

# **Point Abino Municipal Drain Report**



**April 9, 2025**

Project No: EWB-199997

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# 1 Executive Summary

On October 28, 2019, the City of Port Colborne approved the appointment of a Drainage Engineer, Paul Marsh, P.Eng. from EWA Engineering Inc., in accordance with the Drainage Act, Chapter D.17 of the Revised Statutes of Ontario, Section 74 & 78 to prepare an Engineer's Report for the Point Abino Drain within the City of Port Colborne and the Town of Fort Erie. The City of Port Colborne has the lead agency role on the Drainage Report project.

This Point Abino Drain Report is prepared as a Section 74, Maintenance of drainage works and cost, and as a Section 78, Improving, upon examination and report of engineer. This report provides drawings of proposed works for the Point Abino Drain, the Haggerty Branch Drain, and the East Branch Drain. All three existed as municipal drains before this report. This report provides updated names, drawings and assessments for the three watersheds. The Haggerty Branch has the Point Abino Drain in Port Colborne as its outlet. The East Branch Drain has the Point Abino Drain as its outlet at station 1+900, and the Point Abino Drain outlets into Lake Erie through a passive flap gate across Point Abino Road.

The Point Abino Drain is predominately maintenance work over the length of the drain, with two culvert improvements identified. The Point Abino Drain outlet was identified for replacement by inspection in 2022 (Ellis Engineering Report), and this forms the majority of proposed work under Section 78. The Haggerty Branch Drain originally existed for some distance north of Michener Rd but was removed from the scope during the construction. This Drain Report identifies a new point as the End of the Drain (EOD) for the Haggerty Branch Drain created in response to the lot severance granted at the corner of the original Haggerty farm. The Haggerty Branch Drain work proposed includes a culvert replacement on the west side of Pleasant Beach Rd. providing private access to a field.

The East Branch Drain, the original Point Abino Outlet, is to be converted into a two-stage (low-flow/flood-flow) channel. The low-flow channel is at a positive grade to its current outlet at the Point Abino Drain and may retain water depending on the lake water surface elevation. The grade is based on available survey data and reflects existing conditions. The flood-flow channel is a wide (~3m) shallow channel for runoff events to be contained for a predicted design peak flow. The Drain ends at the property limit of Point Abino Rd S. The roadway drainage remains within the catchment of Point Abino Rd. Pumping Station, but the lands to the west of the road and within the East Branch catchment flow into the Point Abino Drain.

The report provides three assessment tables for each of the watersheds. Assessments are prepared using the landowner information supplied by each municipality as map-based parcel data. MPAC supplies the data from each municipality. Schedule 74 maintenance work costs are distributed using Section 23 of the Drainage Act based on area and a runoff 'C' factor. Culvert improvements are assessed 50% to the serviced landowner (Sect. 24) and 50% to the watershed as outlet liability (Sect. 23), except for the two culverts replaced near the Point Abino outlet. These culverts are assessed 12% to the benefitting landowner and 88% to the watershed.

The original outlet, which consisted of a twin CIP concrete box culvert measuring 87m in length with each chamber roughly 4ftx5ft, is to be replaced by a single precast box culvert 3000mmx1500mm. The portion of the culvert crossing Point Abino Rd S is assessed at 100% of the cost to the Town of Fort Erie and measures 14m in length. The remaining distance of the original twin culvert is replaced by an open channel with block side walls to the average lake level depth. There is no riparian benefit assessment for this work (Section 22), and the whole cost of the conversion is assessed to the watershed, including the cost of remounting the original twin gates into a single flap gate fixed to the new pre-cast concrete box culvert outlet. A new culvert access is proposed for the replacement of the single access lane to 949 Point Abino Rd S from Point Abino Hills Rd (a private road) and assessed 12% to the serviced landowner (Sect. 24) and 88% to the watershed, (Sect 23).

The Haggerty Branch Drain is predominantly maintenance but with the upper segment of the drain to be abandoned, Section 84. The proposed culvert replacement cost is assessed half to the property owner and half to the watershed.

The East Branch Drain is assessed to three adjacent property owners for a benefit from having the two-stage flow channel constructed to replace the currently partially defined flow path. The remaining cost of the work is assessed to the watershed as a Section 23 benefit.

No allowances have been granted within the assessment as all access required for maintenance existed from previous reports where a prior allowance is presumed to have been made.

## 2 Introduction

The City of Port Colborne retained Paul Marsh, P.Eng of EWA Engineers Inc., to prepare a Drainage Report under the Drainage Act R.S.O. 1990 for the Point Abino Drain.

The following Figure identifies the existing drain channels.

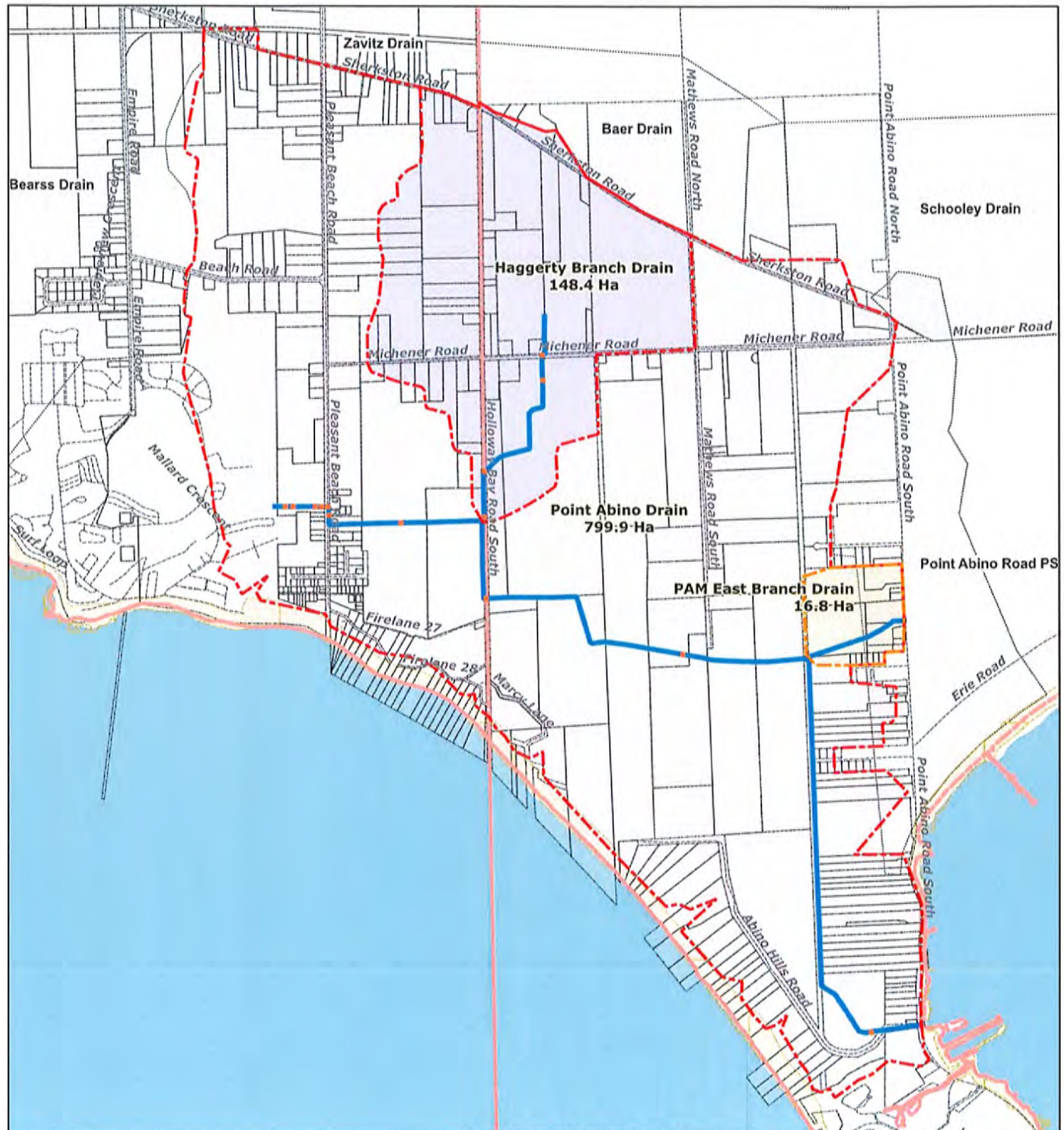


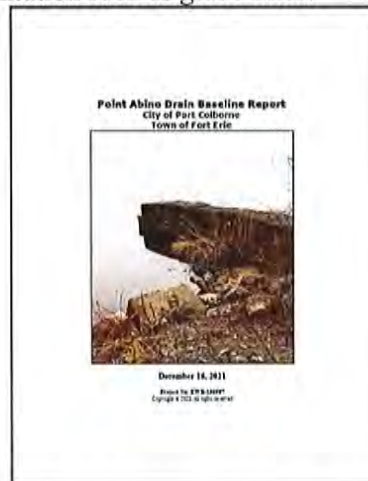
Figure 1 Point Abino Drain

This report includes a description of all work, associated plans, cost estimates, and assessment schedules for the proposed work on the existing Drain and the proposed Branch Drains. The report has been prepared in accordance with the requirements of the Drainage Act, Chapter D.17 of the Revised Statutes of Ontario, Sections 74, 78 and 84.

In previous Drainage Reports, the Point Abino Drain and Point Abino Marsh Drain (PAM) Drain were used interchangeably, and this report continues that tradition. Generally, the portion within the Town of Fort Erie is considered the Point Abino Marsh Drain, while the upper portion within the City of Port Colborne is the Point Abino Drain.

The Point Abino Drain Engineer's Report is prepared as follows:

- **Baseline Drainage Report:** assesses current drainage problems and identifies the extent of the drainage area to be serviced by the municipal drain. The Baseline report includes a history of drainage and presents historical information such as grade lines.



- **Point Abino Watershed Assessment Report:** assesses existing capacity through hydrologic and hydraulic modelling, identifying the options for resolving problems and recommending a preferred option to improve drainage.





The final Engineer's Report comprises the two previous reports, supporting documentation, final drainage cost estimates, and assessment schedule.

The proposed improvement work for the Point Abino Drain is prepared as a Section 78 (1.1) of the Drainage Act. The works are described as grade line maintenance with proposed revisions in design grades and culvert improvements.

In addition to the identified reports, there is also a Preliminary Design Report with respect to the introduction of a pumping system within the Point Abino Drain. Prepared as a draft report for comment in November of 2022.



## 2.1 Objective

The Point Abino Municipal Drain already exists and has for many years. The objective is to maintain the existing drain in a State of Good Repair (SOGR). Changes in land use practices have impacted the drains, shifted from mostly farming plots to some farms with row crops and rural residential lots, which affects the drain's function. The channels have been impacted by vegetation growth within the drain banks along with tree deadfalls. This report addresses the growth and deadfalls through cleaning and clearing. The following were the original identified drainage services to be covered in the final report.

1. The existing outlet will be reviewed for operational improvements. After completing the Baseline Report, it was identified that the current twin concrete culvert requires replacement within a five-year schedule based on structural inspection. Refer to the report from Ellis Engineering, 2020, available from the Town of Fort Erie.
2. Investigate the cost vs benefit of a pump and consider a new pump station.
3. Ensure that the catchment boundaries between adjacent drains are consistent.
4. Review the structural (current condition) and capacity of culverts.
5. In the past, a second outlet was located at Holloway Bay Rd S. This was to be reviewed and assessed to see if it could still be used.

## 3 Background

### 3.1 Drain History and Past Reports

The earliest record of works related to the Point Abino Drain is in 1888, with a report by Geo. Ross to extend the Drain and improve the outlet.

### 3.2 Point Abino Drain Watershed

The Point Abino Drain serves an area of 800 hectares based on the defined drain boundary. The main branch of the drain is 4,720m in length. The Drain watershed is south of the Friendship Trail, with the end of the channel starting west of Pleasant Beach Road at the eastern edge of the Sherkston Shores community. The Point Abino Drain traverses south and east to the Drain outlet into Lake Erie across Point Abino Rd S.

The watershed boundary is along Sherkston Rd, with a high point at the Friendship Trail of 189 m. The lake's outlet varies with the Lake level change, but the recorded mean monthly level is 174.181 IGLD 1985 over the recorded period (1911-2024).

- Watershed average fall (slope) is given as 0.24% or 2.4m per 1000m
- Drain average fall (slope) is given as 0.03% or 0.3m per 1000m

This slope characterizes the Point Abino Drain as a shallow slope or slow watershed. In particular, the last half of the drain has low to no slope to the outlet. The lower portion of the drain is highly influenced by Lake Erie's water elevation with a specially constructed outlet with a flap gate and block break wall.

The Point Abino Drain can be segregated into several distinct geographic areas as follows:

- Haggerty Branch Drain
- Upper West Point Abino
- Upper East Point Abino
- East Branch
- Lower Point Abino (PAM)

These zones are described in more detail as follows.

#### **Haggerty Branch Drain**

Incorporated into the last report as Branch Drain No1, it was shown from the connection to the Point Abino Drain on the west side of Holloway Bay Rd northwards and across Michener Rd east of Holloway Bay Rd. and ending 600m north in the Haggerty farm. The portion north of Michener Rd was removed from the original construction work but still exists as a defined Municipal Drain.

#### **Upper West Point Abino**

The lands west of the Haggerty Branch catchment are drained to the south, generally using roadside drainage conveyance along Pleasant Beach Rd. The

catchment forms the western and northern limits of the Point Abino Watershed. The western limit is along the eastern edge of Sherkston Shores. The general slope of the land is from north to southeast. Roadside swales along Pleasant Beach Rd and Holloway Bay Rd strongly influence this catchment drainage.

#### **Upper East Point Abino**

The lands east of the Haggerty Branch catchment all drain south to the East-West portion of the Point Abino Drain. This part of the Drain has a shallow slope to the outlet, but the lands draining to it have a considerable slope from north to southwest.

#### **East Branch**

This small portion of the catchment exists because this was the original path of the Point Abino Drain outlet. This was diverted south in 1929 to the present-day outlet, and the East Drain portion was not abandoned by a Drain Report. The original channel is easily visible and has a survey identifying original channel paths. This report recognizes the East Drain as providing functional drainage to the 5 Ha catchment west of Point Abino Rd S.

#### **Lower Point Abino (aka Point Abino Marsh)**

The lower portion of the Point Abino Drain catchment contains the west shoreline connecting to Lake Erie. It consists of extensive dunes that form a barrier but also a hydraulic connection to the Lake and the lands behind the dunes. The lands behind the dunes are forested wetlands with almost no evidence of past cultivation (Niagara Navigator 1934 image). The lower reach of the drain and adjacent lands are low-lying lands with poor drainage.



**Figure 2 Point Abino Drain looking west at Matthews Rd S.**

The eastern limit of the catchment is influenced by the road drainage system provided by the Point Abino Road pumping station, located on the east side of the road and services areas to the north and south of the East Branch Drain. Adjacent Drain boundaries are shown in the following figure.



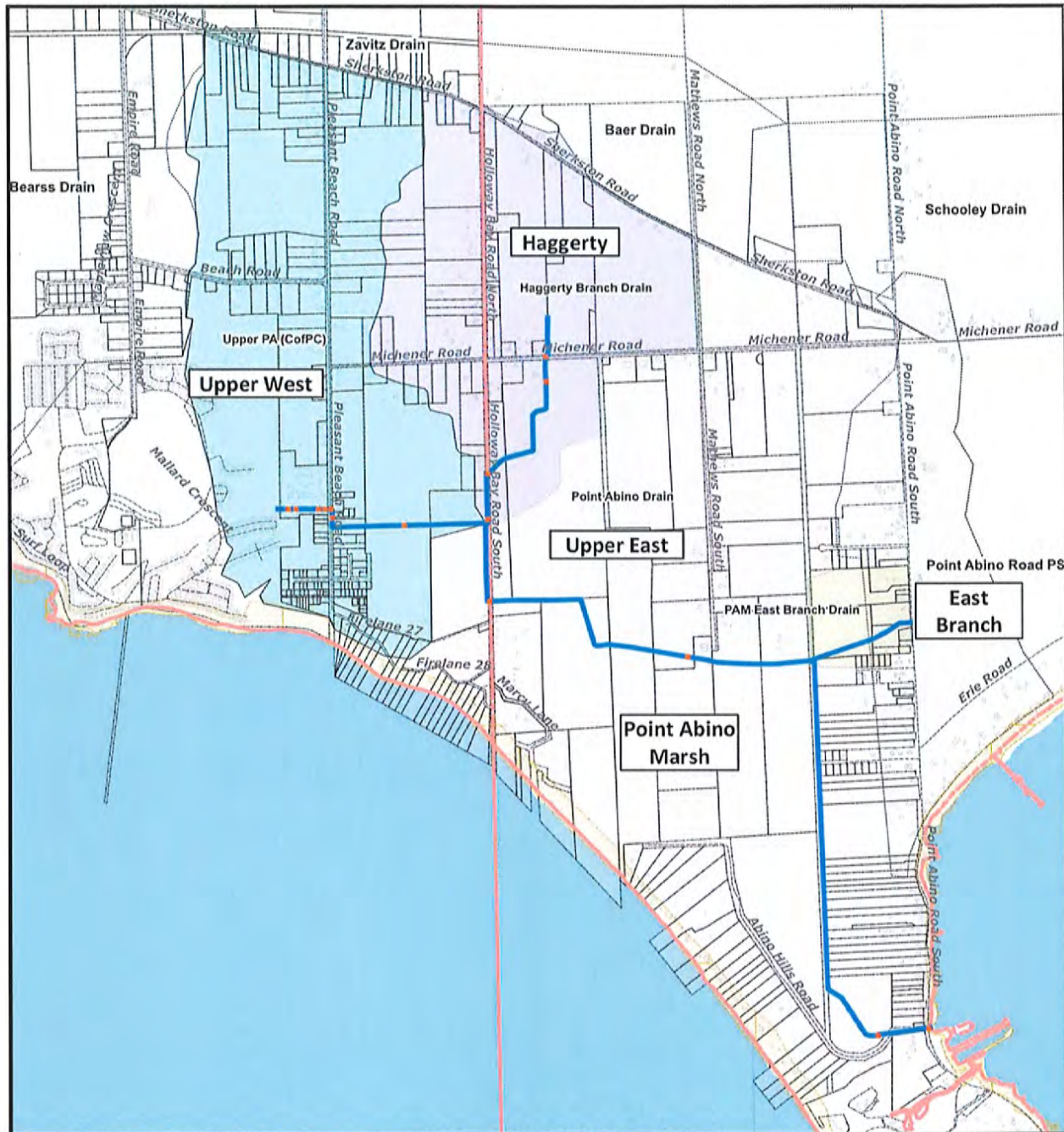


Figure 3 Point Abino Drain

## 4 Design Considerations

The analysis of the Point Abino Watershed is based on Hydrologic and Hydraulic analysis to predict runoff flow requirements and to match channel capacity. Water monitoring measurements have not been practiced in the past, and thus, calibration or validation of the computer-based model results is limited to historical anecdotal comparisons.

Included under a separate copy is the Report Titled “Point Abino Drain Watershed, Hydrology and Hydraulics Report.”

### 4.1 Design Scope

From the Baseline Report, the following are the items identified as part of the design scope for Point Abino Drain.

Review existing drains for improved maintenance where required and identify working zones and access as needed.

1. Consideration for Pumping
2. The 0% Grade to outlet in the South Drain segment.
3. The former outlet to Point Abino Rd S, which was reversed, and the existing Point Abino Road Pumping Station
4. Consideration for improving the drainage service to Sherkston Shores and focused on the areas of Pleasant Beach Rd and Holloway Bay Rd.
5. Investigate options for improving the outlet flows.

