

March 6, 2024  
The Town of Plympton-Wyoming  
546 Niagara Street  
Wyoming, ON  
N0N 1T0

Mayor and Councillors:

**Re: Whiting Drain**

September 27, 2023 Council Instructions to Reconsider the Report

In accordance with the instructions received at the September 27, 2023 Council meeting, under Section 57 of the Drainage Act, M. Gerrits Consulting Inc. has revised the September 8, 2023 drain report for reconsideration by Council. The Whiting Drain report has been revised to address three (3) areas of the drain which are failing. All other proposed works under the September 8, 2023 report will be revised for future works, to be completed under maintenance.

At the Meeting to Consider the Report, landowners were informed that the report revisions will address the following items:

- Clarification of existing pipe materials.
- Repair of the failing 1974 CSP outlet pipe between Station 0+116 and Station 0+121.
- Repair of the failing 1974 concrete pipe at Station 0+238.
- Abandon the 1929 drain, complete with the removal of the Egremont Road road crossing tile and structures.
- Removal and replacement of the 1974 Egremont Road road crossing.
- Removal of the proposed Whiting Branch Drain ditch inlet catch basin.
- Future maintenance works to be completed under one contract.
- Future maintenance works will not require a public meeting with all landowners within the watershed.
- Future maintenance works will be assessed out in accordance with the October 26, 2023 drain report.

Landowners were informed that the report revisions will not address the following items:

- The condition of the existing 1974 concrete tile between Station 0+121 and Station 0+244 is unknown. Currently this section of drain has one known obstruction and a failing Corrugated Steel Pipe (CSP) outlet pipe. Repairs to both of these failures will be completed under this report.
- The failing 1960 tile coupler immediately upstream of the steel casing at +/- Station 0+035.

- Future maintenance permitting; due to the location of the drain, future maintenance will require permits from the Department of Fisheries and Oceans Canada (DFO) and St. Clair Regional Conservation Authority (SCRCA) to ensure the design meets the permit requirements at the time of maintenance.
- Prior to completing future maintenance, a review of the site conditions will be required by the Engineer or Drainage Superintendent to ensure the existing conditions and land use have not significantly changed. If there is a change in the topographical conditions, and the future maintenance works cannot be completed in accordance with the current report, the Town or a landowner, will be required to request an improvement, under Section 78 of the Drainage Act.

### Introduction

In accordance with your instructions, M. Gerrits Consulting Inc. has undertaken an examination of the Whiting Drain which is located on Part of the W½ of the N½ Lot 12, Fronting Lake Huron (FLH) in the Town of Plympton-Wyoming.

### Authorization Under the Drainage Act

This Engineer's Report has been prepared under Section 78 of the Drainage Act, as per the direction of Council.

### Existing Reports

Three known reports were authored on the Whiting Drain, and one report was authored on the Whiting West Branch and South Branch Drains. The following is a brief summary of the reports:

G. McCubben, O.L.S., M.E.I.C. prepared a drain report, dated July 23, 1929, for the Whiting Drain. The report included a plan and a profile for the Whiting Drain. The drain was 175m (575') in length and included 10" and 12" diameter tile. The report specified the tile material be either clay or cement. For the purpose of this report, the tile was assumed to be clay tile with a steel outlet pipe. The closed drain outleted to an open channel ravine, which conveyed flows to Lake Huron, located 129m (425') downstream.

J. A. Monteith, O.L.S., P. Eng. prepared a drain report, dated October 21, 1960, for the Whiting Drain. The report included enclosing a 27.5m (90') section of the open channel ravine to Lake Huron. The alignment was parallel to the property line.

J. A. Monteith, O.L.S., P. Eng. prepared a drain report, dated January 29, 1974, for the Whiting Drain. The report included twinning the existing clay drain by installing 143m of closed drain between the south limit of the Egremont Road, road allowance, the outlet to the existing open channel, and the installation of catch basins.

J. A. Monteith, O.L.S., P. Eng. prepared a drain report, dated October 31, 1983, for the Whiting West Branch and South Branch Drains. The report drain names do not match the drain names identified on the plan. The report refers to the Whiting West Branch Drain as the Main Drain and the Whiting South Branch Drain as the Branch Drain, South Branches and the South Branch A Drain. The Whiting West Branch Drain is a combination of an open channel drain and closed drain. The closed drain outlets to the open channel portion of the drain, 16m west of the Whiting Drain. The Whiting South Branch Drain is a closed drain that conveys flows from the Egremont Road allowance to the Whiting West Branch Drain. The report stated that the drain was for the development of approximately 5 acres of land, and that the existing Whiting Drain had sufficient capacity at the time to accept the increased flows. The report included a \$330 credit for the Whiting Drain for maintenance of the outlet works to Lake Huron.

#### Existing Conditions and Investigation

M. Gerrits Consulting Inc. completed a site visit and survey of the drain on March 28, 2022. As part of the investigation of the drain, a landowner informed M. Gerrits Consulting Inc. that private repairs to the outlet to Lake Huron had been completed several years earlier. It appears that these improvements were made at the same time a break wall improvement project was completed at the drain outlet to Lake Huron. The outlet improvements appeared to include a complete realignment of the lower portion of the drain. M. Gerrits Consulting Inc. completed a desktop review of the capacity of the existing outlet, and confirmed that the private works did not negatively affect the capacity of the drain. The corrugated pipe portion of the drain is failing 1m south of the steel casing. In the opinion of M. Gerrits Consulting Inc., the existing steel pipe appears to be in good condition.

The inlet to the closed drain, downstream of the open channel, does not have a trash rack to reduce the possibility of obstructions. The open channel portion of the drain appears to be easily obstructed, due to the amount of vegetation.

In 2022, MIG Engineering Inc. completed a review of the overland flows for a proposed new report on the O'Brien Branch 'A' Drain, which is located immediately west of the Whiting Drain. The review concluded that a portion of the surface flows that were historically part of the Whiting Drain watershed actually flowed west to the O'Brien Drain, and the O'Brien Branch 'A' Drain. M. Gerrits Consulting Inc. reviewed the proposed O'Brien Branch 'A' Drain watershed limits, and found the limits to be acceptable compared with the current analysis and historical records of the Whiting Drain.

The Town of Plympton-Wyoming completed a video of the drain within the road allowance in the spring of 2022. The video confirmed the drain was in poor shape.

#### Drain Classification

The majority of the Whiting Drain is closed and for this reason, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Agricultural mapping, has not rated the Whiting Drain. The 2004 SCRCA classification mapping does not include the Whiting Drain.

#### Onsite Meeting

An onsite meeting was held on April 20, 2022, at 3355 Egremont Road. The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming	B. Minato – Landowner
Councillor Atkinson – Town of Plympton-Wyoming	D. Minato – Landowner
K. Smith – St. Clair Region Conservation Authority	R. Nauta – Landowner
M. Gerrits – M. Gerrits Consulting Inc.	R. Nauta – Landowner
P. Beaudet – Landowner	D. Winch – Adjacent Landowner
R. Honke – Landowner	
D. Gutteridge (Rep. M. & J. O’Mahony) – Landowner	

The following is a brief summary of the meeting:

- M. Gerrits provided a brief overview of the Drainage Act.
- M. Gerrits provided a history of the Whiting Drain, the Whiting West Branch and South Branch Drains. M. Gerrits informed the landowners that he completed a survey on March 28, 2022, and the outlets for both the Whiting Drain and the Whiting West Branch Drain were located.
- M. Gerrits informed the landowners that the Town of Plympton-Wyoming received a call notifying them that there was flooding of lands upstream of the Whiting Drain. The Drainage Superintendent reviewed the conditions of the drain and prepared a report for Council.
- M. Gerrits informed the landowners that once the report is completed, there will be a preliminary meeting to review the draft report.
- M. Gerrits explained to landowners that once the final report is complete, there will be a formal Meeting to Consider the Report. At this meeting, the Engineer will present the report and answer any technical questions from Council and landowners.
- M. Gerrits informed the landowners that a Court of Revision will be held approximately 30 days following the Meeting to Consider the Report. At this meeting, landowners who feel that their lands are improperly or unfairly assessed, can appeal their property’s assessment to the Court of Revision.

- P. Beaudet met with E. Cummings and M. Gerrits privately to review the drain on his lands. P. Beaudet felt that the Whiting West Branch Drain outlet located by M. Gerrits Consulting Inc. may be a house subdrain. M. Gerrits informed P. Beaudet that the location and material of the outlet matched the drain report.

### Additional Meetings

April 28, 2022

- M. Gerrits, E. Cummings, and P. Beaudet met onsite to review the Whiting West Branch Drain on April 28, 2022. The outlet and junction boxes were located with a tile probe.
- P. Beaudet informed M. Gerrits and E. Cummings, that the Whiting West Branch Drain outlet that M. Gerrits located could be another drain.

December 14, 2022

- M. Gerrits, E. Cummings, J. Wilson, Town of Plympton-Wyoming Drainage Clerk, and P. Beaudet met in the Town of Plympton-Wyoming Council Chambers to review the Whiting West Branch Drain. All landowners on the Whiting West Branch Drain were invited to this meeting; however, P. Beaudet was the only landowner who attended the meeting.
- The purpose of the meeting was to gather landowner information on the Whiting West Branch Drain watershed limits, and to review the options for work on the Whiting West Branch Drain. Two options were discussed, Option 1, is to clear and clean out the existing open drain. This option will not resolve future maintenance issues, nor the obstructions at the inlet of the Whiting West Branch Drain. Option 2, is to extend the drain as a closed drain to the Whiting Drain, thereby reducing future maintenance.
- P. Baudet did not dispute the watershed boundary at this meeting; however, he was not in favour of any improvements to the drain. In his opinion, the drain has worked well since 1984, and he sees no reason to improve it.

March 22, 2023

A meeting was held on March 22, 2023 with M. Gerrits, E. Cummings, D. Winch, and P. Beaudet to walk the drain.

- P. Beaudet expressed that his lands were not in the watershed, as surface water in its current state could not be directed to the drain.
- M. Gerrits informed P. Beaudet that he would be onsite to verify drainage on the Beaudet lands.

April 4, 2023

A preliminary meeting was held on April 4, 2023 to review the project with the landowners.

