety Enhancement Study (GHD, July2021) provides the impact analysis.

The No. 5 Drain was identified to support direct fish habitat and the culvert replacements and extensions are not likely to result in the death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat.

Respectfully submitted,

DILLON CONSULTING LIMITED

Tim R. Oliver, P.Eng.
TRO:sjc

SCHEDULE 'A'
SUMMARY OF LANDOWNER MEETING
July 18, 2024 @ 9:30 a.m.
Grovedale Art & Culture Centre, Kingsville

Present:

Pete Peters	Landowner
Jake Friesen	Landowner
Jana L. Howe	Landowner
Rene Paquin	Landowner
Brenda & Larry Layson	Landowner
Tom Dalziel	Landowner
Mark Damphouse	Landowner
John Meleg	Landowner
Peter Stephens	Landowner
Bill Jamieson	Landowner
Jeff Kettlewell	Ministry of Transportation Ontario
Iqbal Muhammad	Ministry of Transportation Ontario
Wayne Bell	Ministry of Transportation Ontario
Mohammad Al-Ahmad	Ministry of Transportation Ontario
Jaclyn Charlton	Ministry of Transportation Ontario
Siva Tharmabala	Ministry of Transportation Ontario
O'Neil Nembhard	Ministry of Transportation Ontario
Orion Raes	Green Infrastructure Partners Inc.
Carlo DiMambro	Green Infrastructure Partners Inc.
Tamish Gupta	Altus Group
Jeff Zhang	GHD Engineering Canada
Lu-Ann Marentette	Town of Kingsville
Todd Kerr	Town of Kingsville
Clarke Campbell	Dillon Consulting Limited
Tim Oliver	Dillon Consulting Limited

Tim Oliver provided an overview of the recommended improvements to be made to the upper portion of the No. 5 Drain mostly situated along the north side of South Talbot Road. The upstream drainage area affected by the proposed improvements represents approximately 800 acres for which property owners within this area were given notice to attend the site meeting. This is a requirement under the Drainage Act legislation.

Proposed works include the downstream extension of both the Highway No. 3 and County Road 29 culverts, in order to facilitate the highway widening and the revised South Talbot Road/County Road 29 intersection. The portion of the No. 5 Drain starting from an existing access culvert located approx. 600 metres downstream of Highway 3 and proceeding upstream across Highway No. 3 and easterly for a total length of approx. 2,500 metres shall require cleaning such that the new culverts provide the necessary capacity and can accommodate the revised grading and modifications that are required to be made to the drain bottom design profile to suit the new and existing culverts. Other works include the replacement of some existing driveway access culverts to private properties where the culverts are either insufficient in capacity or require an elevation adjustment to suit the new modified drain profile. There are also new road culverts proposed for the new County Road 29 alignment and revised intersection location with Highway 3 and for the new turnaround circle for South Talbot Road east of the new interaction that will cross over the No. 5 Drain. Associated with the drain cleanout where there are agricultural lands the soils removed, as part of the work, shall be spread and levelled in the designated working

corridors and the landowners are being provided allowances to compensate them as required as per the Drainage Act for the temporary loss of crop production due to soil placement. All the costs of the drain improvements are being assessed to the Ministry of Transportation.

Tim Oliver stated that the drainage report would be completed and the council meeting is scheduled for August 12, 2024 for Town of Kingsville Council to consider and adopt the report.

Mark Damphouse who owns lands adjacent to the south side of Highway 3 and partially drains his lands into the No. 5 Drain had asked about the extent of the drain cleanout to be going only as far as the first downstream culvert beyond the highway. He indicated that at his property drain has standing water being backed up that is not draining and is inundating his tile drain outlets and had questioned why the drain has not been examined further beyond downstream to determine where the blockage is causing water to backup.

He also mentioned the No. 5 Drain was recently cleaned downstream of his property and there still remains standing water in the drain when no water in present further downstream at McCain Sideroad. He suspects the concrete parking lot of Setterington's Truck service property that lies over the drain may be where the blockage exists and should be investigated further.

Lu-Ann Marentette suggested she could have a look to see if the culvert is blocked or failing and can address this a maintenance issue. The engineer determines how far to go downstream to improve a drain's capacity and found the first culvert downstream was the full extent necessary to consider modifications to the drain profile and address upstream improvements. The balance of the drain downstream of this culvert can be handled through a drain maintenance request.

Tim Oliver stated the extent of the drain cleanout determined from our survey was stopping at the bottom of the first culvert located approx. 600 metres downstream of Highway 3 because this was determined to be a sufficient outlet for the improvements being made. The cleanout permits the No. 5 Drain portion that is upstream of the highway to fully drain without leaving any standing water. Farm drain tiles are typically provided with at least 12 inches of freeboard being above the drain design bottom and the drain presently has accumulated as much as 18 inches of sediment, therefore the drain may need further maintenance downstream to address any persistent standing water in the drain downstream of the highway. A modified drain profile or deepening of the drain is considered an improvement and would not be considered a drain maintenance project. Therefore, if the farm tile drains are situated at or near the bottom of the drain and still remain under water following a downstream drain cleaning, a request for a drain improvement may be required which is beyond the scope of the current project.

Meeting summary prepared by Tim Oliver, P. Eng.

"SCHEDULE B"

SCHEDULE OF ALLOWANCES

UPPER PORTION OF THE No. 5 DRAIN

TOWN OF KINGSVILLE

Roll No.	Con.	Description	Owner	Section 30 Damages	Section 29 Land	Total Allowances
490-00500	6	Pt. Lot 10	Robert S. Lorkovic	$1,100.00	$0.00	$1,100.00
490-00400	6	Pt. Lot 10	Terry D. Ramsay	$1,350.00	$0.00	$1,350.00
560-00500	STR	Pt. Lot 267	John S. & David S. Bachtold	$300.00	$0.00	$300.00
560-10600	STR	Pt. Lot 264	Rachel A. Gibbs	$950.00	$0.00	$950.00
TOTAL ALLOWANCES				**$3,700.00**	**$0.00**	**$3,700.00**

"SCHEDULE C"
SCHEDULE OF ASSESSMENT
UPPER PORTION OF THE No. 5 DRAIN
TOWN OF KINGSVILLE

ONTARIO LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
King's Highway No. 3	32.52	13.16	Ministry of Transportation	$1,094,000.00	$0.00	$0.00	$1,094,000.00
Total on Ontario Lands				$1,094,000.00	$0.00	$0.00	$1,094,000.00
TOTAL ASSESSMENT				**$1,094,000.00**	**$0.00**	**$0.00**	**$1,094,000.00**

"SCHEDULE E-1"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE (OPEN DRAIN)
UPPER PORTION OF THE No. 5 DRAIN
TOWN OF KINGSVILLE

ONTARIO LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
King's Highway No. 3	32.52	13.16	Ministry of Transportation	$0.00	$582.00	$1,199.00	$1,781.00
Total on Ontario Lands				$0.00	$582.00	$1,199.00	$1,781.00

MUNICIPAL LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
County Road No. 34	4.22	1.71	County of Essex	$0.00	$28.00	$123.00	$151.00
County Road No. 29	15.65	6.33	County of Essex	$0.00	$146.00	$464.00	$610.00
South Talbot Road	9.63	3.90	Town of Kingsville	$0.00	$299.00	$209.00	$508.00
Inman Sideroad	3.18	1.29	Town of Kingsville	$0.00	$21.00	$115.00	$136.00
Unnamed Road	4.00	1.62	Town of Kingsville	$0.00	$26.00	$145.00	$171.00
Total on Municipal Lands				$0.00	$520.00	$1,056.00	$1,576.00

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-04300	STR	Pt. Lot 267	0.78	0.32	William J. Walters & Danielle L. Reaume	$0.00	$3.00	$11.00	$14.00
560-04400	STR	Pt. Lot 267	0.37	0.15	Rose-Anne Renaud	$0.00	$1.00	$6.00	$7.00
560-04500	STR	Pt. Lot 267	0.37	0.15	Michael A. Vanderwaetere	$0.00	$1.00	$6.00	$7.00
560-04600	STR	Pt. Lot 267	0.51	0.21	John & Linda A. Fountain	$0.00	$2.00	$9.00	$11.00
560-04601	STR	Pt. Lot 267	0.69	0.28	Meyrick C. & Bridget N. Stanton	$0.00	$2.00	$10.00	$12.00
560-04603	STR	Pt. Lot 267	0.71	0.29	Ray & Michelle Nassar	$0.00	$2.00	$10.00	$12.00
560-04621	STR	Pt. Lot 267	0.76	0.31	Thomas A. & Cindy D. Dalziel	$0.00	$2.00	$11.00	$13.00
560-04650	STR	Pt. Lot 267	0.47	0.19	Jason T. & Irma V. Deelstra	$0.00	$2.00	$8.00	$10.00
560-04700	STR	Pt. Lot 267	0.81	0.33	Joseph P. Belanger	$0.00	$3.00	$11.00	$14.00
560-04800	STR	Pt. Lot 267	0.46	0.19	Jacob & Margaretha Heide	$0.00	$2.00	$8.00	$10.00
560-04810	STR	Pt. Lot 267	0.55	0.22	Peter & Susana Letkeman	$0.00	$2.00	$9.00	$11.00
560-04820	STR	Pt. Lot 267	0.55	0.22	Roberta Atkins & Ralph Furfaro	$0.00	$2.00	$9.00	$11.00
560-04830	STR	Pt. Lot 267	0.55	0.22	Angelo A. & Linda A. Schincariol	$0.00	$2.00	$9.00	$11.00
560-04900	STR	Pt. Lot 267	0.65	0.26	Darcy & Maureen W. Shepley	$0.00	$2.00	$10.00	$12.00
560-04850	STR	Pt. Lot 267	11.66	4.72	Frank B. & Tina Teichroeb	$0.00	$15.00	$66.00	$81.00
560-04950	STR	Pt. Lot 267	1.01	0.41	Mark V. & Marcia C. Mallia	$0.00	$3.00	$11.00	$14.00
560-05000	STR	Pt. Lot 267	1.87	0.76	Frank B. & Julianna Klassen	$0.00	$3.00	$14.00	$17.00
560-05100	STR	Pt. Lot 267	0.93	0.38	John D. & Linda L. Patterson	$0.00	$3.00	$11.00	$14.00
560-05200	STR	Pt. Lots 266 & 267	1.64	0.66	Adam S. & Maguerite N. Watts	$0.00	$3.00	$13.00	$16.00
560-08600	STR	Pt. Lot 266	2.24	0.91	Philip A. & Jana L. Howe	$0.00	$4.00	$15.00	$19.00
560-08800	STR	Pt. Lot 266	0.34	0.14	Tracy L. Lewis	$0.00	$1.00	$6.00	$7.00
560-08901	STR	Pt. Lot 266	1.20	0.49	Aaron R. & Kailey J. Smith	$0.00	$3.00	$12.00	$15.00
560-09000	STR	Pt. Lot 266	3.01	1.22	Ihor & Nancy G. Bilyk	$0.00	$4.00	$17.00	$21.00
560-08501	STR	Pt. Lot 266	0.69	0.28	Bobbi-Jo M. & Gerald J. Rupert	$0.00	$2.00	$10.00	$12.00
560-08500	STR	Pt. Lot 266	1.00	0.40	Rodney P. & Melissa A. Gomez	$0.00	$3.00	$11.00	$14.00
560-08405	STR	Pt. Lot 266	0.86	0.35	William P. Dunn	$0.00	$3.00	$11.00	$14.00
560-08400	STR	Pt. Lot 266	4.19	1.70	Sarkis & Dianne Jraige	$0.00	$6.00	$24.00	$30.00
560-08320	STR	Pt. Lot 266	0.45	0.18	Margaret E. Matthys	$0.00	$2.00	$8.00	$10.00
560-08200	STR	Pt. Lot 266	0.61	0.25	Johan Wiebe	$0.00	$2.00	$10.00	$12.00
560-08100	STR	Pt. Lot 266	0.56	0.23	Joseph P. Leili	$0.00	$2.00	$9.00	$11.00
560-05300	STR	Pt. Lot 266	0.43	0.17	Violet D. Watts	$0.00	$2.00	$7.00	$9.00

