



OPS2025-01 - Engineer Report - Mitchell Henry Municipal Drain

Date:	Monday, January 13, 2025
From:	Jessica Wiley, Director of Operations
Roll N°	N/a

Recommendation

That Committee of the Whole recommend that Council of the Municipality of Meaford:

1. Receive report OPS2025-01 Engineer Report - Mitchell Henry Municipal Drain for information purposes; and
2. Enact a by-law as per Section 59(1) of the Drainage Act, where no person shall be permitted to withdraw their name from the petition, and to ratify Council's commitment to the project.

Executive Summary

This report is being prepared in response to the appointment of Burnside Engineering by the Municipality of Meaford to investigate drainage issues on the property of the petitioning owners, in accordance with Section 4 of the Drainage Act. R.S.O 1990.

The objective of this report is to determine a drainage solution to help alleviate ponding, provide a subsurface drainage outlet and improve the quality of the stormwater for the properties in the watershed. This reports recommends the construction of a new closed drain beginning at Lot 28, Concession 3, proceeding west and outletting on Lot 28, Concession 4, in the geographic township of Sydenham, Municipality of Meaford, Grey County.

Background

The Drainage Act is a provincial statute that allows property owners with drainage issues to petition their municipality for a solution. Upon acceptance

of the petition, the municipal council appoints an engineer to complete and investigation of the drainage area, complete discussions with property owners, and develop a solution to the drainage problem. The cost of constructing the drainage system, known as a municipal drain, as well as the cost of any future maintenance and repair work, is paid by the owners of lands and roads in the watershed of the drain. The distribution of these costs are determined by the appointed Engineer based on their opinion of what is a fair distribution of the project costs.

The Municipality of Meaford has received a petition for drainage submitted under Section 4 of the Drainage Act by the owners of 599236 2nd Concession N (CON 3 N PT LOT 28). For the effective use of their agricultural land at this location, the owner of the property has indicated that they require an outlet for the water generated from their property and upstream lands within the watershed. The petition for drainage was accepted by Council on May 30th, 2022, and in response to this petition, Council appointed the engineering firm of R. J. Burnside & Associates Limited (Burnside) to prepare a report. Mr. Jeremy Taylor, P. Eng. from this firm has been assigned responsibility for this project.

Analysis

On February 3, 2023 a stakeholder meeting was held with those involved in the project. The purpose of the meeting was to get input and comments on the proposed drain as well as its associated costs; with those involved in the project. All stakeholders attended and the proposed design was presented. This included installing approximately 320m of tiled starting at the north property line on the petitioned at Lot 28, Concession 3, progressing west through the property at Lot 29, Concession 3. Once the proposed drain reached Lot 28, Concession 4, three different options were discussed amount everyone in attendance.

The three options were as follows:

Option 1: Deepen approximately 190m of the existing ditch on Lot 28, Concession 4 to provide outlet for the proposed tule system and install erosion protection as required.

Option 2: Continue the tile system west for approximately 575m to outlet into the existing ditch on Lot 29, Concession 4. Further, this option also includes filling the existing ditch on lot 28, Concession 4.

Option 3: Continue the tile system west for approximately 190m to outlet into the existing ditch on Lot 29, Concession 4. Further, this option also includes filling the existing ditch on Lot 28, Concession 4.

Estimated costs were discussed for each of the options and detailed assessments were discussed for Option 1 as it was the least costly option presented. Property owners expressed their preference for Option 2 and requested it to be investigated further.

After further follow up conversations with project stakeholders, Option 2 was identified as the most mutually agreed upon option addressing some of the concerns such as erosion in the channel and ravine system.

The detailed summary of work for each property can be found in Section 7 Proposed Design, of the report.

Financial Impact

Net Assessments for construction including allowances and grants are included as part of Appendix 1.

Detailed Project Cost Estimate for the work is outlined in Appendix B of the report.

The schedule for construction and maintenance assessments can be found in Appendix C of the report.

Strategic Priorities

This report supports the mission, vision and values of the Municipality of Meaford, as well as the goals and objectives set out in Council's Strategic Priorities, particularly with respect to:

- Investing in Infrastructure

Community Well-Being

The purpose of Municipal Drains is to improve surface and subsurface flow of water for all parties impacted by the drain. The implementation will benefit all properties assessed into the drain but also in the vicinity by minimizing water related impacts from water flows and managing it in an appropriate way. Proper drainage often make the property more marketable, and increase the productivity of the lands involved by mitigating the water from entering it.

Consultation and Communications

All stakeholders have been engaged through out the process to date. This includes an on-site meeting, and an information meeting in which all affected parties were present with the Municipality and the consulting engineers. Agency correspondence, including circulation on this report has been included as well.

All information on the progress of the project has been shared with the Grey Sauble Conservation authority. Correspondence with them, including the issuance of a Permit to construct a municipal drain, can be found in Appendix D of the Engineers Report.

Finally, this report has also been sent to staff and OMAFRA for their information and comment should they have any.

Supporting Documentation

Appendix 1 –Engineer Report Mitchell Henry Drain

Appendix 2 – Location of Mitchell Henry Drain

Respectfully Submitted:

Jessica Wiley
Director of Operations



**Engineer's Report
Mitchell Henry Municipal Drain 2024**

**Municipality of Meaford
21 Trowbridge Street West
Meaford ON N4L 1N2**



NET ASSESSMENTS for CONSTRUCTION

PROJECT: Mitchell Henry Municipal Drain 2024

DATE : October 16, 2024

MUNICIPALITY: Meaford

PROJECT #: 300055924

Conc. or Plan	Lot or Part	Owner	Roll No.	Affected Area (Ha.)	Benefit Assess't (Sect.22)	Outlet Assess't (Sect.23)	Totals
		Agricultural Lands					
3	28	Mitchell Henry	7-071	37.20	\$ 2,800	\$ 112,980	\$ 115,780
3	29	Frank Lipsett	7-072	1.31	\$ -	\$ 2,380	\$ 2,380
4	28	502636 Ontario Limited	7-100	0.00	\$ 39,120	\$ -	\$ 39,120
4	29	Frank Lipsett	7-101	0.00	\$ 24,720	\$ -	\$ 24,720
TOTAL				38.51	\$ 66,640	\$ 115,360	\$ 182,000

<i>Less</i> 1/3 Grant	<i>Less</i> Allowances	<i>Net</i> Assessment
\$ 38,593	\$ 200	\$ 76,987
\$ 793	\$ -	\$ 1,587
\$ 13,040	\$ 15,100	\$ 10,980
\$ 8,240	\$ -	\$ 16,480
\$ 60,667	\$ 15,300	\$ 106,033

Notes:

- (1) It is presumed that all private lands are Agricultural, within the meaning of the Drainage Act except properties denoted with *
- (2) It is the responsibility of the landowner to confirm whether their property is eligible for an OMAFRA grant, under ADIP policies as eligibility has not been confirmed as part of the preparation of this report.



BURNSIDE

**Engineer's Report
Mitchell Henry Municipal Drain 2024**

**Municipality of Meaford
21 Trowbridge Street West
Meaford ON N4L 1N2**

**R.J. Burnside & Associates Limited
449 Josephine St
Wingham ON N0G 2W0 CANADA**

**October 16, 2024
300055924.0000**

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
2	Yes	Yes	Municipality of Meaford
3	No	No	Property Owners
1	Yes	Yes	Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)
0	Yes	Yes	Grey Sauble Conservation Authority (GSCA)

Record of Revisions

Revision	Date	Description
0	October 16, 2024	For Engineer's Report

R.J. Burnside & Associates Limited

Report Prepared By:

Edison Peel

Edison Peel, EIT
Engineering Assistant



Jeremy Taylor, P. Eng.
Project Engineer
EP/JT:tp

Executive Summary

Authorization

This report is being prepared in response to an appointment by the Municipality of Meaford, dated May 30, 2022 to investigate drainage issues on the properties of the petitioning property owners, in accordance with Section 4 of the Drainage Act, R.S.O. 1990.

Objective & Recommendations

The objective of this report is to determine a drainage solution to help alleviate ponding, provide a subsurface drainage outlet, and improve the quality of the stormwater for the properties in the watershed.

This report recommends the construction of a new closed drain beginning at Lot 28, Concession 3, proceeding west and outletting on Lot 28, Concession 4, in the geographic Township of Sydenham, Municipality of Meaford, Grey County.

Summary of Assessments

A summary of the assessments for this project are as follows:

Privately Owned Agricultural – Grantable	\$ 182,000
Total Estimated Assessments	\$ 182,000

Acknowledgements

R.J. Burnside & Associates Limited (Burnside) would like to acknowledge the assistance and cooperation of the property owners directly involved with this project, as well as Jessica Wiley, the Director of Operations/Drainage Superintendent for the Municipality of Meaford, and Olivia Sroka from the Grey Sauble Conservation Authority.

Table of Contents

1.0	Project Authorization.....	1
1.1	Engineer's Report.....	1
1.2	Petition for Drainage Works by Owners	1
2.0	Background Information	1
2.1	Existing Conditions	1
2.2	Watershed Area & Land Use	4
2.3	Soils	4
3.0	Preliminary Investigations	4
3.1	On-Site Meeting.....	4
3.2	Validity of Petition	5
4.0	Design Criteria & Engineering Considerations.....	5
4.1	Closed Drain Design.....	5
4.2	Water Quality Considerations	6
5.0	Environmental and Fisheries Considerations.....	6
5.1	Grey Sauble Conservation Authority (GSCA).....	6
5.2	Ministry of the Environment, Conservation and Parks (MECP)	6
5.3	The Department of Fisheries and Oceans Canada (DFO)	6
6.0	Stakeholder Meeting.....	7
6.1	Information Meeting No. 1.....	7
6.2	Follow up Conversations with Project Stakeholders.....	8
7.0	Proposed Design	8
7.1	Proposed Work Summary.....	8
7.2	Working Space and Access Routes.....	9
7.3	Change Orders	9
8.0	Description of Appendices.....	9
8.1	Appendix A – Allowances	9
8.2	Appendix B – Project Cost Estimate	9
8.3	Appendix C – Construction and Maintenance Assessment Schedules and Assessment Background Information.....	9
8.4	Appendix D – Agency Correspondence	9
8.5	Appendix E – Standard Drain Specifications.....	10
8.6	Appendix F – Special Provisions.....	10
8.7	Appendix G – Drawings	10
9.0	Maintenance and Future Considerations	10
9.1	General.....	10
9.2	Maintenance Costs	10
9.3	Future Connections	11

Figures

Figure 1 - Erosion on Lot 28, Concession 3.....	2
Figure 2 - Existing Tile Outlet at Northwest Corner of Lot 28, Concession 3.....	3
Figure 3 - Existing Channel Near Northwest Corner of Lot 28, Concession 3	3

Appendices

Appendix A Allowances – Sections 29 & 30

Appendix B Project Cost Estimate

Appendix C Construction and Maintenance Assessment Schedules and Assessment
Background Information

Appendix D Agency Correspondence

Appendix E Standard Drain Specifications

Appendix F Special Provisions

Appendix G Drawings

Nomenclature

General

ac – acre (0.4047 ha)
BSWI – buried surface water inlet
CB – catchbasin
CDT – concrete drain tile
CSP – corrugated steel pipe
c/w – complete with
dia. – diameter
DICB – ditch inlet catchbasin
d/s – downstream
ea. – each
FL – fence line
H – horizontal
ha – hectare (2.471 ac)
HDPE – high density polyethylene
BJB – buried junction box
km – kilometre
LS – lump sum
m – metre
mm – millimetre
m² – square metre
m³ – cubic metre
o/s – offset
PDT – plastic drainage tubing
PL – property line
ROW – right of way
S & I – supply and install
Sta. – station (chainage)
SWI – surface water inlet
t – tonne (2,205 pounds)
u/s – upstream
V – vertical

Other

CA – Conservation Authority
DFO – Department of Fisheries and Oceans
MECP – Ministry of Environment, Conservation and Parks
OMAFRA – Ontario Ministry of Agriculture, Food and Rural Affairs

1.0 Project Authorization

This report is being prepared in response to an appointment by the Municipality of Meaford, dated May 30, 2022 to investigate drainage issues on the properties of the petitioning property owners, in accordance with Section 4 of the Drainage Act, R.S.O. 1990.

1.1 Engineer's Report

The proposed works and costs contained herein are intended to reflect the requirements of the stakeholders and are based on information gathered during field survey, as well as at the property owners' meetings and follow up discussions. Details of the proposed work are described in this report, its appendices and on the plan and profile drawings.

1.2 Petition for Drainage Works by Owners

There was one petition submitted in relation to this project. The petition was dated April 19, 2022 was submitted by Mitchell Henry (Roll No. 7-071); owner of the north part of Concession 3, Lot 28.

2.0 Background Information

2.1 Existing Conditions

The watershed of the proposed Mitchell Henry Municipal Drain is not currently assessed to an existing municipal drain.

The surface water generally flows in a west / northwest direction and is the cause of extensive erosion. This is largely a result of the steep slopes and soil types within the watershed. Channels and gullies have formed in areas where stormwater concentrates. The erosion on the lands has been noted by the landowners as a problem constantly washing away topsoil and causing damage to lands, fences, vegetation, etc. This is depicted in Figure 1 below.

Figure 1 - Erosion on Lot 28, Concession 3



In an attempt to mitigate erosion, underdrainage works have been completed on the Mitchell Henry property (Lot 28, Concession 3). The underdrainage tile outlets are in the lowest portion of the property, near the northwest corner of Lot 28, Concession 3. Property owners downstream have attempted to excavate a channel to address flows from the drainage outlets and the surface water from Lot 28, Concession 3. Despite this, the works have not been able to provide a proper outlet for the drainage tiles or convey the water in a manner that does not inhibit downstream lands.

Figure 2 below depicts an existing buried private tile outlet that is located within the channel on Lot 28, Concession 3.

Figure 2 - Existing Tile Outlet at Northwest Corner of Lot 28, Concession 3



Figure 3 below depicts the existing channel on the Mitchell Henry property near the northwest corner of Lot 28, Concession 3 facing downstream, where notable erosion is evident.

Figure 3 - Existing Channel Near Northwest Corner of Lot 28, Concession 3



2.2 Watershed Area & Land Use

The total watershed area contributing to the Mitchell Henry Municipal Drain is approximately 38.5 ha (95 acres). The watershed area was delineated through the examination of topographic contour mapping data with computer aided drafting (CAD) software, and the review of field survey and observations. The watershed area has been adopted as part of this report.

Land use within the watershed area is divided as follows:

- 37 ha (91 acres) as agricultural land; and
- 1.5 ha (4 acres) as woodlot.

2.3 Soils

The soils survey for Grey County taken from Report No. 17 of the Ontario Soil Survey indicates that the predominant soil type within the watershed area is Harkaway silt loam.

Harkaway silt loam – A moderately stony soil with good drainage characteristics and moderately sloping topography.

Based on the characteristics of the soils and their potential for future agricultural use, the Canada Land Inventory (CLI) provides Soil Capability Classification of Agriculture for lands across the country. The soils within the drainage area have an agricultural capability rating of Class 1 with no limitation in crop use.

3.0 Preliminary Investigations

3.1 On-Site Meeting

The on-site meeting for the drain was held on October 26, 2022, on the Sideroad 27 roadside. The following were present at the meeting:

- | | |
|-------------------|--|
| • Drew Davenport | Representative (Roll No. 7-100) |
| • Keith Davenport | Representative (Roll No. 7-100) |
| • Rob Lipsett | Representative (Roll No. 7-072) |
| • Ron Lipsett | Representative (Roll No. 7-072) |
| • Richard Suchow | Representative (Roll No. 7-072) |
| • Mitchell Henry | Representative (Roll No. 7-071) |
| • Jessica Wiley | Director of Operations/Drainage Superintendent,
Municipality of Meaford |
| • Jeff Fries | Manager of Transportation and Fleet Services,
Municipality of Meaford |
| • Cody Kuepfer | Burnside |
| • Trevor Kuepfer | Burnside |

The existing drainage conditions were discussed, and the property owners expressed concerns primarily with erosion caused by surface water. The property owners indicated that they have attempted to address erosion concerns by improving the channel systems within the watershed area. These improvements have resulted in additional erosion which is causing damage to the lands, vegetation, and fencing. Mitchell Henry had indicated that he intends to further underdrain his agricultural lands and requires access to an improved outlet to complete this work.