Within the context of the Drainage Act, we organize the scope of investigation into the following parts of the Act.

#### Outlet improvements    Sect. 78

Investigate design improvements to the surge/seiche control gate structure. Identify three options for consideration. Provide a Cost vs Benefit analysis and the final design for the preferred option.

Assess Opportunities to restore pumping. Develop preliminary design. Assess costs.

Provide improvements to the trash rack at the outlet.

#### Point Abino Main Branch as Sect. 74

Culvert improvements

Survey investigation and past plan review



## 4.2 Watershed Characterization and Use

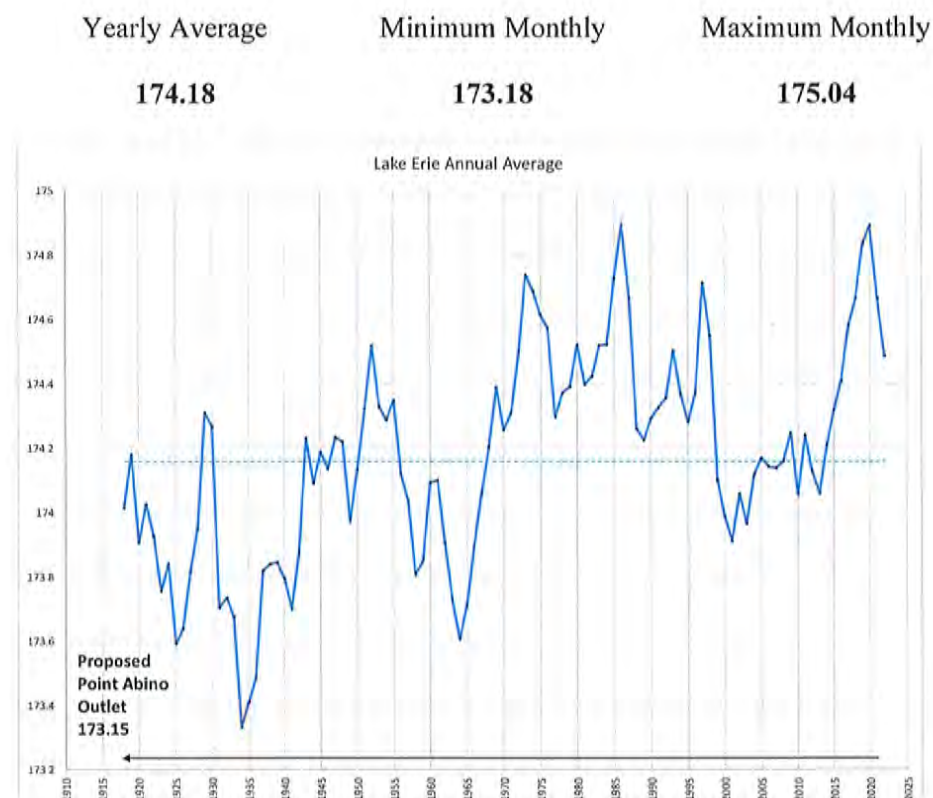
The Point Abino Drain Watershed is characterized through land use as a design consideration in the following ways:

These are general descriptions of the watershed areas, and for more details, see the included maps and drawings in Appendix A.

### Lake Erie Levels

In geologic time, Lake Erie levels have varied depending on glaciation and the various flow sills in and out of the Great Lakes basin. These sills have changed in elevation as landforms rebounded from the effects of glaciation. In the modern period, Lake Erie levels are dominated by flows out of Lake Huron and out of Lake Erie into the Niagara River and Welland Canal system.

The historic Lake Erie levels are provided by the Government of Canada Fisheries & Oceans Hydrographic Service based on 100+ years of monitoring data and statistics. The values are quoted in monthly mean water levels referenced to the IGLD 1985.



**Figure 4 Lake Erie monthly mean water levels, m to IGLD 1985**

The Point Abino Drain is affected by the Lake Erie level, and outlet flows are modified by the lake continuously. There are two effects of the lake;

- Flows to outlet. Outflow is unimpeded once the lake level is below the outlet pipe inverts. Once the water surface is above the pipe invert, then the rate of flow out can still be positive but is not free flowing.
- Storm surges, causing flows to run backwards up the Drain.

These effects are influenced and controlled by the outlet gate position.

### 4.3 Point Abino Outlet

The outlet has been a structure since the revised outlet was created in 1927. Modifications have occurred, including replacing the north flap gate mounting hardware in 2021.



**Figure 5 Point Abino Outlet**

This picture shows that the existing gates are typically submerged by lake surface water, impacting the flow out of the twin culverts.

#### 4.3.1 Gate and Outlet Capacity Assessment

The existing outlet is composed of three primary parts;

- The twin concrete cast-in-place box culvert.
- Two swing gates made of steel that covers and protects the outlet.
- Two steel mounting frames that hold the round bar that hinges the steel flap gates into position.



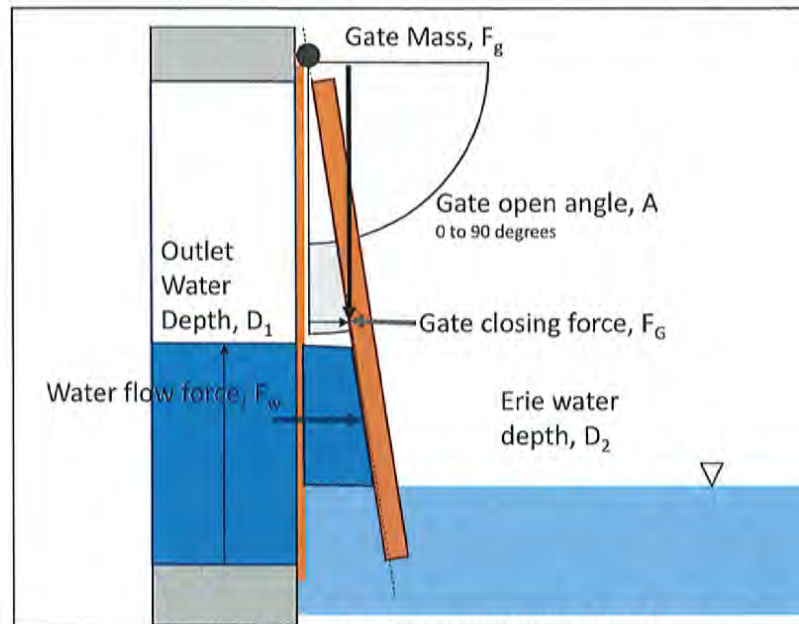


Figure 6 Point Abino Outlet Flap Gate

The steel flap gate is heavy and requires the flow to push the gate open where the pressure of the flow against the gate is greater than the weight of the gate. The backward flow is only prevented if the gate is closed such that it forms a seal against the concrete headwall.

Replacing the existing twin rectangular concrete outlet with a single 3000x1500 precast concrete rectangular outlet requires a new flap gate. The proposed design calls for the reuse of the two existing frames to be joined and an additional 300mm (single row) of steel frame put on the bottom of the two joined gates. The existing steel plate would be replaced or extended (two pieces welded into one) and mounted to the steel frame. It is proposed to include a clevis bolted lifting point to raise the gate using a truck-mounted winch from above.

Calculations of a larger gate were performed to determine the height of water (depth) on the upstream side of the gate that would push the gate open. Those calculations are included in Appendix C.

## 4.4 East Branch

The East Branch of Point Abino Drain was historically constructed as the drain's outlet. This was changed and re-aligned along the North-South Right of Way (present path) with a low grade to the outlet at Station 0+475 in 1927 as the Point Abino Marsh (PAM) Drain.

With no evidence that the original outlet was abandoned, this report recognizes the existing channel as the East Branch Drain of the Point Abino Drain.

## 4.5 Haggerty Branch Drain

Formerly recognized as Point Abino Branch Drain #1 in the CJ Clarke Report of 1983 for 1050m (3445 ft) of Drain. The original construction and report focused on the section south of Michener Rd. deferring any works north of Michener Rd.

This report abandons the portion of the drain north of the farm severance and recommends maintenance based on a new design grade line.

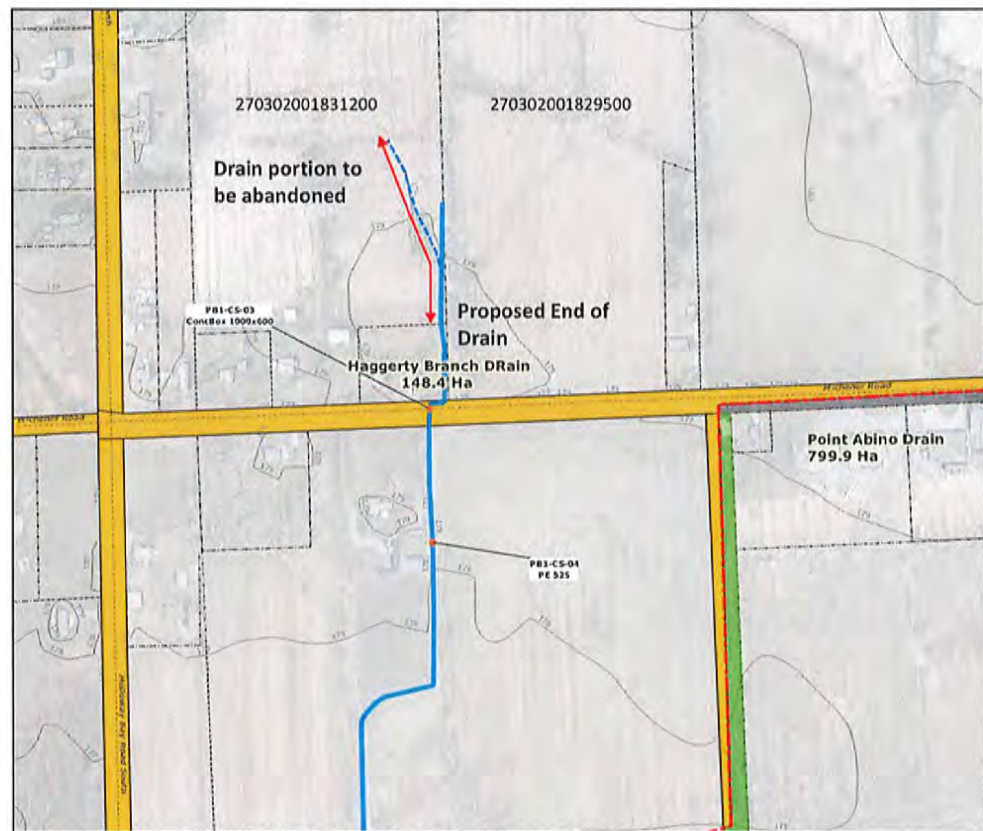


Figure 7 Former Branch Drain #1 (Proposed Haggerty Branch)

The original drain consisted of a defined channel through the agricultural field. This was identified as part of the drain in 1983 but does not appear to have been maintained. The road crossing is well-defined as a concrete box culvert, and the channel extending north is well-defined. The channel is less defined as it progresses to the north away from the road. This report will set the end of the drain at the edge of the farm property (270302001831200) and severed lot (270302001831201).



## 5 Drain Works Recommendations

### 5.1 Design Criteria

Channel size is confirmed to be based on a 1 in 5 year return period storm, which is expressed as a design storm as follows:

- 5-year design storm with a total rainfall of 68.90mm using an SCS Type II 24-hour storm distribution.
- 100-year design storm with a total rainfall amount of 121.1mm using an SCS Type II 24-hour storm distribution.

The 100-year design storm is accepted as the Probable Maximum Precipitation (PMP) event for consideration of impacts.

### 5.2 Description of the Works

The following presents a program of proposed improvement works for the Point Abino Drain. As a program, some works are staged at various times and may not proceed step-by-step but on an as-and-when-available basis that best meets environmental and regulatory requirements.

#### 5.2.1 Municipal and Private Crossings

The culverts are identified for replacement based on structural or capacity requirements.

No culverts were identified for replacement from structural inadequacies on the Port Colborne side of the Point Abino Drain. Culvert PAM-CS-10, requested by 341 Pleasant Beach Rd, is to have a crossing length of 9m to increase the crossing width of the private lane. The replacement culvert will be re-laid with embedded inverts that are consistent with the proposed grade line.

The culvert on the proposed Haggerty Branch Drain, identified as PB1-CS-01 for Roll No. 271104000102800, is proposed for replacement.

The Town of Fort Erie replaced the 2 culverts crossing Holloway Bay Rd within the past five years.

The Cast in Place (CIP) twin concrete culverts at the outlet were assessed by underwater inspection by Ellis Engineering in 2021 and found to have wall deterioration and voids behind the walls. The recommendation was to replace the structure within 1 to 5 years. The estimate for replacement was \$2,000,000.

The inspection report identified two sections for replacement;

- Section 1 is 24m of the CIP Box culvert crossing Point Abino Rd S

- Section 2 is 63m of the CIP Box culvert on Abino Hills Rd

The following table identifies the proposed culvert works for drain improvements.

**Table 1 Culvert Improvements**

| Name ID                      | Crossing                                 | INSP Status | Q 5yr / Q <sub>a</sub> | P/Fail | Diam      | Material | Work Description                                                                                                                                                                                     | L, m    |
|------------------------------|------------------------------------------|-------------|------------------------|--------|-----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>City of Port Colborne</b> |                                          |             |                        |        |           |          |                                                                                                                                                                                                      |         |
| PAM-CS-10                    | 341 Pleasant Beach Rd                    | Pass        | Fail                   | Pass   | 1000      | CSP      | The owner requested a wider access lane; a top width of 7.3m instead of the existing one at 5m. Replace existing with 9m CSP 820x1150 installed on grade embed 20mm. Raise Crossing height to 176.35 | 6 to 9m |
| PB1-CS-01                    | Roll No. 271104000102800                 | Fail        | 1.7 cms                | Fail   | 1050      | CSP      | Replace with CSP 1050MM D - 6M @ 0.24% or approved equivalent. Design Q = 1.713CMS Match INV to Grade Crossing ELEV. 176.53                                                                          | 6m      |
| <b>Town of Fort Erie</b>     |                                          |             |                        |        |           |          |                                                                                                                                                                                                      |         |
| PAM-CS-04                    | Private Access Lane (Tennis)             | Fail        |                        | Fail   | 1200      | CSP      | Replace existing 1200 CSP (3) culverts with new and construct a concrete headwall with a steel rack to block debris. Raise the crossing height.                                                      | 6m      |
| PAM-CS-20                    | Pt Abino Rd.                             | Fail        |                        | Fail   | 4'x5' (2) | CIP      | 4ftx5ft (2) Concrete Box to be replaced with 14m precast 3000x1500 box culvert.                                                                                                                      | 14m     |
|                              | Abino Hills Rd                           | Fail        |                        | Fail   |           | CIP      | 4ftx5ft (2) concrete box to be replaced by trapezoidal open channel, 63m                                                                                                                             | 64m     |
| PAM-CS-21                    | Private Access Lane 949 Point Abino Rd S | Fail        |                        |        | 4'x5' (2) | CIP      | Precast 3000x1500 – 4m with 3.05m top-width lane crossing.                                                                                                                                           | 4m      |

All other culverts meet existing structure or capacity requirements.

## 5.2.2 Drain Grade Improvements

The design grades are redrawn based on the existing Point Abino Drain key elevations. No survey data was collected from STA 0+240 to 3+415 for 3,175m from a total drain length of 4,720m. This represents that 67% of the drain didn't have survey data to consider grade improvements.

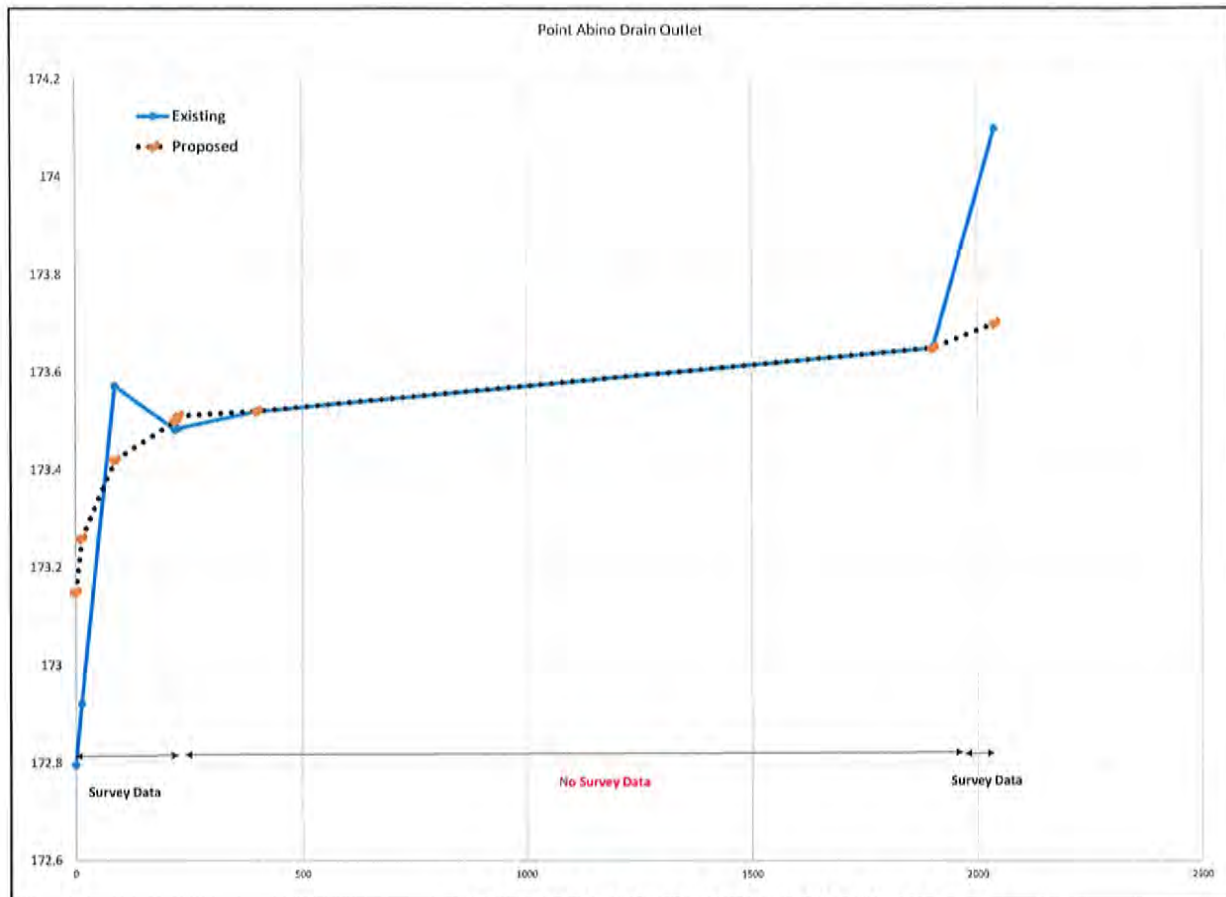


Figure 8 Existing vs Proposed PA Drain Grades

The graph shows the existing grade survey data as the solid blue line, with the dotted line representing the proposed grade line. The sections of the drain missing survey data are shown.

The existing twin box culvert crossing Point Abino Rd S is installed with a steep grade to a submerged outlet in Lake Erie. The existing 87m long twin cast-in-place box culvert is proposed to be replaced with a 16m box culvert crossing Point Abino Rd S. The drain grade is improved through the 87m outlet by converting to a short box culvert road crossing with an open channel section. The existing triple culvert crossing, PAM-CS-04, for access to the tennis courts is to be replaced with new CSP at the same inverts and grades.