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)		Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-05400	STR	Pt. Lot 266	3.30	1.34		John & Catherine Lapain	$0.00	$4.00	$19.00	$23.00
560-05401	STR	Pt. Lot 266	1.00	0.40		Wilfred & Madeline Fletcher	$0.00	$3.00	$11.00	$14.00
560-05402	STR	Pt. Lot 266	0.60	0.24		Larry J. & Brenda L. Layson	$0.00	$2.00	$9.00	$11.00
560-05403	STR	Pt. Lot 266	0.45	0.18		Katharina Giesbrecht & Jacob P. Friesen	$0.00	$2.00	$8.00	$10.00
560-05500	STR	Pt. Lot 266	0.26	0.11		Lloyd J. & Bettie A. Kerr	$0.00	$1.00	$5.00	$6.00
560-05501	STR	Pt. Lot 266	0.68	0.28		Peter Stephens & Kendra Neufeld-Stephens	$0.00	$2.00	$10.00	$12.00
560-08000	STR	Pt. Lot 266	1.00	0.40		Jacob & Laura B. Wiebe	$0.00	$3.00	$11.00	$14.00
560-07900	STR	Pt. Lot 266	1.00	0.40		William P. Jamieson	$0.00	$3.00	$11.00	$14.00
560-09550	STR	Pt. Lot 265	1.91	0.77		Vicki Chibi	$0.00	$3.00	$14.00	$17.00
560-09900	STR	Pt. Lot 265	24.38	9.87		Nation Wide Canning Limited	$0.00	$32.00	$138.00	$170.00
560-07800	STR	Pt. Lot 265	13.50	5.46	*	Jimmy Klassen	$0.00	$12.00	$54.00	$66.00
560-07700	STR	Pt. Lot 265	0.38	0.15		Gerald & Elizabeth Vanderwal	$0.00	$1.00	$7.00	$8.00
560-07600	STR	Pt. Lot 265	0.20	0.08		Daniel J. & Lorna G. Harangozo	$0.00	$1.00	$4.00	$5.00
560-07500	STR	Pt. Lot 265	4.50	1.82	*	David J. & Fern E. Walsh	$0.00	$4.00	$19.00	$23.00
560-07400	STR	Pt. Lot 265	3.16	1.28	*	Peggy J. & Thomas P. Hurst	$0.00	$3.00	$14.00	$17.00
560-07300	STR	Pt. Lot 265	4.04	1.63	*	Brian W. & Pamela R. Osborne	$0.00	$4.00	$17.00	$21.00
560-07200	STR	Pt. Lot 265	5.04	2.04	*	Michael P. & Ashley N. Caza	$0.00	$5.00	$22.00	$27.00
560-07100	STR	Pt. Lot 265	2.35	0.95	*	David A. & Judy L. Tiessen	$0.00	$2.00	$10.00	$12.00
560-07000	STR	Pt. Lot 265	10.50	4.25	*	Michael F. & Joan E. Slade	$0.00	$10.00	$45.00	$55.00
560-06900	STR	Pt. Lot 265	0.56	0.23		Shirley H. Hearns	$0.00	$2.00	$10.00	$12.00
560-06800	STR	Pt. Lot 265	2.37	0.96	*	Bradly J. & Virginia M. Nelson	$0.00	$2.00	$10.00	$12.00
560-06700	STR	Pt. Lot 265	0.33	0.13		Ronald K. & Donna P. Steinhoff	$0.00	$1.00	$6.00	$7.00
560-06600	STR	Pt. Lot 265	2.85	1.15	*	Rene G. & Virginia R. Paquin	$0.00	$3.00	$12.00	$15.00
560-06500	STR	Pt. Lot 265	4.95	2.00	*	Robert K. Lane	$0.00	$5.00	$21.00	$26.00
560-06400	STR	Pt. Lot 265	1.00	0.40	*	Kevin D. McKellar	$0.00	$1.00	$4.00	$5.00
560-05700	STR	Pt. Lot 265	0.59	0.24		Crystal A. LaRiviere & Kathryne J. Murdock	$0.00	$2.00	$9.00	$11.00
560-05850	STR	Pt. Lot 265	1.20	0.49	*	James D. & Mary-Louise Sonier	$0.00	$1.00	$5.00	$6.00
560-05900	STR	Pt. Lot 265	2.70	1.09	*	Rebecca E. & Chad R. Slade	$0.00	$2.00	$11.00	$13.00
560-05950	STR	Pt. Lot 265	2.65	1.07	*	Michael & Micheline Nouhra	$0.00	$19.00	$11.00	$30.00
560-06000	STR	Pt. Lot 265	2.33	0.94		Christopher M. & Gordon L.	$0.00	$44.00	$16.00	$60.00
560-06100	STR	Pt. Lot 265	0.39	0.16		Tricia A. Stevenson	$0.00	$2.00	$7.00	$9.00
560-06200	STR	Pt. Lot 265	0.37	0.15		John D. & Pauline M. Subity	$0.00	$1.00	$7.00	$8.00
560-06300	STR	Pt. Lot 265	0.63	0.25		Reginald L. Barron & Lorena M.	$0.00	$32.00	$10.00	$42.00
560-05405	STR	Pt. Lot 264	3.53	1.43		Nuemar Corp & 1118524 Ontario Inc.	$0.00	$63.00	$23.00	$86.00
560-00210	STR	Pt. Lot 264 & 265	2.80	1.13		Nuemar Corp & 1118524 Ontario Inc.	$0.00	$52.00	$147.00	$199.00
560-00220	STR	Pt. Lot 264	4.65	1.88		2845881 Ontario Inc.	$0.00	$73.00	$253.00	$326.00
560-00100	STR	Pt. Lot 264	2.14	0.87		Jacob & Agatha Neufeld	$0.00	$21.00	$18.00	$39.00
660-00502	STR	Pt. Lots 264 & 265	12.06	4.88		Hydro One Networks Inc.	$0.00	$16.00	$83.00	$99.00
560-10300	STR	Pt. Lot 264	10.00	4.05		Thomas R. & Margaret R.	$0.00	$13.00	$72.00	$85.00
560-10350	STR	Pt. Lot 264	2.54	1.03		Ronald J. & Deborah L. Galos	$0.00	$4.00	$20.00	$24.00
560-10400	STR	Pt. Lot 264	2.59	1.05		Neil P. & Cynthia L. Derbyshire	$0.00	$4.00	$21.00	$25.00
560-10510	STR	Pt. Lot 264	2.01	0.81		Bradley R. Dixon	$0.00	$3.00	$18.00	$21.00
560-00200	STR	Pt. Lots 264 & 265	7.20	2.91		Domric Enterprises Inc.	$0.00	$9.00	$46.00	$55.00
560-10101	STR	Pt. Lot 264	13.06	5.29	*	Matteo & Livia Coppola	$0.00	$13.00	$69.00	$82.00
410-03051	STR	Pt. Lot 264	1.78	0.72		2506312 Ontario Corp.	$0.00	$26.00	$18.00	$44.00
Total on Privately-Owned - Non-Agricultural Lands……							$0.00	$600.00	$1,737.00	$2,337.00

PRIVATELY-OWNED - AGRICULTURAL LANDS

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-09100	STR	Pt. Lot 266	3.01	1.22	Daniel Choquette	$0.00	$4.00	$17.00	$21.00
560-08902	STR	Pt. Lot 266	9.59	3.88	Daniel Choquette	$0.00	$13.00	$54.00	$67.00
560-08300	STR	Pt. Lot 266	17.23	6.97	Bernhard & Maria Enns	$0.00	$23.00	$98.00	$121.00
560-00500	STR	Pt. Lot 267	64.76	26.21	John S. & David S. Bachtold	$0.00	$105.00	$312.00	$417.00
560-05600	STR	Pt. Lot 266	81.32	32.91	Klassen Greenhouse Farms	$0.00	$270.00	$461.00	$731.00
560-09200	STR	Pt. Lot 266	58.74	23.77	Thomas R. & Lesley A. Labbe	$0.00	$78.00	$333.00	$411.00
560-09600	STR	Pt. Lot 265	29.24	11.83	Susan Chovan	$0.00	$39.00	$166.00	$205.00
560-09700	STR	Pt. Lot 265	4.04	1.63	Irene Finaldi	$0.00	$5.00	$23.00	$28.00
560-10000	STR	Pt. Lots 264 & 265	40.30	16.31	John R. Meleg	$0.00	$53.00	$229.00	$282.00
560-00300	STR	Pt. Lot 265	9.15	3.70	Domric Enterprises Inc.	$0.00	$12.00	$59.00	$71.00
560-10600	STR	Pt. Lot 264	13.21	5.35	Rachel A. Gibbs	$0.00	$85.00	$96.00	$181.00
560-10100	STR	Pt. Lot 264	25.60	10.36	Matteo & Livia Coppola	$0.00	$34.00	$185.00	$219.00
560-10200	STR	Pt. Lot 264	8.00	3.24	Bradley D. Griffin	$0.00	$11.00	$58.00	$69.00
560-10500	STR	Pt. Lot 264	21.98	8.89	Edwin H. & Rachel A. Gibbs	$0.00	$29.00	$159.00	$188.00
560-10501	STR	Pt. Lot 264	49.65	20.09	Edwin H. & Rachel A. Gibbs	$0.00	$66.00	$342.00	$408.00
490-00400	6	Pt. Lot 10	25.96	10.51	Terry D. Ramsay	$0.00	$129.00	$118.00	$247.00
490-00500	6	Pt. Lot 10	18.00	7.28	Robert S. Lorkovic	$0.00	$103.00	$74.00	$177.00
490-00300	6	Pt. Lot 11	12.00	4.86	Kristen E. Damphouse	$0.00	$16.00	$55.00	$71.00
490-02300	6	Pt. Lots 9 &	37.00	14.97	Stevan Barisic	$0.00	$223.00	$169.00	$392.00
Total on Privately-Owned - Agricultural Lands (Grantable).....						$0.00	$1,298.00	$3,008.00	$4,306.00
TOTAL ASSESSMENT						**$0.00**	**$3,000.00**	**$7,000.00**	**$10,000.00**