As a result of the meeting it was determined that the primary purpose of this report is to establish a drainage outlet for the Mitchell Henry property (Roll No. 7-071) and to address some of the erosion issues that are currently affecting the property owners within the watershed area.

3.2 Validity of Petition

This report has been prepared in accordance with Section 4 of the Drainage Act, R.S.O. 1990. The area requiring drainage for this project has been determined as the entirety of the north part of Concession 3, Lot 28 as these agricultural lands do not currently have access to a sufficient tile outlet. As a result, the Petition has been deemed to be valid on the basis that Mitchell Henry owns the entirety of the area requiring drainage (valid as per Section 4(1) (a) and (b) of the Drainage Act).

4.0 Design Criteria & Engineering Considerations

The applicable sections of the “A Guide for Engineers Working Under the Drainage Act in Ontario” (Publication 852), and the applicable sections of the “Drainage Guide for Ontario” (Publication 29), both of which were published by the Ontario Ministry of Agriculture and Food, were used to determine and supplement the design considerations for this drain.

4.1 Closed Drain Design

Under the previously mentioned guidelines it is recommended to use a drainage coefficient for the underdrainage requirements of cleared, worked, agricultural land and to consider an additional drainage coefficient for the surface water requirements of all lands and roads within the watershed area. For this project, a drainage coefficient of 19.05 mm ($\frac{3}{4}$ inch) for under drainage requirements, and 19.05 mm ($\frac{3}{4}$ inch) for surface water requirements over a 24-hour period has been used.

Together, this produces a combined design coefficient of 38.1 mm ($1\frac{1}{2}$ inches) in 24 hours, and following discussion with the property owners, this coefficient was selected as the design standard for this project.

4.2 Water Quality Considerations

The loss of sediment and nutrients from cropped land is a major concern to water quality in Ontario. Therefore, this design has incorporated several features to minimize these impacts including:

- A permanent rip-rap stilling basin and spillway.
- 300 mm deep sump on catchbasin to slow and encourage deposition of suspended soils at these locations.

5.0 Environmental and Fisheries Considerations

When a new Engineer's report is prepared that could affect an existing Municipal Drain, natural watercourse, wetland, or other environmental features, a review of the work is required, and subsequent approvals and/or project requirements must be obtained from the applicable agency. These may include the local Conservation Authority (CA), the Ministry of the Environment, Conservation and Parks (MECP) and Fisheries and Oceans Canada (DFO).

5.1 Grey Sauble Conservation Authority (GSCA)

The GSCA has been apprised of the project throughout its progression. Olivia Sroka indicated that the main concerns to the GSCA pertained to the protection of the outlet and pipe gradient at the downstream section.

5.2 Ministry of the Environment, Conservation and Parks (MECP)

The majority of the proposed works occur in active agricultural fields, which are for row crops. The fields will remain suitable for agricultural operation after the project is complete and as a result no temporary or permanent impacts on Species at Risk (SAR) are anticipated.

The Contractor will be responsible to ensure that during construction no extirpated, endangered, threatened, or special concern species or their habitats are adversely affected.

5.3 The Department of Fisheries and Oceans Canada (DFO)

Artificial waterbodies that are not connected to a waterbody that contain fish at any time of the year do not require review by the DFO. The proposed work area is separated by a floodplain area that is approximately 6 m lower than the proposed tile outlet. As a result of this vertical separation the proposed drain is not hydraulically connected to the natural watercourse at any time of the year. As a result, a review by DFO was not necessary to be completed.

6.0 Stakeholder Meeting

One meeting was organized with the stakeholders involved with this project to get input and comments on the proposed drain and its associated costs.

6.1 Information Meeting No. 1

An information meeting for the proposed drain was held on February 3, 2023 at the Woodford Community Centre. The following were present at the meeting:

- Drew Davenport Representative (Roll No. 7-100)
- Rob Lipsett Representative (Roll No. 7-072)
- Ron Lipsett Representative (Roll No. 7-072)
- Louise Lipsett Representative (Roll No. 7-072)
- Mitchell Henry Property Owner (Roll No. 7-071)
- John Bittorf Grey Sauble Conservation Authority
- Jessica Wiley Director of Operations/Drainage Superintendent,
Municipality of Meaford
- Jeff Fries Manager of Transportation and Fleet Services,
Municipality of Meaford
- Cody Kuepfer Burnside
- Trevor Kuepfer Burnside

The watershed boundary was initially discussed amongst those in attendance at the meeting.

The proposed design presented included installing approximately 320 m of tile starting at the north property line on the Mitchell Henry property (Lot 28, Concession 3), progressing west through the Lipsett property (Lot 29, Concession 3). Once the proposed drain reached Lot 28, Concession 4, three different options were discussed amongst those in attendance and are summarized below.

Option 1: Deepen approximately 190 m of the existing ditch on Lot 28, Concession 4 to provide outlet for the proposed tile system and install erosion protection as required.

Option 2: Continue the tile system west for approximately 575 m to outlet into the Waterton Creek floodplain area. Further, this option also includes filling the existing ditch on Lot 28, Concession 4.

Option 3: Continue the tile system west for approximately 190 m to outlet into the existing ditch on Lot 29, Concession 4. Further, this option also includes filling the existing ditch on Lot 28, Concession 4.

Estimated costs were discussed for each of the options and detailed assessments were discussed for Option 1 as it was the least costly option presented at the meeting.

Property owners expressed their preference for Option 2 and requested it to be investigated further.

6.2 Follow up Conversations with Project Stakeholders

Informal meetings and conversations were completed with the project stakeholders in the fall of 2023.

Prior to these meetings, Burnside had further investigated Option 2 as requested to address property owner concerns pertaining to erosion in the channel and ravine system on Lots 28-29, Concession 4. This was discussed with the property owners and was determined to be the most mutually agreed upon option. Tile maps were provided by Lot 28, Concession 4 and test pits completed along the proposed route.

Furthermore, Burnside discussed the removal of all proposed works on Concession 3. This is because the Mitchell Henry property (Lot 28, Concession 3) could be serviced with a private drainage system and there was no major advantage to continuing with a municipal drain system on Concession 3.

7.0 Proposed Design

7.1 Proposed Work Summary

The works proposed for the Mitchell Henry Municipal Drain for each property include the following:

502636 Ontario Ltd. (Roll No. 7-100)

- Tree clearing as required.
- Construction of a rip-rap lined stilling basin and spillway downstream of the proposed outlet.
- Stripping of topsoil and subsequent restoration along the route of the drain.
- Supply and install 102 m of 375 mm dia. HDPE pipe.
- Supply and install one (1) 600 mm x 600 mm buried junction box.
- Supply and install 474 m of 450 mm dia. concrete drainage tile.
- Relocate spoil as required to fill approximately 170 m of channel.
- Supply and install one (1) 900 mm x 1,200 mm inline concrete ditch inlet catchbasin.
- The connection of all impacted private tiles.

Mitchell Henry (Roll No. 7-071)

- The connection of the existing private tiles.

7.2 Working Space and Access Routes

The working space and access routes being provided to the Contractor are described in Appendix F – Special Provisions. The working space shall also be available for future maintenance of the drain. Access to the working space is to be confirmed by the Contractor with property owners and the Engineer prior to the commencement of construction. Allowances for the working space and access routes have been provided to the affected properties.

7.3 Change Orders

If unforeseen circumstances are encountered following the adoption of this report, the Engineer may issue change orders, as required to have the work properly constructed.

8.0 Description of Appendices

8.1 Appendix A – Allowances

In accordance with Section 8(1)(d) of the Act, this Appendix provides a breakdown of the allowances provided under Sections 29, and 30 of the Act. These sections are:

- Section 29 – Right-of-Way
- Section 30 – Damages

8.2 Appendix B – Project Cost Estimate

In accordance with Section 8(1)(b) of the Act, this Appendix provides a breakdown of the total estimated cost of the proposed work, including all labour, materials, construction, engineering, administration and allowances.

8.3 Appendix C – Construction and Maintenance Assessment Schedules and Assessment Background Information

This Appendix provides an explanation of the methodology used in determining the assessments for this project and also a summary of the proposed assessments that shall be assessed on a pro rata fashion to each property impacted by the proposed works **prior to any grant or allowances being provided.**

Furthermore, this Appendix provides maintenance assessment schedules that shall be used by the Drainage Superintendent following the construction of the proposed drain to determine how to distribute maintenance costs.

8.4 Appendix D – Agency Correspondence

Relevant project documents from the GSCA are listed in this Appendix.

8.5 Appendix E – Standard Drain Specifications

The Standard Drain Specifications have been provided in Appendix E and govern the work described herein.

8.6 Appendix F – Special Provisions

Special Provisions are specific directions for this project. The Special Provisions detail requirements not encompassed by Appendix E – Standard Drain Specifications. Special Provisions shall take precedence over Standard Drain Specifications where a conflict between the two documents may exist.

8.7 Appendix G – Drawings

Four (4) drawings are included with this report, consisting of a plan, profiles and details pertinent to the construction of the proposed drain.

9.0 Maintenance and Future Considerations

9.1 General

The Municipality of Meaford will be responsible for the maintenance of all of the works detailed in this report. The sections with the Act dealing with obstruction of, damage, and injury to a Municipal Drain, namely Sections 80 and 82, are brought to the attention of the property owners. Under these sections, both the property owners and the Municipality of Meaford have responsibilities to ensure that a Municipal Drain is properly maintained and kept in good working condition.

The Municipal Drain shall be deemed to start at its confluence with Waterton Creek at Sta. -0+040 and end at the proposed catchbasin at Sta. 0+576.

The maintenance of this drain should include regular inspections by the Drainage Superintendent, and appropriate action should be taken by the Drainage Superintendent to ensure the proper function of the drain.

9.2 Maintenance Costs

The Mitchell Henry Municipal Drain 2024 shall be maintained by the Municipality of Meaford at the expense of the upstream lands and roads in accordance with Section 74 of the Drainage Act.

Costs shall be distributed among the upstream property owners using Appendix C2 – Maintenance Assessment Schedule and in the same relative portions until such a time as they are varied in accordance with the Drainage Act.

9.3 Future Connections

Connections by the property owners or their Contractor not approved by the Municipality of Meaford or its Drainage Superintendent may be removed at the expense of the Owner responsible for the connection.

All future connections must be made at a plugged inlet provided in a precast concrete structure or an approved core drilled hole into the tile, with approved fittings and materials to the satisfaction of the Drainage Superintendent.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Allowances – Sections 29 & 30

Appendix A – Allowances

Allowances will be deducted from total assessments in accordance with Section 62(3) of the Act. The land and crop values used for these calculations were determined based on a general understanding of the values within this geographic area and are described in the following sections. A summary of the allowances provided under each section of the Act is included in this Appendix. Details regarding working space can be found in the Special Provisions.

Section 29 – Right-of-Way

Section 29 the Act states:

“The engineer in the report shall estimate and allow in money to the owner of any land that it is necessary to use,

- a) for the construction or improvement of a drainage works;*
- b) for the disposal of material removed from drainage works;*
- c) as a site for a pumping station to be used in connection with a drainage works;*
- d) or as a means of access to any such pumping station, if, in the opinion of the engineer, such right of way is sufficient for the purposes of the drainage works,*

the value of any such land or the damages, if any, thereto, and shall include such sums in the estimates of the cost of the construction, improvement, repair or maintenance of the drainage works. R.S.O. 1990, c. D.17, s.29.”

The right-of-way is defined as the footprint of the drain, the working space for the Contractor during construction, and also the working space for the Municipality of Meaford for future maintenance.

In this report, ROW allowances have been provided as follows:

- A 10 m working space has been provided over the proposed tile drain at a rate of \$5,000 per acre.
- A \$500 allowance has been provided for the open works between the proposed tile outlet and Waterton Creek to provide for all works necessary to provide for the removal of any blockages or installation of erosion protection necessary in the future.
- A \$500 allowance has been provided to properties where an access route has been noted.

No permanent buildings, structures or plantings should be allowed within the right-of-way, to allow for the future maintenance of this drain.

Section 30 – Damages

Section 30 of the Act states:

“The engineer shall determine the amount to be paid to persons entitled thereto for damage, if any, to ornamental trees, lawns, fences, lands and crops occasioned by the disposal of material removed from a drainage works and shall include such sums in the estimates of the cost of construction, improvement, repair or maintenance of the drainage works. R.S.O. 1990, c. D.17, s.30.”

In this report, a base value of **\$1,500** per acre for workable, agricultural land has been applied to the calculation of the damage allowances as crop damage, tire rutting, etc. may be occur during the construction of this drain. The following was assumed for damages for the specified width of the working area.

A 10 m working corridor was provided in the open drain working space for the length of the channel to allow for the construction of the open drain and placement of spoil.

A 20 m width was provided for the tile drain working space to allow for the installation of the tile drain, topsoil stripping, tile placement and travel along the drain.

A 10 m width is provided for access routes, and a 40 m x 40 m construction area has been assumed as detailed in the Special Provisions.

A minimum damage allowance of \$200 was given to properties affected by minor construction activities. An example of this would be the placement of a catchbasin on the property line at the upstream extent of the drain.

APPENDIX A - ALLOWANCES

PROJECT: Mitchell Henry Municipal Drain 2024
DATE : October 16, 2024

MUNICIPALITY: Meaford
PROJECT #: 300055924

Conc.	Lot	Owner	Roll No.	Right of Way (Sect.29)	Damages (Sect.30)	Totals
3	28	Mitchell Henry	7-071	\$ -	\$ 200	\$ 200
4	28	502636 Ontario Limited	7-100	\$ 8,000	\$ 7,100	\$ 15,100
TOTAL ALLOWANCES				\$ 8,000	\$ 7,300	\$ 15,300



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Project Cost Estimate

Appendix B - Project Cost Estimate

The estimate of the cost of all labour, equipment and material required to construct this project is as follows:

Note **SP** refers to the **Special Provisions** (in Appendix F) to reference for additional details of work.