The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming

Councillor Atkinson – Town of Plympton-Wyoming

M. Gerrits – M. Gerrits Consulting Inc.

I. Amin-Austin – Landowner

P. Beaudet – Landowner

R. Honke – Landowner

R. Nauta – Landowner (R. Nauta Lands)

R. Nauta, R. Nauta – Landowners (R. & R. Nauta Lands)

The following is a brief summary of the meeting:

- M. Gerrits gave a brief overview of the drain design and general assessment.
- P. Beaudet felt the drain was working better since the obstruction was removed.
- P. Beaudet felt the branch drain did not have a benefit and therefore the lands within the branch drain watershed should not be included in the report. M. Gerrits informed landowners that there is a current branch drain report and the lands identified in this report outlet to the Whiting Drain. The lands will continue to be part of the Whiting Drain watershed until the branch drain report is abandoned.
- M. Gerrits reviewed the condition of the existing drain and the options moving forward including replacing the road crossing and ditch inlet catch basin on the south side of Egremont Road. M. Gerrits requested the upstream benefiting landowner (R. & R. Nauta) provide comments on the proposed drain or what improvements they required for drainage of their lands. The Nauta's understand the condition of two sections of the tile and requested time to respond. R. Nauta wished to proceed with the report; however, he requested the project be tendered late in the year. M. Gerrits mentioned that the project can be tendered with a 2024 completion date.

May 2, 2023

A meeting was held on May 2, 2023 with E. Cummings (Town of Plympton-Wyoming), M. Gerrits (M. Gerrits Consulting Inc.) and P. Beaudet (landowner), to answer questions about the drain and drain drawings.

June 26, 2023

A meeting was held on June 26, 2023 to review the project with the landowners. The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming  
Jessica Wilson – Town of Plympton-Wyoming  
Councillor Van Klavern – Town of Plympton-Wyoming  
M. Gerrits – M. Gerrits Consulting Inc.  
P. Beaudet – Landowner  
R. Nauta – Landowner (R. Nauta Lands)  
R. Nauta, R. Nauta – Landowners (R. & R. Nauta Lands)  
B. Zurschmiede – Landowner (Belle Errol Ltd.)

The following is a brief summary of the meeting:

- M. Gerrits gave a brief overview of the drain, existing conditions, drain design and general assessment.
- M. Gerrits informed all landowners that the applicable permits will be in place prior to construction. Currently, the Department of Fisheries and Oceans have given approval. The SCRA has provided comments and will issue a permit once the mandatory Drainage Act meeting process is complete.
- P. Beaudet expressed that he did not feel the lands within the branch drain watershed should have a benefit assessment.
- M. Gerrits informed landowners that the branch drain should be assessed as it outlets to the main drain, and requires a catch basin.
- M. Gerrits requested input from lands owned by R. & R. Nauta and Belle Errol Ltd. with respect to moving forward. B. Zurschmiede informed all that he would prefer a meeting onsite on July 4 where his family members could represent him.
- A meeting for July 4, 2023 was scheduled at 10 am.

July 4, 2023

A meeting was held on July 4, 2023 to review the project with the landowners. The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming

M. Gerrits – M. Gerrits Consulting Inc.

P. Beaudet – Landowner

C. Groesbeck – Landowner (Belle Errol Ltd.)

K. Groesbeck – Landowner (Belle Errol Ltd.)

G. Groesbeck – Landowner (Belle Errol Ltd.)

E. Misterovich – Landowner (Belle Errol Ltd.)

R. Nauta – Landowner (R. Nauta Lands)

R. Nauta – Landowners (R. & R. Nauta Lands)

The following is a brief summary of the meeting:

- M. Gerrits gave a brief overview of the Drainage Act., existing conditions, drain design and general assessment.
- M. Gerrits walked the drain with the present landowners and described the proposed improvements.
- P. Beaudet informed all that he had photos of the Whiting Drain flowing full at the drain's outlet to the open channel. M. Gerrits asked P. Beaudet if he had taken photos of the branch drain outlet. P. Beaudet stated he did not take photos of the branch drain outlet at that time.
- M. Gerrits noted that a new blowout had occurred at the drain's outlet to the open channel. Water was observed to be travelling under the pipe.
- R. Nauta commented on reducing the amount of bored pipe. M. Gerrits will look into it.
- A. Groesbeck requested the restrictions portion of the report be changed to allow for trees to be planted on the channel banks. M. Gerrits informed all that trees planted in the working corridor may need to be removed by the Drainage Superintendent when future maintenance occurs.
- In order to complete the report R. & R. Nauta and Belle Errol Ltd. were requested to provide comments on the drain.



September 8, 2023

A site meeting was held on September 8, 2023, to review the project with Councillor Van Klavern, and P. Beaudet. The following attended the meeting:

Elizabeth Cummings – Town of Plympton-Wyoming  
Councillor Van Klavern – Town of Plympton-Wyoming  
M. Gerrits – M. Gerrits Consulting Inc.  
P. Beaudet – Landowner

A review of the existing drain and proposed improvements was completed.

October 6, 2023

A meeting was held on October 6, 2023 to review the project with Councillor Van Klavern, Elizabeth Cummings (Town of Plympton-Wyoming), C. Groesbeck – Landowner (Belle Errol Ltd.), R. Nauta – Landowner (R. & R. Nauta) and Michael Gerrits (M. Gerrits Consulting Inc.).

The following is a brief summary of the meeting:

- The design changes discussed at the Meeting to Consider the Report was reviewed.
- Landowners were satisfied with the proposed revisions.
- Landowners were reminded of the condition of the existing system.
- Landowners were informed a draft copy of the report would be emailed to them with the proposed changes.

#### Recommendations

It is therefore recommended that a new drain report be prepared for the Whiting Drain across the W½ of the N½ Lot 12, Fronting Lake Huron. The report will include the following:

#### *Proposed Work*

- Complete all works within the Egremont Road road allowance between the Existing Catch Basin 1 (EXCB1) at Station 0+0244, and the proposed Ditch Inlet Catch Basin 4 (DICB4) at Station 0+260.
- Repair the CSP outlet pipe between Station 0+116 and Station 0+121.
- Repair the existing concrete tile at +/- Station 0+238.
- Incorporate the existing steel outlet pipe and break wall (North South portion) into the Whiting Drain Report.
- Abandon the existing 1929 drain between Station 0+119 and Station 0+260.

#### *Future Work*

- Abandon the 1929 tile drain.
- Abandon the 1960 tile drain at Station 0+065 and Station 0+077.
- Remove the existing 1960 steel tile between Station 0+027 and Station 0+031.
- Remove the existing 1960 corrugated pipe tile between Station 0+031 and Station 0+051.

- Remove the existing 1974 concrete tile and outlet pipe between Station 0+116 and Station 0+244.
- Install a new closed drain from the proposed Ditch Inlet Catch Basin 3 (DICB3) at Station 0+245, to the existing break wall at Lake Huron at Station 0+027, complete with an open channel cleanout between Station 0+0+081 to Station 0+115.
- Connect the proposed closed drain to the 600mm dia. steel outlet pipe at Station 0+027.
- Restore any disturbed areas of the Whiting West Branch Drain open channel portion (Station 1+000 to Station 1+016).

### Design

#### *Proposed Works*

The proposed tile drain shall be designed to accommodate a drainage coefficient of 37mm/24hr. This is generally acceptable for lands used for cash crops with provision for surface water. Tile design criteria includes an assumed minimum tile depth of 760mm, plus the diameter of tile.

#### *Future Works*

The proposed tile drain shall be designed to accommodate a drainage coefficient of 37mm/24hr. This is generally acceptable for lands used for cash crops with provision for surface water. Tile design criteria includes an assumed minimum tile depth of 760mm, plus the diameter of tile.

The existing steel outlet pipe at Lake Huron has sufficient capacity to provide adequate outlet for the watershed in its current land use, and will be incorporated into the design. The steel pipe is on the leeward side of a break wall which protects the outlet and as such, will be incorporated into the drain report.

Due to the sensitive nature of the Lake Huron shoreline, and to minimize disturbance of the lake bank, the drainage works from the top of the bank (Sta. 0+081) to the existing steel outlet pipe (Sta. 0+027), shall be constructed using directional drilling equipment. The existing tile between Station 0+031 and Station 0+051 will be removed with as little disturbance as possible and backfilled with the native spoils generated onsite. Channel bank protection will be installed at the shoreline. The corrugated tile between Station 0+051 and Station 0+084 and the tile between Station 0+119 and Station 0+244 will remain in place and will be abandoned.

### Approvals

The proposed work will have little effect on the drainage works if they are carried out during low flows. The work area is to be maintained in a dry condition during construction by the Contractor.

All construction of the proposed work will be completed in accordance with the Department of Fisheries and Ocean (DFO) regulations and the applicable SCRCA permit requirements. The existing permits do not include future maintenance works. Permits from the DFO and SCRCA will be required prior to completing any future maintenance works.

#### Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of \$149,171, which includes engineering fees, an allowance for landowner correspondence between the Meeting to Consider the Report and the Court of Revision, and an allowance for inspection during construction.

A plan has been prepared, which shows the location of the proposed works and future works, and the approximate drainage area. A profile has been prepared, which shows the depths and grades of the proposed work.

#### Assessment

As per Section 21 of the Drainage Act, the Engineer in his report shall assess for benefit and outlet for each parcel of land and road liable for assessment.

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 (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are 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. The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. Assessments are based on a lands ability to direct surface flow to the drain or connections of subsurface flows to the drain. Lands within the watershed which do not utilize the Whiting Drain for both surface and subsurface flows, have been assessed a ½ rate for the portion of land that utilizes the drain (Section 23).

The Engineer may assess for special benefit, to any lands for which special benefits have been provided by the drainage works (Section 24).

A Schedule of Assessment for the lands and roads affected by the Whiting Drain has been prepared as per the Drainage Act. Assessments may be made against any Public Utility or Road Authority, as per Section 26 of the Drainage Act, for any increased cost for special backfill or construction, or for the removal or relocation removal or relocation of any of its facilities or plants that may be necessary for the construction or maintenance of the drainage works. Items to be assessed under Section 26 shall be tendered separately, and the Utility or Road Authority shall be assessed the actual construction costs, plus the associated overhead and engineering costs (25%).

Special assessment under Section 26 has been made for any additional costs that were a result of the enclosure between Station 0+244 and Station 0+260 (Egremont Road road allowance), as the enclosure benefited the road authority and not the landowner. Special assessment under Section 26 has also been made for the additional work required to work around any utilities. Special assessment costs have been detailed in the following table, Table 1.