	(Acres)	(Ha.)
Total Area:	**804.43**	**325.54**

* Denotes reduced assessment for woodlot areas

"SCHEDULE E-2"
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE (CULVERT No. 5)
UPPER PORTION OF THE No. 5 DRAIN
TOWN OF KINGSVILLE

ONTARIO LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
King's Highway No. 3	9.50	3.84	Ministry of Transportation	$0.00	$0.00	$140.00	$140.00
Total on Ontario Lands				$0.00	$0.00	$140.00	$140.00

MUNICIPAL LANDS:

Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
County Road No. 34	1.30	0.53	County of Essex	$0.00	$0.00	$19.00	$19.00
County Road No. 29	2.00	0.81	County of Essex	$0.00	$0.00	$29.00	$29.00
South Talbot Road	4.50	1.82	Town of Kingsville	$0.00	$0.00	$40.00	$40.00
Inman Sideroad	3.18	1.29	Town of Kingsville	$0.00	$0.00	$47.00	$47.00
Unnamed Road	4.00	1.62	Town of Kingsville	$0.00	$0.00	$59.00	$59.00
Total on Municipal Lands				$0.00	$0.00	$194.00	$194.00

PRIVATELY-OWNED - NON-AGRICULTURAL LANDS:

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-05405	STR	Pt. Lot 264	3.53	1.43	Nuemar Corp & 1118524 Ontario Inc.	$0.00	$0.00	$10.00	$10.00
560-00210	STR	Pt. Lot 264 & 265	2.80	1.13	Nuemar Corp & 1118524 Ontario Inc.	$0.00	$0.00	$66.00	$66.00
560-00220	STR	Pt. Lot 264	4.65	1.88	2845881 Ontario Inc.	$0.00	$0.00	$109.00	$109.00
560-00100	STR	Pt. Lot 264	2.14	0.87	Jacob & Agatha Neufeld	$0.00	$0.00	$8.00	$8.00
660-00502	STR	Pt. Lots 264 & 265	12.06	4.88	Hydro One Networks Inc.	$0.00	$0.00	$35.00	$35.00
560-10300	STR	Pt. Lot 264	10.00	4.05	Thomas R. & Margaret R.	$0.00	$0.00	$29.00	$29.00
560-10350	STR	Pt. Lot 264	2.54	1.03	Ronald J. & Deborah L. Galos	$0.00	$0.00	$8.00	$8.00
560-10400	STR	Pt. Lot 264	2.59	1.05	Neil P. & Cynthia L. Derbyshire	$0.00	$0.00	$8.00	$8.00
560-10510	STR	Pt. Lot 264	2.01	0.81	Bradley R. Dixon	$0.00	$0.00	$7.00	$7.00
560-10101	STR	Pt. Lot 264	13.06	5.29 *	Matteo & Livia Coppola	$0.00	$0.00	$30.00	$30.00
410-03051	STR	Pt. Lot 264	1.78	0.72	2506312 Ontario Corp.	$0.00	$0.00	$7.00	$7.00
Total on Privately-Owned - Non-Agricultural Lands						$0.00	$0.00	$317.00	$317.00

PRIVATELY-OWNED - AGRICULTURAL LANDS

Roll No.	Con.	Description	Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
560-10600	STR	Pt. Lot 264	13.21	5.35	Rachel A. Gibbs	$0.00	$0.00	$39.00	$39.00
560-10100	STR	Pt. Lot 264	25.60	10.36	Matteo & Livia Coppola	$0.00	$0.00	$75.00	$75.00
560-10200	STR	Pt. Lot 264	8.00	3.24	Bradley D. Griffin	$0.00	$0.00	$24.00	$24.00
560-10500	STR	Pt. Lot 264	21.98	8.89	Edwin H. & Rachel A. Gibbs	$0.00	$0.00	$65.00	$65.00
560-10501	STR	Pt. Lot 264	49.65	20.09	Edwin H. & Rachel A. Gibbs	$0.00	$0.00	$146.00	$146.00
Total on Privately-Owned - Agricultural Lands (Grantable)						$0.00	$0.00	$349.00	$349.00
TOTAL ASSESSMENT						**$0.00**	**$0.00**	**$1,000.00**	**$1,000.00**

	(Acres)	(Ha.)
Total Area:	**200.08**	**80.98**

* Denotes reduced assessment for woodlot areas

"SCHEDULE F"
DRAINAGE REPORT FOR THE
IMPROVEMENTS TO THE UPPER PORTION
OF THE NO. 5 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 from Station 0+000 to Station 2+643 including removal off-site with trimming and/or removal of existing trees within the drain as required to accommodate the drainage works. The work shall include disposal of brush by means of stockpiling and burning where permitted or alternatively to be trucked off-site. Working corridor confined to the South Talbot Road right-of-way between Station 1+368 and Station 2+233.
- Drain excavation and levelling of drain spoils within designated working corridors, as follows:
    - Excavation of drain bottom from Station 0+000 to Station 0+615, and levelling of drain spoils on east side of drain, totaling 615 lineal metres and approx. 400 m^3.
    - Excavation of drain bottom from Station 0+725 to Station 0+794 and levelling of drain spoils on north side of drain, totaling 69 lineal metres and approx. 20 m^3.
    - Excavation of drain bottom from Station 2+233 to Station 2+510 and levelling of drain spoils on north side of drain, totaling 277 lineal metres and approx. 185 m^3.
- Drain excavation and trucking of drain spoils off-site to an approved soil management disposal area, as follows:
    - Excavation of drain bottom from Station 0+794 to Station 1+368, from South Talbot Road totaling 574 lineal metres and approx. 155 m^3.
    - Excavation of drain bottom from Station 1+368 to Station 2+233, from South Talbot Road totaling 865 lineal metres and approx. 350 m^3.
    - Excavation of drain bottom from Station 2+594 to Station 2+638, from east side of drain, totaling 44 lineal metres and approx. 30 m^3.
- Culvert Extension Work as follows:
    - Culvert No. 2 D/S Extension - (King's Highway No. 3) – Supply and installation of a new 28.7 m long 2440 mm x 1830 mm concrete box culvert with footings connected to the existing culvert with skewed end, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, gabion basket headwall and R-50 riprap

within the drain channel beyond fully lined for a minimum 5 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 30.1 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.

- Culvert No. 4 D/S Extension - (County Road No. 29): Supply and installation of a new 9.8 m long 3050 mm x 2440 mm concrete box culvert with footings connected to the existing culvert, complete with flush outlet end, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, cast in place concrete headwall and R-50 riprap within the drain channel beyond fully lined for a minimum 3 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 33.4 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.
- Culvert No. 11 U/S Extension - (King's Highway No. 3) – Supply and installation of a new 29 m long 1200 mm diameter CSP culvert, waterproofing membrane and protection board, compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, gabion basket headwall and R-50 riprap within the drain channel beyond fully lined for a minimum 3 m distance and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas. The work shall also include drain bottom cleanout and the flushing and cleaning of the existing 22 m long culvert and the removal off-site of excess materials not suitable for culvert backfill.

- Culvert Replacement Work as follows:
  - Culvert No. 5 - (Private Access Culvert): Remove existing 1350 mm diameter CSP culvert and headwalls, 7.3 m long including disposal of debris off-site and replace with a new 13.0 m long, 1600 mm diameter CSP culvert complete with compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.
  - Culvert No. 8 – (South Talbot Road/Private Access Culvert): Remove existing 1200 mm diameter CSP culvert and headwalls, 15.3 m long including disposal of debris off-site and replace with new 45.0 m long 1500 mm diameter CSP culvert complete with compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'B' Type II backfill up to road subgrade, and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.
- New Culvert Work as follows:
  - Culvert No. 7 - (County Road No. 29): Supply and installation of a new 26.9 m long 1650 mm diameter 100-D Concrete pipe culvert complete with compacted Granular 'A' bedding (min. 300 mm thickness), compacted full Granular 'A' backfill up to road subgrade, and sloping R-50 riprap for culvert end treatment and minimum 350 mm thickness. Work to include fine grading, seeding and restoration of all disturbed areas.
- Culvert Cleaning Work, as follows:
  - Culvert No. 1 – (Private Access Culvert) – 6 m long, 1800 mm diameter CSP culvert including disposal of sediments off-site.
  - Culvert No. 3 – (South Talbot Road) - 13 m long, 2700 mm x 1830 mm concrete culvert including disposal of sediments off-site.

- Culvert No. 9 – (Private Access Culvert) – 19 m long, 1200 mm diameter CSP culvert including disposal of sediments off-site.
- Culvert No. 10 – (South Talbot Road) – 22 m long, 1200 mm diameter CSP culvert including disposal of sediments off-site.

- Temporary silt control measures during construction.