Item	Description	Approx. Quantity	Cost Estimate
A.	<u>Mitchell Henry Petition Drain</u>		
A0	Mobilization. (SP 0)	LS	\$ 5,000
A1	Close cut clear approximate 10 m width x 20 m length of trees. (SP 1) (Sta. -0+015 to Sta. -0+005)	LS	\$ 1,500
A2	Channel Construction. (SP 2) (Sta. -0+010 to Sta. -0+000)	LS	\$ 4,000
A3	Stilling Basin Construction		
a)	Supply 150-300 mm quarry stone rip-rap.	25 tonnes	\$ 3,000
b)	Supply 450-600 mm quarry stone rip-rap.	20 tonnes	\$ 2,500
c)	Construct stilling basin and install quarry stone rip-rap as per the accompanying details. (SP 3) (Sta. -0+010 to Sta. 0+000)	LS	\$ 3,000
A4	a) Supply 102 m of 375 mm dia. solid HDPE dual-wall pipe (min. 210 kPa stiffness) c/w rodent grate. b) Install 102 m of HDPE pipe on 19 mm clear stone bedding as detailed. (SP 4) (Sta. 0+000 to Sta. 0+102)	LS LS	\$ 10,200 \$ 6,740
A5	a) Supply one (1) 600 mm x 600 mm buried junction box. b) Install one (1) buried junction box. (SP 5) (Sta. 0+102)	LS LS	\$ 1,000 \$ 500
A6	a) Supply approx. 474 m of 450 mm dia. 2000D CDT and required geo-textile. b) Install 474 m of CDT on 19 mm clear stone bedding c/w approximately 170 m of channel filling works as detailed. (SP 4) (Sta. 0+102 to Sta. 0+576)	LS LS	\$ 18,000 \$ 27,460
A7	a) Supply one (1) 900 mm x 1,200 mm concrete DICB. b) Install one (1) concrete DICB. c) Berm at DICB. d) Regrade existing swale. (SP 5) (Sta. 0+576)	LS LS LS LS	\$ 2,500 \$ 1,000 \$ 5,000 \$ 3,000
A8	Supply and install two (2) lengths of approximately 6 m long 200 mm dia. ag tubing c/w connections to two private headers east of the proposed drain with appropriate reducers and connection to the proposed structure. (SP 6) (Sta. 0+576)	LS	\$ 1,000
Total Estimated Cost of Construction - Main Drain			\$ 95,400

B. CONTINGENCIES

B1	Existing tile reconnections to the drain as approved by the Engineer. (SP 7)	6 ea.	\$ 1,200
B2	Install drain on a 300 mm depth of 19 mm dia. crushed clear stone bedding wrapped in geotextile and backfill to springline in areas of soil instability, as directed by the Engineer. This cost represents the additional unit price for additional materials. (SP 8)	100 m	\$ 6,000
Total Estimated Cost of Construction - Contingencies			\$ 7,200
<u>Total Estimated Cost of Construction</u>			<u>\$ 102,600</u>

SUMMARY OF COSTS

Total Estimated Cost of Construction	\$ 102,600
Allowances to Owners (Sections 29 & 30)	\$ 15,300
Preparation of Report	\$ 35,000
On-site meeting, soils investigations, field survey, information meeting, drawing set and system design, report preparation, determining allowances, construction and maintenance assessment schedules.	
Printing and Consideration of the Report	\$ 2,500
Preparation of report copies for distribution, preparation and attendance at the consideration of the report.	
Tendering	\$ 2,500
Preparation and distribution of tender, review of Contractor bid documents, preparation of letter of recommendation for Council.	
Contract Administration	\$ 12,500
Preparation and attendance for pre-construction meeting, site reviews during construction (assumed 10 days for drain construction), payment certificates and related appurtenances (progress payment, substantial performance, statutory holdback, and warranty holdback certificates).	
Total Estimated Engineering	\$ 52,500
Administration and Financing	\$ 11,600
Net HST (construction and engineering), GSCA review fee, and interest charges.	
<u>Total Estimated Cost</u>	<u>\$ 182,000</u>

Note:

The above summary contains cost estimates only. It is emphasized that these estimates do NOT include costs to defend the Drainage Report and procedures if appeals are filed with the Court of Revision, Ontario Drainage Tribunal and/or the Ontario Drainage Referee. Unless otherwise directed, additional costs to defend the report are typically distributed in a pro rata fashion over the assessments contained in the Construction Assessment Schedule, excluding any Special Assessments. Also, in addition to the work included in the above estimate, should repairs, replacements, underpinning or other alterations be required for existing bridges, culverts, overflow culverts or any other structure necessary to conduct overflow water, or water in open channels under or across a road allowance, as affected by this drainage work, the work and cost thereof, including any necessary expenses incidental thereto, and if not determined otherwise, shall be the responsibility of and shall be assessed against the authority having control of such road or road allowance.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Construction and Maintenance Assessment Schedules and Assessment Background Information

Assessment Schedules

Assessments For Construction C1

Assessments For Maintenance C2

Appendix C – Construction and Maintenance Assessment Schedules and Assessment Background Information

Appendix C1 – Schedule of Assessment for Construction

In accordance with Section 8(1)(c) of the Act, this Appendix shows the distribution of the total estimated cost over the lands and roads involved and are in accordance with Sections 21, 22, 23, 24, and 26 of the Act. Affected private lands that are deemed to have an agricultural tax class may be eligible for any grants which may be available through the Ontario Ministry of Agriculture and Food and Rural Affairs (OMAFRA). The engineering and administration costs have been assessed out over the entire drain.

The assessments have been calculated using the Modified Todgham Method to distribute the project costs throughout the watershed in a fair and equitable manner. More information on assessment and the Drainage Act can be found on the OMAFRA website.

Sections 22 and 23 – Benefit and Outlet Assessment

Section 21 of the Act states:

“The engineer in the report shall assess for benefit, outlet liability and injuring liability, and shall insert in an assessment schedule, in separate columns, the sums assessed for each opposite each parcel of land and road liable therefor. R.S.O. 1990, c. D.17, s. 21.”

Section 22 of the Act states:

“Lands, roads, buildings, utilities or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance or repair of a drainage works may be assessed for benefit. R.S.O. 1990, c. D.17, s.22”

Section 23 of the Act states:

“(1) Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet liability.

(2) If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow may be assessed for injuring liability with respect to a drainage works to relieve the injury so caused to such other land or road.

(3) The assessment for outlet liability and injuring liability provided for in subsections (1) and (2) shall be based upon the volume and rate of flow of the water artificially caused to flow upon the injured land or road or into the drainage works from the lands and roads liable for such assessments.

(4) The owners of the lands and roads made liable to assessment only under subsection (1) or (2) shall neither count for nor against the petition required by section 4 unless within the area therein described. R.S.O. 1990, c. D.17, s.23.”

Throughout the course of the drain, specific costs were assigned to various property owners. Parts of the costs of items such as catchbasins, junction boxes, berms, etc. were assessed to the lands directly upstream and downstream of the item and/or the entire upstream watershed.

Appendix C2 – Schedule of Assessment for Maintenance

In accordance with Section 38 of the Act, an assessment schedule for future maintenance of the proposed drain have been completed. Affected lands located upstream of the maintenance shall be determined by the Drainage Superintendent and assessed according to these schedules.

APPENDIX C1 - ASSESSMENTS for CONSTRUCTION



PROJECT: Mitchell Henry Municipal Drain 2024
DATE : October 16, 2024

MUNICIPALITY: Meaford
PROJECT #: 300055924

Conc. or Plan	Lot or Part	Owner	Roll No.	Affected Area (Ha.)	Benefit Assess't (Sect.22)	Outlet Assess't (Sect.23)	Totals
		<div>Agricultural Lands</div>					
3	28	Mitchell Henry	7-071	37.20	\$ 2,800	\$ 112,980	\$ 115,780
3	29	Frank Lipsett	7-072	1.31	\$ -	\$ 2,380	\$ 2,380
4	28	502636 Ontario Limited	7-100	0.00	\$ 39,120	\$ -	\$ 39,120
4	29	Frank Lipsett	7-101	0.00	\$ 24,720	\$ -	\$ 24,720
TOTAL				38.51	\$ 66,640	\$ 115,360	\$ 182,000

Notes:

- (1) It is presumed that all private lands are Agricultural, within the meaning of the Drainage Act except properties denoted with *
- (2) It is the responsibility of the landowner to confirm whether their property is eligible for an OMAFRA grant, under ADIP policies as eligibility has not been confirmed as part of the preparation of this report.



APPENDIX C2 - ASSESSMENTS for MAINTENANCE

PROJECT: Mitchell Henry Municipal Drain 2024

DATE: October 16, 2024

MUNICIPALITY: Meaford

PROJECT #: 300055924

Conc. or Plan	Lot or Part	Owner	Roll No.	Affected Area (Ha.)	Benefit Assess't (Sect.22)	Outlet Assess't (Sect.23)	Totals
		Agricultural Lands					
3	28	Mitchell Henry	7-071	37.20	1.5%	62.1%	63.6%
3	29	Frank Lipsett	7-072	1.31	0.0%	1.3%	1.3%
4	28	502636 Ontario Limited	7-100	0.00	21.5%	0.0%	21.5%
4	29	Frank Lipsett	7-101	0.00	13.6%	0.0%	13.6%
TOTAL				38.51	36.6%	63.4%	100.0%

Notes:

- (1) It is presumed that all private lands are Agricultural, within the meaning of the Drainage Act except properties denoted with *
- (2) It is the responsibility of the landowner to confirm whether their property is eligible for an OMAFRA grant, under ADIP policies as eligibility has not been confirmed as part of the preparation of this report.

300055924.0000



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Agency Correspondence

October 13, 2024

Municipality of Meaford
21 Trowbridge St. W
Meaford, ON

**RE: Issuance of Grey Sauble Conservation Authority Permit GS23-419 Construction of a municipal drain
Municipality of Meaford**

Please find enclosed a permit for your "Construction of a municipal drain" project. Also enclosed is a green and white sign that must be posted on the property near the point of access to the project location while construction is taking place.

Please read the conditions carefully and ensure that you and your contractors understand the conditions of this permit prior to commencing with any development. You must inform our office when you plan to start the project and upon completion of the project.

If any questions should arise, please feel free to contact me.

Regards,



Olivia Sroka
Regulations Officer

Encl.

Cc via email: Robert Uhrig, GSCA Director, Municipality of Meaford
Tony Bell, GSCA Director, Municipality of Meaford
Building & Planning Departments, Municipality of Meaford



GREY SAUBLE
CONSERVATION AUTHORITY

PERMIT NUMBER	GS23-419
DATE ISSUED	13-Oct-24

R.R.#4, Inglis Falls Road, Owen Sound, Ontario, N4K 5N6 (519)376-3076 Fax (519)371-0437

Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits

In accordance with Ontario Regulation 41/24, permission is hereby granted to:

Owner Jessica Wiley Agent Trevor Kuepfer

Municipality of Meaford
21 Trowbridge St W
Meaford ON

RJ Burnside
449 Josephine St
Wingham ON

- to
- ☐ PLACE/REMOVE FILL
- ☐ CONSTRUCT/RECONSTRUCT A BUILDING or STRUCTURE
- ☒ ALTER A WATERCOURSE
- ☐ ALTER A WETLAND
- ☐ ALTER, ADD TO, RENOVATE A BUILDING
- ☐ ALTER A LAKE SHORELINE

at the following location: 324189 Sideroad 27

Lot Conc. Municipality of Meaford formerly, Sydenham Township

Lot Number Registered Plan Number

Existing Landuse: Roll#: 42-10-510-007-100-00-0000

For the following works: Construction of the Mitchell-Henry Municipal Drain

on the above described property, during the period of 13-Oct-24 to 13-Oct-26

The applicant, by acceptance of and in consideration of the issuance of this Permit, agrees to the "Specific and General" conditions as listed below. If the applicant wishes to appeal these conditions to the Authority's board of directors, the Authority must be notified in writing prior to commencement of the project. Once the appeal process has been initiated, this permit becomes null and void and no work shall commence.

SPECIFIC CONDITIONS

- 1) The proposed works must be completed in accordance with the attached approved plans.
- 2) Appropriate sediment controls must be utilized to minimize sediment transport into any watercourses.
- 3) Sediment controls must to be continually maintained in good working order and repaired after every rainfall event if necessary.
- 4) Works must to be completed during dry weather conditions.
- 5) All disturbed areas within our regulated areas must be re-vegetated and/or stabilized immediately following construction.
- 6) Any changes to project design within our regulated area must be approved by this office.

GENERAL CONDITIONS

- 1 Authorized representatives of the Grey Sauble Conservation Authority may, at any time, enter onto the lands which are described herein to make surveys, examinations or inspections which are required for the purpose of ensuring that the work(s) authorized by this Permit are being carried out according to the terms of this Permit.
2. All complaints arising from the execution of the works authorized under this Permit shall be reported prior to the expiration of this Permit.

PLEASE NOTE:

Approvals, permits, etc. may be required from other agencies prior to undertaking the work proposed. Authority permission, if granted for the proposed work, does not exempt the owner/agent from complying with any or all other approvals, laws, stautes, ordinances, directives, regulations, etc. that may affect the property or the use of same.

This Permit shall not release the applicant from any legal liability or obligation and remains in force subject to all limitations, requirements and liabilities imposed by law;

(Officer of the Authority)

PLEASE CONTACT

BEFORE AND AFTER THE WORK IS COMPLETED

Olivia Sroka



Grey Sauble Conservation Authority

R.R.#4, 237897 Inglis Falls Road

Owen Sound, Ontario

N4K 5N6 (519) 376-3076

www.greysauble.on.ca

A Permit for this site has been issued for:

Construction of a municipal drain

under the Grey Sauble Conservation Authority: Ontario
Regulation 41/24: Prohibited Activities, Exemptions and
Permits (Section 28 Conservation Authorities Act)

Permit No. 23419

Approved: October 10, 2024

Expires: October 10, 2026

Ontario Regulation 41/24

This paper is not weatherproof.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Standard Drain Specifications

- General Drain Specifications E.2.1
- Specifications for Open Drains E.2.2
- Specifications for Closed Drains E.2.3

E.2.1 GENERAL DRAIN SPECIFICATIONS

E.2.1.1 SCOPE OF SPECIFICATIONS

This specification covers the general conditions governing the construction of a Municipal Drain under the most recent revision of The Drainage Act and amendments. All work shall be done in accordance with current and applicable Ontario Provincial Standard Specifications and Drawings (OPSS and OPSD).

E.2.1.2 BENCHMARKS

Benchmarks shall be set at intervals along the course of the work at locations shown on the accompanying plan and/or profile. The Contractor or landowner shall be held liable for the cost of re-establishing benchmarks destroyed. Attention is drawn to Section 13 of The Drainage Act.

E.2.1.3 STAKES/FLAGS/MARKERS

Stakes, flags or markers are typically set at intervals throughout the course of the work, at all fences and property lines. The Contractor or landowner shall be held liable for the cost of replacing any stakes removed or destroyed.

E.2.1.4 PROFILE

The drain is to be excavated or installed to regular gradient lines as shown on the profile(s). These gradients show the bottom of the finished drain (open or closed) and are governed entirely by the benchmarks. In the case of closed drains, the gradient is that of the invert of the tile. The profile(s) shows the approximate depth from the surface of the ground to the invert of the tile or drain bottom at the point where the stations are set and from the average bottom of the open drain as taken at the time of survey. Open drains shall be brought to an even gradient in the bottom to prevent standing water. For closed drains, a variation of 25 mm (unless specified otherwise) from the gradient may be deemed sufficient reason for the work to be rejected and required to be rebuilt.

E.2.1.5 CLEARING

Clearing means the cutting of all standing trees, brush, bushes and other vegetation to a maximum height of 300 mm above original ground level as well as the removal of felled materials and windfalls. Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents.

The work shall consist of clearing all areas of earth excavation, earth surfaces to be covered by embankments up to and including 1.2 m in height, and any other areas specified in the Contract Documents.

No trees, brush or bushes are to be left inside the slopes of the drain, whether they are located within the limits of the excavation or not. Brush cleared in accordance with the above shall be piled in a location and in a manner satisfactory to the Engineer for burning by the Owner. Unless otherwise specified or directed, these piles shall be a minimum of 100 m apart and shall contain only cleared material. All work shall be done in accordance with OPSS 201.

E.2.1.6 CLOSE CUT CLEARING

Close Cut Clearing means the cutting of all standing trees, stumps, brush, bushes and other vegetation at original ground level and the removal of felled materials and windfalls. Grubbing means the removal of all stumps, roots, embedded logs, debris and secondary growth. Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents.

The work shall consist of close cut clearing all earth surfaces to be covered by embankments greater than 1.2 m in height, and any other areas specified in the Contract Documents.

No trees, stumps, brush or bushes are to be left inside the slopes of the drain whether they are located within the limits of the excavation or not. Brush cleared in accordance with the above shall be piled in a location and in a manner satisfactory to the Engineer for burning by the Owner. Unless otherwise specified or directed, these piles shall be a minimum of 100 m apart and shall contain only cleared material. All work shall be done in accordance with OPSS 201.