**Table 1**

Description	Quantity	Unit	Fixed Price (\$)	Estimated Price (\$/m)	Special Benefit Price (\$/m)	Total	Engineering & Overhead (25%) (\$)	Net H.S.T.	Total Special Benefit (\$)	
<u>0</u>										
Town of Plympton-Wyoming	Egremont Road (Items 6-22)	15	m	\$ 375	\$ 38,505	\$ 38,130	\$ 38,130	\$ 9,533	\$ 839	\$ 48,502
Town of Plympton-Wyoming	Watermain (Item 23)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
Town of Plympton-Wyoming	Sanitary Sewer (Item 24)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
Town of Plympton-Wyoming	Sanitary Forcemain (Item 25)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
East Link	Telephone (Item 26)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
East Link	Cable/Internet (Item 27)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
Enbridge Gas	Gas - (Item 28)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654
Hydro One Networks	Hydro (Item 29)	1	L.S.		\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 29	\$ 1,654

The estimated cost of the drainage works has been assessed in the following manner:

- Egremont Road crossing- The cost of the road crossing less any special benefits, has been assessed with 98% of the estimated cost assessed as a benefit assessment to the road authority.
- The tile repair and outlet pipe repair have been assessed with 60% of the estimated cost assessed as a benefit assessment, and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares
- The existing steel groyne and outlet pipe have been assessed with 100% of the estimated cost assessed as an outlet assessment to the upstream properties, based on equivalent hectares

Allowances

Under Section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works, or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way. Section 29 allowances will not be provided under this report, since the work includes improving an existing drain within an established right-of-way, which received allowances under a previous report.

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages. Section 30 allowances will be provided under this report to Part of Lot 12, Concession FLH. Section 30 allowances are based on \$2,250 per hectare for tree removal.

Under Section 31 of the Drainage Act, where an existing drain that was not constructed on requisition or petition under this Act or any predecessor of this Act is incorporated in whole or in part in a drainage works, the engineer in the report shall estimate and allow in money to the owner of such drain or part the value to the drainage works of such drain or part and shall include such sum in the estimates of the cost of the construction, improvement, repair or maintenance of the drainage works. Section 31 allowances will be provided under this report for a portion of the groyne and steel outlet pipe. Section 31 allowances are \$28,022 and are based on 33% of the estimated replacement costs.

Conc.	Lot or Part	Roll No.	Owner I.D.	Landowner	Section 30 (\$)	Section 31 (\$)	Total (\$)
FLH	Pt Lot 12	383534.0020.504.00	5	Belle Errol Limited	968	28022	28990
	Pt Lot 11 & 12	383534.0020.530.00		R. & R. Nauta	250		250

Total Allowances \$ 29,240

Access and Working Area

Access to the drain shall be gained from road allowances, when possible, along existing private lanes, fence lines, property lines, and the drain. Access to the working area along the private lanes, property lines and fence lines, shall be restricted to a width of 6m. The primary access for the work will be from Egremont Road along the drain’s working area. In addition to the road allowances, the additional access and working areas have been summarized below:

The access and working area for the drain is as follows:

*Whiting Drain*

- Station 0+000 to Station 0+030 – 2m on the west side of the drain and 20m on the east side of the drain.
- Station 0+030 to Station 0+67 – 4m on the west side of the drain and 20m on the east side of the drain.
- Station 0+067 to Station 0+243 – 10m on the west side of the drain and 15m on the east side of the drain.
- Station 0+243 to Station 0+260 – 20m on either side of the drain (Egremont Road, road allowance).

*Whiting West Branch Drain*

- Station 1+000 to Station 1+020 – 10m on either side of the drain.

Restrictions

Following construction, no trees or shrubs shall be planted nor shall permanent structures be erected within the working area of the closed drain without prior written permission of Council, unless otherwise specified in this report. Trees at the top of bank on the open channel portion of the drain may be permitted provided the landowners are aware that they may be removed when future maintenance is completed.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refers to a landowner's responsibility regarding obstruction of a drainage works, the removal of obstructions in a drain, and the damage caused to a drain by an obstruction.

Agricultural Grant

Under Section 85 of the Drainage Act, a grant may be available for assessments against privately owned parcels of land which are used for agricultural purposes, and are eligible for the Farm Property Class Tax Rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of this drain. The Municipality will then deduct the grant from the assessments, prior to collecting the final assessments.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained by the Town of Plympton-Wyoming, under the provisions of the Drainage Act as per the applicable Schedules of Maintenance enclosed in this report, unless otherwise altered under the provisions of the Drainage Act, or as outlined below. The Schedules of Maintenance are based on estimated costs which are used to pro-rate the actual maintenance costs.

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- Egremont Road Crossing (Station 0+245 to Station 0+260) – 100% of the costs applied as a benefit assessment to the road authority.
- When a Whiting Main Drain benefiting landowner requests maintenance on the items listed as future works, all future works proposed in the drain report will be completed, between the proposed Ditch Inlet Catch Basin 3 (DICB3) at Station 0+245, to the existing break wall at Lake Huron at Station 0+027, under one contract.
- Maintenance of the open channel portion of the Whiting Drain, between Station 0+084 and Station 0+115, can be completed upon request to clean out debris and reduce obstructions.

Yours truly,



2021-033  
M. Gerrits



Michael Gerrits, P. Eng.  
M. Gerrits Consulting Inc.

Whiting Drain  
Town of Plympton-Wyoming  
March 6, 2024

## ESTIMATE OF COST

Item	Description	Quantity	Unit	Unit Price	Total
<u>Whiting Drain</u>					
1	Benchmark Loop	1	L.S.	500	500
2	Repair 450mm Dia Concrete Tile (Station 0+240)	1	L.S.	750	750
3	525mm HDPE Outlet Tile Replacement (Station 0+116 to Station 0+121)	5	m	275	1,375
4	Bank Stabilization c/w Excavation and Rip Rap Protection (Station 0+115)	6	sq.m.	90	540
5	Light Duty Silt Fence (Station 0+082)	5	m	55	275
<u>Egremont Road Crossing</u>					
6	Traffic Control	1	L.S.	3,500	3,500
7	Remove and Dispose of Existing Catch Basin (2) & Junction Box (1)	3	ea.	125	375
8	Remove and Dispose of Existing 525mm CSP (Station 0+244 to Station 0+260)	16	m	25	400
9	Remove and Dispose of Existing Clay Tile (Station 0+244 to Station 0+260) and Plug Downstream Drain	16	m	25	400
10	Remove and Dispose of Asphalt (90mm Depth)	90	sq.m.	10	900
11	Load Haul and Dispose of Unsuitable Fill (Provisional)	175	cu.m.	8	1,400
12	Granular 'B' Type II Backfill Material (Provisional)	175	cu.m.	50	8,750
13	Extend 300mm Field Tile to DICB 4	4	m	185	740
14	525mm Dia. HDPE Smooth Walled Tile c/w Excavation	15	m	226	3,390
15	Granular Bedding Material	20	t	50	1,000
16	Ditch Inlet Catch Basin 3 (DICB 3) c/w 1 sq.m. Rip Rap & Geotextile	1	L.S.	5,000	5,000
17	Connect to Existing CB1 (EXCB1)	1	L.S.	250	250
18	150mm Granular 'A' (Dolomite)	26	t	50	1,300
19	300mm Granular 'B' Type II	50	t	50	2,500
20	90mm HL4 Asphalt (2 Lifts)	18	t	325	5,850
21	Restoration of Road Allowance	200	sq.m.	5	1,000
22	Compaction Testing	1	L.S.	1,750	1,750
23	Work Around Waterline c/w Utility Locates	1	L.S.	1,300	1,300
24	Work Around Sanitary Sewer c/w Utility Locates	1	L.S.	1,300	1,300
25	Work Around Sanitary Forcemain c/w Utility Locates	1	L.S.	1,300	1,300
26	Work Around Telephone c/w Utility Locates	1	L.S.	1,300	1,300
27	Work Around Internet Utility c/w Utility Locates	1	L.S.	1,300	1,300
28	Work Around Gas Line c/w Utility Locates	1	L.S.	1,300	1,300
29	Work Around Overhead Hydro c/w Utility Locates	1	L.S.	1,300	1,300
Subtotal					51,045
Miscellaneous					5,322
Allowances					29,240
Engineering					16,845
Future Engineering					36,671
Landowner Correspondance (Allowance)					2,500
SCRA Permit					570
Net HST					1,978
Inspection (Allowance)					5,000
Total Estimate					\$ 149,171



Whiting Drain  
 Town of Plympton-Wyoming  
 March 6, 2024

**SCHEDULE OF ASSESSMENT**

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq Ha.
<u>Agricultural Lands</u>										
FLH	Pt Lot 13	15.20	383534.0020.532.00		R. Nauta	-	-	12,337	12,337	7.60
	Pt Lot 11 & 12	26.50	383534.0020.530.00		R. & R. Nauta	-	5,318	26,673	31,991	16.43
						-	5,318	39,010	44,328	
					Total Special Benefit	-				
					Total Benefit	5,318				
					Total Outlet	39,010				
					Total - Agricultural Lands	44,328				
<u>Non - Agricultural Lands</u>										
FLH	Pt Lot 11	0.36	383534.0020.503.00	4	J. Beaudet	-	-	1,803	1,803	0.72
	Pt Lot 11	0.44	383534.0020.503.01	3	I. Amin-Austin	-	-	2,204	2,204	0.88
	Pt Lot 11	0.43	383534.0020.503.02	2	M. & J. O'Mahony	-	-	2,154	2,154	0.86
	Pt Lot 11	0.44	383534.0020.503.03	1	M. & J. Winegard	-	-	2,204	2,204	0.88
	Pt Lot 12	1.55	383534.0020.504.00	5	Belle Errol Limited	-	10,663	4,423	15,086	2.33
	Pt Lot 12	0.04	383534.0020.505.00	9	D. & E. Minato	-	-	161	161	0.08
	Pt Lot 12	0.12	383534.0020.507.00	6	G. & R. Honke	-	-	581	581	0.24
	Pt Lot 12	0.11	383534.0020.501.00	7	P. Wilson & C. Chiasson	-	-	533	533	0.22
	Pt Lot 12	0.01	383534.0020.506.00	8	J. & M. Baker	-	-	40	40	0.02
	Pt Lot 12	0.70	383534.0020.531.00		G. & R. Honke	-	-	2,273	2,273	1.05
						-	10,663	16,375	27,038	
					Total Special Benefit	-				
					Total Benefit	10,663				
					Total Outlet	16,375				
					Total - Non-Agricultural Lands	27,038				

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq Ha.
<u>Roads</u>										
	Egremont Road	0.59			Town of Plympton-Wyoming	48,502	11,952	5,772	66,226	2.36
	Watermain				Town of Plympton-Wyoming	1,654	-	-	1,654	
	Sanitary Sewer				Town of Plympton-Wyoming	1,654	-	-	1,654	
	Sanitary Forcemain				Town of Plympton-Wyoming	1,654	-	-	1,654	
	Telephone				East Link	1,654	-	-	1,654	
	Cable/Internet				East Link	1,654	-	-	1,654	
	Gas				Enbridge Gas	1,654	-	-	1,654	
	Hydro				Hydro One Networks	1,654	-	-	1,654	
						60,080	11,952	5,772	77,804	
Total Special Benefit						60,080				
Total Benefit						11,952				
Total Outlet						5,772				
Total - Roads						77,804				
Total Assessment						\$ 149,171				