3.0 ACCESS TO THE WORK

Access to the drain shall be from the King's Highway No. 3 right-of-way and South Talbot Road 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 AREA

For both the construction and future maintenance of the drain the Contractor shall restrict his/her equipment to the working corridors as specified in this Section. Any damage resulting from non-compliance with this Section shall be borne by the Contractor. The working corridor shall be as follows:

FROM STA.	TO STA.	PRIMARY (See Note 1)	SECONDARY (See Note 2)
0+000	0+615	9.0 m wide on the east side of the drain measured off top of east bank	N/A
0+615	0+725	King's Highway No. 3 and South Talbot Road right-of-way	N/A
0+725	0+794	9.0 m wide on the north side of the drain measured off top of north bank	South Talbot Road
0+794	2+233	South Talbot Road right-of-way	N/A
2+233	2+510	9.0 m wide on the north side of the drain measured off top of north bank	South Talbot Road
2+510	2+605	King's Highway No. 3 and South Talbot Road right-of-way	N/A
2+605	2+643	9.0 m wide on the east side of the drain measured off top of east bank	N/A

Note 1: *Primary working corridor* indicates the access corridor along the side of the drain where excavation is recommended (unless noted otherwise below and/or in the Specifications, as well as all purposes listed for Secondary Working Corridors).

Note 2: *Secondary working corridor* indicates the access corridor alongside the drain where construction equipment may travel for the purpose of trucking.

5.0 CLEARING & GRUBBING DRAIN PRIOR TO DRAIN EXCAVATION

Prior to drain excavation and removal of sediment within the existing drain as well as drain infilling activities, all brush and trees within the limits of the channel and within 1 metre from the top of the drain banks and in the designated spread area for the excavated material, are to be cut and those roots and

stumps within the channel and on the banks where the filling takes place shall be completely removed to a depth at least 1 metre below the level of the finished grade.

Brush and trees removed from the existing drain 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 or advise the Contractor to obtain an agreement in writing with the owners when to return to burn the materials. 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.

The Contractor shall first consult with and obtain approval from the landowner, Drainage Superintendent and Town of Kingsville Fire Services prior to burning the brush removed from this specified area.

6.0 EXCAVATION FOR DRAIN BOTTOM PROFILE MODIFICATION

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.

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.

Where the existing guy anchors may be affected by the proposed work, the Contractor shall notify the utility in advance of the work to determine if the guy anchor requires relocation outside of open drain channel limits.

6.2 Levelling of Excavated Materials

Excavation of the drain bottom shall be completed as specified in Section 6.1, above 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.

6.3 Trucking of Excavated Materials

Contractor shall be solely responsible for acquiring all permits required prior to hauling any fill materials off-site. The Contractor shall restore any such areas which are damaged by his operations, to original or better condition. The Contractor will be held liable for damages to roads, sodded areas and gardens, resulting from his non-compliance with these specifications. Should the landowner prefer to have the excavated materials trucked rather than levelled on site, all additional costs shall be at the landowner's expense

7.0 STONE EROSION PROTECTION

Erosion protection, within the drain channel, shall be constructed of quarry stone rip-rap (R50) as shown on the drawings and as specified herein. The size of the rip-rap shall mostly vary between 150 mm and 250 diameter. 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.

8.0 GABION BASKET END PROTECTION

Gabion baskets shall be manufactured from galvanized steel wire mesh or PVC coated galvanized steel wire mesh as specified in the Contract Documents. When the type of mesh is not specified in the Contract Documents, the gabion baskets shall be manufactured from PVC coated galvanized steel wire mesh.

Gabion baskets shall be manufactured so that the sides, ends, lid, base, and diaphragms can be readily assembled into rectangular units.

Where the length of the gabion basket exceeds its horizontal width, the gabion basket shall be divided into equal cells by diaphragms. Cell length shall not exceed its horizontal width. Diaphragms shall be made of wire mesh and shall be secured in the proper position on the base section. Gabion baskets shall be manufactured with all components connected at the production facility with the exception of the gabion mat lid. Gabion baskets manufactured from galvanized wire mesh shall be assembled using either lacing wire or fasteners. Gabion baskets manufactured from PVC coated galvanized wire mesh shall be assembled using stainless steel ring fasteners. Fasteners shall be installed at a maximum spacing of 150 mm with at least one fastener per gabion mesh opening.

Gabion baskets shall be according to OPSS 1430.

Gabion stones shall be according to OPSS 1004 and as specified in the Contract Documents.

Excavation for gabions shall be according to OPSS 206.

Bedding and backfill shall be as specified in the Contract Documents.

Gabions shall be installed at the locations and to the line, grade, and dimensions specified in the Contract Documents.

Gabions shall be assembled according to the manufacturer's instructions and as specified in the Contract Documents.

Gabions shall be assembled so that wire ends do not project outside the units on any exposed surface.

Gabion stones shall be placed in a manner as not to damage the wire mesh or the PVC coating on the wire or cause deformation of the gabion. Gabion stones shall be placed to minimize the voids between the stones. When specified in the Contract Documents, the front face of exposed wall surfaces shall be hand placed gabion stone to ensure a uniform appearance.

Prior to securing the lids on the gabion basket, the gabion basket shall be slightly overfilled by 25 to 50

mm of gabion stone in order to allow for settlement of the stone within the units.

Internal connecting wires shall be installed according to the manufacturer's recommendations. When gabions are used as a channelling revetment, internal connecting wires are not necessary.

When the gabion has been filled, the gabion lid shall be bent over until all lid edges coincide with the front and side edges of the gabion and shall be secured to the front and sides by wire according to manufacturer's instructions and as specified in the Contract Documents.

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 road culvert shall be located and installed as shown on the drawings attached hereto.

9.2 Materials

Materials shall be as follows:

Culvert No. 2 Extension	*New 28.7 m long, 2440 mm x 1830 mm reinforced concrete open footing culvert per OPSS 1821 or CHBDC CAN/CSA 56-06 standards where applicable.*
Culvert No. 4 Extension	*New 9.8 m long, 3048 mm x 2440 mm reinforced precast concrete box culvert per OPSS 1821 or CHBDC CAN/CSA 56-06 standards where applicable.*
Culvert No. 5	*New 13.0 m long, 1600 mm diameter aluminized Type II corrugated steel pipe, 125mm x 25 mm corrugations, 2.8 mm thickness.*
Culvert No. 7	*New 26.9 m long, 1650 mm diameter concrete pipe A 257.2 Class IV D-100, complete with bell and spigot pipe joining system.*
Culvert No. 8	*New 45.0 m long, 1500 mm diameter corrugated high-density polyethylene pipe, 320 kPa (smooth interior wall), complete with bell and spigot pipe joining system.*
Culvert No. 11 Extension	*New 29.0 m long, 1200 mm diameter aluminized Type II corrugated steel pipe, 125mm x 25 mm corrugations, 2.8 mm thickness .*
Culvert Backfill	*Granular 'B' 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.*

9.3 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.

9.4 Lateral Tile Drains

The Contractor shall re-route any outlet tile drains, in consultation with the Drainage Superintendent, as required to accommodate the new culverts. Tile drain outlets through the wall of the new culvert will not be permitted. All costs associated with re-routing lateral tile drains (if any) shall be at the Contractor's expense.

9.5 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.

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.

11.0TRAFFIC CONTROL

The Contractor will be required to control vehicular and pedestrian traffic along roads at all times 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.

12.0 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.

13.0 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.

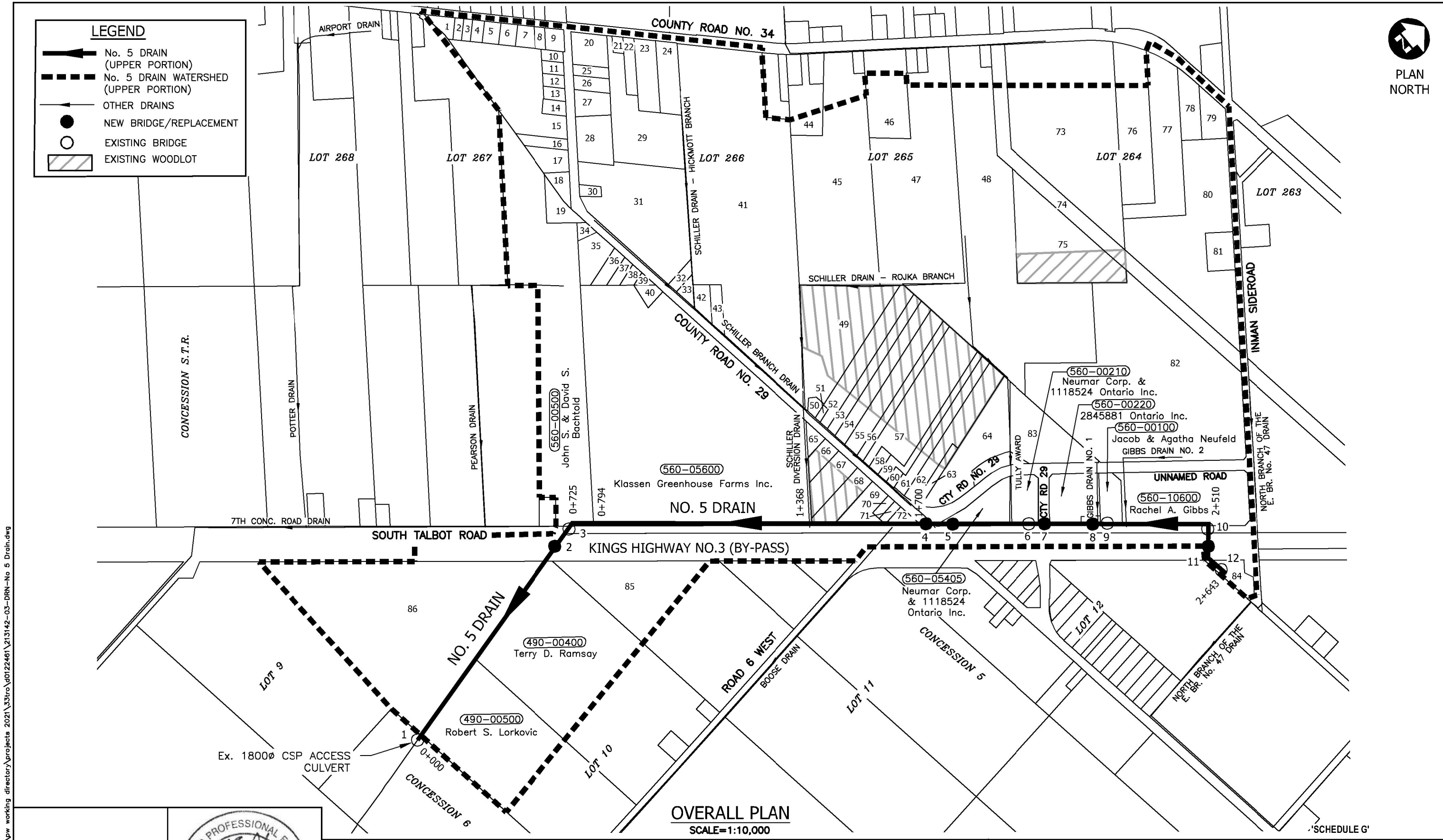
14.0 FINAL INSPECTION

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.