E.2.1.7 BRUSHING

Brushing means the grinding or chipping to ground level of vegetation in the working space under 150 mm in diameter by means of a hydraulic brushing attachment used with an excavator or approved equivalent. This includes grinding or chipping all standing trees, stumps, brush, bushes and other vegetation to original ground level.

Trees measuring 150 mm or more in diameter shall be felled, delimbed, cut into lengths no longer than 4 m and stacked to the designated side of the working space. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

E.2.1.8 GRUBBING

Grubbing means the removal of all stumps, roots, embedded logs, debris and secondary growth.

The work shall consist of grubbing all areas of earth excavation, earth surfaces to be covered by embankments up to and including 1.2 m in height and any other areas specified in the Contract Documents.

Grubbing is not required in swamps. Mechanical stump cutters are permitted, provided the entire root structure is removed. Depressions remaining after grubbing shall be backfilled with suitable earth material and compacted to avoid settlement. When clearing has been previously completed by others, all secondary growth, brush and debris shall be removed.

Piled boulders and surface boulders that are not specified in the Contract Documents for removal and lie within areas to be grubbed shall be removed. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

E.2.1.9 REMOVAL OF SURFACE BOULDERS & REMOVAL OF PILED BOULDERS

Piled Boulders means any cobbles, boulders or rock fragments that have been placed in fence rows or piles.

Rock means rock as defined in OPSS 206.

Surface Boulder means any boulder or rock fragment that measures 200 mm or greater in any one dimension, extends a minimum of 200 mm above original ground and can be removed without excavation.

The work shall consist of the removal of surface boulders and removal of piled boulders within the areas specified in the Contract Documents. Depressions remaining after removal shall be backfilled with suitable earth material and compacted to avoid settlement. The work shall not damage or disturb the area outside the areas specified in the Contract Documents. All work shall be done in accordance with OPSS 201.

E.2.1.10 FENCES

The Contractor will be permitted to remove fences to the extent necessary to allow the construction of the drain and to dispose of any excess material according to the specifications. Any such fences shall be carefully handled so as to cause no unnecessary damage. Unless allowance has been provided, such fences shall be replaced by the Contractor in as good a condition as found. The Contractor shall supply all material necessary to properly reconstruct any fences. The Contractor shall not leave any fence open when he is not at work in the immediate area and shall replace the fence in a timely manner, all to the satisfaction of the Engineer.

E.2.1.11 STANDING CROPS AND LIVESTOCK

Should a property owner wish to harvest any crop along an access route or within the construction working space as set out in the Engineer's Report, then it shall be the responsibility of the property owner to do so prior to construction. Provisions for the loss of, or damage to, crops along the access route or in the construction area ("Working Space") have been made in the Report and such loss or damage shall not be the liability of the Contractor.

The Contractor shall contain construction operations to the working space and width specified. As long as the construction operations are contained within the specified working space, the Contractor shall not be responsible for damages to crops along the course of the drain.

It shall be the responsibility of the property owners to keep their livestock clear of the construction area upon receiving 24 hours advance notice by the Contractor. After receiving proper notice, the Owner of the property upon which a drain is being constructed shall be liable for any loss or damage to livestock, the drain, drain materials or the Contractor's equipment caused by their livestock.

E.2.1.12 NOTIFICATION OF AGENCIES

The Contractor shall notify the appropriate agency before performing any work affecting the land or property of the MTO, railway, telephone, pipeline or public utility or regulatory agency. The Contractor shall further agree to perform the work affecting such lands or property in accordance with the specifications and approval/permit of the applicable agency.

E.2.1.13 FINAL INSPECTIONS

After substantial completion of the work, but prior to demobilization and final removal of all equipment and materials from the site, the Contractor MUST arrange an on-site FINAL Inspection of the work with the engineer to ensure all aspects of the work have been satisfactorily completed and/or that arrangements have been made to expedite the completion of any outstanding "minor" items or deficiencies. All the work included in the contract, at the time of the Final Inspection, must have the full dimensions and cross-sections called for in the plans and specifications. Notification to the Engineer of this Final Inspection shall be provided at least 5 days prior and it shall be completed as soon as possible or as soon thereafter as weather conditions permit.

E.2.2 SPECIFICATIONS FOR OPEN DRAINS

E.2.2.1 GEOMETRY

The drain shall have the full bottom width, at the gradient, specified or shown on the accompanying plan(s), profile(s) and detail sheet(s).

E.2.2.2 ALIGNMENT

The drain shall run in straight lines throughout each course except at intersections, where it shall run on a minimum curve of 15 m radius unless otherwise specified. If the work consists of the improvement of an existing open drain, then the centre line of the existing drain may be the centre line of the finished work unless otherwise specified.

E.2.2.3 EXCAVATED MATERIAL

A clear buffer of at least 3 m shall be left between the top edge of the open drain and the excavated material. Excavated material shall be placed on the side specified or, if not specified, on the lower side of the drain or on the side opposite trees or fences. No excavated material is to be left in any low runs intended to conduct water into the open drain. It shall be deposited, spread and leveled to a maximum depth of 150 mm, unless specified otherwise and left in a manner such that the lands on which it is spread may be cultivated with adjacent lands by use of ordinary farm machinery. Material excavated in land that is timbered, may be spread to the depth specified or to a maximum depth of 300 mm, which ever is greater. In cultivated areas, the Contractor shall remove stones and boulders on the surface greater than 100 mm diameter from the excavated material and dispose of in an approved location. Treatment of excavated material shall be to the satisfaction of the Engineer. After the excavated material has been spread and leveled, it shall be seeded as specified.

E.2.2.4 SURFACE WATER INLETS

Surface water inlets to the drain shall be provided through the leveled spoil on each property at obvious natural low runs or at other locations as specified by the Engineer on site at the time of construction. No excavated material shall be left in, or any damage done to a ditch, furrow, pipe, tile or depression that is intended to conduct water into an open drain. The drain bank at all such inlets shall be riprapped as directed by the Engineer and reimbursed under the appropriate contract item.

E.2.2.5 OUTLETS

During the construction of an open drain, the Contractor shall guard against damaging the outlet of any tributary drain or pipes encountered. The Contractor will be reimbursed for damage to unmarked outlet pipes under the appropriate contract item.

E.2.2.6 ACCESS CULVERTS

All culverts shall be installed with the invert a minimum of 10% of its diameter or as specified below the gradient and the firm bottom of the drain.

All pipes installed under these specifications shall be carefully bedded so as to ensure uniform bearing throughout its entire length.

Except where requiring concrete cradle or encasement, all pipes shall be bedded on granular fill as specified or as shown on the contract drawings. Bedding shall be hand placed, tamped and consolidated throughout. Granular fill and bedding shall be gravel or crushed stone having no particles over 20 mm in size, except where otherwise specified.

Concrete cradle and concrete encasement shall be placed as shown on the drawings, and the concrete shall be minimum 25 MPa.

From the top of the bedding material to a point 150 mm below the existing grade of the laneway, backfill material shall be clean pit run gravel meeting O.P.S.S. Granular "B" or approved equivalent. The material shall be placed in lifts not to exceed 300 mm in depth and all granular materials shall be compacted to 100 % SPMDD and all subsoil or previously excavated material to 95% SPMDD.

The final 150 mm of the excavation shall be filled with clean crushed gravel conforming to O.P.S.S. Granular "A" specifications. The material shall be placed in lifts not exceeding 150 mm in depth and shall be thoroughly compacted to 100 % SPMDD.

E.2.2.7 EXCAVATION AT BRIDGE SITES

The excavation at bridge sites shall be to the full depth of the drain and as nearly as possible the full width of the drain as specified for the bridge location. The excavation at a bridge site shall be made in a manner to protect the structural integrity of any permanent bridge. A temporary bridge may be carefully removed to allow excavation. The removal of a bridge is to be done in such a manner so as to cause no damage to the bridge components. Temporary bridges removed to allow excavation shall be replaced in as good a condition as found, so far as material allows. Replacing of such bridges shall be to the satisfaction of the Engineer. The Contractor shall immediately notify the Engineer if it becomes apparent that excavating to a specified gradient will endanger or underpin any culvert or bridge. The Contractor shall cease excavation at the bridge or culvert site until the Engineer instructs the Contractor to proceed.

E.2.2.8 SEEDING

Unless indicated otherwise in the Special Provisions, the Contractor shall seed all disturbed areas which includes newly excavated drain banks and leveled spoil (where specified) with the OPSS (MTO) Standard Roadside Seed Mix, consisting of 55% Creeping Red Fescue, 27% Kentucky Bluegrass, 15% Perennial Ryegrass and 3% White Clover, at an application rate of 100 kg/10,000 m², plus a nurse crop of Fall Rye Grain or Winter Wheat Grain at an application rate of 60 kg/10,000 m², at the end of each working day.

E.2.2.9 TEMPORARY SEDIMENT CONTROLS

Unless indicated otherwise in the Special Provisions, the Contractor shall install an approved sediment control measure at the downstream end of the open drain excavation and at any other locations specified. The Contractor shall remove any accumulated sediment at regular intervals or as directed by the Engineer. The Contractor shall then remove these temporary measures, and any accumulated sediment therein, after the new open drain has stabilized and only after authorized by the Engineer or the Drainage Superintendent.

E.2.2.10 PERMANENT SEDIMENT/STILLING BASINS

The Contractor shall construct and maintain sediment control or stilling basins as specified in the Special Provisions.

E.2.2.11 RIP RAP & NON-WOVEN GEOTEXTILE

Rip Rap – The Contractor shall supply and install a 450 mm thickness of 150 mm to 300 mm (R-50) diameter quarry stone rip rap with filter cloth underlayment for culvert and pipe outlets. This will include areas of the existing bank where erosion or bank slumping has occurred, as directed on-site by the Engineer. For the area surrounding catchbasins, unless noted otherwise, the contractor shall supply and install a 300 mm thickness of 100 to 150 mm (R-10) diameter quarry stone rip rap with filter cloth underlayment.

Non-Woven Geotextile - All geotextile used for tile wrapping under these specifications shall be non-woven Terrafix 200R (or equivalent). All geotextile used under these specifications for heavy duty applications such as under rip-rap surrounding catchbasins, and at tile outlets into drains shall be non-woven Terrafix 270R (or equivalent).

E.2.3 SPECIFICATIONS FOR CLOSED DRAINS

E.2.3.1 MATERIALS

Tile, tubing and pipe materials supplied by the Contractor shall be approved by the Engineer prior to being incorporated in the work. The Contractor shall be responsible for the unloading and placement of all materials required for the Municipal Drain construction. Such unloading and placement shall be undertaken in a manner acceptable to the Engineer using only the specified and approved access routes and working space.

Concrete Drain Tile (CDT) - All CDT installed under these specifications shall have a circular cross section with a minimum 2000D, meeting the latest revision of CSA A257.1-14 and ASTM C412. The manufacturer shall provide the Engineer with a copy of all available test results for the materials being shipped to the project site. The Engineer shall have the right to order any additional tests he deems necessary to be performed on the tile taken from inventory prior to shipment from the manufacturer's plant. The cost of such additional tests shall be borne by the Contractor.

Plastic Drainage Tubing (PDT) - All PDT installed under these specifications shall be manufactured in accordance with the latest revision of the Drainage Guide for Ontario, as published by the Ministry of Agriculture and Food.

Corrugated Steel Pipe (CSP) - All CSP installed under these specifications shall be galvanized spiral wound corrugated steel pipe. All corrugated steel pipe installed under these specifications shall conform to CSA G401.

- CSP tile outlet pipes shall be up to 1,200 mm in diameter and 2.0 mm in thickness and shall have 68 mm x 13 mm corrugations unless specified otherwise.
- CSP culverts shall be up to 1,000 mm in diameter and 2.8 mm in thickness and shall have 68 mm x 13 mm corrugations unless specified otherwise. CSP culverts equal to and larger than 1,200 mm in diameter shall be 3.5 mm in thickness and shall have 125 mm x 25 mm corrugations unless specified otherwise.

High Density Polyethylene(HDPE) Pipe - All corrugated or dual wall smooth walled HDPE pipe (Armtex BOSS 2000 or equivalent) installed under these specifications as culverts or as part of a new closed drain shall be manufactured in accordance with the latest revision of Ontario Provincial Standard Specification 1840 and shall have a pipe stiffness of 320 kPa.

- All perforated dual-wall smoothwalled HDPE pipe joining systems shall be soil-tight split coupler unless specified otherwise, conforming to CSA B182.8. As specified, perforated pipe shall include a knitted sock or non-woven geotextile covering (Terrafix 200R or equivalent).
- All solid dual-wall smoothwalled HDPE pipe shall be soil-tight split coupler, unless specified otherwise, conforming to CSA B182.8.

- All watertight solid dual-wall HDPE pipe joining systems shall be water-tight bell and spigot, complete with gasketed connections unless specified otherwise, conforming to CSA B182.6.

Steel Reinforced Polyethylene (SRPE) Pipe - All smooth walled SRPE pipe (Armtec DuroMaxx or equivalent) installed under these specifications as culverts or as part of a new closed drain shall be manufactured in accordance with the latest revision of Ontario Provincial Standard Specification 1840. All SRPE pipe shall conform to AASHTO M294.

- All solid SRPE pipe shall be soil-tight split coupler, unless specified otherwise, conforming to CSA B182.14.
- All watertight solid SRPE pipe joining systems shall be water-tight bell and spigot, complete with gasketed connections unless specified otherwise, conforming to CSA B182.15.

Polypropylene (PP) Pipe - All triple-wall smooth walled PP pipe (ADS HP Sanitite or equivalent) installed under these specifications as culverts or as part of a new closed drain shall be manufactured in accordance with the latest revision of Ontario Provincial Standard Specification 1843 and shall have a pipe stiffness of 320 kPa.

- All watertight solid triple-wall PP pipe joining systems shall be water-tight bell and spigot, complete with gasketed connections unless specified otherwise, conforming to CSA B182.13.

Non-Woven Geotextile - All geotextile under these specifications shall conform to OPSS 1860. All geotextile used for tile wrapping under these specifications shall be non-woven Terrafix 200R (or equivalent). All geotextile used under these specifications for heavy duty applications such as under rip-rap surrounding catchbasins, and at tile outlets into drains shall be non-woven Terrafix 270R (or equivalent).

E.2.3.2 DRAIN GRADIENT AND VERIFICATION

The proposed gradient shall be established using laser grade control equipment, cross-head boning rods together with horizontal sight-bars at stations above and below the point where the tile is being laid or other method acceptable to the Engineer.

If the Engineer has not checked the tile, inspection points shall be left at intervals of not greater than 50 m for sections with gradients less than 0.5% and at intervals of not greater than 30 m for sections with gradients above 0.5%. Inspection points shall also be left at all structures and all changes in gradient. Other inspections points may be required from time to time as requested by the Engineer.

E.2.3.3 TILE LAYING INCLUDING TOPSOIL STRIPPING

In the case of the installation of CDT, and unless specified otherwise in the Special Provisions, the Contractor shall strip the topsoil a full width of the trenching machine plus 0.3 m on each

side prior to installing the new tile with the trencher as part of the work under the appropriate item and no extra payment will be made for this stripping. After installation, confirming gradient, blinding, and back filling of the trench, the topsoil shall be replaced throughout the entire length of the Drain. The Contractor shall take into consideration the settlement of the backfill material over the trench prior to replacing the topsoil.

All CDT shall be installed with a wheel-type trencher and each tile shall be laid firmly and carefully in a smooth bottomed trench so that successive tiles align both vertically and horizontally as tightly as possible; the maximum allowable space between successive tiles shall be 6 mm.

ALL joints of the CDT MUST be completely wrapped with geotextile (Terrafix 200R or equivalent) as part of the work under the appropriate item and no extra payment will be made for this wrapping. The wrap on each joint shall be a minimum of:

- 300 mm wide for tile sizes smaller than 450 mm diameter.
- 600 mm wide for tile sizes 450 mm diameter and above.