Whiting Drain  
 Town of Plympton-Wyoming  
 March 6, 2024

**SCHEDULE OF MAINTENANCE - SECTION 1 (WHITING DRAIN)  
 STATION 0+111 TO STATION 0+000**

For maintaining the Whiting Drain from the Whiting West Branch Drain outlet at Station 0+111 to the the drain's outlet to Lake Huron at Station 0+000. The Schedule of Maintenance has been based on an estimated maintenance cost of \$97,155.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq Ha.
<u>Agricultural Lands</u>									
FLH	Pt Lot 13	15.20	383534.0020.532.00		R. Nauta	-	17,647	17,647	7.60
	Pt Lot 11 & 12	26.50	383534.0020.530.00		R. & R. Nauta	-	38,148	38,148	16.43
<u>Non - Agricultural Lands</u>									
FLH	Pt Lot 11	0.36	383534.0020.503.00	4	J. Beudet	-	2,507	2,507	0.72
	Pt Lot 11	0.44	383534.0020.503.01	3	I. Amin-Austin	-	3,065	3,065	0.88
	Pt Lot 11	0.43	383534.0020.503.02	2	M. & J. O'Mahony	-	2,996	2,996	0.86
	Pt Lot 11	0.44	383534.0020.503.03	1	M. & J. Winegard	-	3,065	3,065	0.88
	Pt Lot 12	1.55	383534.0020.504.00	5	Belle Errol Limited	9,110	7,198	16,308	2.33
	Pt Lot 12	0.04	383534.0020.505.00	9	D. & E. Minato	-	278	278	0.08
	Pt Lot 12	0.12	383534.0020.507.00	6	G. & R. Honke	-	836	836	0.24
	Pt Lot 12	0.11	383534.0020.501.00	7	P. Wilson & C. Chiasson	-	766	766	0.22
	Pt Lot 12	0.01	383534.0020.506.00	8	J. & M. Baker	-	69	69	0.02
	Pt Lot 12	0.70	383534.0020.531.00		G. & R. Honke	-	3,250	3,250	1.05
<u>Roads</u>									
	Egremont Road	0.59	Town of Plympton-Wyoming			-	8,220	8,220	2.36
						9,110	88,045	97,155	

Total Main Drain Maintenance Assessment - Section 1 \$ 97,155

Whiting Drain  
 Town of Plympton-Wyoming  
 March 6, 2024

**SCHEDULE OF MAINTENANCE - SECTION 2 (WHITING DRAIN)  
 STATION 0+260 TO STATION 0+111**

For maintaining the Whiting Drain from the North limit of the Egremont Road road allowance (Station 0+245) to the Whiting West Branch Drain outlet at Station 0+111. The Schedule of Maintenance has been based on an estimated maintenance cost of \$73,557. All work within the road allowance shall be maintained by the Road Authority.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq Ha.
<u>Agricultural Lands</u>										
FLH	Pt Lot 13	15.20	383534.0020.532.00		R. Nauta		-	8,753	8,753	12.70
	Pt Lot 11 & 12	26.50	383534.0020.530.00		R. & R. Nauta		18,198	18,924	37,122	16.43
<u>Non - Agricultural Lands</u>										
FLH	Pt Lot 12	1.55	383534.0020.504.00	5	Belle Errol Limited		18,198	910	19,108	2.33
FLH	Pt Lot 12	0.12	383534.0020.507.00	6	G. & R. Honke		-	415	415	0.24
	Pt Lot 12	0.11	383534.0020.501.00	7	P. Wilson & C. Chiasson		-	380	380	0.22
	Pt Lot 12	0.70	383534.0020.531.00		G. & R. Honke		-	1,612	1,612	1.05
<u>Roads</u>										
Egremont Road		0.59	Town of Plympton-Wyoming					2,479	2,479	1.79
Gas - Extra Depth			Enbridge Gas			3,688		-	3,688	
							36,396	33,473	73,557	

Total Main Drain Maintenance Assessment - Section 2 \$ 73,557

Whiting Drain  
 Town of Plympton-Wyoming  
 March 6, 2024

**SCHEDULE OF MAINTENANCE - WHITING WEST BRANCH DRAIN  
 STATION 1+016 TO STATION 1+000**

For maintaining the open channel portion of the Whiting West Branch Drain from Station 1+016 to the drain's outlet to the Whiting Drain at Station 1+000. The Schedule of Maintenance has been based on an estimated maintenance cost of \$400.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D.	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Eq Ha.
<u>Non - Agricultural Lands</u>									
FLH	Pt Lot 11	0.4	383534.0020.503.00	4	J. Beaudet	-	75	75	0.72
	Pt Lot 11	0.4	383534.0020.503.01	3	I. Amin-Austin	-	91	91	0.88
	Pt Lot 11	0.4	383534.0020.503.02	2	M. & J. O'Mahony	-	89	89	0.86
	Pt Lot 11	0.4	383534.0020.503.03	1	M. & J. Winegard	-	91	91	0.88
<u>Roads</u>									
	Egremont Road	0.6	Town of Plympton-Wyoming			-	54	54	0.57
						\$ -	\$ 400	\$ 400	

Total Branch Drain Maintenance Assessment \$ 400

Whiting Drain  
Town of Plympton-Wyoming  
March 6, 2024

## **SPECIFICATION OF WORK**

### **1. General**

The specifications of work are to form part of any proposed work or future maintenance works.

### **2. Scope of Work**

The work shall be completed in Part of the W½ of the N½ Lot 12, Fronting Lake Huron (FLH), in the Town of Plympton-Wyoming. The work includes, but is not limited to, the following:

- Improve the Whiting Drain in the W½ of the N½ Lot 12, FLH.

### **3. Plans and Specifications**

These specifications shall apply and be a part of the construction Contract. This Specification of Work shall take precedence over all plans and general conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans, and described in these specifications. Any work not described in these specifications, shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the Owner contained in these Contract Documents, shall refer to the Town of Plympton-Wyoming or the Engineer authorized by the Town of Plympton-Wyoming, to act on its behalf.

### **4. Health and Safety**

The Contractor, at all times, shall be responsible for health and safety on the worksite, including ensuring that all employees wear suitable personal protective equipment, including safety boots and hard hats.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act, to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency, and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for a stop work order to be issued, or even termination of the Contract.

The Contractor shall also ensure that only competent workmen are employed onsite, and that appropriate training and certification is supplied to all employees.

## **5. Traffic Control and Construction Signage**

The Contractor shall be responsible for traffic control, as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision), when working on public road allowances. The Contractor will be required to provide the Engineer with a detailed traffic control plan for the culvert replacements one week prior to mobilizing to the site. A copy of the traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position, to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance, and when entering or exiting a worksite onto a roadway.

Pedestrian access should be provided to all properties at all times during construction.

The Contractor shall be responsible for supply, installation, maintenance and removal of all temporary traffic control signage required on the project.

Road closures will require approval from the Town of Plympton-Wyoming.

Following the installation of traffic signage for temporary conditions, the Contractor is responsible to remove, store and reinstate any permanent traffic signage as required to facilitate the construction process. The Contractor is responsible to reinstate the pre-existing signs and posts, or at the option of the Owner, reinstall new signs and posts supplied by the Owner.

## **6. Workplace Safety and Insurance Board**

The Contractor hereby certifies that all employees and officers working on the project are covered by the Contractor's benefits. The WSIB Clearance Certificate must be furnished prior to the execution of the Contract, and updated every 90 days.

## **7. Utility Locates**

Prior to completing any tile installation, the Contractor shall locate all utilities in the Egremont Road, road allowance and forward the locations and elevations to the Engineer for review.

## **8. Locate Existing Drain at Station 0+027**

Prior to completing the directional boring component of the project, the Contractor shall locate the existing steel drain between Station 0+025 and Station 0+031 to determine the most appropriate location to connect the proposed drain to the existing steel drain, verify the steel condition, verify the steel thickness and verify if there are any break wall tie backs.

## 9. Benchmarks

The benchmark locations are identified on the profile drawing.

The Contractor is required to complete a benchmark loop, prior to construction, to verify the benchmarks. If discrepancies exist, the Contractor must notify the Drainage Superintendent and Engineer prior to completing any work.

## 10. Geotechnical Investigation

A geotechnical investigation has not been undertaken within the project limits.

## 11. Access and Working Area

Access to the drain shall be gained from road allowances, when possible, along existing private lanes, fence lines, property lines, and the drain. Access to the working area along the private lanes, property lines and fence lines, shall be restricted to a width of 6m. The primary access for the work will be from Egremont Road along the drains working area. In addition to the road allowances the additional access and working areas have been summarized below:

The access and working area for the drain is as follows:

### *Whiting Drain*

- Station 0+000 to Station 0+030 – 2m on the west side of the drain and 20m on the east side of the drain.
- Station 0+030 to Station 0+67 – 4m on the west side of the drain and 20m on the east side of the drain.
- Station 0+067 to Station 0+243 – 10m on the west side of the drain and 15m on the east side of the drain.
- Station 0+243 to Station 0+260 – 20m on either side of the drain (Egremont Road, road allowance).

### *Whiting West Branch Drain*

- Station 1+000 to Station 1+020 – 10m on either side of the drain.

## 12. Removals

The specified concrete drain and concrete structures shall be removed in their entirety. The clay drain and steel outlet pipe shall be removed where specified on the drawings or Contract Documents. The steel and the concrete rubble shall be disposed of offsite at the expense of the Contractor. The 1961 report referenced an asbestos bonded corrugated iron pipe between Station 0+031 and Station 0+081. In the future, when the pipe is schedule to be removed, the Contractor must verify if it is an asbestos bonded pipe and, if necessary, remove and dispose of the material in accordance with all WSIB, Occupation Health and Safety Act requirements, and Ontario Regulation (O. Reg) 278/5.

Restoration in accordance with the restoration specification.



### **13. Abandon Existing Drain**

#### 1929 Tile - 4 Locations (Station 0+119 to Station 0+244)

The existing tile drain shall be abandoned at Station 0+131, Station 0+170, Station 0+210 and Station 0+240.

#### 1960 Corrugated Tile - 2 Locations (Station 0+031 to Station 0+081)

The existing tile drain shall be abandoned at Station 0+065 and Station 0+077.

The tile drain shall be plugged at each location. The downstream and upstream ends are to be plugged with concrete and wrapped with filter fabric or covered with 100 mm concrete blocks and wrapped with filter fabric.