### 5.2.3 Drain Integrated Watershed Improvements

The use of siltation basins or stormwater control devices to improve runoff quantity and quality runoff flows can be added to the proposed works as a watershed benefit.

The lower part of Point Abino Drain, the portion crossing through Point Abino Marsh, is a slow-moving, relatively wide trapezoidal channel. The west side of the channel has a connection to the Point Abino Marsh through the west bank of the channel. Overflows from the drain spill into this marshland. The sandbanks

located along the Lake Erie shoreline also provide a hydraulic connection to the marshlands when the lake level is high.

#### 5.2.4 Utility Conflicts & Coordination

Not all utility locations and conflicts are known during design. Where a conflict has been identified, a program cost has been allocated for moving the utility by the contractor during construction. There are two utility conflicts related to the construction of a new culvert crossing Point Abino Rd S. The Enbridge gas line and the Town's watermain both require reconstruction as part of the proposed works. The respective utility owners are responsible for the relocation costs for each.

#### 5.2.5 Plans, Profiles & Specifications

The proposed works are described in the attached Plans, Profile drawings and Specific Design drawings and Standard Detail drawings attached as Appendix A.

Project Specifications are attached in Appendix E.

#### 5.2.6 Outlet Improvements

The planned improvements to the outlet are recommended for consideration as an improvement under Section 78. This is necessitated by the replacement of twin box culverts with a single rectangular box culvert. The two existing steel flap gates are to be reused and converted into a single steel gate with a bottom extension to match the new culvert dimensions of 3000x1500.

For the Point Abino outlet, the control structure functions as a passive device. The pressure of the rising Lake Erie water surface 'pushes' the hinged gate closed. This relies on a smooth concrete face for the gate to 'seal' against. The force of the runoff flow from upstream pushes the gate open.

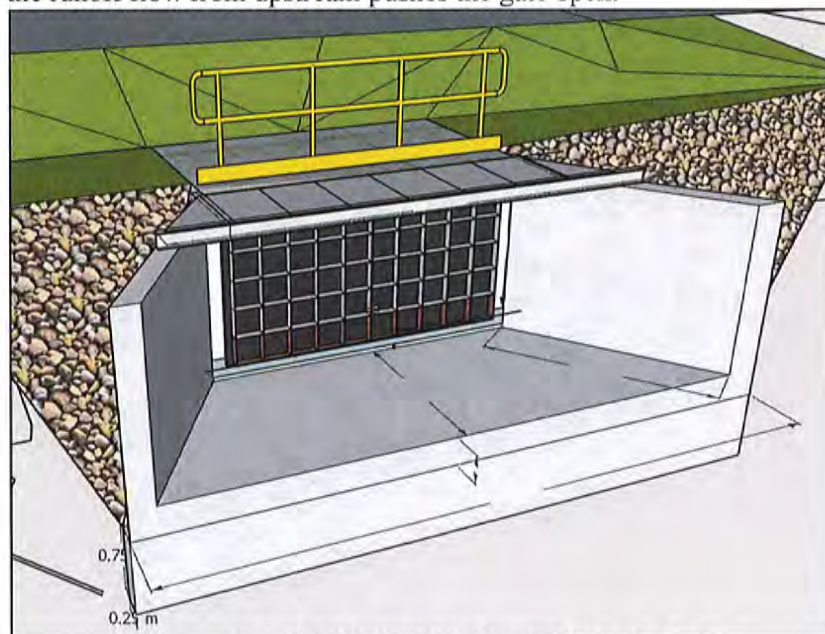


Figure 9 Outlet Gate Passive Flow Changes



The existing structure lacks wing walls, and the existing gate may not seal against the older concrete face. This is proposed for improvement using precast concrete sections as a new wing wall, including an outlet concrete channel bottom. The steel crossing beam with steel cover shields is proposed as removable and to assist with maintenance. The steel beam offers a lifting point using a truck-mounted winch to hold open the gate for future outlet maintenance.

## 5.3 Construction and Constructability

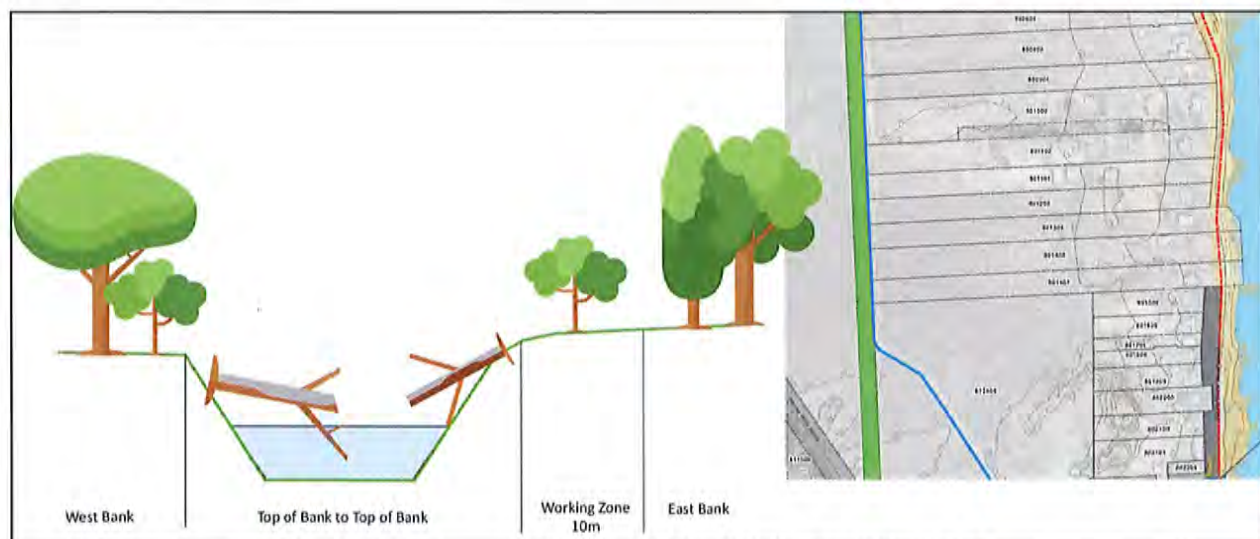
The following describes the specific requirements for drain construction.

### 5.3.1 Vegetation Removal

Any identified vegetation removal will be performed outside of any bird nesting periods. The remaining stumps are to remain in place unless they obstruct flow or are Ash trees with re-growth from the lower trunk. The stump will be ground down to match the existing ground in those cases.

Tree removal from the Top of the Bank to the Top of the Bank is 100 percent; however, tree removal within the work zone is at the discretion of the Contractor and Drainage Superintendent while making every effort to preserve trees where possible. Where trees are removed in the work zone, they qualify for the tree replacement program per the tree qualifying criteria.

The lower reach of the Point Abino Drain provides a particular challenge. Ground conditions are complex, and tracking a machine through this area poses a significant challenge. The extensive vegetation in the area, along with the presence of deadfalls from Ash tree mortality, creates blockages within the Point Abino Drain.



this can also be some very low ground indistinguishable from the wetland. There may be cases where access from the east side for maintenance is required.

Where the deadfalls are removed, the material from the removal must be positioned away from the Drain and not left within 5m of the top of bank to the edge of the 10m working zone.

### 5.3.2 Spoil Material

All spoils and spoil handling practices will comply with applicable legislation, including O. Reg. 406/19: ON-SITE AND EXCESS SOIL MANAGEMENT filed December 4, 2019, under the Environmental Protection Act, R.S.O. 1990, c. E.19

Where specified, excavated spoil material shall be disposed of and levelled a minimum of 2.5 m from the top of the bank to ensure that sediment does not re-enter the drain. Spoil placed next to the drain shall be spread to permit access across the berm area and set to a maximum height of 0.6m. Spoil excavated along existing travelled road allowances and on private property, where requested, shall be disposed of by the Contractor off-site. The benefiting property owner shall bear the cost of spoil trucked from the property.

Where a property owner requires that all or a portion of the spoil be trucked away from their property, the cost of spoil disposal including testing shall be assessed to the property owner requesting the spoil removal and will not form part of the total cost of the drainage works. The cost of trucking away spoil from any future maintenance work will be assessed directly to the property owner requesting the work.

Debris from vegetation removal will remain on the property and be placed adjacent to the drain with the owner's agreement. This is limited to allow the owner to identify specific sites for the debris on their property.

Drain reaches within travelled Municipal Road allowances, the spoil will be trucked away during the initial construction and any future maintenance work where there is no opportunity to dispose of the material on site.

Access channels shall be provided through the levelled spoil material at every location where drainage outlets are visible and/or identified during construction by the Drainage Superintendent. The invert of the access channels shall be consistent with the drain cross-section at that location.

Spoil excavated from the drain shall be levelled in a manner suitable for cultivating crops where crops were previously cultivated. Where the drain is adjacent to a grassed area maintained by the owner, the spoil shall be levelled and re-seeded with grass so that the area is restored to a like or better condition than before construction. All construction costs to restore to a like or better condition is part of the work, and assessed as specified in the assessment tables.

### 5.3.2.1 Contaminated Spoils

Where soils are known to be contaminated but have been assessed to pose no human health risk, on-site spreading adjacent to the drain will be the practice and acknowledge that the soils are not to be 'moved' off the property.

Where soils are to be removed from the property, a sample will be collected and analyzed for contamination before removal. Where that sample is shown to be contaminated and disposal of the soil will require disposal at a registered facility in compliance with O.Reg 406/19, the owner will be responsible for the costs to dispose of the contaminated soil from their property.

Once a contaminated sample is returned, the owner will be allowed to change their request and retain the soil on-site instead of trucking for disposal at their cost. The cost of testing will remain with the owner requesting off site spoil disposal.

### 5.3.3 Revegetation

Drain banks and exposed soil areas within areas disturbed during the maintenance of the drain are to be seeded as quickly as possible by the contractor.

The drain banks should be seeded as quickly as possible after excavating the existing and proposed channels, and the spoil should be seeded on the day of levelling. Seeding should occur in a manner that optimizes seed germination and establishment of vegetation before mid-October and after late April.

Seed mixture used shall be applied at a rate of 40 kg/ha in the following proportions:

|                     |          |      |
|---------------------|----------|------|
| Creeping red fescue | 20 kg    | 50%  |
| Perennial ryegrass  | 8 kg     | 20%  |
| Birdsfoot trefoil   | 12 kg    | 30%  |
| Total               | 40 kg/ha | 100% |

### 5.3.4 Private Drain Connections

Where private connections are made to the Municipal Drain, the connections are to be compliant with the City of Port Colborne's private connection design standard. This includes the following connection types:

- Open channel connection – minimal allowance for grade and freeboard.
- Surface water flows – rip rap rock requirements for reducing or amending potential or evident erosion sites.
- Tile drain connections – use PE pipe to connect to a receiving channel with freeboard above drain bottom.
- Berm and Orifice Flow Control - connections designed to control runoff to specified flow rates.

Private connections are not part of the drain, are owned by the landowner, and are the landowner's responsibility for construction and maintenance. Where the Drainage Superintendent or Engineer identifies a deficiency, the landowner is required to make the connection as per the Drainage Superintendent or Engineer's direction. Deficiencies to be rectified can include eroded connections, blocked

connections or poor connections, and displaced pipe outlets. The landowner can accept to have work done on their behalf to make good the connection based on a 50/50 cost-sharing basis with the watershed. Where the City identifies a deficiency and the repairs are not made by the landowner by the next cycle of drain maintenance, the City can make the required repairs, and 100% of the cost will be assessed to the landowner.

## 5.4 Future Maintenance and Repair Provisions

The Drainage Act, Chapter D.17, Sections 74 through 84 governs future maintenance, improvement and repair to any Drainage Works constructed under a By-Law passed under this Act or any predecessor of this Act.

Upon completion of the Point Abino Drain works described in this Report, each municipality will be responsible for future maintenance of the drain with the cost assessed to the upstream lands and roads using the Assessment Schedule in Appendix B and pro-rating the assessment based on the actual cost using the Outlet Liability Assessment – Section 23. Special Assessment shall not apply to maintenance work except where maintenance works are related to culvert/bridge replacement or upgrades.

The following are the identified maintenance sections anticipated to meet the response targets of once every ten years with a site-specific assessment on a five-year schedule.

- Haggerty Branch Drain 220m from 20+000 to 20+220 – Town of Fort Erie.
- Haggerty Branch Drain 73m from 20+230 to 20+962 – Town of Fort Erie.  
Including PB1-CS-03 inspection (OSIM) on a three-year basis.
- Point Abino Drain 1275m from 3+764 to 4+720 – City of Port Colborne – Regular maintenance.
- Point Abino Marsh Drain 3190m from 0+225 to 3+764 – Town of Fort Erie – Regular inspection & spot maintenance.
- Point Abino Drain 225m from 0+000 to 0+225 – Town of Fort Erie: seasonal inspection + post-storm inspection for trash rack cleaning.

These recommended maintenance and inspection cycles are to be adjusted as evidenced by physical conditions within each Drain and Branch Drain.



## 5.5 Construction Summary

The following table lists construction activities by property, starting from the outlet and proceeding upstream for each municipality.

**Table 2 Point Abino Drain Construction Summary**

| <b>Point Abino Drain</b>                                           |                   |                 |               |               |                     |                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------|-------------------|-----------------|---------------|---------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>City of Port Colborne</b>                                       |                   |                 |               |               |                     |                                                                                                                                                                                                                                         |
| <b>Property / Owner</b>                                            | <b>Drain Side</b> | <b>From STA</b> | <b>To STA</b> | <b>Len</b>    | <b>Working Side</b> | <b>Work Description</b>                                                                                                                                                                                                                 |
| 271104000102800 / D B M E INC; RICHARDS, MARTHA M                  | Both              | 3+763           | 4+000         | 237           | North               | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000108000 / GINTHER, GEORGE EAGAN                            | Left              | 4+000           | 4+276         | 276           |                     | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000107930 / VONGPHAKDY, SOUPAHONE CHASTITY; GALE, JASON      | Right             | 4+000           | 4+276         | 276           | North               | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000109000 / ELLIOTT, JORDAN; FULLONE, LAURIE                 | Left              | 4+276           | 4+413         | 137           |                     | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000108600 / TRACY, TERESA; PARISI, CATERINA; PARISI, GIACOMO | Right             | 4+276           | 4+450         | 174           | West                | Clean and clear to design grade line                                                                                                                                                                                                    |
| Pleasant Beach Rd ROW                                              | Left              | 4+413           | 4+508         | 95            | West                | Clean and clear to design grade line. Check culvert for deposition                                                                                                                                                                      |
| 271104000107800 / SHAUBEL, SOPHIA ANN                              | Right             | 4+450           | 4+458         | 8             | West                | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000108500 / ANDREACCHI, FRANCHINA                            | Right             | 4+458           | 4+488         | 22            | West                | Clean and clear to design grade line<br>Replace existing with 9m CSPA 820x1150 installed on grade embed 20mm. Raise Crossing height to 176.35                                                                                           |
| 271104000108400 / LUNGU, ANA                                       | Right             | 4+488           | 4+508         | 9             | West                | Clean and clear to design grade line                                                                                                                                                                                                    |
| 271104000117600 / SSI PROPERTY GP INC                              | Both              | 4+508           | 4+719         | 211           | South               | Clean and clear to design grade line including removal of concrete pipes at the end of Drain                                                                                                                                            |
|                                                                    |                   |                 |               |               |                     |                                                                                                                                                                                                                                         |
|                                                                    |                   |                 |               |               |                     |                                                                                                                                                                                                                                         |
| <b>Town of Fort Erie</b>                                           |                   |                 |               |               |                     |                                                                                                                                                                                                                                         |
| <b>Property / Owner</b>                                            | <b>Drain Side</b> | <b>From STA</b> | <b>To STA</b> | <b>Length</b> | <b>Working Side</b> | <b>Work Description</b>                                                                                                                                                                                                                 |
| Point Abino Rd S                                                   | Both              | 0+000           | 0+024         | 24            |                     |                                                                                                                                                                                                                                         |
| Abino Hills Road                                                   | Both              | 0+024           | 0+195.7       | 171.7         | South               | PAM-CS-21, a private Access Lane to 949 Point Abino Rd S that replaces the existing CIP twin concrete culvert cost-shared on a 12 / 88 basis (12 / 88) with 12% assessed to the private access owner and 88% assessed to the watershed. |
| 270302001813400 /                                                  | Both              | 0+195.7         | 0+580         | 384.3         | South               | PAM-CS-04 is a private crossing to Tennis Courts with the cost shared at 12 / 88 with 12% assessed to the owner and 88% assessed to the watershed.                                                                                      |
| Blind Line Road Allowance                                          | Left              | 0+530           | 1+901         | 1371          | West                |                                                                                                                                                                                                                                         |
| 270302001801401 / JOHNSON JAY ANTHONY                              | Right             | 0+580           | 0+608         |               |                     | Deadfall Removal and spot grade line cleaning and grading.                                                                                                                                                                              |

|                                                   |       |         |         |    |                                                               |
|---------------------------------------------------|-------|---------|---------|----|---------------------------------------------------------------|
| 270302001801400 / SEUBERT<br>SCOTT BEAL           | Right | 0+608   | 0+647   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001801300 / IAFRATE<br>MICHAEL              | Right | 0+647   | 0+675.5 |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001801200 / GIBSON<br>SHIRLEY               | Right | 0+675.5 | 0+708   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001801101 / SCHMITT<br>MAUREEN              | Right | 0+708   | 0+738   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001801100 / DICIENZO<br>ANTHONY             | Right | 0+738   | 0+775   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001801000 / METGER-<br>HIRSCHMILLER MARY E  | Right | 0+775   | 0+830   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800900 / MES<br>REALTY COMPANY LLC       | Right | 0+830   | 0+860   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800800 / WILSON<br>BRIAN                 | Right | 0+860   | 0+904   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800600 / DURRANT<br>GRAHAM               | Right | 0+904   | 0+936   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800500 / POSSLER<br>HEIDI CARMEN         | Right | 0+936   | 0+959   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800400 / PICTOR<br>WILLIAM               | Right | 0+959   | 0+982   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800300 / JOHNSON<br>KAREN                | Right | 0+982   | 1+013   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800200 / VAN<br>BOLDEREN ADOLPHUS L      | Right | 1+013   | 1+042.5 |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800250 / RLC POINT<br>ABINO INC          | Right | 1+042.5 | 1+073   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001800100 / SHORE<br>OAKS INC               | Right | 1+073   | 1+304   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001813500 / EL-SAYED<br>SHERIF FOUAD YACOUT | Right | 1+304   | 1+364   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001813600 / XU AMY                          | Right | 1+364   | 1+395   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001813700 / RITCH<br>MONKELBAAN MARSHA      | Right | 1+395   | 1+425   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001818200 / CULP<br>RICHARD                 | Right | 1+425   | 1+472.5 |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| Bay Road ROW                                      | Right | 1+472.5 | 1+488   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001819600 / FORT ERIE<br>TOWN               | Right | 1+488   | 1+530.5 |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001813800 / DIFABIO<br>LEONARDO             | Right | 1+530.5 | 1+561   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001813900 / TROJNAR<br>RICHARD JOHN         | Right | 1+561   | 1+592   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001814000 / SYKES<br>CLARK MANSFIELD        | Right | 1+592   | 1+622   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001814100 / MISETICH<br>MILDRED             | Right | 1+622   | 1+652   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001814200 / MORRIS<br>LAURIE ANN            | Right | 1+652   | 1+681   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001814400 / SPIECE<br>COREY JOHN            | Right | 1+681   | 1+805   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| 270302001814800 / NIAGARA<br>PENINSULA            | Right | 1+805   | 1+901   |    | Deadfall Removal and spot grade line<br>cleaning and grading. |
| Blind Line Road Allowance                         | Both  | 1+901   | 1+926   | 25 | Deadfall Removal and spot grade line<br>cleaning and grading. |