The Contractor is reminded that the widths of the tile trenches are to be kept to a minimum. It is recommended that the minimum trench width be 300 mm greater than the outside diameter of the tile or 150 mm on each side of the tile being installed. It is recommended that the maximum trench width be 600 mm greater than the outside diameter of the tile or 300 mm on each side of the tile being installed.

All PDT shall be installed with a self-propelled drainage plow.

All obstructions, dirt or foreign material shall be removed from the inside of the tile prior to laying.

Tile drains shall be constructed at an offset from, and parallel to, any existing drain, defined watercourse or low run. The Contractor shall exercise care not to disturb any existing private or municipal tile drains which follow the same course as the new drain.

E.2.3.4 RECONNECTION OF EXISTING PRIVATE TILE

Any subsurface drain encountered by the Contractor when constructing a Municipal Drain under these specifications shall be reconnected to itself and not connected to the new Municipal Drain, unless approved otherwise by the Engineer. The accepted practice for reconnecting existing tile drains will be to compact sub-base material from the new trench bottom to the underside of the existing tile. Rigid pipe, HDPE (320 kPa) or approved equivalent, with a diameter equal or larger than the existing tile with a minimum length of 0.6 m beyond the trench width to the existing tile. This connection shall be made only where the existing tile is operable and in good condition. When completing backfilling of the Municipal Drain trench at such a location, the Contractor shall take sufficient care to ensure that the new connecting pipe is not damaged.

The Contractor shall provide a unit price per connection and the unit price shall include the supply of all material, labour and equipment necessary to make the connection. Further, the Contractor shall keep a written record of all sub-surface drains encountered. All connections completed shall be reviewed with the Engineer on a daily basis and a summary of all subdrains shall be provided to the landowner.

E.2.3.5 CONNECTION OF EXISTING PRIVATE TILES TO MUNICIPAL DRAIN

A subsurface drain encountered during construction can be connected to the Municipal Drain if requested by the landowner and approved by the Engineer prior to commencement of the connection. The drain shall be connected to the Municipal Drain either by core drilling through the CDT or a prefabricated fitting for HDPE. The core shall be drilled on-site and backfilled as per the specified detail included within the drawings. Any tile drains connected to the Municipal Drain shall have the downstream end of the tile plugged to prevent entry of foreign material into the tile.

E.2.3.6 TRENCH BACKFILLING

As the laying of the tile progresses, partial filling or blinding shall be made at the sides of the trench sufficient to hold the tiles securely in place. The Contractor shall place the remainder of the excavated material carefully when backfilling the trench. Any excess backfill material shall be mounded over the trench such that future settlement and compaction around the new tile can occur without creating a depression over the width of the trench. The Contractor shall not operate construction equipment over any backfilled trench, except as specified in Trench Crossings. Care shall be exercised in backfilling the trench to see that no stone or boulder capable of damaging the tile is used in the backfill material adjacent to the tile. In no case shall stones having a diameter greater than 150 mm be used in backfill material within 300 mm of the tile. The Contractor shall backfill any open tile trenches at the end of each working day except for inspection points as specified. The Contractor shall be entirely responsible for any damage to the new tile throughout the warranty period.

E.2.3.7 TRENCH CROSSINGS

The Contractor shall not cross any backfilled trench with any construction equipment or vehicles, except at only **ONE** designated crossing location on each property which shall be marked in an acceptable manner. The Contractor shall ensure that the bedding and backfill material at this designated crossing location is properly placed and compacted so as to adequately support the equipment and vehicles that may cross the trench. The Contractor may undertake any other approved work to ensure the integrity of the tile at the crossing location. The Contractor shall insure that no equipment or vehicles are allowed to travel along the length of any trench. The Contractor shall be entirely responsible for any damage to the new tile throughout the warranty period.

E.2.3.8 OUTLET PROTECTION

The outlet end of a tile drain shall normally consist of a 6 m length of CSP or HDPE fitted with a rodent proof grating which is hinged at the top to allow the exit of foreign material from the tile. An outlet marker shall be supplied and installed.

Unless otherwise specified, the end of the CSP or HDPE shall be protected with the type of riprap on geotextile as specified by the Engineer from a point 500 mm above the drain bottom on the opposite side of the drain, across the drain bottom, and for the full height of the drain sideslope where the pipe is located. The minimum width of this riprap shall be equal to the outside diameter of the outlet pipe plus 2 m.

E.2.3.9 PRECAST CONCRETE STRUCTURES

Junction Box (JB) means an acceptable precast concrete structure installed and buried below the surface of the ground to facilitate two or more tiles meet and connect.

Catchbasin (CB) or **Ditch Inlet Catchbasin (DICB)** means an acceptable precast concrete structure installed at or slightly below the surface of the ground where two or more tiles meet and connect and that is intended to accommodate surface water.

Observation Box (OB) means an acceptable precast concrete structure installed above the surface of the ground where two or more tiles meet and connect and that is intended to only inspect the tile connected thereto.

Unless specified otherwise, JB's, CB's, DICB's and OB's shall be supplied by a precast manufacturer meeting the Engineer's approval. An "approximate elevation of top" of each structure has been indicated on the "Structures Table"; however, each structure shall be placed onsite such that the exact horizontal and vertical location in the field is as directed by the Engineer. All structures shall have a knock out, set at a minimum of 100 mm above the elevation of the outlet or as specified, placed in all sides not used by the municipal drain. Knock outs must be of a size capable of connecting a HDPE pipe with a minimum inside diameter of 250 mm. All structures shall have a minimum 300 mm deep sump, unless specified otherwise.

Non-shrink grouting material, unless specified otherwise, shall be placed around all pipes connected to the structure. In addition, the exterior of all grouted connections shall be completely wrapped with geotextile (similar to a wrapped joint). Geotextile shall also be placed in the joints between all sections of the box and around the full perimeter of the box at these joints. For the area surrounding catchbasins, unless noted otherwise, the contractor shall supply and install a 300 mm thickness of 100 to 150 mm (R10) diameter quarry stone rip rap with filter cloth underlayment.

Hot dipped galvanized, heavy duty, three-sided protruding type bird cage grates, shall be supplied for all CBs, DICBs or OBs, unless specified otherwise. All DICBs shall have a slope of 2H:1V, unless specified otherwise. Grates shall be fastened to the structure using non-corrosive fasteners as recommended by the Ontario Farm Safety Association. JB's shall have no sump and shall have a minimum 150 mm thick solid reinforced concrete tops.

Post and sign type markers shall be supplied and installed at each at or above ground structure.

E.2.3.10 STRIPPING FOR DEEP TILE INSTALLATION

Where the tile installation depth exceeds the digging or plowing depth of the Contractor's equipment, the Contractor shall undertake any stripping that may be necessary in a manner such that when restored, the topsoil returns uncontaminated to the top of the stripped area. This would normally mean that the topsoil would be stripped and piled separately from the subsoil. The Contractor shall have regard for the working space provided for such stripping operations. Unless approved otherwise by the Engineer prior to work being undertaken, stripping shall be done using a hydraulic excavator. The cost of any stripping shall be included in the price provided for the tile installation.

E.2.3.11 STONE REMOVAL

The Contractor shall remove and dispose of any stones larger than 100 mm that remain on the surface of the working space after completion of construction.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

Special Provisions

Appendix F – Special Provisions

Mitchell Henry Municipal Drain 2024

1.0 Standard Drain Specifications

These **Special Provisions** are specific directions for this project and detail requirements not encompassed by the **Standard Drain Specifications**.

Special Provisions shall take precedence over the **Standard Drain Specifications** where a conflict between them may exist.

2.0 Description and Location

The proposed drain is located on Lot 28, Concession 4, Municipality of Meaford, Grey County.

The drain includes approximately 576 m of closed drain work with tile sizes ranging from 375 mm dia. to 450 mm dia., the installation of rip-rap erosion protection, tree clearing, and other miscellaneous works. The location of the work is shown in the enclosed plan.

3.0 Instruction and Process

3.1 Pre-Construction Meeting

The Contractor **MUST** arrange an on-site Pre-Construction Meeting with the Engineer, Drainage Superintendent and affected landowners before any equipment or materials are moved onto the site and before any work is commenced on this project.

3.2 Working Space

The area being provided to the Contractor to undertake the work is described herein and the maximum widths are specified on the table entitled '*Working Space*'.

<u>Working Space</u>		
Station	Max. Width (m)	Comments
<u>Main Drain</u>		
Sta. -0+050 to Sta. 0+000	10 m working space	Access to this portion of drain will be from Sideroad 27 to: <ul style="list-style-type: none">• AR#1 on the 502636 Ontario Ltd. property (Roll No. 7-100) and subsequently following the proposed drain alignment as shown on the plan. The Contractor shall also be permitted to use an approximate 40 m x 40 m staging area on the 502636 Ontario Ltd. property (Roll No. 7-100) to store materials, equipment, etc.
Sta. 0+000 to Sta. 0+576	20 m working space	

<u>Working Space</u>
<u>NOTES:</u> (1) The Contractor shall contain their construction operations to as narrow a width as possible, so as to prevent damage to lands, crops, bush, etcetera and shall not exceed the widths indicated. (2) The Contractor shall be entirely responsible for any damage to lands, crops, etcetera, beyond the widths and locations of both the access routes and the working spaces specified, caused by the Contractor, their Subcontractors or their employees while undertaking the work. (3) The Engineer's approval MUST BE OBTAINED BEFORE exceeding the maximum widths indicated. (4) Access to the working space shall be public roads or as specified. All routes must be approved by the Engineer and Drainage Superintendent prior to construction.

3.3 Access Routes

The access routes for construction shall be from specified locations on Sideroad 27 to the drain, as specified in the table 'Working Space' and on the enclosed plan. The Contractor shall confirm these access routes with the Contract Administrator, Drainage Superintendent and affected landowners prior to commencing any work.

The width of the access route on each property shall be a maximum 10 m. Any increase of this width shall be at the discretion of the Engineer.

3.4 Utilities Investigation

The Contractor shall locate all utilities prior to construction.

3.5 Soils Investigation

A soils investigation was completed in various locations near the proposed drain alignment on November 17, 2023.

The investigation indicated that soils were generally unfavourable for the use of a wheel trencher for this project. A summary of the completed test pits and their approximate locations is summarized below.

Test Pit No. 1

One test pit was dug near approximately Sta. 0+075. The test pit was to a total depth of 1.9 m and revealed the following soil structure:

- 0.0 m to 0.2 m Topsoil
- 0.2 m to 1.9 m Very hard red clay material with minimal stones present.

This excavated pit remained stable for a prolonged period of time and no groundwater was observed in the pit at the time of excavation.

Test Pit No. 2

One test pit was dug near approximately Sta. 0+250. The test pit was to a total depth of 1.8 m and revealed the following soil structure:

- 0.0 m to 0.2 m Topsoil
- 0.2 m to 1.0 m Yellow/brown stony silty clay
- 1.0 m to 1.8 m Very hard, stony, red clay material with large boulders

This excavated pit remained stable for a prolonged period of time and no groundwater was observed in the pit at the time of excavation.

Test Pit No. 3

One test pit was dug near approximately Sta. 0+400. The test pit was to a total depth of 1.6 m and revealed the following soil structure:

- 0.0 m to 0.5 m Topsoil
- 0.5 m to 0.9 m Yellow/brown stony, silty clay
- 0.9 m to 1.6 m Very hard, stony, red clay material with large boulders

This excavated pit stayed stable for a short period of time and slowly collapsed after it had been dug. Groundwater was observed to enter the trench at a depth of approximately 0.5 m.

Test Pit No. 4

One test pit was dug near approximately Sta. 0+550. The test pit was to a total depth of 2.0 m and revealed the following soil structure:

- 0.0 m to 0.6 m Topsoil
- 0.6 m to 1.0 m Yellow/brown silty clay with minimal stones
- 1.0 m to 2.0 m Yellow/brown, stony, silty clay with large boulders

This excavated pit remained stable for a prolonged period of time and no groundwater was observed in the pit at the time of excavation.

3.6 Construction Document Errors

Any issues during construction with respect to errors or omissions with the design drawings or documents, the constructability of the system, etc. must be brought to the attention of the Contract Administrator immediately. It is expected that a clear communication channel will exist between the Contractor and the Contract Administrator and that any discrepancies relating to construction of the work will be remedied immediately. Work resulting from failure to seek clarification with the Contract Administrator by the Contractor will be the responsibility of the Contractor to remedy at no extra charge to the project and must be completed to the satisfaction of the Engineer prior to demobilization.

3.7 Final Inspection

After substantial completion of the work and prior to demobilization and removal of equipment and materials from the site, the Contractor MUST arrange an on-site FINAL inspection of the work with the Engineer. This is to ensure all aspects of the work have been satisfactorily completed and/or that arrangements have been made to expedite the completion of any

outstanding minor items or deficiencies. Notification to the Engineer of this Final Inspection shall be provided at least two days prior.

3.8 Deficiencies

Deficient items such as catchbasin markers, grate tabs, rodent grates, additional rip-rap, etc. shall be remedied by the Contractor during the warranty period and paid at the Contract price. If the Contractor fails to complete the work within a reasonable timeframe in the opinion of the Engineer and/or the Municipality, the work shall be completed by a Contractor of the Engineer's choosing and the cost of the work deducted from the Contract holdback.

3.9 Liquidated Damages

In addition to GC 8.02.09.01 and the supplemental general specifications any breach of the Contract terms by the Contractor may be subject to **daily liquidated damages of \$500** at the discretion of the Contract Administrator. Pertinent examples may include but are not limited to:

- Work outside the timing windows stated in the Contract.
- Failure to install applicable erosion and sediment controls prior to completing other construction activities.
- Failure to meet Substantial Performance of the Contract by the date specified in the Contract Documents.

4.0 Agency Project Requirements

4.1 Grey Sauble Conservation Authority (GSCA)

Attention is drawn to the GSCA permit. All work is to be in accordance with the terms of this permit and the mitigation practices described in the Engineer's Report.

4.2 Ministry of Environment, Conservation, and Parks (MECP)

The Contractor will be responsible for ensuring that during construction no extirpated, endangered, threatened, or special concern species or their habitats are adversely affected.

4.3 Fisheries and Oceans Canada (DFO)

There are no DFO requirements for this project.

5.0 Description of Work

This section includes specific instructions pertaining to the drain construction and shall be in addition to any specifications noted in the Standard Drain Specifications. The numbering of each item references the corresponding item in the schedule of unit prices. Each Item shall be bid as a lump sum price unless otherwise noted. **For the lump sum price bid, unless otherwise noted, the Contractor shall provide the following items:**

SP 0 Mobilization

This item covers the Contractors costs associated with the transportation and/or accommodation (meals and lodging) of labour, equipment, offices, conveniences, temporary facilities, construction plant and other items not required to form part of the permanent works and not covered by other items in the Schedule of Unit Prices. This line item shall only apply to the first/ primary mobilization/demobilization required to fulfill the Contract.

Additional mobilization costs will not be paid if the Contractor chooses to leave the site on their own accord following the initial mobilization. However, if at the discretion of the Contract Administrator a situation warrants the Contractor to demobilize from site to complete the remainder of the work at a later date, the costs associated with this may be negotiated with the Contract Administrator and paid as an extra item.

Payment at the Lump Sum price set out in the schedule of unit prices for mobilization and demobilization will be made as follows:

- 50% payable on first Payment Certificate.
- 50% payable on Substantial performance Payment Certificate.

SP 1 Close Cut Tree Clearing (OPSS.MUNI.201)

The Contractor shall close cut clear (i.e. cut all trees to the ex. ground level) an approximate 10 m width swath of trees for an approximate length of 20 m as required to complete necessary stilling basin/spillway excavation, the installation of rip-rap erosion protection, and to tie in with the ex. channel in the floodplain area.