Removals shall be in accordance with OPSS MUNI 510.

### **14. Brushing and Tree Removal**

All brush, trees, woody vegetation, etc., required to facilitate construction, shall be removed from the working area and side slopes of the existing channel, as well as within the working area areas using a mechanical grinder mounted on an excavator. Larger trees, brush and stumps that cannot be ground shall be disposed of offsite at the expense of the Contractor.

When possible, matures trees within the working corridor shall be worked around. Prior to construction, the working area will be walked with the Contractor, Drainage Superintendent and landowner to flag any larger trees within the working area that do not need to be removed to facilitate construction of the drain.

Brushing and clearing shall be in accordance with OPSS MUNI 201.

### **15. Stripping Existing Channel and Working Area**

The existing channel and working area shall be stripped of Topsoil. Topsoil shall be placed at the edge of the working area for restoration, once leveling of the subsoils is complete.

Stripping of topsoil shall be in accordance with OPSS MUNI 206.

### **16. Excavation of Channel**

The open channel shall be excavated and maintained to the depths and grades as per the profile drawings, which are contained in this Engineer's Report. The channel shall be excavated to the proper depth using a laser, or similar approved device, with a labourer on site to ensure that the grade is correct.

The proposed channel shall have a minimum of 1.5H:1V side slopes. The existing topsoil in the area of the channel excavation and working area, shall be stripped and stockpiled within the working area and used for restoration of the working area. The centre of the channel shall be in the same location as the existing channel.

Any spoils shall be levelled within the working area. Spoils shall be placed at a minimum of 1.5m back from the top of the bank on the south side of the channel. The excavated material shall be placed and levelled to a maximum depth of two hundred millimeters (200mm), and shall not impede overland drainage. If the spoils have sub-soil in them, the topsoil shall be windrowed along the edge of the working area, prior to placing the sub-soil. After the excavated material has been levelled, the topsoil shall be spread to its original depth and left in a condition suitable for seeding.

All excavated materials, which are excess to the requirements of the Contract, shall be moved downstream to a section of the working area, where it can be properly leveled.

The side slopes of the new channel shall be seeded as soon as the final grading is completed.

Restoration is to be in accordance with the Restoration Specification.

Excavation shall be in accordance with OPSS MUNI 206.

**17. Installation of High Density Polyethylene Pipe Drain by Open Cut**  
**Station 0+081 to Station 0+260**

The Contractor shall supply, install and backfill the drain. The pipe shall be high density polyethylene (HDPE) smooth wall pipe (320 kPa) with bell and spigot gasketed joints. The tile must be bedded with granular material.

It is intended that the proposed tile be located along the same alignment as the existing tile, providing the tile bedding can be founded on native substrate. If the tile bedding cannot be founded on native substrate, the Contractor must notify the Drainage Superintendent or Engineer to determine if additional granular material will be installed, or if the drain alignment is to be moved east into competent soils.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with granular material or 3/4 inch clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with granular or clear stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The drain shall be backfilled from the springline to within 100mm of finished grade with excavated material. The top 100mm shall be backfilled with topsoil.

Note that if excavated material is found unsuitable for backfill purposes, then granular material will be required as backfill. Unit prices shall be established in any tender for the disposal of the excavated material and the import of approved granular material at the expense of the drainage works.

All backfill shall be free from deleterious material. All granular bedding material shall be mechanically compacted to 95% standard proctor maximum dry density. All backfill material above the springline shall be mechanically compacted to 95% modified proctor density using appropriate compaction equipment.

The section of drain within the Egremont Road, road platform, shall be backfilled with Granular 'B' Type 2 material as detailed on the drawings. The backfill shall be placed from the top of the bedding, to within 290mm of the finished grade. The top 290mm of the road shall be restored with 90mm of HL4 Asphalt and 200mm (min) of Granular 'M' (Dolomite) material. Asphalt depths shall match the existing depths. All granular bedding and backfill material including any required fill below the culvert invert, shall be mechanically compacted to 95% standard proctor maximum dry density. The top 300mm of Granular "B" material or suitable approved native backfill material, shall be mechanically compacted to 98% standard proctor maximum dry density, and the top 150mm of Granular "A" material shall be mechanically compacted to 100% standard proctor maximum dry density.

Laser control shall be used to ensure proper grades. The grades calculated on the profile are to the invert of the tile, with allowances to be made by the Contractor for the wall thickness of the tile and pipe.

The topsoil should be stripped for the full width of the excavation and stockpiled along one side of the working width, and then the area graded to allow the trenching to be carried out. All excavated material, shall be windrowed on the side opposite the trench that the topsoil is stockpiled. After trenching and backfilling operations are complete, the topsoil shall be spread to its original depth.

All areas disturbed by construction, except the material windrowed over the trench, shall be left in a condition suitable for seed. Final levelling or removal of excess material, shall be the responsibility of the property Owner.

The Contractor shall not operate any trenching or backfill equipment, delivery trucks or equipment, pickup trucks or other vehicles along or over the trench during or after construction. The Contractor shall be responsible for any damage caused by any equipment or vehicles operated over the trench. If the Contractor must cross the trench, he will do so in one area.

In order to protect the tile, landowners should not operate heavy equipment over the length of the trench or along the length of the trench for 1 year after construction.

**18. Installation of High Density Polyethylene Pipe Drain by Directional Bore**  
Station 0+027 to Station 0+081

The Contractor shall supply, install and backfill the drain. The pipe shall be high density polyethylene (HDPE) DR 17 smooth wall pipe by Uponor or approved equivalent, and shall have butt fused joints. The project will require butt fusion joints in the field.

The proposed drain connects to a steel outlet pipe at the shoreline of Lake Huron. The steel pipe is estimated to be 5mm thick and 600mm in diameter. The Contractor will be required to cut the drain and install a welded flange. The flange will be fabricated to ensure it can connect to the HDPE flange.

Prior to award of the project, the Contractor shall provide the following for review and approval by the Town of Plympton-Wyoming and the Engineer:

- A bore plan;
- A list of personnel including backup personnel and their qualifications and experience;
- A drilling fluid management plan;
- A contingency plan for dealing with environmental impacts, emergency containment and clean up procedures.
- Proposed entry and exit point/pits locations;
- Certification of the fusing technician by the manufacturer;
- Proposed restraint at DICB 1 to prevent lateral movement of the tile from the structure;
- Shop drawing for the proposed HDPE flange to steel casing flange detail.

The Contractor must ensure that no construction fluids or other deleterious materials enter Lake Huron.

The boring and receiving pits shall be backfilled with granular or clear stone from the bottom of the excavation to the springline of the pipe. All backfill shall be free from deleterious material. All granular bedding material shall be mechanically compacted to 95% standard proctor maximum dry density. All backfill material above the springline shall be mechanically compacted to 95% standard proctor maximum dry density using appropriate compaction equipment.

The HDPE pipe will extend through the steel break wall. The HDPE pipe will require a sleeve or welded C channel at the break wall to ensure the HDPE pipe will not come in direct contact with the edge of the cut break wall.

Tracer Wire will not be required on this project.

Directional boring shall be in accordance with OPSS MUNI 450.

**19. Catch Basins and Ditch Inlet Catch Basins**

The catch basins and ditch inlet catch basins shall be in accordance with the applicable OPSS and OPSD and shall be installed to the elevations and locations shown on the drawings as follows:

Structure	Station	Dia. (mm)	Inlet (Grate) Elev. (m)	Inlet Pipe Elev. (m)	Outlet Pipe Elev. (m)
DICB#1	0+081	900X1200	182.21	181.08 (S) (525mm)	180.97 (N) (525mm DR17)
DICB#2 (North Facing)	0+115	900X1200	183.48	182.64 (S) (525mm)	181.55 (N) (525mm)
DICB#3	0+245	900X1200	185.33	183.99 (S) (525mm)	183.38 (N) (525mm)
DICB#4	0+260	900X1200	185.25	184.20 (SW) (300mm)  184.07 (W) (300mm)	184.07 (N) (525mm)

The ditch inlet catch basins shall be square precast concrete structures as noted above. The ditch inlet catch basins shall have a 2:1 sloped top with a birdcage type grate. The catch basins shall have a flat top with a birdcage type grate.

The structures shall be made with the top sections separate from the base sections, in order to allow riser sections to be installed or removed as necessary (i.e. the base section shall not extend for more than 150mm above the top of the highest opening in the base section). The structures shall have a 600mm sump with the exception of DICB 5 which will have a 300mm sump.

The structures shall be set at the final elevation as directed by the Drainage Superintendent. The catch basins shall be set on a layer of clear stone. The clear stone shall be extended up to the springline of the inlet and outlet pipe connections.

Any tile connection to the structures shall be concreted on both the inside and outside prior to backfilling. Any pipe or tile shall not protrude more than 50mm inside the wall.

## **20. Subsurface Drainage**

The landowner is responsible to mark all of the tile outlets entering the drain. The landowner is responsible for all of the costs to maintain private tile outlets. Any washouts along the channel banks caused by surface or subsurface water entering the channel through private facilities shall be repaired at the direction of the Drainage Superintendent, with the costs assessed to the benefitting landowner.

Tile ends shall be repaired with equivalent sized, non perforated agricultural HDPE pipe with a manufactured coupling, and rodent grate. Tile mains shall be repaired with equivalent sized, non perforated HDPE tile, with a manufactured coupling and rodent grate. In the case of concrete or clay tiles, the tile end shall be excavated into the bank a minimum of 3m. Any washouts from surface water, or at tile ends, shall be repaired with rip rap (100mm X 250mm quarry stone or gabion stone) and filter fabric (Terrafix 270R or an approved equal).

The area to receive rip rap shall be graded to a minimum depth of 300mm. If the washout is greater than 300mm, then excavated or fill material shall be placed to sub-grade. The filter fabric will then be placed with all joints overlapped with a minimum of 600mm. The rip rap will then be placed to a minimum depth of 300mm from the base of the side slope to the top of the tile outlet, with the smaller pieces being placed in the gaps and voids to give it a uniform appearance. The area to receive rip rap shall be graded, and the rip rap is placed to allow any surface water directed to this area to enter the channel over the rip rap. The rip rap shall generally be keyed to a depth of 600mm at the top of the bank. Any native material that has washed into the channel, shall be removed and spread on the adjacent property.

## **21. Groyne and Outlet Pipe Repairs**

The sheet pile wall and steel outlet tile shall be supplied and installed by the Contractor. The sheet pile repairs shall have the same capping, profile, thickness and depth as the existing wall. The sheet pile shall be ASTM A-328 or an approved equal and shall be a minimum of 4.25m in length. The sheet piles are to be in accordance with 902 and 903 (MUNI).