15.0 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=1:10,000

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LICENSED PROFESSIONAL ENGINEER
T. R. OLIVER
100046433
23/07/24
PROVINCE OF ONTARIO

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

No.	ISSUED FOR	DATE	BY
2	FINAL REPORT SUBMISSION	July 23/24	TRO
1	CLIENT REVIEW	July 3/24	TRO

DESIGN: TRO	REVIEWED BY: MDH
DRAWN: SJC/WLB	CHECKED BY: TRO
DATE: July 23, 2024	
SCALE: AS SHOWN	

DILLON CONSULTING

PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for the
Improvements to the Upper Portion of the
No. 5 DRAIN
Town of Kingsville

SHEET TITLE: OVERALL PLAN

PROPERTY INFORMATION		
ID	ROLL NO.	OWNER
1	560–04300	WILLIAM J. WOLTERS & DANIELLE L. REAUME
2	560–04400	ROSE–ANNE RENAUD
3	560–04500	MICHAEL A. VANDEWAETERE
4	560–04600	JOHN & LINDA A. FOUNTAIN
5	560–04601	MEYRICK C. & BRIDGET N. STANTON
6	560–04603	RAY & MICHELLE NASSAR
7	560–04621	THOMAS A. & CINDY D. DALZIEL
8	560–04650	JASON T. & IRMA V. DEELSTRA
9	560–04700	JOSEPH P. BELANGER
10	560–04800	JACOB & MARGARETHA HEIDE
11	560–04810	PETER & SUSANA LETKEMAN
12	560–04820	ROBERTA ATKINS & RALPH FURFARO
13	560–04830	ANGELO A. & LINDA A. SCHINCARIOL
14	560–04900	DARCY & MAUREEN SHEPLEY
15	560–04850	FRANK B. & TINA TEICHROEB
16	560–04950	MARK V. & MARCIA C. MALLIA
17	560–05000	FRANK B. & JULIANNA KLASSEN
18	560–05100	JOHN D. & LINDA L. PATTERSON
19	560–05200	ADAM S. & MARGUERITE N. WATTS
20	560–08600	PHILIP A. & JANA L. HOWE
21	560–08800	TRACY L. LEWIS
22	560–08901	AARON R. & KAILEY J. SMITH
23	560–09000	IHOR & NANCY G. BILYK
24	560–09100	DANIEL CHOQUETTE
25	560–08501	BOBBI–JO M. & GERALD J. RUPERT
26	560–08500	RODNEY P. & MELISSA A. GOMEZ
27	560–08405	WILLIAM P. DUNN
28	560–08400	SARKIS & DIANNE JRAIGE
29	560–08902	DANIEL CHOQUETTE
30	560–08320	MARGARET E. MATTHYS
31	560–08300	BERNHARD & MARIA ENNS
32	560–08200	JOHAN WIEBE
33	560–08100	JOSEPH P. LEILI
34	560–05300	VIOLET D. WATTS
35	560–05400	JOHN & CATHERINE LAPAIN
36	560–05401	WILFRED & MADELINE FLETCHER
37	560–05402	LARRY J. & BRENDA L. LAYSON
38	560–05403	KATHARINA GIESBRECHT & JACOB P. FRIESEN
39	560–05500	LLOYD J. & BETTIE A. KERR
40	560–05501	PETER STEPHENS & KENDRA NEUFELD–STEPHENS

PROPERTY INFORMATION		
ID	ROLL NO.	OWNER
41	560–09200	THOMAS R. & LESLEY A. LABBE
42	560–08000	JACOB & LAURA B. WIEBE
43	560–07900	WILLIAM P. JAMIESON
44	560–09550	VICKI L. CHIBI
45	560–09600	SUSAN CHOVAN
46	560–09700	IRENE FINALDI
47	560–09900	NATION WIDE CANNING LIMITED
48	560–10000	JOHN R. MELEG
49	560–07800	JIMMY KLASSEN
50	560–07700	GERALD & ELIZABETH VANDERWAL
51	560–07600	DANIEL J. & LORNA G. HARANGOZO
52	560–07500	DAVID J. & FERN E. WALSH
53	560–07400	PEGGY J. & THOMAS P. HURST
54	560–07300	BRIAN W. & PAMELA R. OSBORNE
55	560–07200	MICHAEL P. & ASHLEY N. CAZA
56	560–07100	DAVID A. & JUDY L. TIESSEN
57	560–07000	MICHAEL F. & JOAN E. SLADE
58	560–06900	SHIRLEY H. HEARNS
59	560–06800	BRADLY J. & VIRGINIA M. NELSON
60	560–06700	RONALD K. & DONNA P. STEINHOFF
61	560–06600	RENE G. & VIRGINIA R. PAQUIN
62	560–06500	ROBERT K. LANE
63	560–06400	KEVIN D. McKELLAR
64	560–00300	DOMRIC ENTERPRISES INC.
65	560–05700	CRYSTAL A. LARIVIERE & KATHRYNE J. MURDOCK
66	560–05850	JAMES D. & MARY–LOUISE SONIER
67	560–05900	REBECCA E. & CHAD R. SLADE
68	560–05950	MICHAEL & MICHELINE NOUHRA
69	560–06000	CHRISTOPHER M. & GORDON L. STEVENS
70	560–06100	TRICIA A. STEVENSON
71	560–06200	JOHN D. & PAULINE M. SUBITY
72	560–06300	REGINALD L. BARRON & LORENA M. KEEP
73	560–10100	MATTEO & LIVIA COPPOLA
74	660–00502	HYDRO ONE NETWORKS INC.
75	560–10101	MATTEO & LIVIA COPPOLA
76	560–10200	BRADLEY D. GRIFFIN
77	560–10300	THOMAS R. & MARGARET R. BELCHUK
78	560–10350	RONALD J. & DEBORAH L. GALOS
79	560–10400	NEIL P. & CYNTHIA L. DERBYSHIRE
80	560–10500	EDWIN H. & RACHEL A. GIBBS

PROPERTY INFORMATION		
ID	ROLL NO.	OWNER
81	560–10510	BRADLEY R. DIXON
82	560–10501	EDWIN H. & RACHEL A. GIBBS
83	560–00200	DOMRIC ENTERPRISES INC.
84	410–03051	2506312 ONTARIO CORP.
85	490–00300	KRISTEN E. DAMPHOUSE
86	490–02300	STEVAN BARISIC

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1	CLIENT REVIEW	July 3/24	TRO

DESIGN	TRO
REVIEWED BY	MDH
DRAWN	SJC
CHECKED BY	TRO
DATE	July 23, 2024
SCALE	AS SHOWN

DILLON CONSULTING

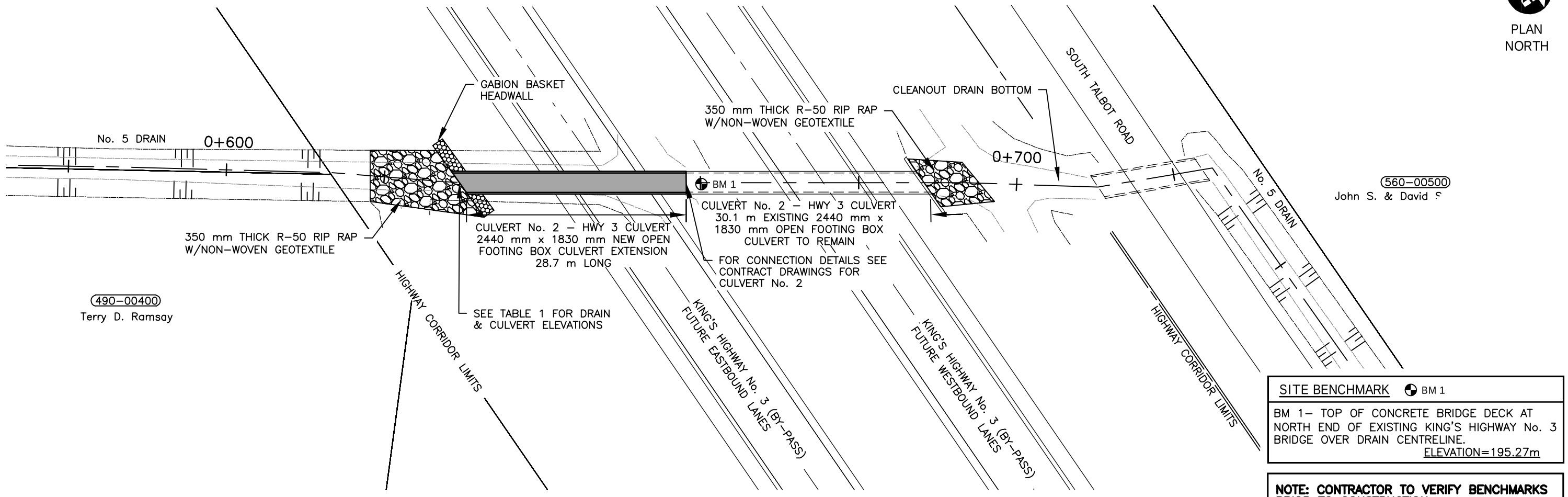
PROJECT NO. 21-3142

DRAWING SCALES BASED ON A 11" X 17" SHEET

'SCHEDULE G'

Drainage Report for the
Improvements to the Upper Portion of the
No. 5 DRAIN
Town of Kingsville