This item includes cutting, grinding, and/or chipping all standing trees, stumps, brush, bushes, and other vegetation to the existing ground level.

Trees measuring 150 mm dia. or more shall be felled, delimbed, cut into lengths no longer than 4 m, and stacked near the working space ROW to the satisfaction of the Contract Administrator.

Vegetation under 150 mm dia. shall be finished by the Contractor using one of the following three methods:

- Chipped in place by an excavator equipped with a hydraulic brushing attachment.
- Chipped using a woodchipper and piled or spread within ROW.
- Piled and burned in accordance with the Municipality's burning regulations and by-law(s).

The method preferred by the Contractor shall be discussed at the pre-construction meeting and shall be at the discretion of and completed to the satisfaction of the Contract Administrator.

SP 2 Channel Construction

All required work for the channel construction shall take place within the specified working space where a 10 m ROW has been provided. Spreading and levelling of spoil shall be

completed within the working ROW to a maximum depth of 300 mm, however the spoil shall not be spread within 2 m from the top of the ditch bank. The topsoil from the spoil placement area shall be stripped and spread back over the spoil within the working ROW.

The channel side slopes shall be excavated at approximately 2H:1V. Channel deepening shall commence at the toe of the slope of the far channel bank where the bank slope is carried to the channel bottom elevation. Excavation will be completed in the channel bottom and on the near channel bank, where required. Vegetation on the far channel bank shall remain in place.

If during construction there is excavated subsoil material deemed unsuitable by the Contract Administrator for spreading in the ROW, it shall be loaded and trucked off-site by the Contractor for disposal and paid for at an additional cost.

SP 3 Tile Outlet Stilling Basin and Rip-Rap Spillway

The Contractor shall excavate a stilling basin and rip-rap as detailed on the accompanying drawings. The entirety of the outlet structure shall be armoured with a combination of 150 mm to 300 mm (OPSS R50) diameter and larger 450 to 600 mm diameter quarry stone rip-rap, with geotextile underlay. The Contractor shall note the requirement for additional rip-rap to the satisfaction of the Contract Administrator along the bank of the outletting tile.

All spoil resulting from the excavation works shall be spread and levelled within the working space to the satisfaction of the Contract Administrator. Construction of the stilling basin shall be lump sum for the basin and the quarry stone shall be supplied for the unit price per tonne.

SP 4 Tile Installation

All concrete drainage tile shall be Heavy Duty 2000D, and all HDPE pipe shall be a minimum 210 kPa stiffness. The tile shall be installed as per the Standard Specifications. The installation of the new pipe shall be via excavator on 19 mm clear stone bedding as per the accompanying details.

Prior to the installation of the new tile, the Contractor shall strip the topsoil from the area of the proposed tile trench for the entire width of the excavator. The topsoil shall be stockpiled separately from native subsoil and subsequently replaced. This shall be included as part of the work under the tile installation item. An extra payment will not be made for the stripping, stockpiling and replacing of topsoil. Under no circumstances will frozen topsoil be levelled or placed over top of the drain. If the Contractor elects to install the drain during winter months, the contractor shall return to the site and level the topsoil when conditions are appropriate. No additional mobilization charges shall be made for returning to the site to conduct the levelling of topsoil.

Further, the Contractor shall be aware of the generally stony soils present at the site. Care shall be taken by the Contractor when backfilling the trench to ensure that no large boulders are dropped on the new tile. In cases, where in the opinion of the Contract Administrator the backfill material is too stony to be used as backfill around the tile, the Contractor shall use 19 mm clear stone as backfill up to 150 mm overtop of the tile. Any damage to the tile or failure of tile that can be attributed to damage caused during backfilling shall be the sole responsibility of the Contractor.

The proposed drain shall be generally bid and installed considering information highlighted in the table below:

Station Range	Property	Comments
Sta. 0+000 to Sta. 0+102	502636 Ontario Limited (Roll No. 7-100)	<ul style="list-style-type: none"> The tile shall be generally installed between the two existing private lateral drains on the property. The Contractor shall locate these drains in various locations to ensure that they are not damaged during the tile installation. It should be noted that these headers are approximately 9 m (30') apart. The northmost lateral is located approximately 5 m south of the existing fenceline.
Sta. 0+102 to Sta. 0+400		
Sta. 0+400 to Sta. 0+576		<ul style="list-style-type: none"> The tile shall be generally installed near the south top of bank of the existing channel in the upstream end of the drain in this location. The Contractor shall be permitted to destroy the northern lateral in this location only if required. The northmost lateral is located approximately 5 m south of the existing top of bank. During the installation of the tile in this station range, the spoil material shall be cut and used to fill the existing channel as per the accompanying details. The Contractor shall consider this in the bid price of the associated line item. No additional payments shall be made for any earth moving required to fill the existing channel into a shallow surface swale as depicted in the accompanying details.

Contingency Items Associated with Tile Installation

The Contractor shall tender the installation of the new pipe on the basis of using the specified installation technique; however, as specified in the Contingency Items, the Contractor shall provide additional unit prices for instances that may require transition to geotextile wrapped installation if deemed required by the Contract Administrator.

SP 5 Catchbasin/Junction Box Installation

The proposed catchbasin and junction box shall be installed as per the Standard Specifications, catchbasin details, and where applicable oriented and graded as depicted on the accompanying details.

The Contractor shall include the cost to complete all necessary municipal tile connections c/w parging on the interior and exterior of the proposed structure as part of the associated line item. Each catchbasin shall be installed with tabs, a birdcage grate, an approved post and marker, and a minimum 1.0 m width of rip-rap and geo-textile on all sides. The catchbasin shall be installed on 19 mm clear stone bedding, levelled, and aligned to the satisfaction of the Contract Administrator.

Junction boxes shall extend a minimum 300 mm from the top of the pipe to the base of the concrete lid.

SP 6 Sta. 0+576 Connect Ex. Private Tiles

The connection of the existing private tiles shall be as per the accompanying details.

The connection to the proposed structure shall include the cost to connect the tiles to the CB and parge the tiles to the satisfaction of the Contract Administrator on both the interior and exterior of the structure.

The connection shall include two lengths of approximately 6 m of 200 mm dia. ag tubing or approved equivalent to service the two existing private tile outlets. The Contractor shall supply and install a snap coupler to connect to each private tile outlet. Both tiles shall be installed on a 19 mm clear stone bedding to the satisfaction of the Contract Administrator.

Contingency Items

This section covers work that may be required for this project. These items shall apply only as and when approved by the Contract Administrator.

If a scenario arises where the quantity of a contingency item is such that it exceeds the quantity specified in the schedule of unit prices by more than 150%, the Contract Administrator may issue a project change order and request revised unit pricing as required. Should this occur the Contractor shall provide a unit pricing for such a contingency item within one (1) working day.

SP 7 Reconnection of Existing Tiles

General: The unit price bid for these items shall include all labour, equipment, and material required to reconnect existing private tile drains encountered during construction to the drain.

Missed connections and during construction shall be completed by the Contractor during the warranty period and paid at the contract price. If the Contractor fails to complete the connection and/or reconnection within a reasonable timeframe in the opinion of the Contract Administrator and/or the Municipality, the work shall be completed by a Contractor of their choosing and the cost of the work deducted from the contract holdback.

Please refer to the Standard Drain Specifications (Sections E.2.3.4 and E.2.3.5) for additional information.

Connections shall include appropriately sized solid HDPE dual-wall (320 kPa) pipe (or approved equal), connected to the new pipe using a core drilled hole and manufactured HDPE coupler fitting, with 19 mm dia. clear crushed stone backfill under the connection and a minimum of 150 mm over top of the connection per the accompanying detail. Reconnections without the use of a coupler will not be permitted.

SP 8 Special Installation Techniques (Poor Trenching Conditions)

If poor construction conditions are encountered during construction where, in the opinion of the Contractor, it is not feasible to install tile via excavator with 150 mm stone bedding as per the typical installation technique on the accompanying details, the Contractor shall immediately inform the Contract Administrator to obtain approval to switch to alternative installation method.

For the **additional** unit price bid per linear metre of trench, the Contractor shall install the pipe on a minimum depth of 300 mm of geotextile wrapped 19 mm dia. clear crushed stone (or approved equal) with 19 mm clear crushed stone backfill up to the springline of the pipe at a minimum. The Contractor shall note that the wrapping of tile joints still applies under original items. The Contractor shall keep a list of stations where this installation technique is used, to be confirmed with the Contract Administrator on a daily basis.

This item shall be used only when the soil conditions encountered are such that the typical installation technique with an excavator and 150 mm depth of stone cannot, in the opinion of the

Contract Administrator, be used effectively to install the pipe. The Contractor must receive approval from the Contract Administrator prior to using this technique. When soil conditions are again favourable in the opinion of the Contractor and the Contract Administrator, typical installation techniques shall resume as soon as possible. Failure to do so may result in non-payment of this contingency item.



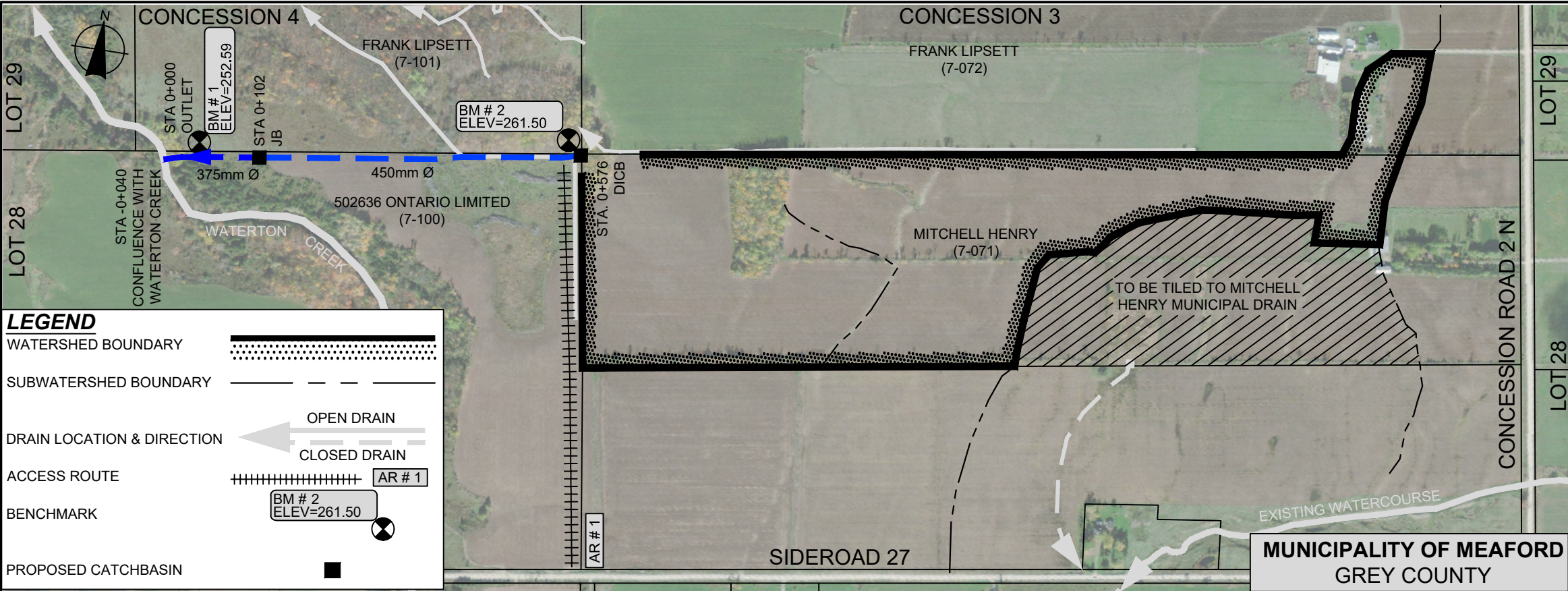
BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix G

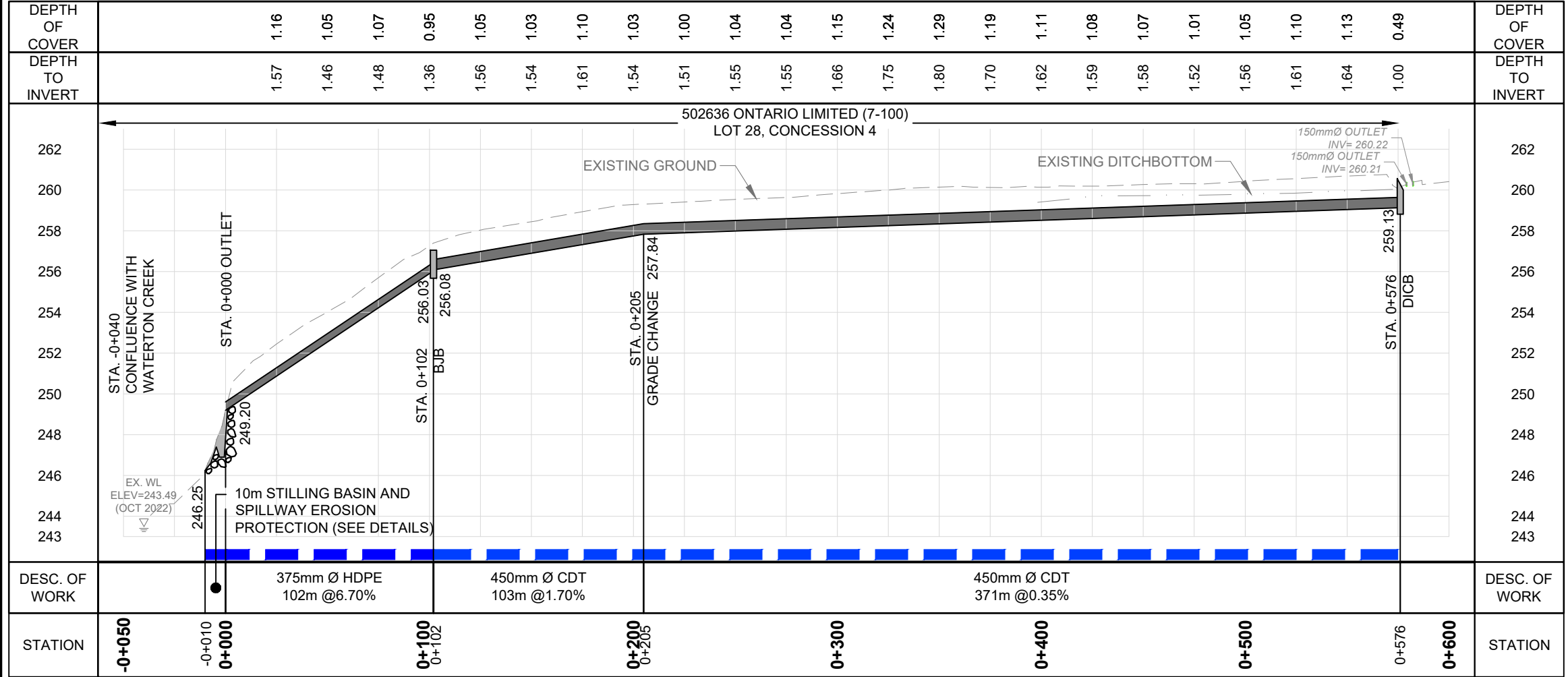
Drawings

Plan and Profile	1 of 4
Details	2 of 4
Details	3 of 4
Details	4 of 4



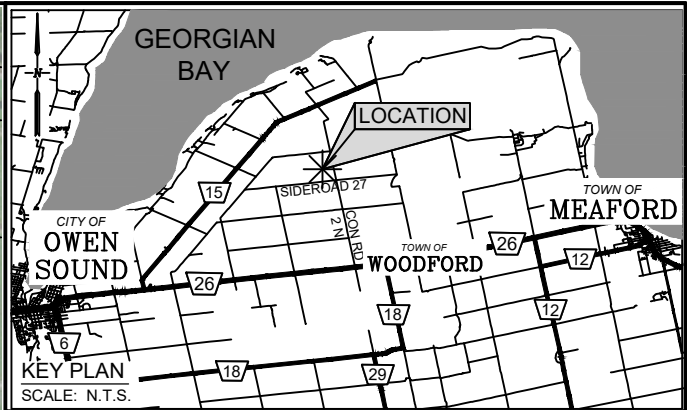
WATERSHED PLAN

SCALE 1:7500



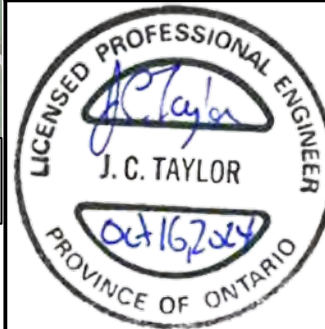
PROFILE

SCALE 1:2500



Notes

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
4. All property lines are approximate and for information purposes only.