The steel outlet pipe shall have a minimum wall thickness of 9.5mm and will not require cathodic protection.

The repairs shall be made by Gordon Shoreline Marine or an equivalent Contractor with experience installing steel groynes.

## **22. Channel Protection (Rip Rap)**

The channel protection between Station 0+114 and Station 0+116 shall consist of rip rap and filter fabric and shall be installed on the slopes, from the bottom of the channel to the top of the bank. Rip rap shall be made up of 150mm to 300mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded first, to allow the placement of the rip rap to a depth of 300mm. After grading, a layer of filter fabric (Terrafix 270R or an approved equal) shall be placed with any joints overlapping a minimum of 600mm. Rip rap shall then be placed with the smaller pieces in the gaps and voids, to give it a uniform appearance.

Channel protection shall be in accordance with OPSS MUNI 511.

## **23. Levelling of Excavated Material**

The excavated material shall be levelled to a maximum depth of 100mm, and left in a condition suitable for restoration.

## **24. Restoration**

Restoration shall be in accordance with the following:

### Working area and Access Restoration

- The beach access shall be regraded prior to demobilizing from the site. If the access is damaged during construction, it will be capped with 150mm of Granular 'A' or an approved surface material. The Granular 'A' or approved surface material will be paid for under a provisional item.
- Disturbed areas within the working area shall be restored with a minimum of 100mm of native topsoil generated on site and seed.

### Egremont Road Restoration

- HL4 asphalt to be 90mm in depth. The asphalt shall be placed in two lifts. If the existing asphalt thickness is greater than 90mm, additional asphalt will be placed at the direction of the Drainage Superintendent or Engineer.
- Granular 'M' (Dolomite) to be 200mm in depth.
- Granular 'B' Type 2 to be 300mm in depth.
- Granular 'B' Type 1 to be used for backfill.
- Disturbed areas shall be restored with native topsoil and seed. Native topsoil is to match existing depths.

### Station 0+031 and Station 0+051

- Erosion Control shall be C125 by North American Green or Approved Equivalent.
- Backfill shall be native material compacted to 95% standard proctor maximum dry density.
- Disturbed areas shall be restored with native topsoil and seed. Native topsoil is to match existing depths.

## Seed

- The application rates are as follows:
  - a. Primary seed (85 kg/ha.) consisting of 50% red fescue, 40% perennial ryegrass and 5% white clover.
  - b. Nurse crop consisting of Italian (annual) ryegrass at 25% total weight.
  - c. Fertilizer (300 kg/ha.) consisting of 8-32-16.
- Hand seeding shall be spread on the affected areas on a daily basis with the seed mixture, fertilizer, and application rate as shown above.

Excavation shall be in accordance with OPSS MUNI 206.

Compaction shall be in accordance with OPSS MUNI 501.

Topsoil shall be in accordance with OPSS MUNI 802.

Seed shall be in accordance with OPSS MUNI 804.

Granular shall be in accordance with OPSS 1010.

Asphalt shall be in accordance with OPSS MUNI 310.

## **25. Silt Fence**

Light duty silt fencing shall be installed at the bore entry and exit locations, for the duration of construction. The silt fence shall consist of filter fabric, or manufactured silt fence supported with posts.

The light duty silt fencing and accumulated sediment shall be removed, once the disturbed area has been revegetated.

Light duty silt fencing shall be in accordance with OPSS MUNI 805 and OPSD 219.110.

## **26. Turbidity Barrier**

The Contractor install the Turbidity curtain at the outlet of the drain into Lake Huron. The turbidity curtain shall be installed and maintained by the Contractor in accordance with the manufacturer's specifications. The turbidity barrier shall be the Standard Floating Silt Curtain with Rope by Terraquavie (Dan Chinnick, Advanced Building Materials Inc. 519-490-5792 an approved equivalent. Approved equivalents must be approved in writing by the engineer or drainage superintendent prior to purchasing the turbidity barrier. Prior to ordering the silt curtain, the Contractor shall provide shop drawings for review and approval of the silt curtain. The Contractor shall inspect the turbidity curtain on a daily basis to ensure it is functioning properly. Once the project is completed and the turbidity Curtin shall be removed and disposed of offsite.

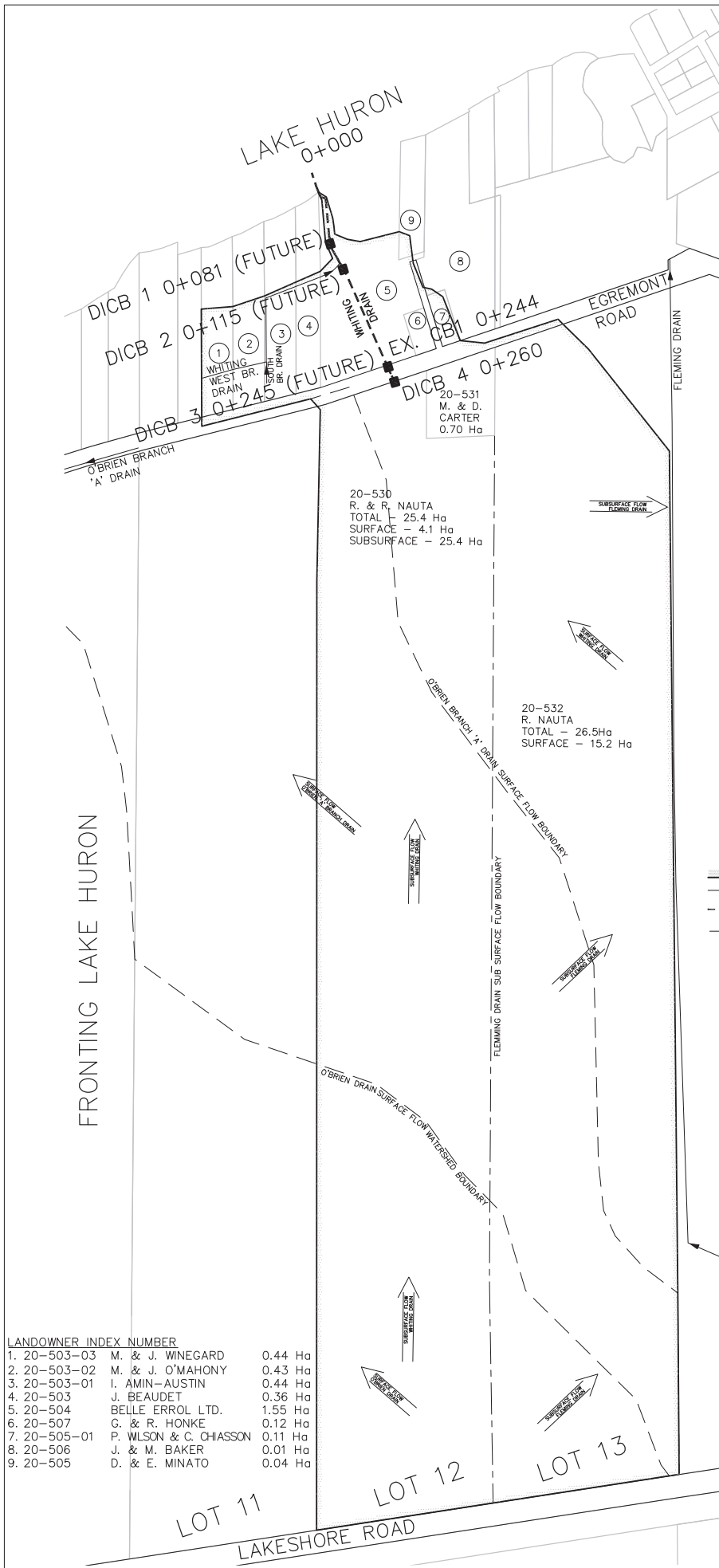


## **27. Environmental Considerations**

The Contractor shall take care to adhere to the following considerations.

1. All excavated and stockpiled material shall be placed a minimum of 1.5m from the top of the bank. No material shall be placed a the top of bank of lake Huron. Material shall not be placed in surface water runs or open inlets that enter the channel.
2. All granular and erosion control materials shall be stockpiled a minimum of 1.5m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
3. All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance, shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank, surface water runs, and open inlets that enter the drain.
4. All construction in the channel shall be carried out during periods of low flow. When possible, the Contractor shall schedule work to avoid periods of high winds and rain. The Contractor shall maintain a dry working area during construction. Prior to construction, the Contractor shall install a silt fence downstream of the work area.
5. All machinery shall be operated in a manner that minimizes disturbance to the banks of the watercourse.
6. The work shall be completed in accordance with any required timing windows.
7. The Contractor shall have an emergency plan in the event a frack out occurs during the directional boring component of the project.

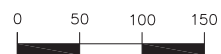
By following the above procedure, the work should have little or no environmental impact on the existing channel, Lake Huron or the lake banks.



**LEGEND**

- DRAINAGE AREA
- SUB CATCHMENT WATERSHED BOUNDARY
- WHITING DRAIN
- EX MUNICIPAL DRAIN
- PROPOSED MAINTENANCE HOLE
- PROPOSED DITCH INLET CATCH BASIN

SCALE: 1:4,500



LANDOWNER INDEX NUMBER		
1. 20-503-03	M. & J. WINEGARD	0.44 Ha
2. 20-503-02	M. & J. O'MAHONY	0.43 Ha
3. 20-503-01	I. AMIN-AUSTIN	0.44 Ha
4. 20-503	J. BEAUDET	0.36 Ha
5. 20-504	BELLE ERROL LTD.	1.55 Ha
6. 20-507	G. & R. HONKE	0.12 Ha
7. 20-505-01	P. WILSON & C. CHIASSON	0.11 Ha
8. 20-506	J. & M. BAKER	0.01 Ha
9. 20-505	D. & E. MINATO	0.04 Ha

LOT 11  
 LOT 12  
 LOT 13  
 LAKESHORE ROAD

**WHITING DRAIN**  
TOWN OF PLYMPTON-WYOMING

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OVERALL PLAN

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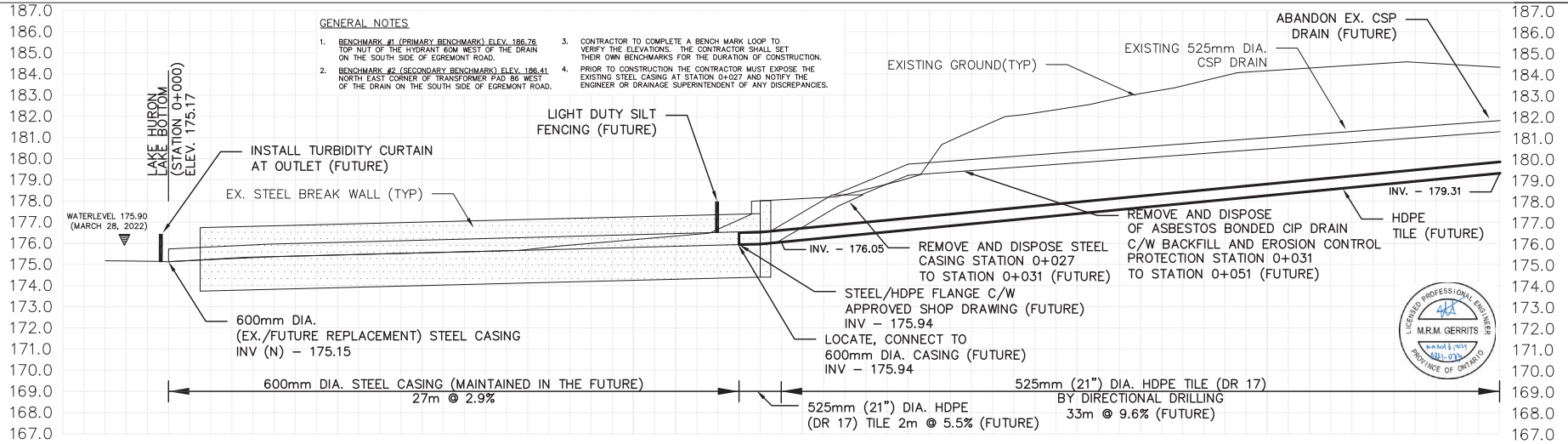
M. GERRITS  
CONSULTING INC.