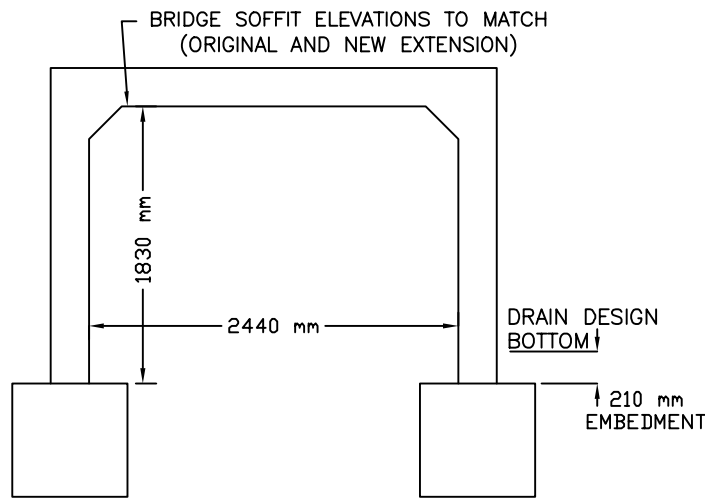
SHEET TITLE: PROPERTY INFORMATION



CULVERT No. 2 DETAILS
SCALE=1:500

TABLE 1 – CULVERT DESIGN INFORMATION (CULVERT No. 2)

DESCRIPTION	EXISTING CULVERT	DOWNSTREAM EXTENSION
TOP OF FOOTING ELEV. U/S SIDE(m)	192.87	192.81
TOP OF FOOTING ELEV. D/S SIDE(m)	192.81	192.80
DRAIN BOTTOM (m) (DESIGN) (AT U/S SIDE OF CULVERT)	192.97	192.96
DRAIN BOTTOM (m) (DESIGN) (AT D/S SIDE OF CULVERT)	192.96	192.95
MIN. CULVERT GRADE (%)	0.03	0.03
CULVERT TYPE	BOX CULVERT	BOX CULVERT
CULVERT MATERIAL	CONC. RFO	CONC. RFO
CULVERT LENGTH (m)	30.1	28.7
CULVERT SIZE (mm)	2440x1830	2440x1830
CULVERT ENDWALL TYPE	CONCRETE	GABION BASKETS



DOWNSTREAM CULVERT EXTENSION CROSS SECTION
N.T.S.

SITE BENCHMARK ⊕ BM 1

BM 1– TOP OF CONCRETE BRIDGE DECK AT NORTH END OF EXISTING KING'S HIGHWAY No. 3 BRIDGE OVER DRAIN CENTRELINE.
ELEVATION=195.27m

NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.

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'SCHEDULE G'

Drainage Report for the
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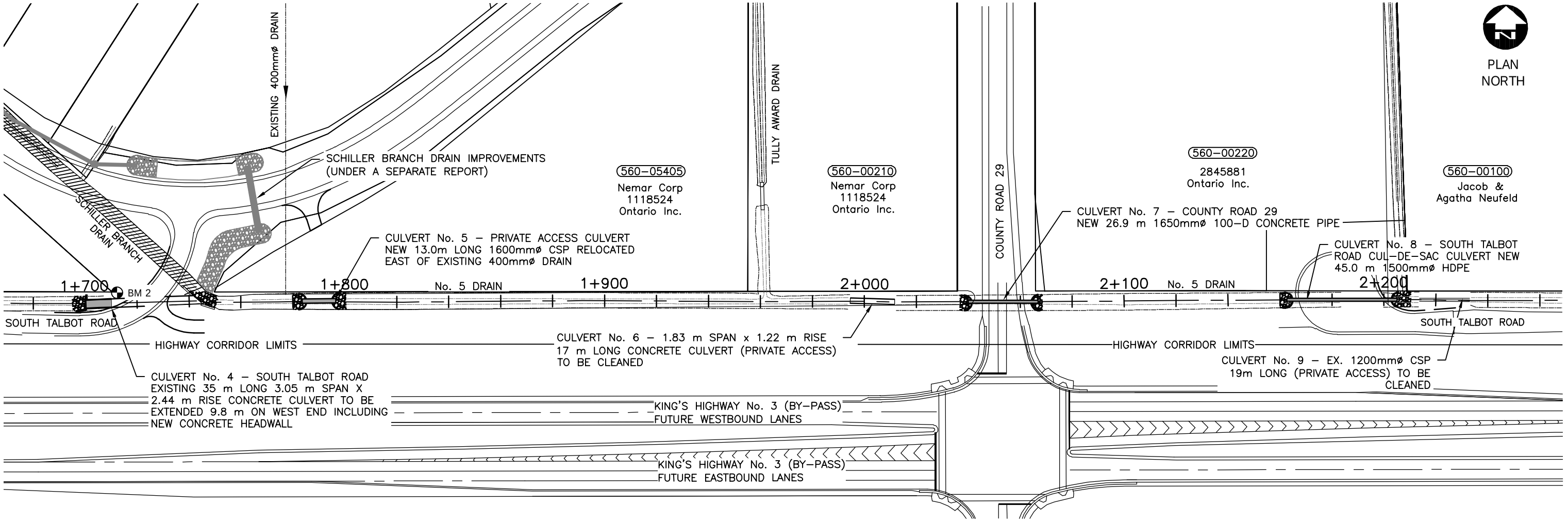
SHEET TITLE: CULVERT No. 2 DETAILS
PAGE NO. 3 of 9



CULVERT No. 4 - 8 DETAILS
SCALE=1:1500

TABLE 2 – CULVERT DESIGN INFORMATION (CULVERT No. 4)

DESCRIPTION	EXISTING CULVERT	DOWNSTREAM EXTENSION
CULVERT ELEV. U/S SIDE(m)	192.89	192.91
CULVERT ELEV. D/S SIDE(m)	192.91	192.88
DRAIN BOTTOM (m) (DESIGN) (AT U/S SIDE OF CULVERT)	193.28	193.27
DRAIN BOTTOM (m) (DESIGN) (AT D/S SIDE OF CULVERT)	193.27	193.27
MIN. CULVERT GRADE (%)	0.03	0.03
CULVERT TYPE	BOX CULVERT	BOX CULVERT
CULVERT MATERIAL	CONCRETE	CONCRETE
CULVERT LENGTH (m)	33.4	9.8
CULVERT SIZE (mm)	3050x2440	3050x2440
CULVERT ENDWALL TYPE	CONCRETE	CONCRETE

TABLE 3 – CULVERT DESIGN INFORMATION

DESCRIPTION	CULVERT NO. 5	CULVERT NO. 7	CULVERT NO. 8
DRAIN BOTTOM DESIGN ELEVATION	193.32(W)193.34(E)	193.58(W)193.59(E)	193.62(W)193.64(E)
CULVERT INVERT ELEVATION	193.16(W)193.18(E)	193.24(W)193.25(E)	193.47(W)193.49(E)
CULVERT SIZE	1600 mmø CSP	1650 mmø CONCRETE	1500 mmø HDPE
CULVERT LENGTH (m)	13.0	26.9	45.0
CULVERT GRADE (%)	0.10	0.04	0.04

SITE BENCHMARK — BM 2

BM 2– TOP OF CONCRETE BRIDGE DECK AT WEST END OF EXISTING COUNTY ROAD 29 BRIDGE (SW CORNER)
ELEVATION=195.76m

NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.

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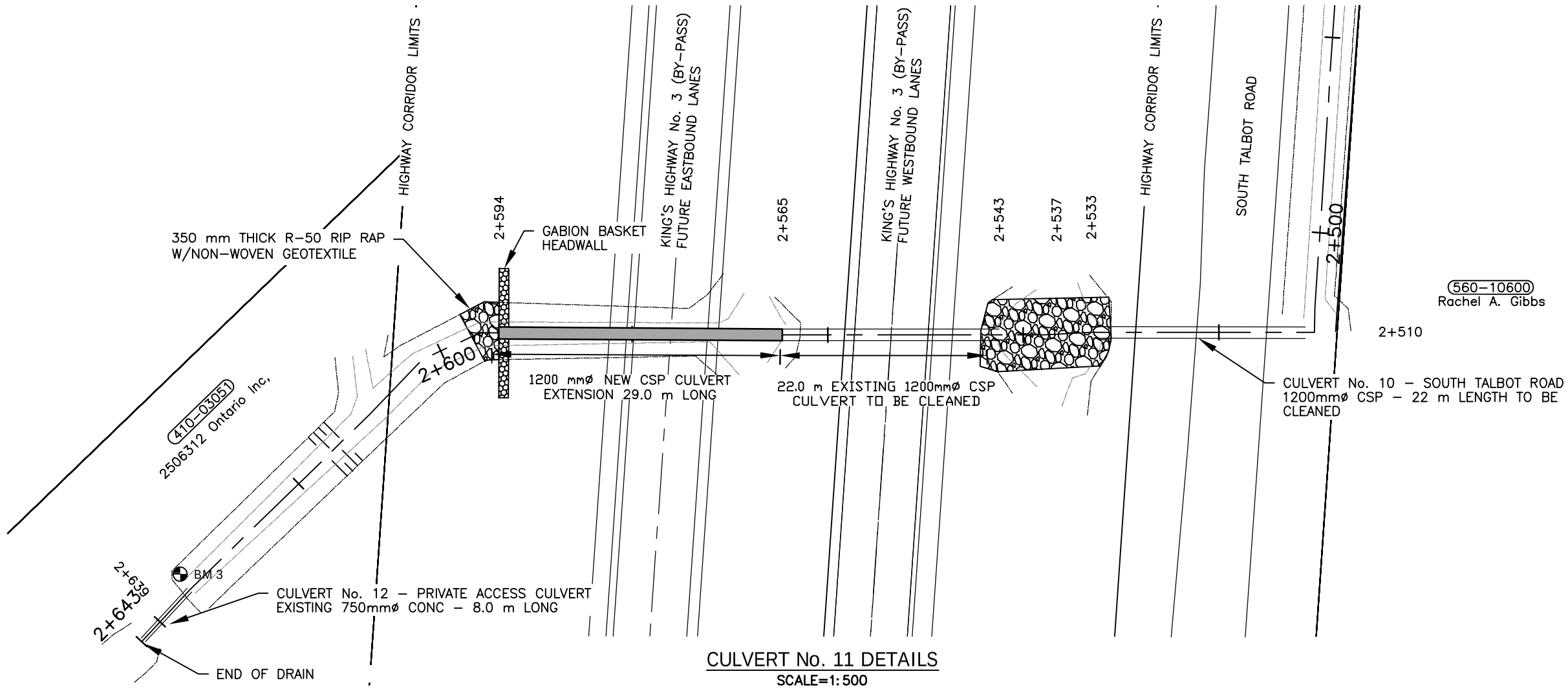
SHEET TITLE: CULVERT No. 4 - 8 DETAILS
PAGE NO. 4 of 9



CULVERT No. 11 DETAILS

SCALE=1:500

TABLE 4 - CULVERT DESIGN INFORMATION (CULVERT No. 11)

DESCRIPTION	EXISTING CULVERT	UPSTREAM EXTENSION
INVERT ELEV. U/S SIDE(m)	193.76	193.82
INVERT ELEV. D/S SIDE(m)	193.68	193.76
DRAIN BOTTOM (m) (DESIGN) (AT U/S SIDE OF CULVERT)	193.82	193.88
DRAIN BOTTOM (m) (DESIGN) (AT D/S SIDE OF CULVERT)	193.78	193.82
MIN. CULVERT GRADE %	0.21	0.21
CULVERT TYPE	CIRCULAR	CIRCULAR
CULVERT MATERIAL	CSP	CSP
CULVERT LENGTH (m)	22.0	29.0
CULVERT SIZE (mm)	1200ø	1200ø
CULVERT ENDWALL TYPE	RIP-RAP	GABION BASKETS

SITE BENCHMARK BM 3

BM 3- TOP OF EX. 750mmø CONCRETE PIPE
NORTH END OF CULVERT No. 12
ELEVATION=194.71m

NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.