|                                                   |       |       |       |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------|-------|-------|-------|-----|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 270302001822800 / HOWARD SALLY                    | Right | 1+926 | 2+130 | 204 | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 270302001822700 / HAHN CHARLES J IN TRUST         | Left  | 1+926 | 2+130 | 204 |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001822701 / DIETERS INGRID/JACOB HARMANNUS  | Both  | 2+130 | 2+335 | 205 | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001824900 / FRETZ KIRK                      | Both  | 2+335 | 2+414 |     | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001824905 / MACNEIL LORNE CHRISTOPHER       | Both  | 2+414 | 2+589 |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                   |       |       |       |     |       | <p>The culvert crossing located at station 2+440 called PAM-CS-03 is a 2800x1200, which is currently not used for property access and is no longer associated with a road right of way. Visual inspection of the structure does not indicate any immediate indication of failure; without any intended use, no direct cause for removal is determined.</p> <p>If and when the structure is determined to be compromised and a risk to the Drain, it is to be removed by the Town of Fort Erie and the cost is assessed to all upstream owners as maintenance to the Point Abino Drain watershed.</p> |
| 270302001825000 / GREENBERG INTERNATIONAL INC.    | Both  | 2+589 | 2+773 |     | North | Deadfall Removal and spot grade line cleaning and grading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 270302001825300 / GREENBERG INTERNATIONAL INC     | Both  | 2+773 | 3+048 |     | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 270302001825300 / GREENBERG INTERNATIONAL INC     | Left  | 3+048 | 3+210 |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001825900 / GREENBERG INTERNATIONAL INC     | Right | 3+048 | 3+333 | 285 | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001826200 / GREENBERG INTERNATIONAL INC     | Left  | 3+210 | 3+415 | 205 |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 270302001826100 / 525230 ONTARIO LTD TRUSTEE      | Right | 3+333 | 3+415 | 82  | North |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Holloway Bay Rd ROW                               | Right | 3+415 | 3+763 | 328 |       | Clean and clear to design grade line. Check the culvert for deposition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 271104000102800 / D B M E INC; RICHARDS, MARTHA M | Left  | 3+435 | 3+763 | 565 | East  | Clean and clear to design grade line. Work performed by Town of Fort Erie for property in Port Colborne.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Haggerty Branch Drain****City of Port Colborne**

| Property / Owner                                  | Drain Side | From STA | To STA | Len | Working Side | Work Description                                                                                                                                                                                                                                                      |
|---------------------------------------------------|------------|----------|--------|-----|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 271104000102800 / D B M E INC; RICHARDS, MARTHA M | Left       | 20+000   | 20+145 | 145 | West         | <p>Clear to grade line.</p> <p>Replace Culvert PB1-CS-01</p> <p>REPLACE WITH CSP 1050MM D - 6M @0.24%</p> <p>DESIGN Q = 1.713CMS</p> <p>MATCH INV TO GRADE</p> <p>CROSSING ELEV. 176.53</p> <p>Work performed by Town of Fort Erie for property in Port Colborne.</p> |

271104000102900 / SCARLETT,  
JOHN FREDERICK; SCARLETT,  
VIRGINIA LEE

Left

20+145

20+219

74

West

Clear to Grade line  
Work performed by Town of Fort Erie  
for property in Port Colborne.

**Town of Fort Erie**

| Property / Owner                                    | Drain Side | From STA | To STA | Length | Working Side | Work Description                                                                                 |
|-----------------------------------------------------|------------|----------|--------|--------|--------------|--------------------------------------------------------------------------------------------------|
| Holloway Bay Rd S. ROW                              | Both       | 20+000   | 20+235 | 16     |              | Work performed by Town of Fort Erie                                                              |
| 270302001826100 / 525230<br>ONTARIO LTD TRUSTEE     | Both       | 20+235   | 20+327 | 92     | West         | Clean and clear to design grade line                                                             |
| 270302001825900 /<br>GREENBERG INTERNATIONAL<br>INC | Both       | 20+327   | 20+869 | 542    | West         | Clean and clear to design grade line                                                             |
| Michener Rd ROW                                     | Both       | 20+869   | 20+900 | 31     |              | Clean and clear to design grade line.<br>Check culvert for deposition and<br>remove where found. |
| 270302001831201 / HAGGERTY<br>TIMOTHY ROGER         | Both       | 20+900   | 20+960 | 60     | West         | Clean and clear to design grade line                                                             |
| 270302001831200 / BERNARD<br>JAMES DOUGLAS          | Both       | 20+960   | 20+962 | 2      | West         | Clean and clear to design grade line                                                             |

**East Branch Drain****Town of Fort Erie**

| Property / Owner                          | Drain Side | From STA | To STA | Length | Working Side | Work Description                                                                              |
|-------------------------------------------|------------|----------|--------|--------|--------------|-----------------------------------------------------------------------------------------------|
| Blind Line ROW                            | Both       | 10+000   | 10+017 | 17     |              | Confirm that the outlet is free of<br>obstruction.                                            |
| 270302001822710 / FIJAVZ<br>BORIS         | Both       | 10+017   | 10+276 | 259    | North        | Construct low flow channel to design<br>grade line. Construct flood flow<br>channel and seed. |
| 270302001815300 / OUELLET<br>ALAIN LIONEL | Both       | 10+276   | 10+398 | 122    | North        | Construct low flow channel to design<br>grade line. Construct flood flow<br>channel and seed. |
| 270302001815400 / 1254345<br>ONTARIO INC  | Both       | 10+398   | 10+457 | 59     | North        | Construct low flow channel to design<br>grade line. Construct flood flow<br>channel and seed. |



## 6 Drainage Works Financing

The total cost of the project is estimated to be \$2,555,208.06

### 6.1 Eligible Cost of Works

The Drainage Act stipulates what is or isn't eligible as a construction cost or cost of the proposed works. Many reports are prepared on the basis that a single aspect of construction will be undertaken; however, for the Point Abino Drain, there may be one construction period or several depending on the construction progress selected by the City of Port Colborne or the Town of Fort Erie. The implementation of the proposed works is not detailed in this report. It is by the respective municipality within which the specific proposed works is located to determine the best process for implementing the works. Municipalities will make the most effective use of existing resources and ensure the most cost-effective construction effort is achieved on behalf of the assessed landowners.

As required by the Drainage Act, Chapter D.17, Section 59(1), the Council may call a meeting if the contract price exceeds 133 percent of the estimated construction costs. These costs are estimated and shown in the Estimated Cost of Construction table.

#### 6.1.1 Administration & Engineering Costs

The Administration costs identified with the Point Abino Drain are applicable taxes and the City of Port Colborne interest charges for project costs to date.

A survey of the Point Abino Drain was completed for \$15,394.50. The City of Port Colborne and the Town of Fort Erie performed or provided additional surveys on a contribution basis with no additional fee. EWA Engineering Inc.'s fees for preparing the report and associated consultations are \$161,653.00. A budget for engineering services during construction is set at \$1,500. The total Engineering costs for the Point Abino Drain included in the Assessment Tables is \$175,334.89

Including Interest and Taxes on fees paid for Engineering services, the administration portion of the total Engineering and Administration budget for assessment is **\$212,564.78**.

## 6.2 Capital Construction Cost

The total cost of the project is shown in the following table.

**Table 3 Estimated Cost of Construction**

| ID:                                                                               | Items: | Drain                 | Item                                          | Estimate            |
|-----------------------------------------------------------------------------------|--------|-----------------------|-----------------------------------------------|---------------------|
| <b>Section 78 - Proposed Improvements for Construction</b>                        |        |                       |                                               |                     |
| PA-O-1                                                                            |        | Point Abino Drain     | Point Abino Rd S Culvert Replacement          | \$877,230           |
| PA-O-2                                                                            |        | Point Abino Drain     | Point Abino Outlet Gate Improvements          | \$102,750           |
| PA-O-3                                                                            |        | Point Abino Drain     | Point Abino Outlet Conversion to Open         | \$684,430           |
| PHB                                                                               |        | Haggerty Branch Drain | Haggerty Branch Improvements                  | \$27,615            |
| PEB                                                                               |        | East Branch Drain     | East Branch Drain Channel Improvements        | \$14,302            |
| <b>Section 74 - Maintenance Works for Construction</b>                            |        |                       |                                               |                     |
| PA-M-PC                                                                           |        | Point Abino Drain     | Point Abino Drain Maintenance - Port Colborne | \$26,090            |
| PA-M-FE                                                                           |        | Point Abino Drain     | Point Abino Drain Maintenance - Fort Erie     | \$152,500           |
| <b>Construction Management Estimated Costs</b>                                    |        |                       |                                               |                     |
| PA-C                                                                              | 01-05  | Point Abino Drain     | Construction Management Estimated Costs       | \$151,000           |
| <b>Section 84 - Abandoning an existing portion of a Municipal Drain by Report</b> |        |                       |                                               |                     |
| PHB-A                                                                             |        | Haggerty Branch Drain | Haggerty Branch Drain - Fort Erie             | \$0                 |
| <b>Sub-Total:</b>                                                                 |        |                       |                                               | <b>\$ 2,035,917</b> |
| Contingency Allowance, (15%)                                                      |        |                       |                                               | <u>\$ 305,387</u>   |
| <b>Total Cost of Construction:</b>                                                |        |                       |                                               | <b>\$ 2,341,304</b> |

## 6.3 Drain Maintenance Work

The estimated cost of construction includes allocations for costs related to drain maintenance works, including vegetation removal and re-grading.

Where the previous grade lines are re-stated as metric values using the current survey datum, those works will be completed as Schedule 74 maintenance.

## 6.4 Principles of Assessment

The following are general and specific principles used to assess costs for the Point Abino Drain according to the Regulations formed under the Drainage Act using our understanding of the Act and seeking the fairest methods to share costs to ratepayers within the Point Abino Drain Watershed.

1. Assessments are a method to calculate a contributing property's share of drainage works, hereafter referred to as a Drain.
2. Each Drain is defined by a fixed point of commencement that traverses to a fixed Outlet, which may be a receiver or another Drain.
3. A property contributes to drainage work if any portion of the property directly or indirectly contributes to a runoff flow to the Drain.
4. A Drain is any constructed or existing natural method of conveyance or stormwater management function that moves or controls water from one collection point to a discharge point, an Outlet.
5. The use of a property, farming, residential, or vacant, does not define the benefit of the Drain. The benefit of a drain is realized equally among all properties with runoff to the Drain.
6. An excess or additional benefit is realized for any property or group of properties for which a higher standard of drainage service is required for the specific use of a property for which a higher value is realized.

For example, where a market garden farm requires additional pumping for either irrigation or reducing the water surface in the drain, then the additional costs for that are borne by the benefitting lands.

7. Similarly, where a property or group of properties is provided with a lower standard of drainage service or where such property or properties provides a stormwater management function within the drainage works of the Drain, the value of the lower service or function is determined at a rate commensurate with the benefit to the drain.

As an example, where a property converts a portion of their lands (or the entire property) to a wetland or other stormwater management feature that reduces the peak flow of the runoff, thereby reducing or enhancing the capacity of the Drain

to improve drainage and reduce flooding, then a commensurate benefit is realized to the volume of water removed from the runoff hydrograph.

Where the volume of detained runoff is small relative to the drain capacity, this contribution is deemed negligible. Where the volume detained is below 1% of the total runoff volume for the Drain, there is no real benefit realized for an individual Stormwater Management Feature.

8. The capacity of the Drain is determined based on a hydrologic model forecast of precipitation based runoff. Therefore, each property realizes a drain benefit based on the proportion of predicted runoff for their property. Predicted runoff is a product of the following attributes, which are determined for each property:

- a. Area contributing to runoff;
- b. Land use as it relates to runoff;
- c. Land topography;
- d. Proportion of hard surfaces vs soft surfaces as they relate to infiltration; and
- e. Stormwater management features specially built to reduce the rate of runoff.

9. A benefit is realized for a property that causes a physical change in the Drain works to serve a particular use or surface water benefit to the property. An example is a culvert, which provides access to a property across a drain.

10. A benefit/assessment is realized for Municipal, Regional or Provincial lands held as Rights of Way that cause or require additional infrastructure, effort or costs related to the Drain. (Section 26)

11. Where a cost to the drain is realized through effort during construction or otherwise for the protection of flora, fauna or quantity or quality of stormwater runoff, this cost is born proportionally amongst all watershed contributing owners at the same rate as established for Drain benefit.

12. For the works being considered, a Drain already exists, and the proposed assessment recognizes a service or benefit that already exists and is being confirmed to exist through the creation of the report and assessment schedule.

13. Utilities that require additional works, changes in design or protection during construction, those costs are borne by the owner of the utility.

There is a modern infrastructure concept that is missing from the Drainage Act or is not explicitly directed regarding assessment. That concept is service levels of the drain. For an Urban Area, explicit service levels are documented through municipal design standards and expectations often codified into Manuals of Operation that establish the expected service levels. While there are aspects of this in the Drainage Act, service levels and the possibility that they may vary from property to property or region within a Drain area are not explicitly discussed. The concept is that for a basic service level for a farm, the requirement is for flooding not to be sustained such that plants are drowned. However, there is no direct link from depth to damage, such as what is accepted in an urban area. Rural residential properties are compared with farm properties where the farm service level is to have the flooding removed within 24 to 36 hours while the residential service level expectation is to have no flooding within the property



limits that might enter a building below grade and cause damage. Flooding depth is to be kept below all sill levels.

While efforts have been made to address water quality and quantity in drain design and assessment, the Drainage Act does not directly provide for addressing water quality as a direct benefit of drainage. There may be other legislative considerations that would affect a preferred design to improve water quality within the watershed.

### **Benefit (Section 22)**

This Assessment is based on the creation of land value through the creation of a new or additional drainage system. For Point Abino Drain, the drain has existed for some time (more than 100 years) and no incremental land value is expected.

This report does not contain a change in the existing Point Abino Drain function, and thus there is no assessed Section 22 Benefit to any of the lands within the watershed.

### **Outlet Liability (Section 23)**

This is the primary basis for assessing the maintenance and drain works. Assessment is based on each property's contributing runoff. This is determined by the area flowing to the drain and runoff factor C. The C factor is based on the Rational Method for predicting peak runoff and does not predict the volume of runoff (note that a special benefit can be used for site-specific Stormwater Management Facilities, SWMF).

The C factor for assessing property runoff is selected based on the property zoning. Where a property is not currently farmed but is zoned for farming, then a C factor is selected based on the potential use of the property. C factors are not adjusted for variations in Residential properties. Residential properties with or without buildings are assigned the same C factor. Thus, the C factor is not a current prediction of runoff for an individual property but a Factor to assess the potential runoff based on the property's possible use in the present and the near future. The Table included in Appendix C will be used to determine C Factor values used in the Runoff Outlet Factor assessment.

The following drain features are part of the whole system and are paid for through the outlet assessment:

- Channel Clearing and Re-grading
- Sediment Basins
- Where a channel is re-aligned to improve the function of the drain and not caused by property use, the cost of the channel re-alignment is assessed as an outlet assessment.

### **Special Benefit (Section 24)**

The following are assessed costs considered special benefits:

- Culverts,
- Fordings, and
- Closed Conduit conveyance (piped flow).

The cost of a culvert is assessed against the property owner based on 50/50 split in the cost assessed against the drain watershed. In cases, where the culvert is located near the outlet and is large relative to the crossing benefit, a larger portion of the cost is shared with watershed on a proportional basis.

This is recognized for two culverts in Port Colborne;

- PAM-CS-10 for 341 Pleasant Beach Rd culvert costs are assessed on 50/50 basis between landowner and watershed,
- PB1-CS-01 on the Haggerty Branch Drain for Roll No. 271104000102800, the replacement culvert costs are assessed on a 50/50 basis between landowner and watershed.

Three culverts are recognized as having a special benefit for the portion of the Point Abino Drain within the Town of Fort Erie.

- PAM-CS-04 a private crossing to Tennis Courts with the cost shared at 12% assessed to the landowner and 88% assessed to the watershed.
- PAM-CS-21 a private Access Lane to 949 Point Abino Rd S that replaces the existing CIP twin concrete culvert cost shared on a 12 / 88 basis with 12% assessed to private access owner and 88% assessed to the watershed.

There is an existing culvert crossing located at station 2+440 and identified as PAM-CS-03 as a 2800x1200 which is currently not used for property access and is no longer associated with a road right of way. Visual inspection of the structure does not indicate any immediate indication of failure, and without any intended use, no immediate cause for removal is determined. If and when the structure is determined to be compromised and a risk to the Drain, it is to be removed by the Town of Fort Erie and the cost assessed to all upstream owners as maintenance to the Point Abino Drain watershed.

There is also recognition of Stormwater Management (SWM) facilities using the Special Benefit to reduce peak flow or sediment and this benefit using the outlet liability assessment. At present, no identified facilities are planned in the Point Abino watershed. The Point Abino Marsh, the lands west of the north-south segment of the Drain function in this manner but are not determined or assessed for a benefit.

The benefit of reducing peak flow is determined by the available volume being greater than the 24-hour peak flow volume for the 1:2-year design storm.

- Site Specific Stormwater Management (SWM) Facilities
  - Wetlands,
  - Ponds, (natural and stormwater)
- Natural occurring features
  - Kettle lakes, and
  - Bog lands.
- Artificial runoff capture; such as Quarry lands or other features that collect runoff but do not outlet it to the Drain during the peak flow of the event.

### Special Assessment (Section 26)

There are special assessments, as recognized under the Drainage Act, for public (not private) roads and utilities that have or require additional costs to the drainage system. In addition to the projected assessments for Right of Way lands as determined by the outlet assessment, any other costs for road crossings or protection of utilities during construction are assessed to the road owner or utility owner. Also included are costs related to impacted utilities such as Enbridge. These costs can be additional effort during construction to protect or meet site supervision requirements by the utility. Also included are costs to move infrastructure, if required by site conditions.

This determination is slightly complicated by the provision of parcel data and Right of Way data by The Town of Fort Erie that appears to identify private lands as Right of Way. Some data is shown that appears to be a road Right of Way as private lands with a Roll number and Right of Way without a Roll number that is reported to be private land. In each of these cases, the report is prepared based on the data received from each Municipality.

The following are Section 26 assessments.

- The existing 84m of dual CIP concrete culvert of that length 24m crosses the Point Abino Rd S Right of Way. Of this 24m, 14m is to be converted into a single precast box culvert 3000x1500. The remaining 10m is to be converted into an open trapezoidal channel with reused concrete as a bottom, precast concrete block wall of two rows with a bank stabilized with geoweb material and a top of bank using vegetated rock buttress. All costs to reconstruct the existing channel and roadway crossing are to be assessed to the Town of Fort Erie.

The existing flap gate is proposed to be converted from two flap gates into a single flap gate consistent with the proposed culvert, 3000x1500. The proposed flap gate is to be mounted on a special precast 2m segment with a prepared bolt pattern to fit the reconstructed flap gate. All outlet and flap gate costs are to be assessed to the upstream watershed area owners as a Section 23 assessment.

- The existing gas main within the Point Abino Rd S conflicts with the new proposed culvert crossing and open channel. All costs to relocate the existing gas main will be assessed to the utility owner, Enbridge Gas.
- The existing watermain within the Point Abino Rd S conflicts with the existing concrete box culvert removal and replacement. All costs to relocate the existing watermain are assessed to the Town of Fort Erie.

The remainder of the existing concrete box culvert is shown to be on a road right of way but is known to be owned by the Point Abino Hills Association, and all costs for the removal of the existing box culvert and reconstruction of a trapezoidal open channel as per the design is assessed 100% as a watershed Section 23 assessment.