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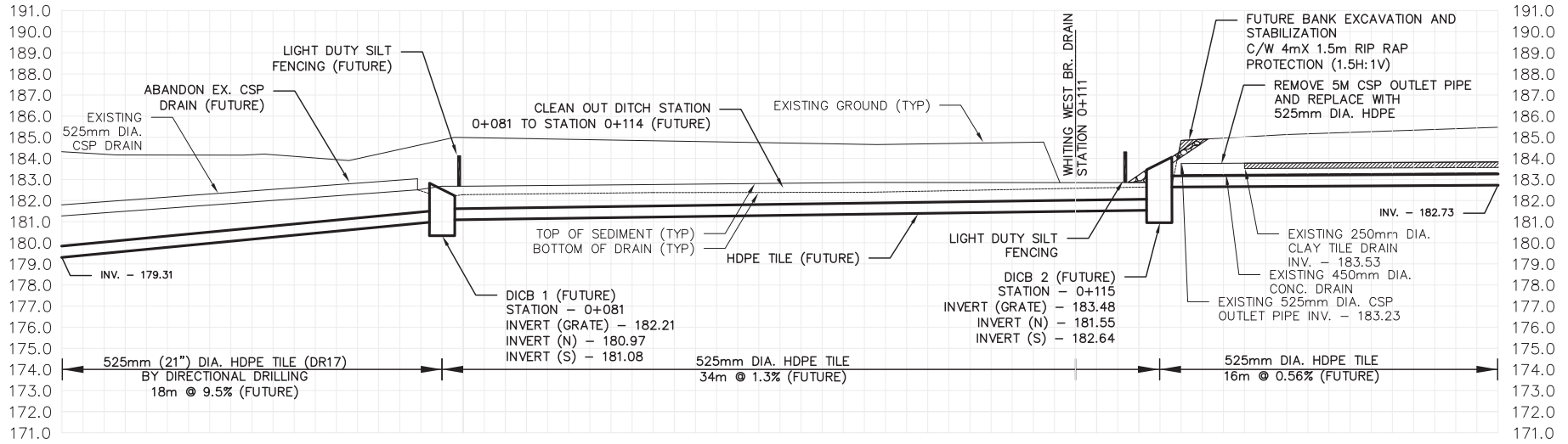
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2	FOR REPORT	SEPT. 8, 2023	MG
3	FOR RECONSIDERED REPORT	MARCH 6, 2024	MG

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DRAWN	MG	SHEET	
CHECKED	EG		
DATE	MARCH 6, 2024		<b>1 OF 5</b>
PROJECT NO.	2021-033		



STATION 0+005 0+004 0+003 0+002 0+001 0+000 0+001 0+002 0+003 0+004 0+005 0+006 0+007 0+008 0+009 0+010 0+011 0+012 0+013 0+014 0+015 0+016 0+017 0+018 0+019 0+020 0+021 0+022 0+023 0+024 0+025 0+026 0+027 0+028 0+029 0+030 0+031 0+032 0+033 0+034 0+035 0+036 0+037 0+038 0+039 0+040 0+041 0+042 0+043 0+044 0+045 0+046 0+047 0+048 0+049 0+050 0+051 0+052 0+053 0+054 0+055 0+056 0+057 0+058 0+059 0+060 0+061 0+062 0+063



STATION 0+063 0+064 0+065 0+066 0+067 0+068 0+069 0+070 0+071 0+072 0+073 0+074 0+075 0+076 0+077 0+078 0+079 0+080 0+081 0+082 0+083 0+084 0+085 0+086 0+087 0+088 0+089 0+090 0+091 0+092 0+093 0+094 0+095 0+096 0+097 0+098 0+099 0+100 0+101 0+102 0+103 0+104 0+105 0+106 0+107 0+108 0+109 0+110 0+111 0+112 0+113 0+114 0+115 0+116 0+117 0+118 0+119 0+120 0+121 0+122 0+123 0+124 0+125 0+126 0+127 0+128 0+129 0+130 0+131



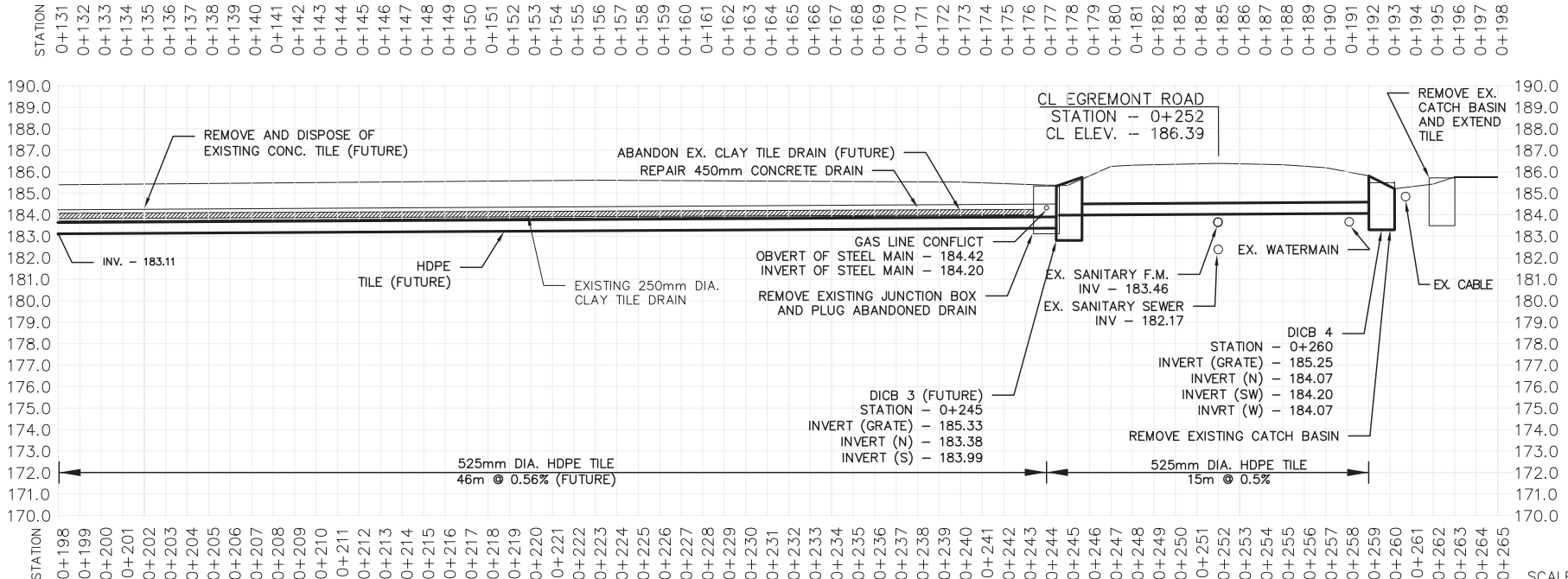
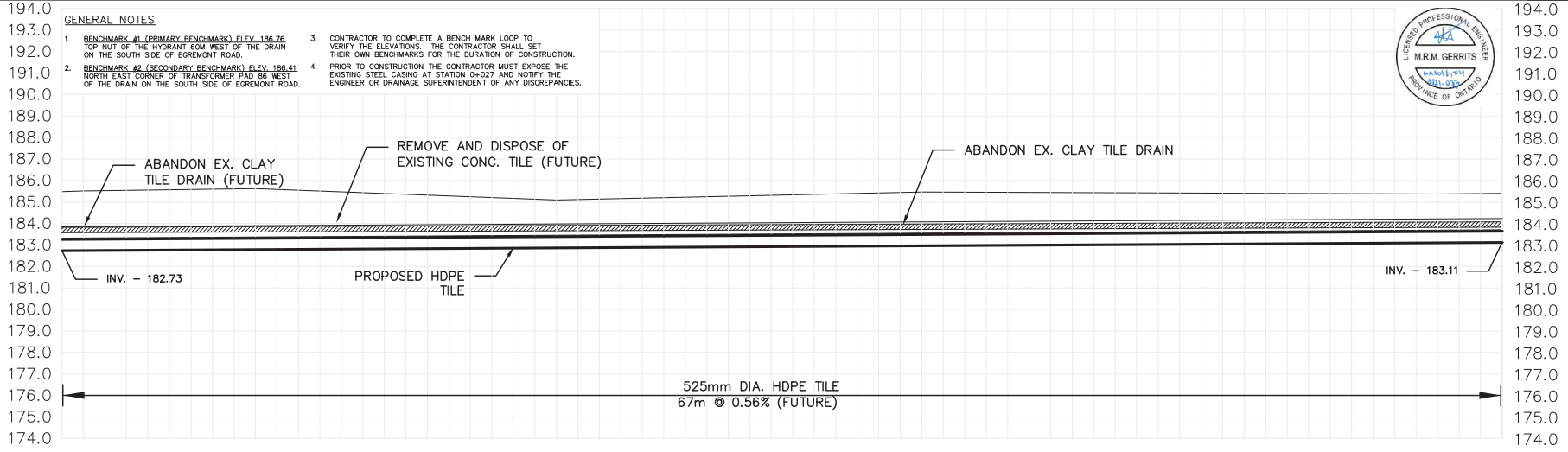
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**WHITING DRAIN**  
TOWN OF PLYMPTON-WYOMING