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SHEET TITLE CULVERT No. 11 DETAILS

PAGE NO. 5 of 9

0+000–CULVERT No. 1 – (PRIVATE ACCESS CULVERT)
EX. 1800ø CSP INV. 192.76 m

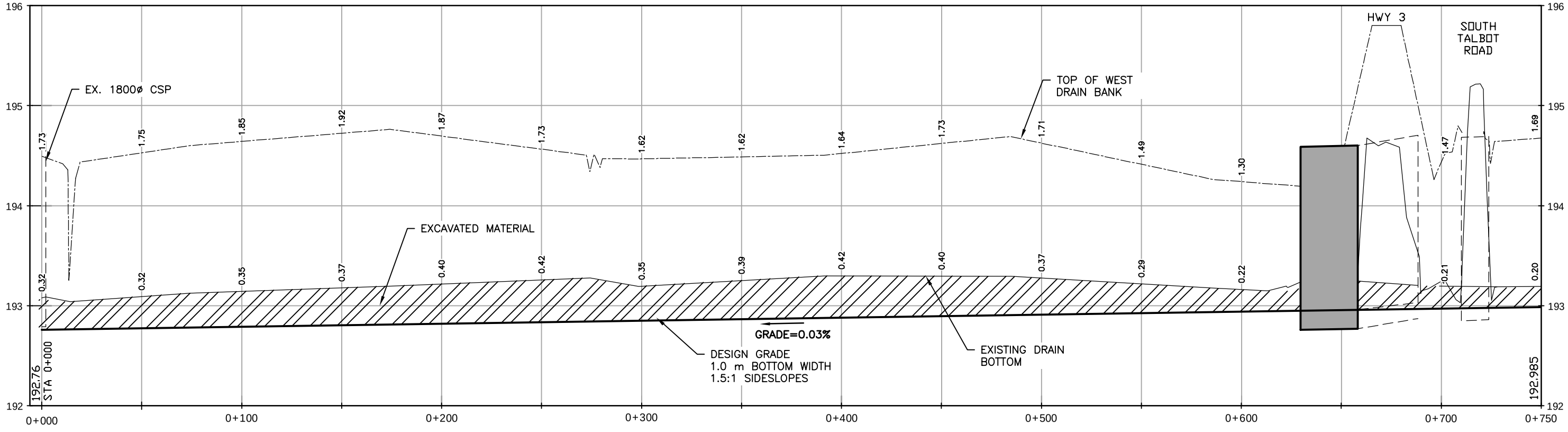
0+015–LINE DITCH ENTERS FROM WEST AND EAST

0+630–CULVERT No. 2 –(HWY 3 CULVERT EXTENSION)
2.44 SPAN X 1.83 RISE CONCRETE CULVERT
28.7m LENGTH

0+673–CULVERT No. 2 – (HWY 3 CULVERT)
EX. 2.44 SPAN X 1.83 RISE CONCRETE CULVERT
30m LENGTH

0+717–CULVERT No. 3 – (SOUTH TALBOT ROAD)
EX. 2.7 SPAN X 1.83 RISE CONCRETE CULVERT
13m LENGTH

0+725–DRAIN TURNS EAST



PROFILE 1

SCALE–HORIZ=1:2000
VERT.=1:40

'SCHEDULE G'

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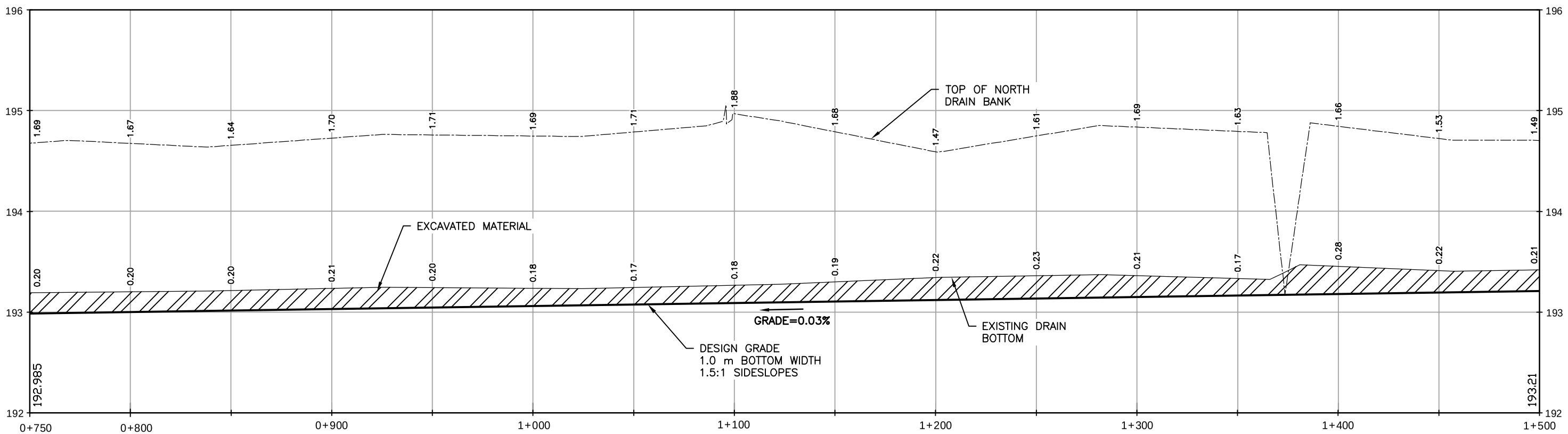
SHEET TITLE: PROFILE 1

PAGE NO. 6 of 9



PROFILE 2

SCALE–HORIZ=1:2000
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Jul 23, 2024 – 4:58pm C:\pw working directory\projects 2021\33tro\d0122461\213142-00-SURVEY-HWY 3 DRAINAGE-No 5 Drain.dwg

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PROJECT NO. 21-3142	SHEET TITLE: PROFILE 2
DRAWING SCALES BASED ON A 11" X 17" SHEET	PAGE NO. 7 of 9

1+630–CONFLUENCE WITH BOOSE DRAIN

1+727–℄ CULVERT No. 4 – (COUNTY ROAD 29)
CONCRETE CULVERT – 33.4 m LENGTH
3.05 m SPAN X 2.44 m RISE TO BE EXTENDED
ON DOWNSTREAM END 9.8 m LENGTH

1+746–SCHILLER BRANCH DRAIN ENTERS

1+755–CULVERT No. 5 – (PRIVATE ACCESS ROAD)
EX. 1350 mmø CSP TO BE REMOVED

1+781–EXISTING 400mmø DRAINAGE TILE FROM NORTH

1+791–CULVERT No. 5 (PRIVATE ACCESS CULVERT)
NEW 13 m LENGTH 1600 mmø CSP

1+962–TULLY AWARD DRAIN ENTERS LINE DITCH
FROM NORTH. INV. 193.97 (193.70 HB)

2+000–CULVERT No. 6 (PRIVATE ACCESS CULVERT)
EX. 1.8 m SPAN x 1.22 m RISE CONCRETE
CULVERT 17 m LENGTH

2+052–CULVERT No. 7 – (COUNTY ROAD 29)
26.9 m LONG 1650mmø CONCRETE PIPE

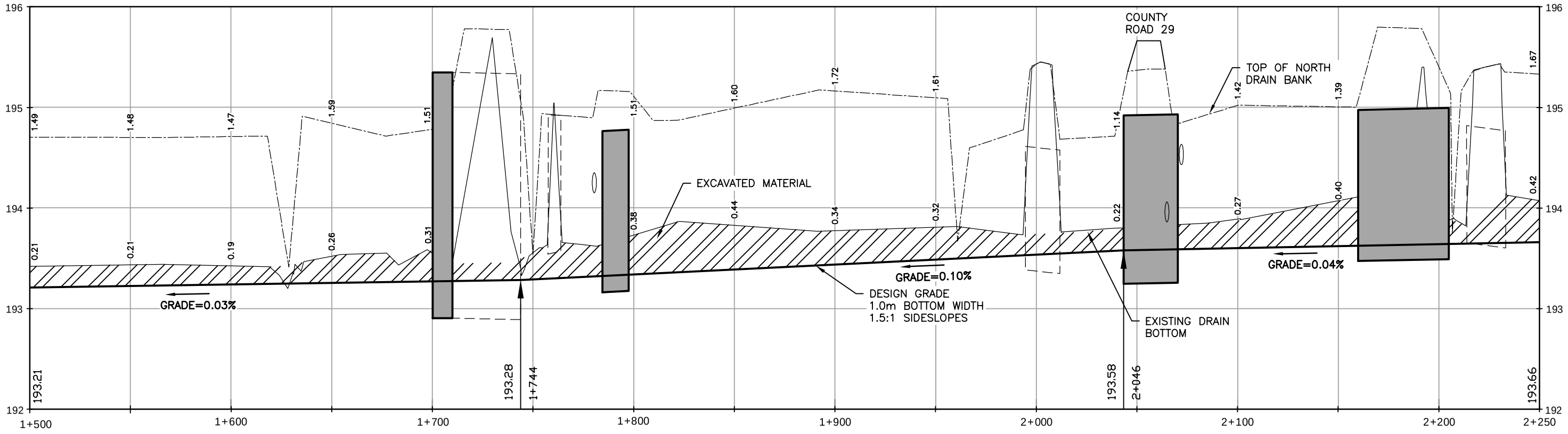
2+063–EXISTING 200mmø DRAINAGE TILE FROM NORTH
TO BE RELOCATED BEYOND END OF NEW CULVERT