#### 6.4.1 Allowances:

1. Where a Drain assessment schedule already exists, and a prior maintenance and assessment schedule is known to exist, then a Schedule 29 allowance is accepted and recognized through a past report and schedule unless it can be shown otherwise.
2. Where a Drain is re-aligned to a new path, then a Section 29 allowance for land taken is recognized. This can be amended by the restoration of any lands to the same owner by the same re-alignment. Thus, a net allowance can be recognized where that is shown to be the case.
3. Where previously no Drain was recognized but already existed as a flow path, then a Section 31 allowance can be realized along with a one-time creation of a current and future easement for Drain maintenance activities as a Section 29 allowance. This is specifically for the creation of Branch Drains.
4. All property valuations are based on the same basic valuation as per the Schedule of Costs. Valuations are based on regional agricultural land pricing.
5. Any tree or feature placed within a drainage works right of access for maintenance is not eligible for compensation in any form.

##### **Section 29 Allowance**

(One time payment for land taken)

Where a Drain already exists and has had maintenance in the past, then a work zone is assumed to already exist and a one-time payment for the work zone easement has been made. No further payment for a work zone or easement is deemed to be required based on the pre-existing work zone regardless of whether that is known to exist or shown to exist in an explicit reference in a previous Engineer's report.

Where a Drain re-alignment is proposed, then a Section 29 allowance is determined. The determination is based on a 10m work zone running parallel to one side of the drain commencing at the Top of Bank. The side from which work is done is determined by the Drainage Engineer and shown on the Plans for Construction. The value is based on a single value of land figure as shown in the Schedule of Costs and because the access is intermittent with the owner retaining ownership and access / use of the land for farming or otherwise, then a factor in the assessment value of land is applied. Since the work zone is likely to be occupied on a target 10-year maintenance cycle, a 1/10 factor is applied.

Where a buffer is established that restricts use of the land adjacent to the drain, then a full payment for land taken based on the value established is made.

##### **Section 30 Allowance**

(Payment for damages during construction)

Awarded where work on the drain, such as maintenance, that damages crops which can not be restored. Does not apply to grass or any other ornamental feature that is restored to similar condition as existed pre-construction. All damage calculations are based on agricultural crop losses.

For any trees removed for construction that have a greater diameter than 150mm at breast height, (DBH) a compensation in the form of saplings is offered. Where a tree is removed then 2 saplings of a variety native to the area are offered for planting outside the work zone as compensation and no award for compensation is made.

There is only one allowance for maintenance related damages (Sect. 74) on the Haggerty Drain.

**Section 31 Allowance**  
(Incorporate a Private Drain)

This type of allowance is to credit the construction effort of a private drain as it relates to the private drain being incorporated into a municipal Drain.

The value of the private drain is dependent on condition and contribution to the function of the Drain. For valuation purposes, the cost to construct a similar channel would be made based on the Schedule of Prices. The cost to maintain it would be subtracted.

**Section 32 Allowance**  
(Insufficient Outlet)

This provides compensation to affected owners for whom lands are not sufficiently drained by the service level provided by the Drain or where lands are discharged into instead of having a sufficient outlet.

No allowance is made for Section 32 in the watershed.

**Section 33 Allowance**  
(Loss of Access)

Where a re-aligned Drain crosses property and cuts off access, an allowance can be granted. This is offered as compensation where the landowner accepts the loss of access as the lessor of the cost to construct a culvert, bridge or fording to provide access. It can also be used to recognize a wetland where drainage is deferred in favour of the wetland's use a storage of runoff within the Watershed.

There are no occurrences of this within the Point Abino watershed that are newly recognized within this report. There may be previous occurrences which are assumed to have been recognized in previous reports.

## 6.4.2 Riparian versus Watershed Benefit

The Drainage Act contains several key concepts of which two that are directly relevant determining assessments:

- Injuring liability, Section 23 (1), and Outlet liability, Section 23 (2).
- Special Benefit Assessment, Section 24.



Where there is no extenuating circumstance to the direct flow of the channel, then the whole benefit of the Bank Restoration and Improvement Program, 100% of the cost is assessed to the adjacent landowner as a Special Benefit.

Where there is an extenuating circumstance to the flow of the channel, such as a bend, or other alignment adjustment, a tree or other object that obstructs flow and causes a change in velocity against a bank, then the cost of the Bank Restoration and Improvement Program is split with a portion allocated to the upstream watershed and a portion assigned to the benefiting adjacent landowner(s) as a Special Benefit. The portion is determined by the ratio of upstream area compared as a percentage to the entire watershed area.

It is the Engineer's determination of the external influences of flow impacts that require the application of a bank protection measure. Bank protection measures rely on the acceptance and at the request of the adjacent landowner and are not applied without the landowner's acceptance. It is at the sole choice of the Engineer to select the appropriate measure for the Drain.

There are Special Benefit assessments, Section 24 identified for primarily culvert works within the Point Abino Watershed.

- Roll No. 271104000108500 for the replacement of a private access to 341 PLEASANT BEACH RD requested a wider access. The cost to provide this is to be shared 50% to the landowner and 50% to the Point Abino watershed.
- Roll No. 271104000102800 for the replacement of a private access for structural reasons to 226 Holloway Bay Rd. The cost to provide the replacement is to be shared 50% to the landowner and 50% to the Haggerty Branch watershed.
- Roll No. 270302001813400 for replacing a private access lane to the tennis courts for structural and functional issues. The cost of the construction is to be shared 12% to the landowner and 88% to the Point Abino watershed. The cost of the trash rack to be installed on the upstream face is 100% a watershed cost.
- Roll No. 270302001802200 for reconstruction of a private access to 949 Point Abino Road South and associated culvert crossing measures required for the 3000x1500 concrete box culvert with a 4m length and 3.1m top width on an existing easement for private access use on the Point Abino Hills property. The cost is to be shared 12% to the property benefiting and 88% to the Point Abino watershed.

#### 6.4.3 General Instructions to Property Owners, Road Authorities and Public Utilities

Utilities are responsible for their infrastructure as it exists in the context of the proposed drainage work. Each utility is assessed the cost of re-locating their infrastructure during construction. This applies to any utility within the right of way (ROW) or impacted by a proposed re-alignment on private property.

#### 6.4.4 Grants

Owners of qualifying agricultural land are presently eligible for a grant of up to one-third of the cost of their assessment from the Ontario Ministry of Agriculture and Food. This grant would be applied for by the City of Port Colborne, and applied to the property owners' assessment at the time of final billing. The Assessment Schedule indicates lands that, based on information provided by the municipality, qualify for the agricultural land use rebate. The final determination of eligibility is the decision of the Ontario Ministry of Agriculture and Food. To be eligible for a grant, the property owner must have a Farm Property Class Tax Rate.

For additional information on the Agricultural Drainage Infrastructure Program refer to the OMAFRA website at [www.omafra.gov.on.ca](http://www.omafra.gov.on.ca).

### 6.5 Cost, Allowance and Assessment Schedules

A full package of the Assessment Tables is included in Appendix B. The following sections provide a summary of those calculations.

Construction costs are allocated using the Interval along with the Administration and Engineering Costs. Additional to construction costs are the Administration and Engineering Costs related to the design of the drain and the preparation of the Drain Report.

A Maintenance Schedule is included for each Drain in Appendix E.



Table 4 Point Abino Drain Assessment Summary

Point Abino Municipal Drain  
City of Port Colborne  
Town of Fort Erie  
Regional Municipality of Niagara  
Assessment Summary

PA Drain Assessed Costs

| Farm<br>As 'F' | Owner                                  | Legal_Txt                                                                               | Roll No         | ARN<br>ABBREV | Area<br>Ha | Area in<br>Drain<br>Ha | Sect. 22 | Section 23 | Sect. 24 | Total<br>Assessed | Allowances | Net      |
|----------------|----------------------------------------|-----------------------------------------------------------------------------------------|-----------------|---------------|------------|------------------------|----------|------------|----------|-------------------|------------|----------|
|                | City of Port Colborne - Lands Assessed |                                                                                         |                 |               |            |                        |          |            |          |                   |            |          |
|                | Corless Trevor Alexander               | PLAN 45 PT LOT 1 NP804                                                                  | 271104000100100 | 100100        | 0.193      | 0.013                  |          | \$12       |          | \$12              |            | \$12     |
|                | D B M E Inc                            | PLAN 45 LOT 2 PT LOT 1 NP804 RP 59R8890 PT 1 D B M E INC<br>75% INT M RICHARDS 25% INT  | 271104000100200 | 100200        | 1.309      | 0.0757                 |          | \$71       |          | \$71              |            | \$71     |
|                | Colyocorvid Inc                        | PLAN 45 LOT 3 NP804                                                                     | 271104000100300 | 100300        | 0.785      | 0.0766                 |          | \$72       |          | \$72              |            | \$72     |
|                | Colyocorvid Inc                        | PLAN 45 PCL A B C NP804                                                                 | 271104000100400 | 100400        | 0.509      | 0.5094                 |          | \$476      |          | \$476             |            | \$476    |
|                | Vance Beverly Diane                    | PLAN 45 LOT 4 NP804                                                                     | 271104000100401 | 100401        | 0.769      | 0.1152                 |          | \$108      |          | \$108             |            | \$108    |
|                | Ressel Charles                         | PLAN 45 LOT 5 NP804                                                                     | 271104000100500 | 100500        | 0.781      | 0.1492                 |          | \$139      |          | \$139             |            | \$139    |
|                | Vogelsang Christopher                  | PLAN 45 LOT 6 NP 804                                                                    | 271104000100600 | 100600        | 0.774      | 0.1672                 |          | \$156      |          | \$156             |            | \$156    |
|                | Ray David Michael                      | PLAN 45 LOT 7 + ROW NP804                                                               | 271104000100700 | 100700        | 0.742      | 0.1156                 |          | \$108      |          | \$108             |            | \$108    |
|                | O'Hern-Lodge Inc                       | PLAN 804 LOT 8                                                                          | 271104000100701 | 100701        | 0.698      | 0.047                  |          | \$44       |          | \$44              |            | \$44     |
|                | Jones Wendy Kelly                      | PLAN 45 LOT 9 NP804                                                                     | 271104000100800 | 100800        | 0.711      | 0.0352                 |          | \$33       |          | \$33              |            | \$33     |
|                | Leon Leah                              | PLAN 45 LOT 10 NP804                                                                    | 271104000100900 | 100900        | 0.738      | 0.0367                 |          | \$34       |          | \$34              |            | \$34     |
|                | Narciso Wayne                          | PLAN 45 LOT 11 LOT 12 NP804                                                             | 271104000101000 | 101000        | 1.437      | 0.033                  |          | \$31       |          | \$31              |            | \$31     |
|                | DWHA Properties Inc                    | 27 NS CON 1 PT BLKS P K & L PLAN 45 LOT 16 NP804 RP<br>59R5691 PART 3 RP 59R8356 PART 1 | 271104000101400 | 101400        | 0.921      | 0.2823                 |          | \$278      |          | \$278             |            | \$278    |
|                | Simunic Joseph E Jr                    | PLAN 45 LOT 17 PT PCL P NP804                                                           | 271104000101500 | 101500        | 0.393      | 0.3246                 |          | \$320      |          | \$320             |            | \$320    |
|                | MCLP Inc                               | PLAN 45 LOT 18 LOT 19 PT PCL P & L NP804                                                | 271104000101600 | 101600        | 0.545      | 0.5418                 |          | \$534      |          | \$534             |            | \$534    |
|                | MCLP Inc                               | PLAN 45 LOT 18 LOT 19 PT PCL P & L NP804                                                | 271104000101600 | 101600        | 1.161      | 0.0682                 |          | \$91       |          | \$91              |            | \$91     |
|                | Buscaglia Carol                        | PLAN 45 LOT 20 PT PCL P NP804                                                           | 271104000101700 | 101700        | 0.647      | 0.1042                 |          | \$103      |          | \$103             |            | \$103    |
|                | Buscaglia Carol                        | PLAN 45 LOT 20 PT PCL P NP804                                                           | 271104000101700 | 101700        | 0.174      | 0.174                  |          | \$168      |          | \$168             |            | \$168    |
|                | Campbell Mary Lou                      | PLAN 45 LOT 21 PT PCL P PT PCL M NP804                                                  | 271104000101800 | 101800        | 0.658      | 0.111                  |          | \$109      |          | \$109             |            | \$109    |
|                | Campbell Mary Lou                      | PLAN 45 LOT 21 PT PCL P PT PCL M NP804                                                  | 271104000101800 | 101800        | 0.145      | 0.1453                 |          | \$142      |          | \$142             |            | \$142    |
|                | Leon Leslie                            | PLAN 804 LOT 22 PT PCL P NP804 RP 59R13659 PART 1 RP<br>30R13059 PARTS 2 AND 3          | 271104000101900 | 101900        | 0.653      | 0.1155                 |          | \$114      |          | \$114             |            | \$114    |
|                | Leon Leslie                            | PLAN 804 LOT 22 PT PCL P NP804 RP 59R13659 PART 1 RP<br>30R13059 PARTS 2 AND 3          | 271104000101900 | 101900        | 0.118      | 0.1183                 |          | \$117      |          | \$117             |            | \$117    |
|                | N & J Signs                            | PLAN 45 PT BLK P NP804                                                                  | 271104000102000 | 102000        | 0.177      | 0.1772                 |          | \$175      |          | \$175             |            | \$175    |
|                | Sahlem Susan                           | PLAN 45 LOT 23 NP804                                                                    | 271104000102100 | 102100        | 0.535      | 0.1242                 |          | \$122      |          | \$122             |            | \$122    |
|                | Marshall-Petty Rebecca Anne            | PLAN 804 LOT 24                                                                         | 271104000102200 | 102200        | 0.366      | 0.1426                 |          | \$141      |          | \$141             |            | \$141    |
|                | Craig Glen Francis                     | PLAN 804 PT PCL P                                                                       | 271104000102202 | 102202        | 0.171      | 0.1713                 |          | \$169      |          | \$169             |            | \$169    |
|                | Palumbo Joseph Louis Jr                | PLAN 45 LOT 25 NP804                                                                    | 271104000102300 | 102300        | 0.501      | 0.2193                 |          | \$216      |          | \$216             |            | \$216    |
|                | Pizzo Edward Michael                   | PLAN 45 LOT 26 PT PCL P NP804                                                           | 271104000102400 | 102400        | 0.450      | 0.1921                 |          | \$189      |          | \$189             |            | \$189    |
|                | Williamson Michael Patrick             | PLAN 45 PT PCL P NP804                                                                  | 271104000102500 | 102500        | 0.301      | 0.3006                 |          | \$296      |          | \$296             |            | \$296    |
|                | Holloway Bay Property Owners I         | PLAN 45 PT PCL P NP804                                                                  | 271104000102600 | 102600        | 5.455      | 5.1122                 |          | \$4,797    |          | \$4,797           |            | \$4,797  |
|                | Panto Nicholas                         | PLAN 45 PT PCL P NP804                                                                  | 271104000102700 | 102700        | 0.145      | 0.1452                 |          | \$136      |          | \$136             |            | \$136    |
|                | D B M E Inc                            | CON 1 PT LOT 1 RP 59R8890 PT 2 D B M E INC 75% INT M<br>RICHARDS 25% INT                | 271104000102800 | 102800        | 14.366     | 14.3692                |          | \$17,028   |          | \$17,028          |            | \$17,028 |
|                | Scarlett John Frederick                | CON 1 PT LOT 1 RP 59R5913 PARTS 2 TO 4                                                  | 271104000102900 | 102900        | 1.508      | 1.5084                 |          | \$2,181    |          | \$2,181           |            | \$2,181  |
|                | Boles Diane Lynn                       | CON 1 PT LOT 1 RP 59R5913 PART 1                                                        | 271104000102901 | 102901        | 0.470      | 0.4704                 |          | \$662      |          | \$662             |            | \$662    |
|                | Phibbs Stephanie Diane                 | CON 1 PT LOT 1                                                                          | 271104000103100 | 103100        | 4.141      | 4.1423                 |          | \$6,777    |          | \$6,777           |            | \$6,777  |
|                | Lander Blake                           | CON 1 PT LOT 1                                                                          | 271104000103200 | 103200        | 0.319      | 0.319                  |          | \$447      |          | \$447             |            | \$447    |
|                | Nadeau Gerrard                         | CON 1 PT LOT 1                                                                          | 271104000103300 | 103300        | 0.809      | 0.8092                 |          | \$1,135    |          | \$1,135           |            | \$1,135  |
|                | Muileboom Ashley Arlene                | CON 1 PT LOT 1                                                                          | 271104000103400 | 103400        | 0.809      | 0.8094                 |          | \$1,135    |          | \$1,135           |            | \$1,135  |
|                | Kennedy Nancy Jane                     | CON 1 PT LOT 1                                                                          | 271104000103500 | 103500        | 1.507      | 1.507                  |          | \$2,113    |          | \$2,113           |            | \$2,113  |
|                | Pruyn Kirk                             | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PART 3                                           | 271104000103600 | 103600        | 5.400      | 5.4008                 |          | \$8,837    |          | \$8,837           |            | \$8,837  |