DETAILED PROFILE  
STATION 0+000 - STATION 0+131

DRAWN	MG
CHECKED	EG
DATE	MARCH 6, 2024
PROJECT NO.	2021-033
SHEET	2 OF 5

SCALE 1:200



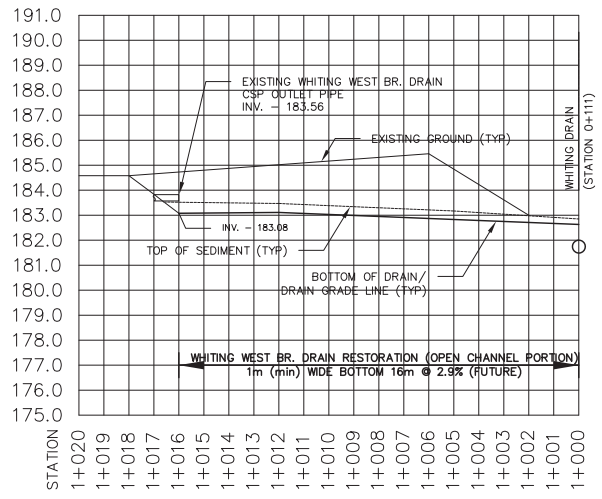
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3	FOR RECONSIDERED REPORT	MARCH 6, 2024	MG

**WHITING DRAIN**  
TOWN OF PLYMPTON - WYOMING

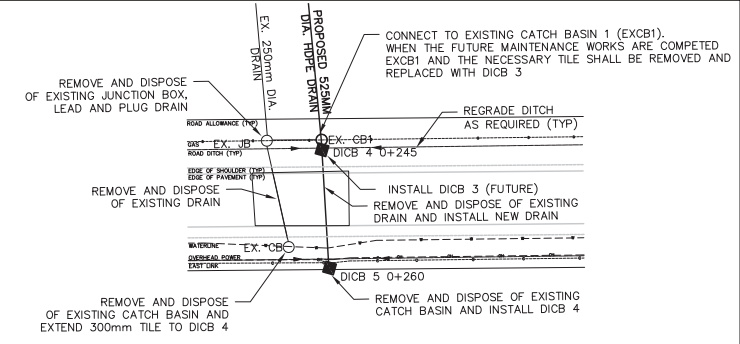
DETAILED PROFILE  
STATION 0+131 - STATION 0+262

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DATE	MARCH 6, 2024
PROJECT NO.	2021-033
SHEET	3 OF 5

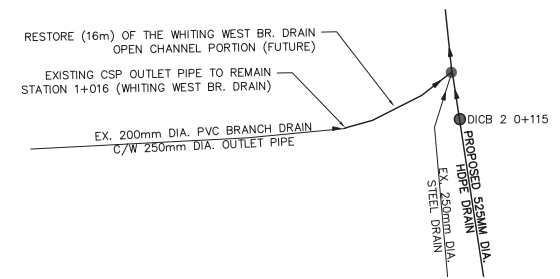
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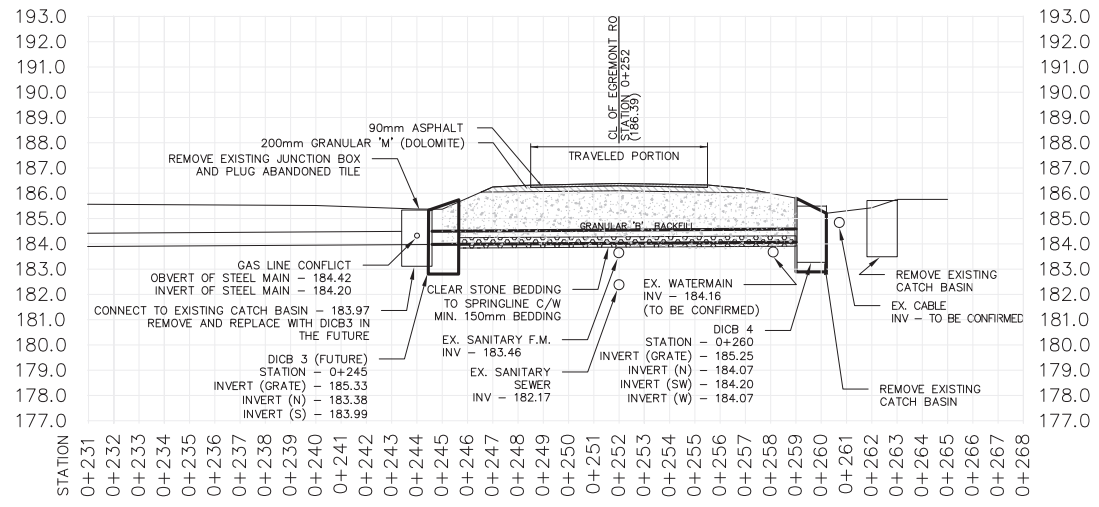
WHITING WEST BRANCH DRAIN PROFILE  
STATION 1+000 TO STATION 1+016  
N.T.S.



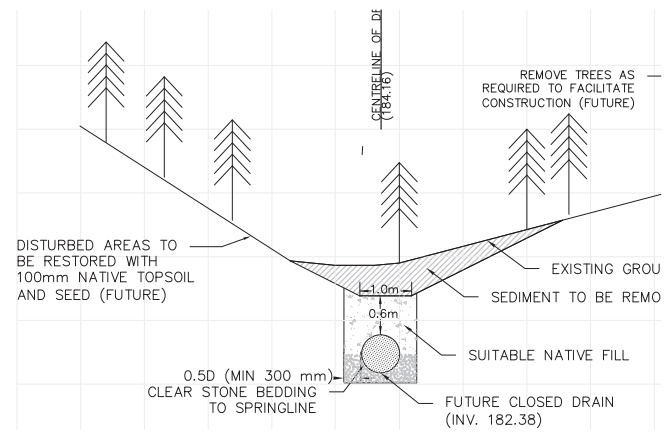
EGREMONT ROAD CROSSING  
STATION 0+252  
N.T.S.



WHITING WEST BRANCH DRAIN CONNECTION  
STATION 0+115  
N.T.S.



EGREMONT ROAD CROSSING  
STATION 0+252  
N.T.S.



TYPICAL SECTION  
STATION 0+103  
N.T.S.

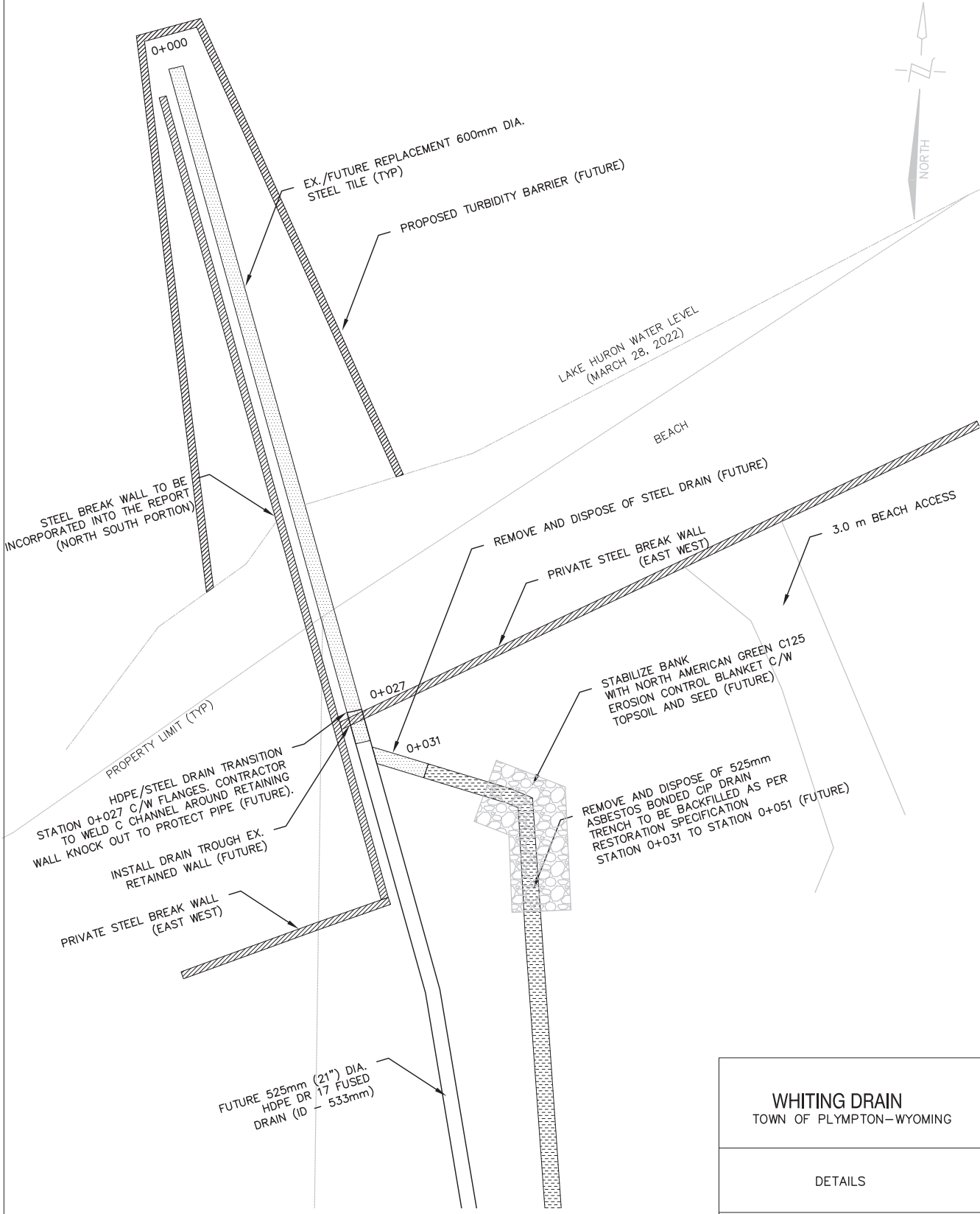


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WHITING DRAIN  
TOWN OF PLYMPTON-WYOMING

DETAILS

DRAWN	MG
CHECKED	EG
DATE	MARCH 6, 2024
PROJECT NO.	2021-033
SHEET	4 OF 5



OUTLET TO LAKE HURON  
STATION 0+000 TO 0+035  
N.T.S.



**WHITING DRAIN**  
TOWN OF PLYMPTON-WYOMING

DETAILS



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