No.	Issue / Revision	Date	Auth.
1	ISSUED FOR ON-SITE MEETING	22/10/26	TK
2	ISSUED FOR INFO MEETING	23/03/02	TK
3	ISSUED FOR ENGINEERS REPORT	24/10/16	JT



R.J. Burnside & Associates Limited
449 Josephine St., P.O. Box 10
Wingham, Ontario, N0G 2W0
telephone (519) 357-1521 fax (519) 357-3624
web www.rjburnside.com

Client

MUNICIPALITY OF MEAFORD

21 TROWBRIDGE STREET WEST
MEAFORD, ON
N4L 1N2

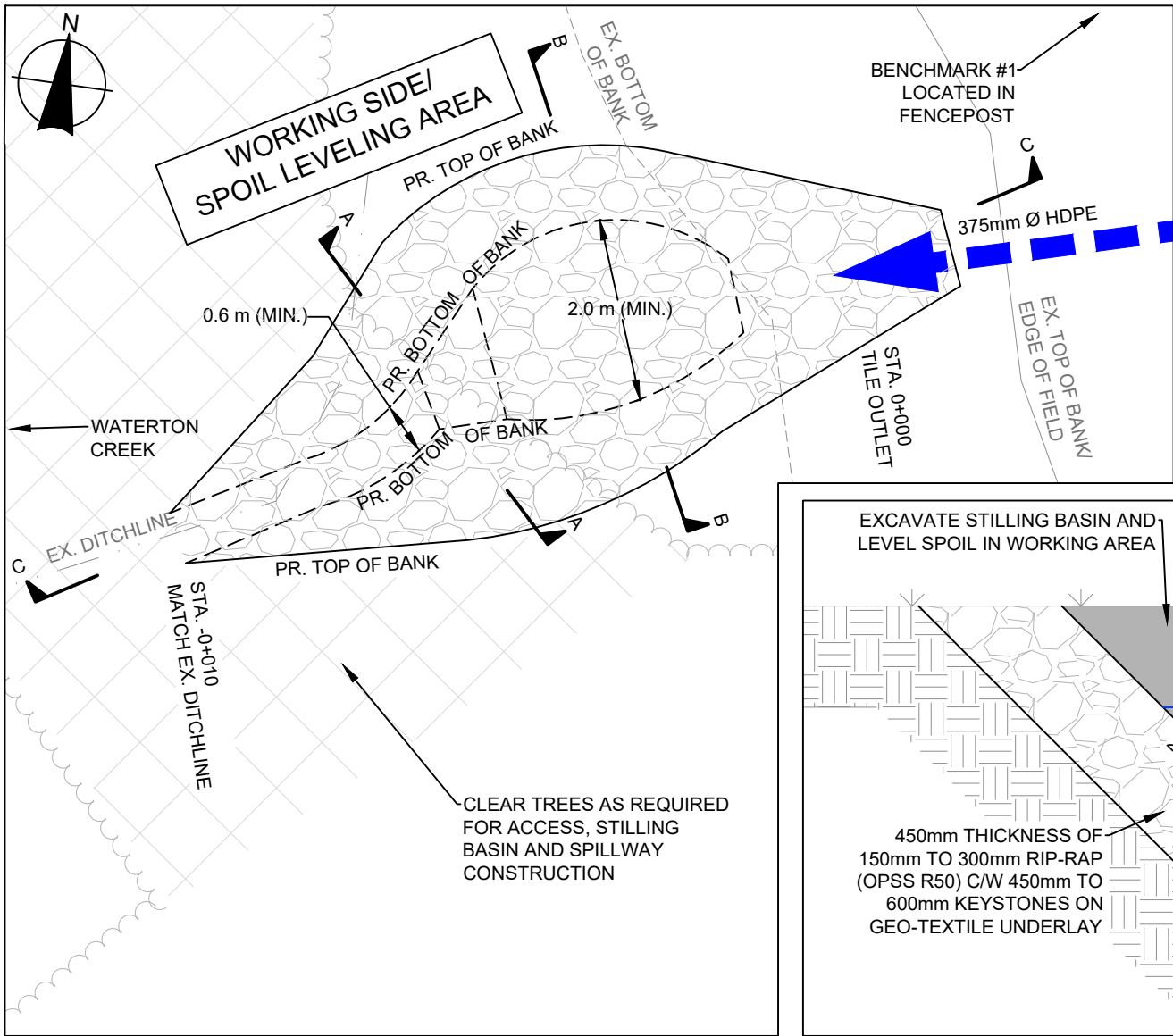


Drawing Title

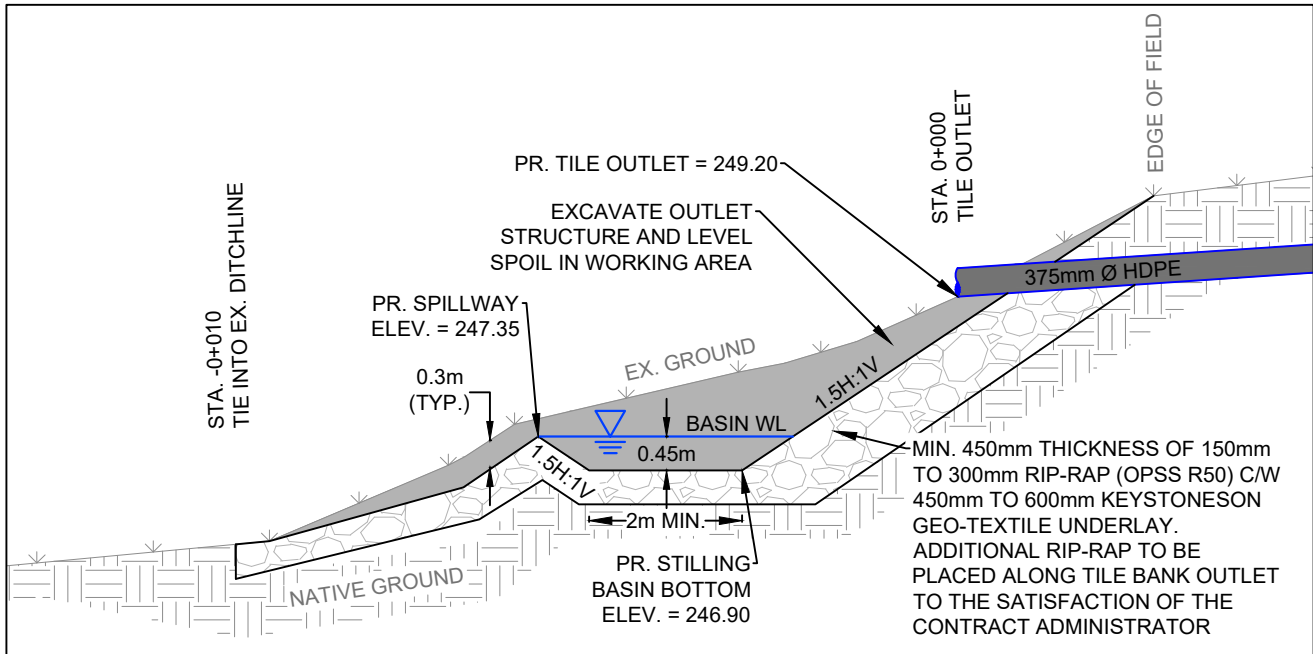
MITCHELL HENRY MUNICIPAL DRAIN

PLAN & PROFILE

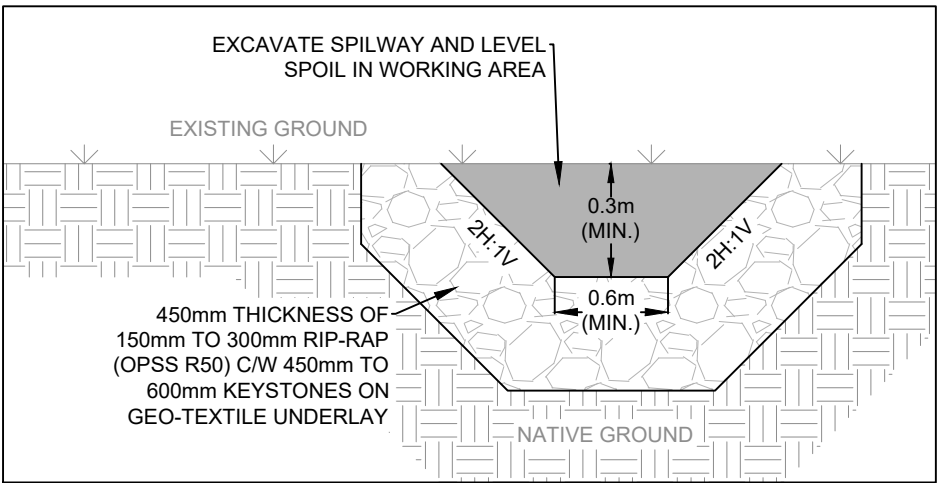
Drawn CK/EP	Checked TK/JT	Date 2022/10/26	Drawing No. 1 OF 4
Scale AS NOTED	Project No. 300055924		



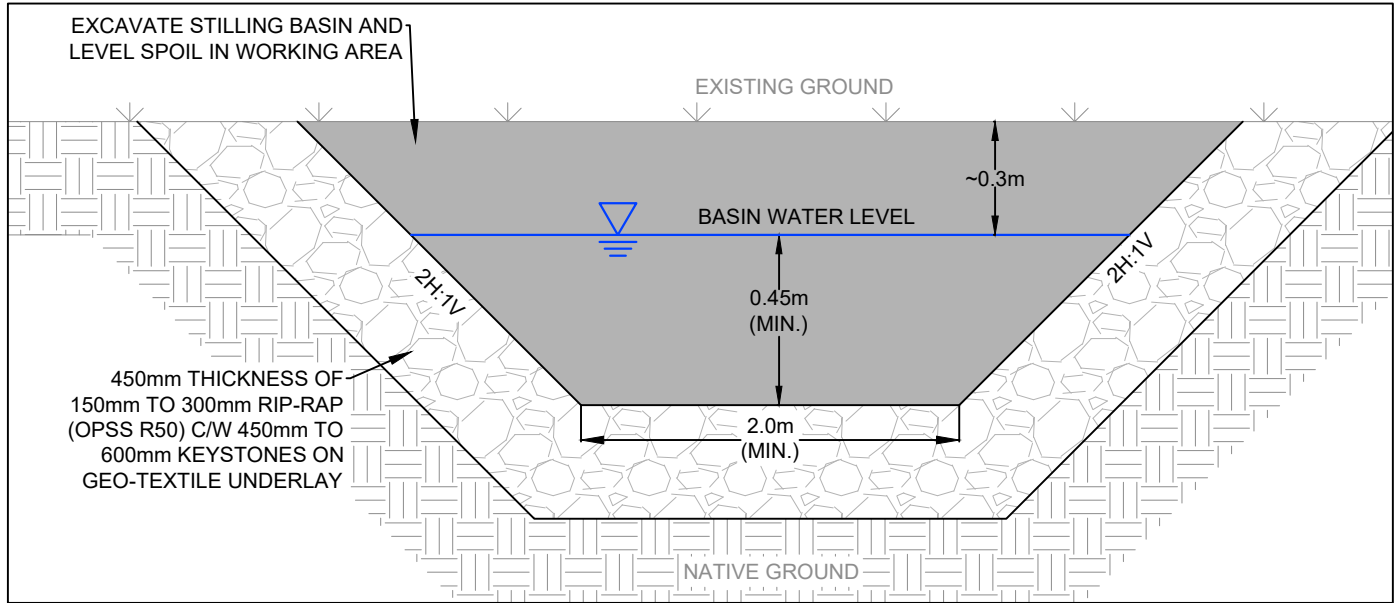
OUTLET DETAIL
SCALE 1:100



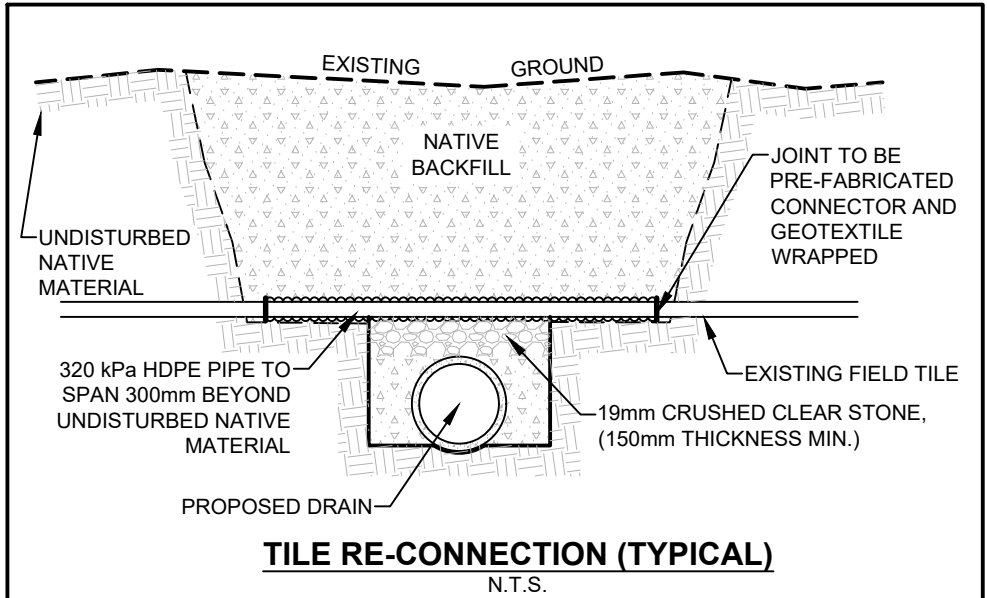
OUTLET PROFILE - SECTION C-C
SCALE 1:100



SPILLWAY CROSS SECTION - SECTION A-A
SCALE H1:40 V1:20



STILLING BASIN CROSS SECTION - SECTION B-B
SCALE H1:40 V1:20



TILE RE-CONNECTION (TYPICAL)
N.T.S.

BENCHMARK

BENCHMARK NO. 1 **ELEV. = 252.59**
NAIL IN SOUTH FACE OF FENCE POST APPROX. 50m EAST OF RIVER ON PROPERTY LINE RUNNING EAST-WEST.

BENCHMARK NO. 2 **ELEV. = 251.50**
NAIL IN SOUTH FACE OF DECIDUOUS TREE WITH 0.3m DIAMETER APPROX. 3m EAST OF INTERSECTION OF FENCELINES.

Notes

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
4. All property lines are approximate and for information purposes only.