2+073–EXISTING 200mmø DRAINAGE TILE FROM NORTH

2+182–CULVERT No. 8 – (SOUTH TALBOT ROAD/
CUL-DE-SAC CULVERT) 1200 mmø CSP
REPLACE w/ 1500 mmø HDPE–45.0m LENGTH

2+207–LINE DITCH ENTERS FROM THE NORTH
FUTURE GIBBS DRAIN NO. 1
INV. 193.80m

2+223–CULVERT No. 9 – (PRIVATE ACCESS CULVERT)
1200mmø CSP – 19 m LENGTH



PROFILE 3

SCALE–HORIZ=1:2000
VERT.=1:40

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SHEET TITLE: PROFILE 3

PAGE NO. 8 of 9

2+270–LINE DITCH ENTERS FROM NORTH

2+278–FUTURE LATERAL DRAIN (300mmø)
GIBBS DRAIN No. 2 INV. 193.85m

2+510–DRAIN TURNS SOUTH

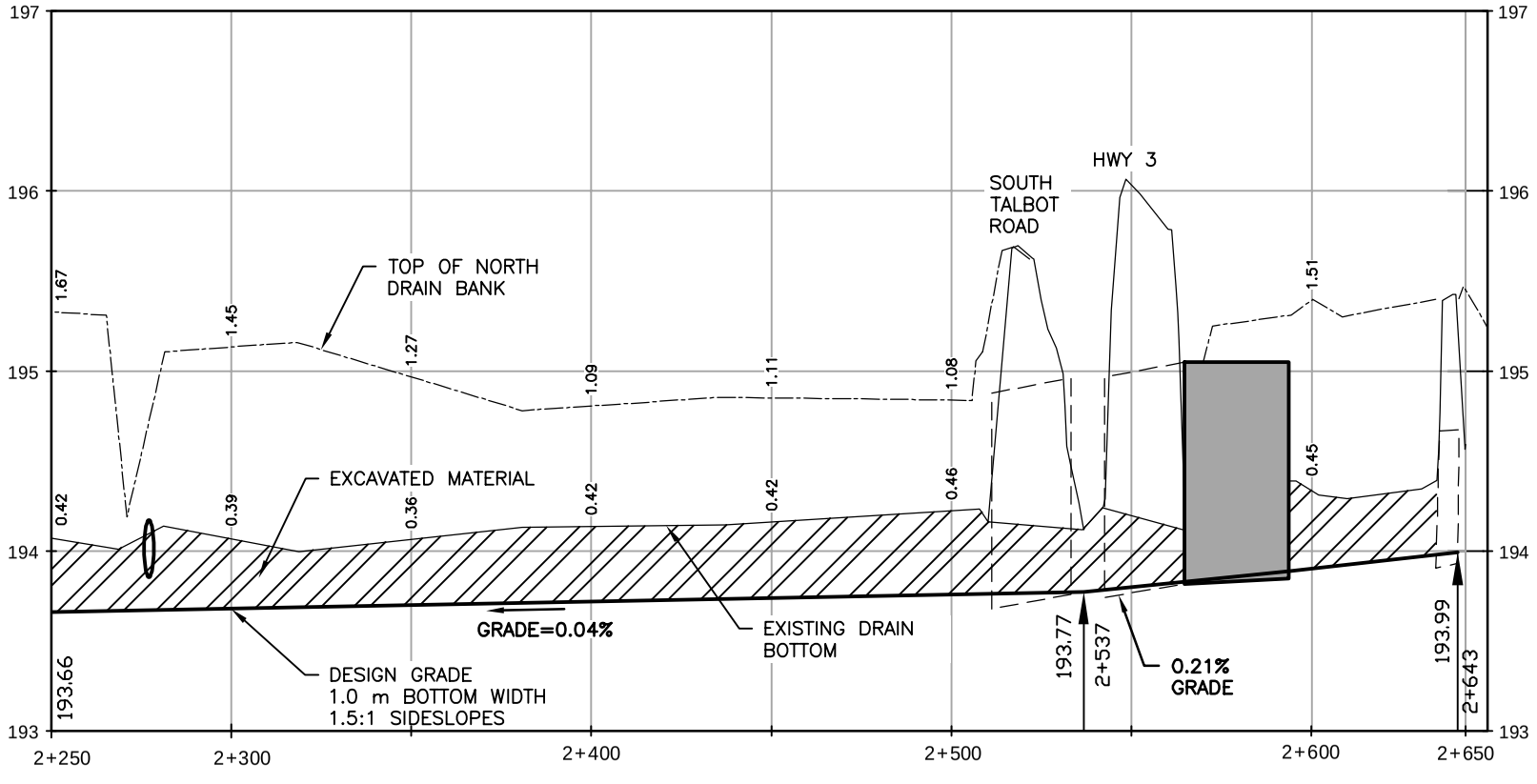
2+519–CULVERT No. 10 – (SOUTH TALBOT ROAD)
EX. 1200mmø CSP – 22 m LENGTH

2+542–CULVERT No. 11 – (HWY 3 CULVERT)
EX. 1200mmø CSP – 22 m LENGTH

2+594–CULVERT No. 11–(HWY 3 CULVERT EXTENSION)
1200mmø CSP – 29 m LENGTH

2+638–CULVERT No. 12 – (PRIVATE ACCESS CULVERT)
EX. 750mmø CONC – 6 m LENGTH

2+643–END OF DRAIN



PROFILE 4
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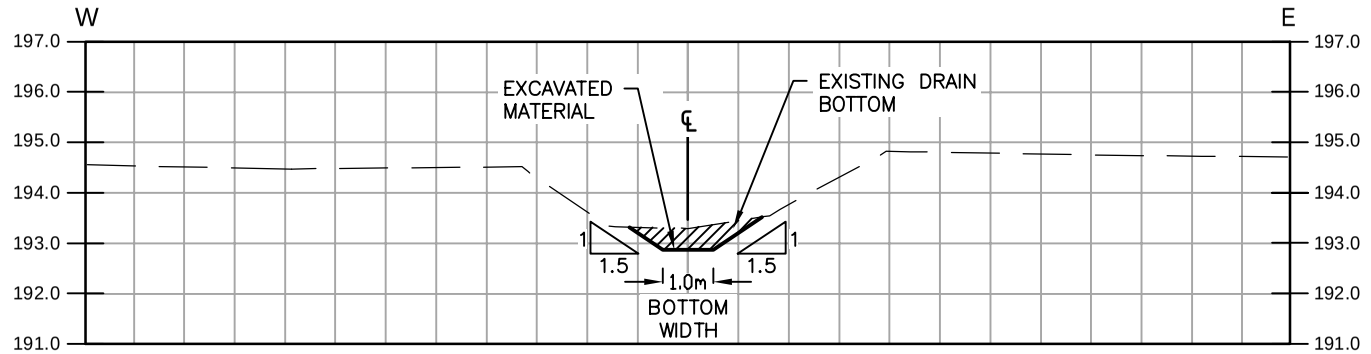
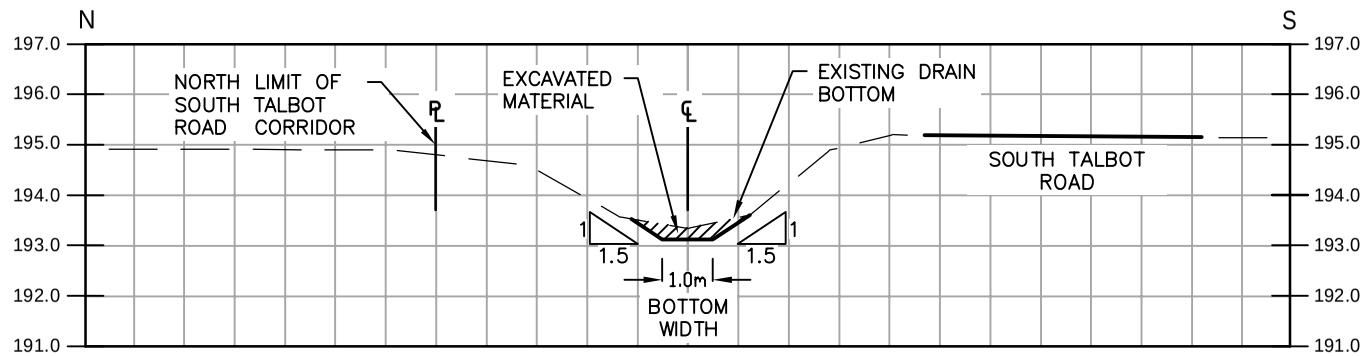


CROSS SECTION 0+400 (LOOKING UPSTREAM)
SCALE–1:150



CROSS SECTION 1+200 (LOOKING UPSTREAM)
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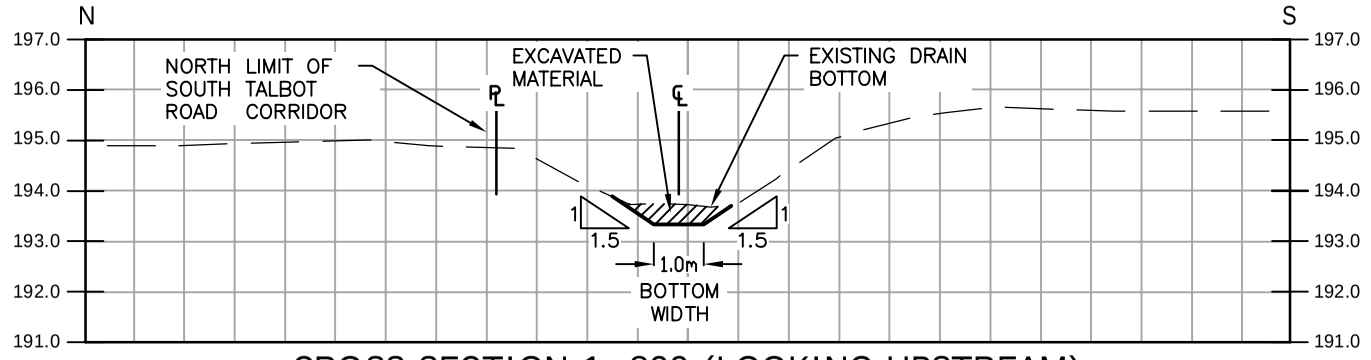

CROSS SECTION 1+800 (LOOKING UPSTREAM)
SCALE–1:150

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PAGE NO. 9 of 9

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