| Farm | Owner                         | Legal_Txt                                                    | ARN             |        | Area   | Area in Drain |          |            |          | Total    | Allowances | Net      |
|------|-------------------------------|--------------------------------------------------------------|-----------------|--------|--------|---------------|----------|------------|----------|----------|------------|----------|
|      |                               |                                                              | Roll No         | ABBREV |        |               | Sect. 22 | Section 23 | Sect. 24 |          |            |          |
|      | Shaubel Brian                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PARTS 1 AND 2         | 271104000103610 | 103610 | 2.596  | 2.5966        |          | \$3,642    |          | \$3,642  |            | \$3,642  |
|      | Harrietha Thomas              | HUMBERSTONE CON 1 PT LOT 1 RP 59R10180 PART 1                | 271104000103700 | 103700 | 0.405  | 0.4047        |          | \$568      |          | \$568    |            | \$568    |
|      | 2293020 Ontario Ltd           | CON 1 PT LOT 1 RP 59R10180 PART 2                            | 271104000103705 | 103705 | 0.669  | 0.6695        |          | \$939      |          | \$939    |            | \$939    |
|      | Annett Matthew                | CON 1 PT LOT 1 RP 59R10819 PARTS 1 & 2                       | 271104000103800 | 103800 | 0.398  | 0.3985        |          | \$559      |          | \$559    |            | \$559    |
|      | Cirone David                  | CON 1 PT LOT 1 RP 59R10180 PT PART 3                         | 271104000103805 | 103805 | 0.475  | 0.4749        |          | \$666      |          | \$666    |            | \$666    |
|      | Lehocki Teresa Mary           | CON 1 PT LOT 1 59R-10180 PARTS 4 & 5                         | 271104000103810 | 103810 | 9.155  | 9.1566        |          | \$14,992   |          | \$14,992 |            | \$14,992 |
|      | Manuel Robert George          | CON 1 PT LOT 1                                               | 271104000103900 | 103900 | 0.105  | 0.1046        |          | \$148      |          | \$148    |            | \$148    |
|      | Belanger Shayna Michlyn       | CON 1 PT LOT 2                                               | 271104000104800 | 104800 | 0.580  | 0.5799        |          | \$858      |          | \$858    |            | \$858    |
|      | Durant Dylan Tanner           | CON 1 PT LOT 2 RP 59R4019 PART 1                             | 271104000104900 | 104900 | 0.813  | 0.813         |          | \$1,203    |          | \$1,203  |            | \$1,203  |
|      | Waldram Craig Thomas          | CON 1 PT LOT 2                                               | 271104000105000 | 105000 | 0.714  | 0.7145        |          | \$1,057    |          | \$1,057  |            | \$1,057  |
|      | Lampshire Melanie Dawn        | CON 1 PT LOT 2 RP 59R12528 PART 1 641700135 UNREG            | 271104000105900 | 105900 | 0.602  | 0.6017        |          | \$890      |          | \$890    |            | \$890    |
|      | Vanderende Lori Ann           | CON 1 PT LOT 2                                               | 271104000106000 | 106000 | 0.216  | 0.2165        |          | \$320      |          | \$320    |            | \$320    |
|      | Langlois Julie Marie          | CON 1 PT LOT 2                                               | 271104000106100 | 106100 | 0.648  | 0.6483        |          | \$959      |          | \$959    |            | \$959    |
|      | Brennan George                | CON 1 PT LOT 2                                               | 271104000106101 | 106101 | 0.242  | 0.2421        |          | \$358      |          | \$358    |            | \$358    |
|      | Phillips Ralph John           | CON 1 PT LOT 2 RP 59R4043 PART 1                             | 271104000106200 | 106200 | 1.706  | 1.7067        |          | \$2,356    |          | \$2,356  |            | \$2,356  |
|      | Sergnese Brittany Lennie      | CON 1 PT LOT 2                                               | 271104000106300 | 106300 | 0.431  | 0.4313        |          | \$638      |          | \$638    |            | \$638    |
|      | Marois David Rosaire          | CON 1 PT LOT 2                                               | 271104000106800 | 106800 | 0.162  | 0.1622        |          | \$240      |          | \$240    |            | \$240    |
|      | Grenke Kevin Michael          | HIMBERSTONE CON 1 PT LOT 2 RP 59R14932 PART 1                | 271104000106900 | 106900 | 0.974  | 0.9741        |          | \$1,441    |          | \$1,441  |            | \$1,441  |
|      | Pooler Steven                 | CON 1 PT LOT 2                                               | 271104000107000 | 107000 | 0.721  | 0.7213        |          | \$1,067    |          | \$1,067  |            | \$1,067  |
|      | Bonenfant Wendy               | CON 1 PT LOT 2                                               | 271104000107100 | 107100 | 0.209  | 0.209         |          | \$309      |          | \$309    |            | \$309    |
|      | Vander Veen John              | CON 1 PT LOT 2                                               | 271104000107200 | 107200 | 0.240  | 0.2403        |          | \$355      |          | \$355    |            | \$355    |
|      | Eberly Michael David          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 5                | 271104000107300 | 107300 | 15.497 | 15.5003       |          | \$26,517   |          | \$26,517 |            | \$26,517 |
|      | Khan Dina                     | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 4                | 271104000107305 | 107305 | 2.443  | 2.444         |          | \$3,294    |          | \$3,294  |            | \$3,294  |
| F    | Rickman Erin Heather          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 3                | 271104000107306 | 107306 | 2.446  | 2.4461        |          | \$3,298    |          | \$3,298  |            | \$3,298  |
|      | Benvenuti Shane               | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 2                | 271104000107307 | 107307 | 2.448  | 2.4482        |          | \$3,306    |          | \$3,306  |            | \$3,306  |
|      | Eberly William Warren         | HUMBERSTONE CON 1 PT LOT 2 AND RP 59R14998 PART 1            | 271104000107400 | 107400 | 2.148  | 2.1487        |          | \$2,901    |          | \$2,901  |            | \$2,901  |
|      | Hartley-Rybka Kimberly        | CON 1 PT LOT 2 RP 59R6260 PART 1                             | 271104000107500 | 107500 | 0.817  | 0.8176        |          | \$1,209    |          | \$1,209  |            | \$1,209  |
| F    | Berry Gordon Albert           | CON 1 PT LOT 2                                               | 271104000107600 | 107600 | 8.624  | 8.6261        |          | \$14,368   |          | \$14,368 |            | \$14,368 |
|      | Willwerth Donald R            | CON 1 PT LOT 2                                               | 271104000107700 | 107700 | 2.641  | 2.6421        |          | \$3,908    |          | \$3,908  |            | \$3,908  |
|      | Thomas Leslie Marilyn         | CON 1 PT LOT 2 RP 59R10459 PARTS 1 & 2                       | 271104000107735 | 107735 | 1.331  | 1.3315        |          | \$1,969    |          | \$1,969  |            | \$1,969  |
| F    | Shaubel Sophia Ann            | CON 1 PT LOT 2 ROW & ESMT                                    | 271104000107800 | 107800 | 6.668  | 6.6695        |          | \$11,509   |          | \$11,509 |            | \$11,509 |
|      | Robins Jodee Lee              | CON 1 PT LOT 2 RP 59R9210 PART 1                             | 271104000107900 | 107900 | 0.746  | 0.746         |          | \$1,084    |          | \$1,084  |            | \$1,084  |
|      | Koren Amir                    | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 1                | 271104000107901 | 107901 | 0.999  | 0.9997        |          | \$1,402    |          | \$1,402  |            | \$1,402  |
| F    | Davies Norman Stewart         | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 2                | 271104000107903 | 107903 | 1.524  | 1.5241        |          | \$2,192    |          | \$2,192  |            | \$2,192  |
| F    | Vongphakdy Souphhone Chastity | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R5691 PT PART 1       | 271104000107930 | 107930 | 22.056 | 22.0607       |          | \$37,847   |          | \$37,847 |            | \$37,847 |
|      | Lodomez-Miller Anne Marie     | CON 1 PT LOT 1 RP 59R12984 PART 3                            | 271104000107932 | 107932 | 2.235  | 2.2357        |          | \$3,135    |          | \$3,135  |            | \$3,135  |
|      | Aquilina Daniel D             | CON 1 PT LOT 1 PT LOT 2 RP 59R12984 PART 2                   | 271104000107934 | 107934 | 0.667  | 0.6671        |          | \$936      |          | \$936    |            | \$936    |
|      | Aquilina Daniel D             | CON 1 PT LOT 1 RP 59R12984 PART 1                            | 271104000107935 | 107935 | 0.667  | 0.6673        |          | \$936      |          | \$936    |            | \$936    |
|      | Lee Stephen                   | HUMBERSTONE CON 1 PT LOT 2 RP 59R15397 PART 1                | 271104000107937 | 107937 | 1.000  | 1             |          | \$1,438    |          | \$1,438  |            | \$1,438  |
|      | Engels Bryan                  | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R15397 PART 2         | 271104000107938 | 107938 | 1.000  | 1.0004        |          | \$1,423    |          | \$1,423  |            | \$1,423  |
|      | Emonds Ashley                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R16961 PART 1                | 271104000107940 | 107940 | 1.009  | 1.0087        |          | \$1,415    |          | \$1,415  |            | \$1,415  |
|      | Ginther George Eagan          | CON 1 PT LOT 2 RP59R5691 PART 2 PART 4 PT PCL PLAN 45 NP 804 | 271104000108000 | 108000 | 12.239 | 12.2418       |          | \$15,088   |          | \$15,088 |            | \$15,088 |
|      | Andreacchi Giuseppe           | CON 1 PT LOT 2                                               | 271104000108200 | 108200 | 0.072  | 0.0725        |          | \$143      |          | \$143    |            | \$143    |
|      | Ross James J                  | CON 1 PT LOT 2                                               | 271104000108300 | 108300 | 0.145  | 0.1449        |          | \$286      |          | \$286    |            | \$286    |
|      | Lungu Ana                     | CON 1 PT LOT 2                                               | 271104000108400 | 108400 | 0.209  | 0.209         |          | \$412      |          | \$412    |            | \$412    |
|      | Andreacchi Franchina          | HUMBERSTONE CON 1 PT LOT 2                                   | 271104000108500 | 108500 | 0.183  | 0.1829        |          | \$361      | \$5,638  | \$5,999  |            | \$5,999  |
|      | Parisi Giacomo                | CON 1 PT LOT 2                                               | 271104000108600 | 108600 | 0.504  | 0.5036        |          | \$869      |          | \$869    |            | \$869    |
|      | Andreacchi Salvatore          | CON 1 PT LOT 2                                               | 271104000108900 | 108900 | 0.078  | 0.0784        |          | \$155      |          | \$155    |            | \$155    |
|      | Elliott Jordan                | CON 1 PT LOT 2                                               | 271104000109000 | 109000 | 0.405  | 0.405         |          | \$699      |          | \$699    |            | \$699    |
|      | Elliott Jordan                | CON 1 PT LOT 2                                               | 271104000109100 | 109100 | 0.363  | 0.3632        |          | \$627      |          | \$627    |            | \$627    |
|      | Elliott Jordan                | CON 1 PT LOT 2                                               | 271104000109200 | 109200 | 0.141  | 0.1415        |          | \$244      |          | \$244    |            | \$244    |
|      | Ariganello Rosina             | CON 1 PT LOT 2                                               | 271104000109300 | 109300 | 0.303  | 0.303         |          | \$523      |          | \$523    |            | \$523    |



| Farm | Owner                                          | Legal_Txt                                                               | ARN             |        | Area  | Area in Drain | Sect. 22 | Section 23 | Sect. 24 | Total   | Allowances | Net     |
|------|------------------------------------------------|-------------------------------------------------------------------------|-----------------|--------|-------|---------------|----------|------------|----------|---------|------------|---------|
|      |                                                |                                                                         | Roll No         | ABBREV |       |               |          |            |          |         |            |         |
|      | Andreacchi Vito                                | CON 1 PT LOT 2                                                          | 271104000109400 | 109400 | 0.115 | 0.1155        |          | \$142      |          | \$142   |            | \$142   |
|      | Tompkins Daniel                                | CON 1 PT LOT 2                                                          | 271104000109500 | 109500 | 0.104 | 0.1043        |          | \$129      |          | \$129   |            | \$129   |
|      | MacDougald Heather Alanna                      | CON 1 PT LOT 2 AND PLAN 806 LOTS 19 AND 28                              | 271104000109600 | 109600 | 0.158 | 0.1583        |          | \$273      |          | \$273   |            | \$273   |
|      | Obeid Nabhan                                   | CON 1 PT LOT 2                                                          | 271104000109700 | 109700 | 0.065 | 0.0652        |          | \$113      |          | \$113   |            | \$113   |
|      | Bihl Dennis Charles                            | CON 1 PT LOT 2                                                          | 271104000109800 | 109800 | 0.067 | 0.0669        |          | \$66       |          | \$66    |            | \$66    |
|      | Morgado Joseph                                 | PLAN 47 LOT 1 LOT 2 NP806                                               | 271104000109900 | 109900 | 0.092 | 0.0922        |          | \$91       |          | \$91    |            | \$91    |
|      | Canal Daniel                                   | PLAN 47 LOT 3 LOT 4 NP806                                               | 271104000110000 | 110000 | 0.093 | 0.0926        |          | \$91       |          | \$91    |            | \$91    |
|      | Maunder Paul                                   | PLAN 47 LOT 5 NP806                                                     | 271104000110100 | 110100 | 0.046 | 0.0462        |          | \$46       |          | \$46    |            | \$46    |
|      | Leffler Gretchen                               | PLAN 47 LOT 6 PT LOT 7 NP806                                            | 271104000110200 | 110200 | 0.051 | 0.0508        |          | \$50       |          | \$50    |            | \$50    |
|      | Pasco Philip Albert                            | PLAN 47 PT LOT 7 NP806                                                  | 271104000110300 | 110300 | 0.046 | 0.0461        |          | \$45       |          | \$45    |            | \$45    |
|      | Pasco Philip Albert                            | PLAN 47 LOT 9 PT LOT 8 NP806                                            | 271104000110400 | 110400 | 0.092 | 0.0921        |          | \$91       |          | \$91    |            | \$91    |
|      | Lim Jaime                                      | PLAN 47 LOT 10 NP806                                                    | 271104000110500 | 110500 | 0.047 | 0.0475        |          | \$59       |          | \$59    |            | \$59    |
|      | Palmisano Mark M                               | PLAN 47 LOT 11 LOT 12 NP806                                             | 271104000110501 | 110501 | 0.097 | 0.0967        |          | \$119      |          | \$119   |            | \$119   |
|      | Soto Belisario                                 | CON 1 PT LOT 2, LOT 13 PLAN 47 NP 806                                   | 271104000110600 | 110600 | 0.101 | 0.1011        |          | \$125      |          | \$125   |            | \$125   |
|      | Sacco Andrew                                   | PLAN 47 LOT 14 LOT 15 NP806                                             | 271104000110700 | 110700 | 0.099 | 0.0991        |          | \$122      |          | \$122   |            | \$122   |
|      | Arruda Victor                                  | PLAN 47 LOT 16 LOT 17 NP806                                             | 271104000110800 | 110800 | 0.078 | 0.0775        |          | \$96       |          | \$96    |            | \$96    |
|      | Devans Russell                                 | PLAN 47 LOT 18 NP806                                                    | 271104000110900 | 110900 | 0.065 | 0.0655        |          | \$81       |          | \$81    |            | \$81    |
|      | Muraco Frederick                               | PLAN 47 806 LOTS 20 21 26 AND 27 NP806                                  | 271104000111000 | 111000 | 0.186 | 0.1858        |          | \$321      |          | \$321   |            | \$321   |
|      | Ariganello Aldo Peter                          | PLAN 47 LOT 22 TO LOT 25 NP806 CON 1 PT LOT 2                           | 271104000111100 | 111100 | 0.352 | 0.3516        |          | \$607      |          | \$607   |            | \$607   |
|      | Williamson Michael Patrick                     | PLAN 41 LOT 1 LOT 2 NP800 PLAN 47 PT LOT 8 NP806                        | 271104000111200 | 111200 | 0.093 | 0.0928        |          | \$92       |          | \$92    |            | \$92    |
|      | Elia Sandro                                    | PLAN 41 LOT 3 PT LOT 4 NP800                                            | 271104000111300 | 111300 | 0.055 | 0.055         |          | \$54       |          | \$54    |            | \$54    |
|      | Kennedy Kurt                                   | PLAN 800 LOT 5 PT LOTS 4 AND 6                                          | 271104000111400 | 111400 | 0.055 | 0.0549        |          | \$54       |          | \$54    |            | \$54    |
|      | Elia Sandro                                    | PLAN 41 LOT 7 PT LOT 6 PT LOT 8 NP800                                   | 271104000111500 | 111500 | 0.055 | 0.0548        |          | \$54       |          | \$54    |            | \$54    |
|      | Vecchi Vittorio                                | PLAN 41 PT LOT 8 PT LOT 9 NP800                                         | 271104000111600 | 111600 | 0.055 | 0.0548        |          | \$54       |          | \$54    |            | \$54    |
|      | Pacheco John                                   | PLAN 800 LOT 10 PT LOTS 9 AND 11                                        | 271104000111700 | 111700 | 0.055 | 0.0548        |          | \$54       |          | \$54    |            | \$54    |
|      | Puntoriero Antonio                             | PLAN 800 LOT 12 PT LOT 11                                               | 271104000111800 | 111800 | 0.055 | 0.0555        |          | \$55       |          | \$55    |            | \$55    |
|      | Hibbard David                                  | PLAN 41 LOT 13 NP 800                                                   | 271104000111900 | 111900 | 0.031 | 0.0307        |          | \$30       |          | \$30    |            | \$30    |
|      | Zaparaniuk Judith Grace                        | PLAN 41 LOT 14 LOT 15 NP800                                             | 271104000112000 | 112000 | 0.062 | 0.0622        |          | \$61       |          | \$61    |            | \$61    |
|      | Sanderson Linda                                | PLAN 41 LOT 16 PT LOT 17 NP800                                          | 271104000112100 | 112100 | 0.049 | 0.0488        |          | \$48       |          | \$48    |            | \$48    |
|      | Webb Ronald Joseph                             | PLAN 41 LOT 18 PT LOT 17 NP800                                          | 271104000112200 | 112200 | 0.049 | 0.0488        |          | \$48       |          | \$48    |            | \$48    |
|      | Cardwell Jason                                 | PLAN 41 LOT 19 NP800                                                    | 271104000112300 | 112300 | 0.048 | 0.0476        |          | \$47       |          | \$47    |            | \$47    |
|      | Thuersam Lester                                | PLAN 41 LOT 20 LOT 21 NP800 PT BLK B                                    | 271104000112400 | 112400 | 0.070 | 0.0697        |          | \$69       |          | \$69    |            | \$69    |
|      | Paradise Shores Holdings Inc                   | PLAN 41 BLK A BLK C PT BLK B NP800                                      | 271104000112500 | 112500 | 0.526 | 0.5263        |          | \$1,816    |          | \$1,816 |            | \$1,816 |
|      | Paradise Shores Holdings Inc                   | PLAN 41 BLK A BLK C PT BLK B NP800                                      | 271104000112500 | 112500 | 0.152 | 0.1525        |          | \$593      |          | \$593   |            | \$593   |
|      | Pacheco John                                   | PLAN 800 PT BLK A                                                       | 271104000112515 | 112515 | 0.002 | 0.0023        |          | \$0        |          | \$0     |            | \$0     |
|      | Pleasant Beach Property Owners Corporation Ltd | CON 1 PT LOT 3 2000 NOV29 TAX CLASS REVIEW CT STANDS SEE DOCU FILE 1869 | 271104000112600 | 112600 | 0.367 | 0.3668        |          | \$362      |          | \$362   |            | \$362   |
|      | Comazzolo Mary                                 | CON 1 PT LOT 3                                                          | 271104000112700 | 112700 | 0.030 | 0.0299        |          | \$29       |          | \$29    |            | \$29    |
|      | De Sousa Mariette                              | CON 1 PT LOT 3 SIMON SKETCH LOT 2                                       | 271104000112800 | 112800 | 0.030 | 0.0298        |          | \$29       |          | \$29    |            | \$29    |
|      | Eimiller Thomas Keith                          | CON 1 PT LOT 3 SIMON SKETCH                                             | 271104000112900 | 112900 | 0.030 | 0.0298        |          | \$29       |          | \$29    |            | \$29    |
|      | Eimiller Sandra Ann                            | CON 1 PT LOT 3 (SIMON SKETCH LOT 4 - FOR REFERENCE ONLY)                | 271104000113000 | 113000 | 0.030 | 0.0298        |          | \$29       |          | \$29    |            | \$29    |
|      | McLintock Ann                                  | CON 1 PT LOT 3 SIMON SKETCH LOT 5 TO LOT 7                              | 271104000113100 | 113100 | 0.090 | 0.0895        |          | \$88       |          | \$88    |            | \$88    |
|      | Van Patten Shawn                               | CON 1 PT LOT 3 SIMON SKETCH LOT 8 PT LOT 9                              | 271104000113400 | 113400 | 0.045 | 0.0446        |          | \$44       |          | \$44    |            | \$44    |
|      | Sacco Anthony Thomas                           | HUMBERSTONE CON 1 PT LOT 3                                              | 271104000113600 | 113600 | 0.045 | 0.0447        |          | \$44       |          | \$44    |            | \$44    |
|      | Paolini Richard John                           | CON 1 PT LOT 3 SIMON SKETCH LOT 11 LOT 12                               | 271104000113700 | 113700 | 0.060 | 0.0596        |          | \$59       |          | \$59    |            | \$59    |
|      | Armao Matilda Kathryn                          | CON 1 PT LOT 3 SIMON SKETCH LOT 13                                      | 271104000113800 | 113800 | 0.030 | 0.0298        |          | \$29       |          | \$29    |            | \$29    |
|      | Gigliotti Anthony                              | CON 1 PT LOT 3 RP 59R2535 PART 1                                        | 271104000113900 | 113900 | 0.047 | 0.0469        |          | \$46       |          | \$46    |            | \$46    |
|      | Lozovoi Gueorgui                               | CON 1 PT LOT 3 RP 59R2535 PART 2                                        | 271104000114000 | 114000 | 0.054 | 0.0543        |          | \$54       |          | \$54    |            | \$54    |
|      | Hudi Martin                                    | CON 1 PT LOT 3                                                          | 271104000114200 | 114200 | 0.107 | 0.1068        |          | \$105      |          | \$105   |            | \$105   |
|      | Allen Troy Edmund                              | CON 1 PT LOT 3                                                          | 271104000114300 | 114300 | 0.090 | 0.0896        |          | \$88       |          | \$88    |            | \$88    |
|      | Shomers John Peter                             | CON 1 PT LOT 3                                                          | 271104000114400 | 114400 | 0.052 | 0.0523        |          | \$52       |          | \$52    |            | \$52    |
|      | Labarber Louis P                               | CON 1 PT LOT 3                                                          | 271104000114500 | 114500 | 0.057 | 0.0572        |          | \$56       |          | \$56    |            | \$56    |
|      | Palumbo Vito                                   | CON 1 PT LOT 3                                                          | 271104000114600 | 114600 | 0.062 | 0.0622        |          | \$61       |          | \$61    |            | \$61    |
|      | Catherine Ruby Josephine                       | CON 1 PT LOT 3                                                          | 271104000114700 | 114700 | 0.067 | 0.0672        |          | \$66       |          | \$66    |            | \$66    |
|      | Brown Judith Evelyn                            | CON 1 PT LOT 3                                                          | 271104000114800 | 114800 | 0.058 | 0.0577        |          | \$57       |          | \$57    |            | \$57    |