No.	Issue / Revision	Date	Auth.
1	ISSUED FOR ON-SITE MEETING	22/10/26	TK
2	ISSUED FOR INFO MEETING	23/03/02	TK
3	ISSUED FOR ENGINEERS REPORT	24/10/16	JT



R.J. Burnside & Associates Limited
449 Josephine St., P.O. Box 10
Wingham, Ontario, N0G 2W0
telephone 1-800-265-9662
web www.rjburnside.com

Client

MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ON
N4L 1N2



Drawing Title

MITCHELL HENRY MUNICIPAL DRAIN

DETAILS

Drawn	Checked	Date	Drawing No.
CK/EP	TK/JT	2022/10/26	2 OF 4
Scale AS NOTED		Project No. 300055924	

PIPE TABLE						
PIPE MATERIAL	JOINING METHOD	DIAMETER (mm)	STATION		LENGTH (m)	NOTES
			FROM	TO		
HDPE	BELL AND SPIGOT	375	0+000	0+102	102	210 kPa STIFFNESS
CONCRETE	GEO-TEXTILE WRAPPED	450	0+102	0+576	474	2000D

STRUCTURE TABLE					
STATION	TYPE	SIZE	TOP/ LOW WALL ELEV. (m)	GRATE	NOTES
0+205	JB	600mm x 600mm	N/A	N/A	REFER TO CB DETAILS
0+576	CB	900mm x 1,200mm	260.00	BIRDCAGE	REFER TO CB DETAILS

BENCHMARK

BENCHMARK NO. 1 **ELEV. = 252.59**
NAIL IN SOUTH FACE OF FENCE POST APPROX. 50m EAST OF RIVER ON PROPERTY LINE RUNNING EAST-WEST.

BENCHMARK NO. 2 **ELEV. = 251.50**
NAIL IN SOUTH FACE OF DECIDUOUS TREE WITH 0.3m DIAMETER APPROX. 3m EAST OF INTERSECTION OF FENCELINES.

Notes

- This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
- The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
- This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
- All property lines are approximate and for information purposes only.



No.	Issue / Revision	Date	Auth.
1	ISSUED FOR ON-SITE MEETING	22/10/26	TK
2	ISSUED FOR INFO MEETING	23/03/02	TK
3	ISSUED FOR ENGINEERS REPORT	24/10/16	JT



R.J. Burnside & Associates Limited
449 Josephine St., P.O. Box 10
Wingham, Ontario, N0G 2W0
telephone 1-800-265-9662
web www.rjburnside.com

Client

MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ON
N4L 1N2

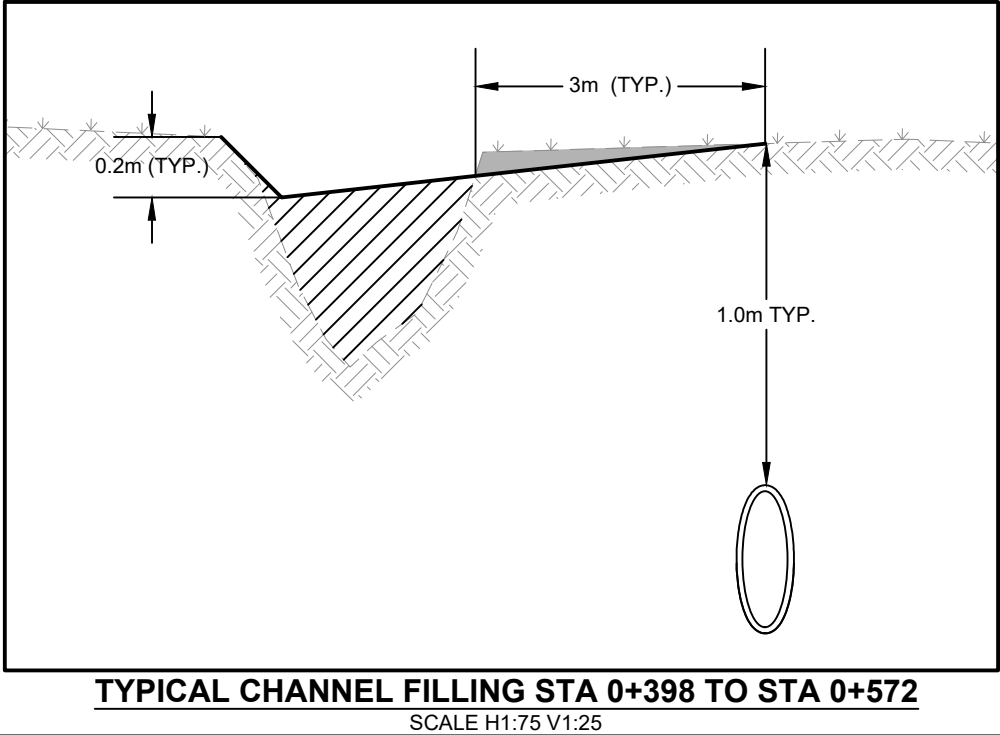
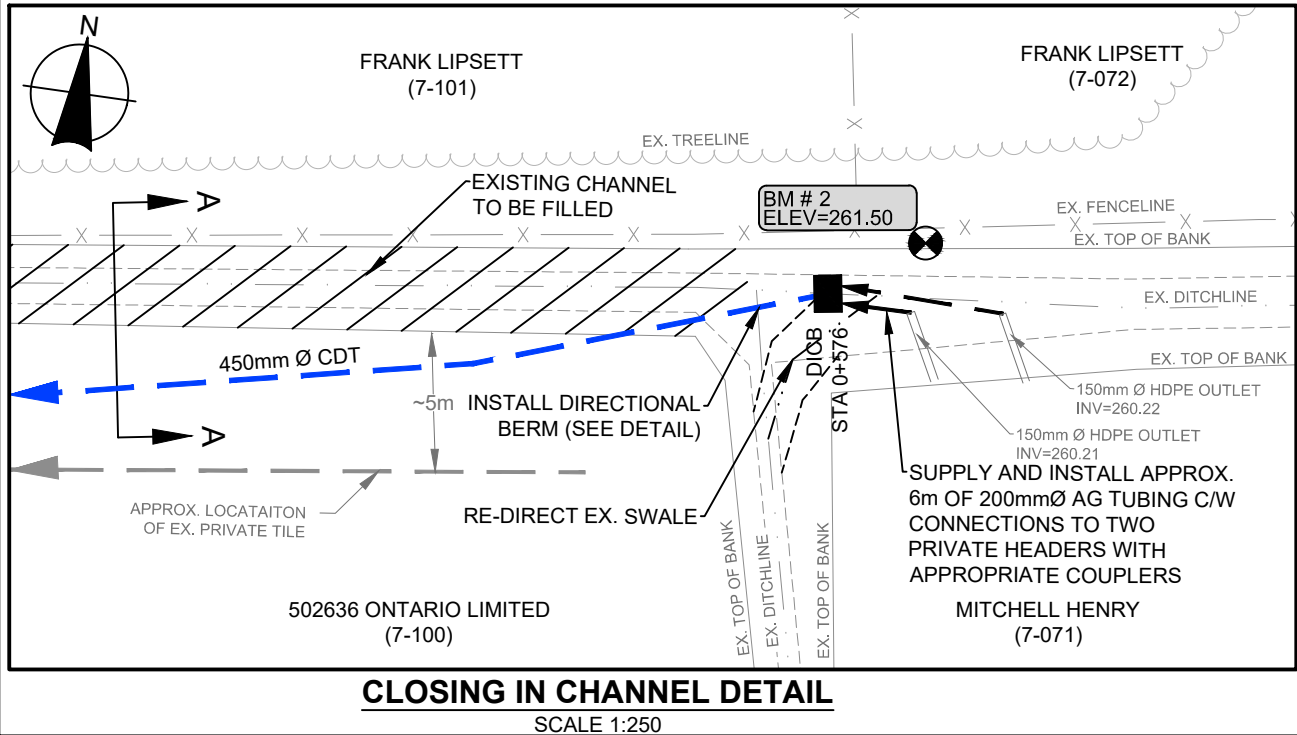
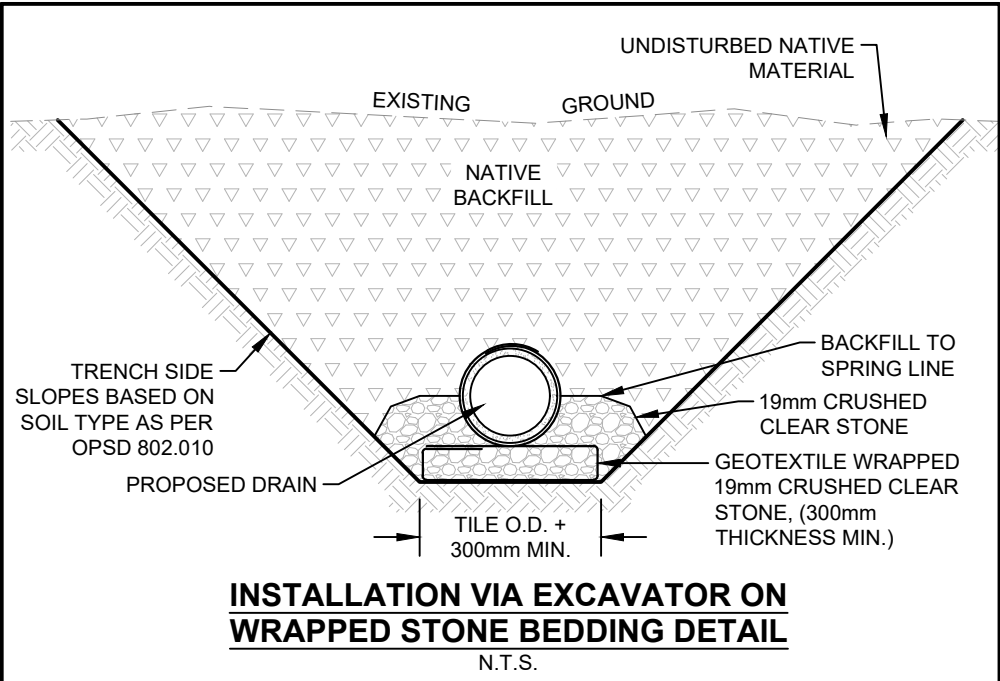
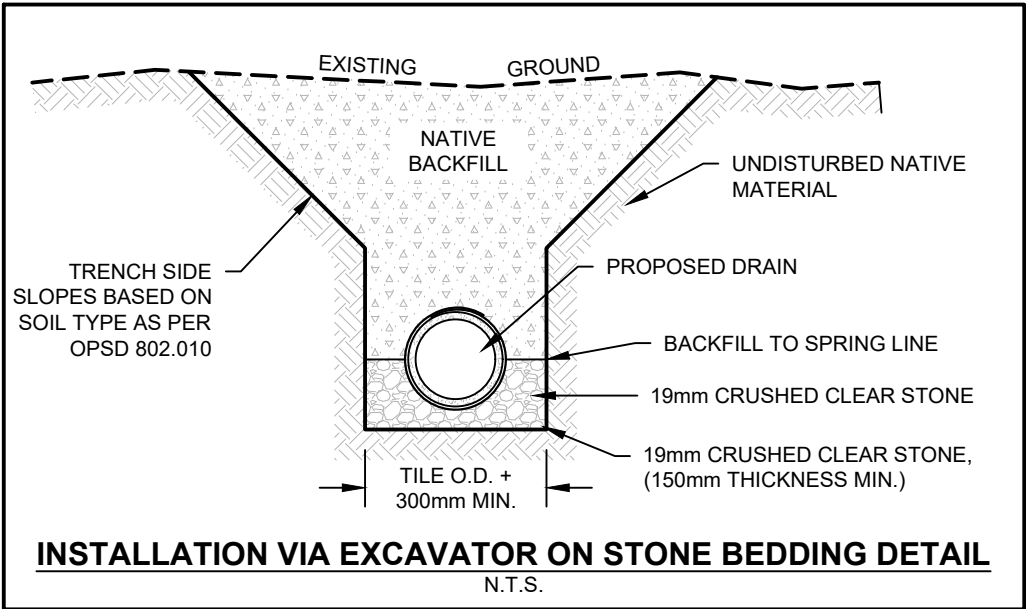


Drawing Title

MITCHELL HENRY MUNICIPAL DRAIN

DETAILS

Drawn CK/EP	Checked TK/JT	Date 2022/10/26	Drawing No. 3 OF 4
Scale AS NOTED		Project No. 300055924	



PIPE NOTES:

- 1. ALL PIPE AND PIPE WORKS SHALL CONFORM TO THE GENERAL SPECIFICATIONS.
- 2. ALL CONCRETE DRAINAGE TILE (CDT) SHALL BE NON-REINFORCED 2000D RATED, OR APPROVED EQUAL.
- 3. ALL HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE DUAL-WALL, MIN 210 KPA PIPE STIFFNESS, OR APPROVED EQUAL.

STRUCTURE NOTES:

- 1. ANY VARIATION FROM THE ELEVATIONS AND DIMENSIONS OF THESE STRUCTURES MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
- 2. STRUCTURES NOT MANUFACTURED AS SPECIFIED MAY BE REJECTED FOR USE AND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 3. ALL ABOVE GRADE STRUCTURES SHALL HAVE A MINIMUM SUMP OF 300mm UNLESS OTHERWISE NOTED; BURIED STRUCTURES ARE NOT REQUIRED TO BE BENCHED.
- 4. ALL ABOVE GRADE STRUCTURES SHALL HAVE BIRDCAGE GRATES TO SUIT AND RIP-RAP C/W GEOTEXTILE UNDERLAY FOR ONE METRE AROUND THE STRUCTURE, UNLESS INDICATED OTHERWISE IN THE SPECIAL PROVISIONS.
- 5. ALL ABOVE GRADE STRUCTURES ARE TO HAVE POSTS AND MARKERS.
- 6. ALL GRATES AND COVERS SHALL BE FASTENED TO THE STRUCTURE IN AN APPROVED MANNER.
- 7. WHERE 900mm X 1200mm STRUCTURES ARE SPECIFIED, THE MUNICIPAL DRAIN INLETS AND OUTLETS SHALL BE INSTALLED IN THE 1200mm WALLS AND THE PLUGGED INLETS SHALL BE IN THE 900mm WALLS, UNLESS NOTED OTHERWISE.
- 8. ALL STRUCTURES SHALL BE CAST WITH A MINIMUM OF A 150mm HIGH RISER SECTION TO ALLOW FOR ADJUSTMENT OF THE TOP ELEVATION TO SUIT FIELD CONDITIONS; ACCORDINGLY NO MONOLITHIC STRUCTURES WILL BE PERMITTED.
- 9. 900mm X 1200mm DICBS TO HAVE A 3:1 SLOPE WITH CORRESPONDING BIRDCAGE GRATES.

BENCHMARK

BENCHMARK NO. 1 **ELEV. = 252.59**
NAIL IN SOUTH FACE OF FENCE POST APPROX. 50m EAST OF RIVER ON PROPERTY LINE RUNNING EAST-WEST.

BENCHMARK NO. 2 **ELEV. = 251.50**
NAIL IN SOUTH FACE OF DECIDUOUS TREE WITH 0.3m DIAMETER APPROX. 3m EAST OF INTERSECTION OF FENCELINES.

Notes

- 1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
- 2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
- 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
- 4. All property lines are approximate and for information purposes only.



No.	Issue / Revision	Date	Auth.
1	ISSUED FOR ON-SITE MEETING	22/10/26	TK
2	ISSUED FOR INFO MEETING	23/03/02	TK
3	ISSUED FOR ENGINEERS REPORT	24/10/16	JT



R.J. Burnside & Associates Limited
449 Josephine St., P.O. Box 10
Wingham, Ontario, N0G 2W0
telephone 1-800-265-9662
web www.rjburnside.com

Client

MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ON
N4L 1N2



Drawing Title

MITCHELL HENRY MUNICIPAL DRAIN

DETAILS

Drawn CK/EP	Checked TK/JT	Date 2022/10/26	Drawing No. 4 OF 4
Scale AS NOTED		Project No. 300055924	