| Farm | Owner                                | Legal_Txt                                                                | ARN             |        | Area   | Area in Drain | Sect. 22 | Section 23 | Sect. 24 | Total    | Allowances | Net      |
|------|--------------------------------------|--------------------------------------------------------------------------|-----------------|--------|--------|---------------|----------|------------|----------|----------|------------|----------|
|      |                                      |                                                                          | Roll No         | ABBREV |        |               |          |            |          |          |            |          |
|      | Browne Michael Robert                | CON 1 PT LOT 3                                                           | 271104000114900 | 114900 | 0.058  | 0.0577        |          | \$57       |          | \$57     |            | \$57     |
|      | Hildreth Ronald James                | CON 1 PT LOT 3                                                           | 271104000115000 | 115000 | 0.038  | 0.0385        |          | \$38       |          | \$38     |            | \$38     |
|      | 1000609385 Ontario Inc               | CON 1 PT LOT 3                                                           | 271104000115100 | 115100 | 0.089  | 0.0894        |          | \$88       |          | \$88     |            | \$88     |
|      | Saulnier Neil                        | PLAN 46 LOT 1 LOT 2 NP805 ROW OVER BLKS A & B                            | 271104000115300 | 115300 | 0.093  | 0.0931        |          | \$92       |          | \$92     |            | \$92     |
|      | Eimiller Thomas Wayne                | PLAN 46 LOT 3 NP805                                                      | 271104000115400 | 115400 | 0.047  | 0.0467        |          | \$46       |          | \$46     |            | \$46     |
|      | Bull Joanna                          | PLAN 46 LOT 4 NP805                                                      | 271104000115500 | 115500 | 0.047  | 0.0468        |          | \$46       |          | \$46     |            | \$46     |
|      | Wojcik Daniel Stanley                | PLAN 46 LOT 5 LOT 6 NP805                                                | 271104000115600 | 115600 | 0.094  | 0.0938        |          | \$92       |          | \$92     |            | \$92     |
|      | Sacco Jo-Ann Mary                    | PLAN 46 LOT 7 NP805                                                      | 271104000115700 | 115700 | 0.047  | 0.047         |          | \$46       |          | \$46     |            | \$46     |
|      | Vizzari Sara                         | PLAN 46 LOT 8 NP805                                                      | 271104000115800 | 115800 | 0.047  | 0.0473        |          | \$47       |          | \$47     |            | \$47     |
|      | Clements Alton W                     | PLAN 805 BLKS A AND B                                                    | 271104000115810 | 115810 | 0.461  | 0.461         |          | \$1,705    |          | \$1,705  |            | \$1,705  |
|      | Vizzari Sara                         | PLAN 46 LOT 9 LOT 10 NP805                                               | 271104000115900 | 115900 | 0.079  | 0.0792        |          | \$78       |          | \$78     |            | \$78     |
|      | Yots Jason                           | PLAN 46 PT LOT 13 LOT 11,12 NP805                                        | 271104000116000 | 116000 | 0.147  | 0.1467        |          | \$145      |          | \$145    |            | \$145    |
|      | Solanes Fernando                     | PLAN 46 PT LOT 13 LOT 14,15 NP805                                        | 271104000116100 | 116100 | 0.119  | 0.119         |          | \$117      |          | \$117    |            | \$117    |
|      | Vizzari Diego                        | PLAN 46 LOT 16 LOT 17 NP805                                              | 271104000116200 | 116200 | 0.078  | 0.078         |          | \$77       |          | \$77     |            | \$77     |
|      | Clunie Thomas                        | PLAN 46 LOT 18 NP805                                                     | 271104000116300 | 116300 | 0.046  | 0.0464        |          | \$46       |          | \$46     |            | \$46     |
|      | Machado Rosa                         | PLAN 46 LOT 19 NP805                                                     | 271104000116400 | 116400 | 0.046  | 0.0464        |          | \$46       |          | \$46     |            | \$46     |
|      | Bull James Todd                      | PLAN 46 LOT 20 TO LOT 22 NP805                                           | 271104000116500 | 116500 | 0.139  | 0.1393        |          | \$137      |          | \$137    |            | \$137    |
|      | Barone Sylvester Cosmo               | PLAN 805 LOTS 23 TO 25                                                   | 271104000116700 | 116700 | 0.139  | 0.1393        |          | \$137      |          | \$137    |            | \$137    |
|      | Demunda Richard Anthony              | CON 1 PT LOT 3                                                           | 271104000116800 | 116800 | 0.056  | 0.0557        |          | \$55       |          | \$55     |            | \$55     |
|      | Janik Edward Matthew In Trust        | CON 1 PT LOT 3                                                           | 271104000116900 | 116900 | 2.809  | 2.8101        |          | \$2,771    |          | \$2,771  |            | \$2,771  |
|      | Potter Danny Mark                    | CON 1 PT LOT 3                                                           | 271104000117000 | 117000 | 0.139  | 0.1393        |          | \$275      |          | \$275    |            | \$275    |
|      | Janik Edward Matthew In Trust        | CON 1 PT LOT 3                                                           | 271104000117100 | 117100 | 0.139  | 0.1393        |          | \$275      |          | \$275    |            | \$275    |
|      | Smith Gordon Franklin                | CON 1 PT LOT 3                                                           | 271104000117200 | 117200 | 0.223  | 0.2229        |          | \$440      |          | \$440    |            | \$440    |
|      | Mitro Dominic                        | CON 1 PT LOT 3                                                           | 271104000117300 | 117300 | 0.111  | 0.1115        |          | \$220      |          | \$220    |            | \$220    |
|      | Senese Thomas Anthony                | CON 1 PT LOT 3                                                           | 271104000117500 | 117500 | 0.111  | 0.1115        |          | \$220      |          | \$220    |            | \$220    |
|      | SSI Property GP INC                  | HUMBERSTONE CON 1 PT LOT 3 RP 59R16901 PART 1                            | 271104000117600 | 117600 | 4.694  | 4.6952        |          | \$10,417   |          | \$10,417 |            | \$10,417 |
|      | Sider Roger                          | CON 1 PT LOT 3                                                           | 271104000117700 | 117700 | 0.747  | 0.7475        |          | \$1,106    |          | \$1,106  |            | \$1,106  |
|      | Malandrino Paola                     | CON 1 PT LOT 3                                                           | 271104000117701 | 117701 | 0.260  | 0.2602        |          | \$385      |          | \$385    |            | \$385    |
|      | MacDonald Gordon Ross                | CON 1 PT LOT 3                                                           | 271104000117800 | 117800 | 0.314  | 0.3142        |          | \$465      |          | \$465    |            | \$465    |
| F    | Pleasant Beach Sherkston Estates Inc | CON 1 PT LOT 3                                                           | 271104000117900 | 117900 | 6.111  | 6.1121        |          | \$9,041    |          | \$9,041  |            | \$9,041  |
|      | O'Shea Noreen                        | CON 1 PT LOT 3                                                           | 271104000118200 | 118200 | 0.269  | 0.269         |          | \$398      |          | \$398    |            | \$398    |
| F    | Ventresca Mary Yollanda              | HUMBERSTONE CON 1 PT LOT 3 RP 59R16488 PART 2                            | 271104000118300 | 118300 | 3.486  | 3.4871        |          | \$5,158    |          | \$5,158  |            | \$5,158  |
|      | Lukasavitch Diane                    | HUMBERSTONE CON 1 PT LOT 3 RP 59R16488 PART 1                            | 271104000118303 | 118303 | 1.214  | 1.2143        |          | \$1,796    |          | \$1,796  |            | \$1,796  |
|      | Pavao Dennis                         | HUMBERSTONE CON 1 PT LOT 3 RP 59R15358 PART 2                            | 271104000118400 | 118400 | 0.995  | 0.9953        |          | \$1,472    |          | \$1,472  |            | \$1,472  |
|      | Winney James                         | HUMBERSTONE CON 1 PT LOT 3 RP 59R13237 PART 1 RP 59R15358 PART 1         | 271104000118450 | 118450 | 1.407  | 1.4076        |          | \$2,082    |          | \$2,082  |            | \$2,082  |
|      | PC City Hall                         | CON 1 PT LOTS 3,4 PLAN 35 LOTS 1-108,LANES NP794 RP59R4679 PARTS 1,2,4,5 | 271104000118501 | 118501 | 0.738  | 0.7386        |          | \$1,093    |          | \$1,093  |            | \$1,093  |
|      | Marr Gerald Murray                   | CON 1 PT LOT 3                                                           | 271104000118502 | 118502 | 0.860  | 0.8604        |          | \$1,273    |          | \$1,273  |            | \$1,273  |
|      | Franklin Adam                        | CON 1 PT LOT 3 RP 59R11998 PART 2                                        | 271104000118503 | 118503 | 0.661  | 0.6614        |          | \$978      |          | \$978    |            | \$978    |
|      | Nan Kenneth Henry                    | CON 1 PT LOT 3 RP 59R11998 PART 1                                        | 271104000118504 | 118504 | 0.658  | 0.6577        |          | \$973      |          | \$973    |            | \$973    |
|      | O'Quinn Christopher Leonard          | PLAN 59M365 LOT 1                                                        | 271104000118510 | 118510 | 0.798  | 0.7984        |          | \$1,181    |          | \$1,181  |            | \$1,181  |
|      | Kelley Scott Andrew                  | PLAN 59M365 LOT 2                                                        | 271104000118514 | 118514 | 0.930  | 0.9302        |          | \$1,376    |          | \$1,376  |            | \$1,376  |
|      | Senra Shawn Cordeiro                 | PLAN 59M365 LOT 3                                                        | 271104000118518 | 118518 | 0.861  | 0.8613        |          | \$1,274    |          | \$1,274  |            | \$1,274  |
|      | Ward Lisa                            | PLAN 59M365 LOT 4                                                        | 271104000118522 | 118522 | 0.847  | 0.8475        |          | \$1,254    |          | \$1,254  |            | \$1,254  |
|      | Paladino Alfredo                     | PLAN 59M365 LOT 5                                                        | 271104000118526 | 118526 | 0.805  | 0.8056        |          | \$1,192    |          | \$1,192  |            | \$1,192  |
|      | Pruyn Joe                            | PLAN 59M365 LOT 6                                                        | 271104000118530 | 118530 | 0.662  | 0.6623        |          | \$980      |          | \$980    |            | \$980    |
| F    | Belperio Enrico                      | HUMBERSTONE CON 1 PT LOT 4 RP 59R15508 PART 1                            | 271104000118600 | 118600 | 20.534 | 7.4077        |          | \$12,783   |          | \$12,783 |            | \$12,783 |
|      | Shisler Stanley Bruce                | CON 1 PT LOT 4                                                           | 271104000118602 | 118602 | 0.414  | 0.0394        |          | \$58       |          | \$58     |            | \$58     |
|      | Shisler Stanley Bruce                | CON 1 PT LOT 4                                                           | 271104000118603 | 118603 | 0.074  | 0.0441        |          | \$65       |          | \$65     |            | \$65     |
|      | Hoover David Allan                   | CON 1 PT LOT 3                                                           | 271104000118604 | 118604 | 1.138  | 1.1384        |          | \$1,684    |          | \$1,684  |            | \$1,684  |
|      | Hoover David Allan                   | CON 1 PT LOT 3                                                           | 271104000118800 | 118800 | 0.856  | 0.8564        |          | \$1,267    |          | \$1,267  |            | \$1,267  |
|      | Kramer Ryan                          | CON 1 PT LOT 3                                                           | 271104000118900 | 118900 | 0.794  | 0.7939        |          | \$1,174    |          | \$1,174  |            | \$1,174  |
| F    | Marlatt Brandon                      | HUMBERSTONE CON 1 PT LOT 3                                               | 271104000119000 | 119000 | 15.573 | 15.5763       |          | \$26,880   |          | \$26,880 |            | \$26,880 |
|      | Scrada Stephen                       | HUMBERSTONE CON 1 PT LOT 3 RP 59R17643 PART 1                            | 271104000119002 | 119002 | 1.004  | 1.004         |          | \$1,485    |          | \$1,485  |            | \$1,485  |
|      | Topa Anne Shirley                    | HUMBERSTONE CON 1 PT LOT 3 RP 59R15804 PART 2                            | 271104000119100 | 119100 | 0.409  | 0.4096        |          | \$606      |          | \$606    |            | \$606    |



| Farm              | Owner                       | Legal_Txt                                                                                                                                                                  | ARN             |        | Area   | Area in Drain | Sect. 22 | Section 23 | Sect. 24 | Total    | Allowances | Net      |
|-------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|--------|---------------|----------|------------|----------|----------|------------|----------|
|                   |                             |                                                                                                                                                                            | Roll No         | ABBREV |        |               |          |            |          |          |            |          |
|                   | Topa Travis                 | HUMBERSTONE CON 1 PT LOT 3 RP 59R15804 PART 1                                                                                                                              | 271104000119102 | 119102 | 0.834  | 0.8345        |          | \$1,234    |          | \$1,234  |            | \$1,234  |
|                   | Young Samuel Bare           | CON 1 PT LOT 3 RP 59R5195 PART 2                                                                                                                                           | 271104000119105 | 119105 | 1.409  | 1.4097        |          | \$1,946    |          | \$1,946  |            | \$1,946  |
|                   | O'Neal Aaron                | CON 1 PT LOT 3 RP 59R5195 PART 3                                                                                                                                           | 271104000119200 | 119200 | 1.168  | 1.1683        |          | \$1,728    |          | \$1,728  |            | \$1,728  |
|                   | Rowland Jeffrey Alan        | CON 1 PT LOT 3 RP 59R5195 PART 1                                                                                                                                           | 271104000119201 | 119201 | 0.854  | 0.8546        |          | \$1,264    |          | \$1,264  |            | \$1,264  |
|                   | Lostracco Douglas Edward    | CON 1 PT LOT 3 RP 59R11965 PART 1                                                                                                                                          | 271104000119300 | 119300 | 0.473  | 0.4729        |          | \$699      |          | \$699    |            | \$699    |
|                   | Serniak Greg                | CON 1 PT LOT 3 RP59R5431 PART 1                                                                                                                                            | 271104000119400 | 119400 | 0.529  | 0.5289        |          | \$782      |          | \$782    |            | \$782    |
|                   | Jaskolka Edward Joseph      | CON 1 PT LOT 3 RP 59R5431 PART 2                                                                                                                                           | 271104000119401 | 119401 | 0.476  | 0.4757        |          | \$704      |          | \$704    |            | \$704    |
|                   | Johnson Robert Alexander    | CON 1 PT LOT 3 RP 59R5431 PART 3                                                                                                                                           | 271104000119402 | 119402 | 0.422  | 0.4224        |          | \$625      |          | \$625    |            | \$625    |
|                   | Frost Paul William          | CON 1 PT LOT 3 RP 59R5431 PART 4                                                                                                                                           | 271104000119403 | 119403 | 0.454  | 0.4538        |          | \$671      |          | \$671    |            | \$671    |
|                   | Vorstenbosch Cathy Marie    | CON 1 PT LOT 3                                                                                                                                                             | 271104000119800 | 119800 | 0.235  | 0.2348        |          | \$347      |          | \$347    |            | \$347    |
|                   | Woelke Helena               | HUMBERSTONE CON 1 PT LOT 3 RP 59R14079 PART 1                                                                                                                              | 271104000119900 | 119900 | 0.110  | 0.1096        |          | \$162      |          | \$162    |            | \$162    |
|                   | Buick Robert                | HUMBERSTONE CON 1 PT LOT 3                                                                                                                                                 | 271104000120000 | 120000 | 0.124  | 0.1242        |          | \$184      |          | \$184    |            | \$184    |
|                   | Kirkwood Graeme Scott       | CON 1 PT LOT 3 PT LOT 4                                                                                                                                                    | 271104000120100 | 120100 | 0.187  | 0.1868        |          | \$276      |          | \$276    |            | \$276    |
| F                 | Damude Raymond Harold Jr    | CON 1 PT LOT 4                                                                                                                                                             | 271104000120400 | 120400 | 4.206  | 1.6133        |          | \$2,784    |          | \$2,784  |            | \$2,784  |
|                   | Priebe James Arthur         | CON 1 PT LOT 4 AND RP59R10512 PARTS 1 AND 5                                                                                                                                | 271104000120700 | 120700 | 1.635  | 1.5865        |          | \$2,190    |          | \$2,190  |            | \$2,190  |
|                   | Dykstra David Gary          | CON 1 PT LOT 3                                                                                                                                                             | 271104000120800 | 120800 | 0.573  | 0.573         |          | \$848      |          | \$848    |            | \$848    |
|                   | Penny William John          | CON 1 PT LOT 3                                                                                                                                                             | 271104000120900 | 120900 | 0.889  | 0.8896        |          | \$1,316    |          | \$1,316  |            | \$1,316  |
|                   | Robison Darlene Raye        | CON 1 PT LOT 3                                                                                                                                                             | 271104000121000 | 121000 | 1.660  | 1.6604        |          | \$2,292    |          | \$2,292  |            | \$2,292  |
|                   | Kostuk William Roger        | CON 1 PT LOT 3                                                                                                                                                             | 271104000121100 | 121100 | 0.382  | 0.3823        |          | \$565      |          | \$565    |            | \$565    |
|                   | Desrochers Christina Maria  | CON 1 PT LOT 3 RP 59R10512 PARTS 3 AND 8                                                                                                                                   | 271104000123496 | 123496 | 1.196  | 1.1965        |          | \$1,652    |          | \$1,652  |            | \$1,652  |
|                   | Gillis Nicole Jennifer      | HUMBERSTONE CON 1 PT LOTS 3 AND 4 RP 59R10512 PARTS 4 7 AND 11                                                                                                             | 271104000123498 | 123498 | 2.046  | 2.0464        |          | \$2,825    |          | \$2,825  |            | \$2,825  |
|                   | Godla Jiri                  | CON 1 PT LOT 4 RP 59R10512 PARTS 2 6 AND 10                                                                                                                                | 271104000123500 | 123500 | 2.609  | 2.6101        |          | \$3,603    |          | \$3,603  |            | \$3,603  |
|                   | Shisler Terry               | CON 1 PT LOT 4 RP59R4654 PART 1                                                                                                                                            | 271104000123900 | 123900 | 2.554  | 0.0827        |          | \$122      |          | \$122    |            | \$122    |
|                   | SSI Property GP Inc         | HUMBERSTONE CON 1 PT LOTS 3 TO 8 PT RD ALLOW PT BED LAKE ERIE RP 59R5042 PARTS 6 TO 12 PT PART 5 RP 59R4991 PART 1 RP 59R9347 PART 1 RP 59R16102 PART 1 RP 59R16103 PART 1 | 271104000124600 | 124600 | 82.769 | 39.772        |          | \$88,242   |          | \$88,242 |            | \$88,242 |
|                   | Canadian Niagara Power Inc  | HUMBERSTONE CON 1 PT LOT 4 59R13714 PART 1                                                                                                                                 | 271104000124610 | 124610 | 0.208  | 0.2078        |          | \$307      |          | \$307    |            | \$307    |
|                   | PC City Hall                | CON 1 PT LOTS 1-22                                                                                                                                                         | 271104000499900 | 499900 | 0.992  | 0.248         |          | \$550      |          | \$550    |            | \$550    |
|                   |                             |                                                                                                                                                                            |                 |        |        |               |          |            |          |          |            |          |
| Town of Fort Erie |                             |                                                                                                                                                                            |                 |        |        |               |          |            |          |          |            |          |
|                   | SHORE OAKS INC              | 683 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800100 | 800100 | 9.418  | 6.161         |          | \$8,640    |          | \$8,640  | \$0        | \$8,640  |
|                   | VAN BOLDEREN ADOLPHUS L     | 725 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800200 | 800200 | 1.232  | 1.1984        |          | \$1,681    |          | \$1,681  | \$0        | \$1,681  |
|                   | RLC POINT ABINO INC         | 715 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800250 | 800250 | 1.189  | 1.0806        |          | \$1,515    |          | \$1,515  | \$0        | \$1,515  |
|                   | JOHNSON KAREN               | 739 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800300 | 800300 | 1.187  | 1.1873        |          | \$1,665    |          | \$1,665  | \$0        | \$1,665  |
|                   | PICTOR WILLIAM              | 745 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800400 | 800400 | 0.894  | 0.8942        |          | \$1,254    |          | \$1,254  | \$0        | \$1,254  |
|                   | POSSLER HEIDI CARMEN        | 753 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800500 | 800500 | 0.920  | 0.9204        |          | \$1,291    |          | \$1,291  | \$0        | \$1,291  |
|                   | DURRANT GRAHAM              | 761 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800600 | 800600 | 1.297  | 1.2969        |          | \$1,819    |          | \$1,819  | \$0        | \$1,819  |
|                   | WILSON BRIAN                | 781 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800800 | 800800 | 1.859  | 1.8592        |          | \$2,607    |          | \$2,607  | \$0        | \$2,607  |
|                   | MES REALTY COMPANY LLC      | 787 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001800900 | 800900 | 1.319  | 1.3196        |          | \$1,851    |          | \$1,851  | \$0        | \$1,851  |
|                   | DICIENZO ALYSSA MARIE       | 801 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801000 | 801000 | 1.981  | 2.3795        |          | \$3,337    |          | \$3,337  | \$0        | \$3,337  |
|                   | DICIENZO ANTHONY            | 819 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801100 | 801100 | 1.570  | 1.5702        |          | \$2,202    |          | \$2,202  | \$0        | \$2,202  |
|                   | SCHMITT MAUREEN             | 829 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801101 | 801101 | 1.294  | 1.2947        |          | \$1,816    |          | \$1,816  | \$0        | \$1,816  |
|                   | GIBSON SHIRLEY              | 839 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801200 | 801200 | 1.282  | 1.282         |          | \$1,798    |          | \$1,798  | \$0        | \$1,798  |
|                   | IAFRATE MICHAEL             | 849 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801300 | 801300 | 1.375  | 1.3007        |          | \$1,824    |          | \$1,824  | \$0        | \$1,824  |
|                   | SEUBERT SCOTT BEAL          | 857 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801400 | 801400 | 1.713  | 1.6088        |          | \$2,256    |          | \$2,256  | \$0        | \$2,256  |
|                   | JOHNSON DAVID / MOSIER AMY  | 873 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801401 | 801401 | 1.346  | 1.2632        |          | \$1,772    |          | \$1,772  | \$0        | \$1,772  |
|                   | GREGORY K M / GREGORY M M   | 879 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801500 | 801500 | 0.417  | 0.4169        |          | \$585      |          | \$585    | \$0        | \$585    |
|                   | CRABTREE ROBERT             | 891 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801600 | 801600 | 0.343  | 0.3433        |          | \$481      |          | \$481    | \$0        | \$481    |
|                   | FERRONI RICHARD JOSEPH      | 897 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801700 | 801700 | 0.211  | 0.2108        |          | \$296      |          | \$296    | \$0        | \$296    |
|                   | LISI ANTHONY                | 903 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801800 | 801800 | 0.284  | 0.2836        |          | \$398      |          | \$398    | \$0        | \$398    |
|                   | FAIRFIELD BRENNAN DOROTHY D | 913 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001801900 | 801900 | 0.382  | 0.3817        |          | \$535      |          | \$535    | \$0        | \$535    |
|                   | SANDERS STEPHEN             | 921 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001802000 | 802000 | 0.445  | 0.4447        |          | \$624      |          | \$624    | \$0        | \$624    |
|                   | MCCABE REGINA ANNE          | 931 POINT ABINO ROAD SOUTH                                                                                                                                                 | 270302001802100 | 802100 | 0.410  | 0.41          |          | \$575      |          | \$575    | \$0        | \$575    |



| Farm | Owner                        | Legal_Txt                        | ARN             |        |        | Area in Drain |          |            |          | Total    | Allowances | Net      |
|------|------------------------------|----------------------------------|-----------------|--------|--------|---------------|----------|------------|----------|----------|------------|----------|
|      |                              |                                  | Roll No         | ABBREV | Area   |               | Sect. 22 | Section 23 | Sect. 24 |          |            |          |
|      | GEPHARDT HELENE H            | 4874 ABINO HILLS ROAD            | 270302001802101 | 802101 | 0.566  | 0.566         |          | \$794      |          | \$794    | \$0        | \$794    |
|      | MATHEWSON CHRISTOPHER        | 949 POINT ABINO ROAD SOUTH       | 270302001802200 | 802200 | 0.067  | 0.0675        |          | \$95       | \$15,725 | \$15,820 | \$0        | \$15,820 |
|      | BUFFALO YACHT CLUB           | 917 POINT ABINO ROAD SOUTH       | 270302001802500 | 802500 | 4.589  | 2.2632        |          | \$2,116    |          | \$2,116  | \$0        | \$2,116  |
|      | ABINO DUNES CORPORATION      | 0-9865 POINT ABINO ROAD SOUTH    | 270302001802950 | 802950 | 22.925 | 1.1273        |          | \$1,054    |          | \$1,054  | \$0        | \$1,054  |
|      |                              | 0 4961-1 ABINO HILLS ROAD        | 270302001811000 | 811000 | 0.613  | 0.2147        |          | \$201      |          | \$201    | \$0        | \$201    |
|      | MUNSCHAUER EDWIN A JR        | 4961 ABINO HILLS ROAD            | 270302001811000 | 811000 | 1.786  | 1.7868        |          | \$1,671    |          | \$1,671  | \$0        | \$1,671  |
|      | IAFRATE BRUNO                | 4971 ABINO HILLS ROAD            | 270302001811100 | 811100 | 0.807  | 0.4641        |          | \$434      |          | \$434    | \$0        | \$434    |
|      | FWGB CORP                    | 4981 ABINO HILLS ROAD            | 270302001811200 | 811200 | 1.550  | 0.5618        |          | \$525      |          | \$525    | \$0        | \$525    |
|      | BUTSCH JOHN LORD O'BRIAN     | 4991 ABINO HILLS ROAD            | 270302001811400 | 811400 | 1.521  | 0.5207        |          | \$487      |          | \$487    | \$0        | \$487    |
|      | BUTSCH D / BUTSCH J          | 5003 ABINO HILLS ROAD            | 270302001811401 | 811401 | 2.047  | 0.6774        |          | \$633      |          | \$633    | \$0        | \$633    |
|      | BECHTEL LURA HESS            | 5047 ABINO HILLS ROAD            | 270302001811500 | 811500 | 2.901  | 1.2961        |          | \$1,212    |          | \$1,212  | \$0        | \$1,212  |
|      | BRANTHAM HOLDINGS INC        | 5077 ABINO HILLS ROAD            | 270302001811600 | 811600 | 2.208  | 1.4733        |          | \$1,377    |          | \$1,377  | \$0        | \$1,377  |
|      | LEON JULIE ANNE              | 0-9960 ABINO HILLS ROAD          | 270302001811700 | 811700 | 0.743  | 0.5017        |          | \$469      |          | \$469    | \$0        | \$469    |
|      | LEON JULIE ANNE              | 5109 ABINO HILLS ROAD            | 270302001811800 | 811800 | 1.248  | 0.8388        |          | \$784      |          | \$784    | \$0        | \$784    |
|      | BERGEVIN ANNE                | 5125 ABINO HILLS ROAD            | 270302001811900 | 811900 | 0.952  | 0.5344        |          | \$500      |          | \$500    | \$0        | \$500    |
|      | 5141 ABINO HILLS RD INC      | 5141 ABINO HILLS ROAD            | 270302001812000 | 812000 | 0.754  | 0.438         |          | \$410      |          | \$410    | \$0        | \$410    |
|      | 5141 ABINO HILLS RD INC      | 0-9964 ABINO HILLS ROAD          | 270302001812100 | 812100 | 0.753  | 0.5132        |          | \$480      |          | \$480    | \$0        | \$480    |
|      | LFPB INC                     | 5161 ABINO HILLS ROAD            | 270302001812200 | 812200 | 1.147  | 0.8417        |          | \$787      |          | \$787    | \$0        | \$787    |
|      | FITZPATRICK MOLLY            | 5179 ABINO HILLS ROAD            | 270302001812400 | 812400 | 1.573  | 0.8706        |          | \$814      |          | \$814    | \$0        | \$814    |
|      | FERGUSON DOROTHYMAE TRUSTEE  | 5189 ABINO HILLS ROAD            | 270302001812500 | 812500 | 2.653  | 1.5082        |          | \$1,410    |          | \$1,410  | \$0        | \$1,410  |
|      | CLICK JAMES HARLAN           | 5223 ABINO HILLS ROAD            | 270302001812600 | 812600 | 2.977  | 1.4033        |          | \$1,312    |          | \$1,312  | \$0        | \$1,312  |
|      | 816176 ONTARIO INC           | 5243 ABINO HILLS ROAD            | 270302001812700 | 812700 | 3.434  | 1.7357        |          | \$1,623    |          | \$1,623  | \$0        | \$1,623  |
|      | HUMASON ELIZABETH            | 5271 ABINO HILLS ROAD            | 270302001812800 | 812800 | 3.260  | 2.5109        |          | \$2,348    |          | \$2,348  | \$0        | \$2,348  |
|      | JARDINE TANYA                | 5321 ABINO HILLS ROAD            | 270302001812900 | 812900 | 2.749  | 2.3702        |          | \$2,216    |          | \$2,216  | \$0        | \$2,216  |
|      | PATTERSON WAYNE              | 5349 ABINO HILLS ROAD            | 270302001813000 | 813000 | 1.327  | 1.1401        |          | \$1,066    |          | \$1,066  | \$0        | \$1,066  |
|      | NORRIS BRADLEY WILLIAM       | 5379 ABINO HILLS ROAD            | 270302001813100 | 813100 | 1.145  | 0.9456        |          | \$884      |          | \$884    | \$0        | \$884    |
|      | LEON JOSEPH                  | 5395 ABINO HILLS ROAD            | 270302001813200 | 813200 | 0.997  | 0.7996        |          | \$748      |          | \$748    | \$0        | \$748    |
|      | 1000880232 ONTARIO INC       | 5459 ABINO HILLS ROAD            | 270302001813300 | 813300 | 0.927  | 0.6782        |          | \$634      |          | \$634    | \$0        | \$634    |
|      | PERE ABINEAU PARK            | 0-9976 POINT ABINO ROAD SOUTH    | 270302001813400 | 813400 | 19.776 | 19.78         |          | \$23,117   |          | \$23,117 | \$0        | \$23,117 |
|      |                              | 0 0-18321 POINT ABINO ROAD SOUTH | 270302001813400 | 813400 | 7.998  | 7.9998        |          | \$9,349    | \$14,658 | \$24,007 | \$0        | \$24,007 |
|      | EL-SAYED SHERIF FOUAD YACOUT | 633 POINT ABINO ROAD SOUTH       | 270302001813500 | 813500 | 2.544  | 2.3204        |          | \$3,254    |          | \$3,254  | \$0        | \$3,254  |
|      | XU AMY                       | 609 POINT ABINO ROAD SOUTH       | 270302001813600 | 813600 | 1.337  | 1.1127        |          | \$1,560    |          | \$1,560  | \$0        | \$1,560  |
|      | RITCH MONKELBAAN MARSHA      | 599 POINT ABINO ROAD SOUTH       | 270302001813700 | 813700 | 1.192  | 0.9496        |          | \$1,332    |          | \$1,332  | \$0        | \$1,332  |
|      | DIFABIO LEONARDO             | 557 POINT ABINO ROAD SOUTH       | 270302001813800 | 813800 | 1.248  | 0.9273        |          | \$1,300    |          | \$1,300  | \$0        | \$1,300  |
|      | TROJNAR RICHARD JOHN         | 551 POINT ABINO ROAD SOUTH       | 270302001813900 | 813900 | 1.263  | 0.9212        |          | \$1,292    |          | \$1,292  | \$0        | \$1,292  |
|      | SYKES CLARK MANSFIELD        | 537 POINT ABINO ROAD SOUTH       | 270302001814000 | 814000 | 1.242  | 0.9198        |          | \$1,290    |          | \$1,290  | \$0        | \$1,290  |
|      | MISETICH MILDRED             | 531 POINT ABINO ROAD SOUTH       | 270302001814100 | 814100 | 1.235  | 1.0331        |          | \$1,449    |          | \$1,449  | \$0        | \$1,449  |
|      | MORRIS LAURIE ANN            | 511 POINT ABINO ROAD SOUTH       | 270302001814200 | 814200 | 1.759  | 1.4425        |          | \$2,023    |          | \$2,023  | \$0        | \$2,023  |
|      | THOMSON FLORENCE MARIE       | 497 POINT ABINO ROAD SOUTH       | 270302001814300 | 814300 | 0.176  | 0.0652        |          | \$91       |          | \$91     | \$0        | \$91     |
|      | SPIECE COREY JOHN            | 491 POINT ABINO ROAD SOUTH       | 270302001814400 | 814400 | 3.900  | 3.6792        |          | \$5,160    |          | \$5,160  | \$0        | \$5,160  |
|      | WEAVER JOSEPH                | 463 POINT ABINO ROAD SOUTH       | 270302001814500 | 814500 | 0.081  | 0.0813        |          | \$114      |          | \$114    | \$0        | \$114    |
|      | KNIBLOE WAYNE                | 487 POINT ABINO ROAD SOUTH       | 270302001814600 | 814600 | 0.180  | 0.0397        |          | \$56       |          | \$56     | \$0        | \$56     |
|      | NIAGARA PENINSULA            | 0-9990 WILDWOOD AVENUE           | 270302001814800 | 814800 | 2.069  | 2.069         |          | \$2,902    |          | \$2,902  | \$0        | \$2,902  |
|      | DRULLARD DAVID W             | 0-9991 POINT ABINO ROAD SOUTH    | 270302001814900 | 814900 | 0.149  | 0.1476        |          | \$207      |          | \$207    | \$0        | \$207    |
|      | WILDWOOD PROPERTIES INC      | 0-9992 POINT ABINO ROAD SOUTH    | 270302001815000 | 815000 | 0.340  | 0.3384        |          | \$475      |          | \$475    | \$0        | \$475    |
|      | FLYNN GREGORY JAMES          | 421 POINT ABINO ROAD SOUTH       | 270302001815100 | 815100 | 0.135  | 0.1133        |          | \$159      |          | \$159    | \$0        | \$159    |
|      | WARD DANIEL F                | 413 POINT ABINO ROAD SOUTH       | 270302001815200 | 815200 | 0.274  | 0.2382        |          | \$334      |          | \$334    | \$0        | \$334    |
|      | ASIP HOLDINGS INC            | 393 POINT ABINO ROAD SOUTH       | 270302001815300 | 815300 | 1.160  | 1.1522        |          | \$1,616    |          | \$1,616  | \$0        | \$1,616  |
|      | 1254345 ONTARIO INC          | 371 POINT ABINO ROAD SOUTH       | 270302001815400 | 815400 | 1.495  | 1.491         |          | \$2,091    |          | \$2,091  | \$0        | \$2,091  |
|      | 357 POINT ABINO ROAD INC     | 357 POINT ABINO ROAD SOUTH       | 270302001815500 | 815500 | 0.187  | 0.1838        |          | \$258      |          | \$258    | \$0        | \$258    |
|      | STARCK COTTAGE LLC           | 349 POINT ABINO ROAD SOUTH       | 270302001815600 | 815600 | 0.110  | 0.1084        |          | \$152      |          | \$152    | \$0        | \$152    |
|      | PAGE DONALD STEWART          | 329 POINT ABINO ROAD SOUTH       | 270302001815800 | 815800 | 1.479  | 6.1417        |          | \$8,613    |          | \$8,613  | \$0        | \$8,613  |
|      | LAROCQUE WAYNE LAWRENCE      | 203 POINT ABINO ROAD SOUTH       | 270302001816600 | 816600 | 4.527  | 1.8697        |          | \$3,059    |          | \$3,059  | \$0        | \$3,059  |
|      | THE NATURE CONSERVANCY OF    | 155 POINT ABINO ROAD SOUTH       | 270302001816601 | 816601 | 12.157 | 5.3483        |          | \$8,751    |          | \$8,751  | \$0        | \$8,751  |
| F    | WOODS ELEANOR DEBELTGENS     | 31 POINT ABINO ROAD SOUTH        | 270302001816800 | 816800 | 10.977 | 9.3419        |          | \$15,285   |          | \$15,285 | \$0        | \$15,285 |
|      | HUGHES WILLIAM               | 0-10029 BAY WOODS                | 270302001818000 | 818000 | 0.143  | 0.1428        |          | \$200      |          | \$200    | \$0        | \$200    |



| Farm | Owner                          | Legal_Txt                       | ARN             |        |        | Area in<br>Drain |          |            |          | Total    | Allowances | Net      |
|------|--------------------------------|---------------------------------|-----------------|--------|--------|------------------|----------|------------|----------|----------|------------|----------|
|      |                                |                                 | Roll No         | ABBREV | Area   |                  | Sect. 22 | Section 23 | Sect. 24 |          |            |          |
|      | FORT ERIE TOWN                 | 0-10030 BAY WOODS               | 270302001818100 | 818100 | 0.144  | 0.1436           |          | \$201      |          | \$201    | \$0        | \$201    |
|      | CULP RICHARD                   | 0-10031 BAY WOODS               | 270302001818200 | 818200 | 0.145  | 0.1451           |          | \$203      |          | \$203    | \$0        | \$203    |
|      | LOU AMIN                       | 0-10043 BAY WOODS               | 270302001819400 | 819400 | 0.130  | 0.1302           |          | \$183      |          | \$183    | \$0        | \$183    |
|      | LOU AMIN                       | 0-10044 BAY WOODS               | 270302001819500 | 819500 | 0.130  | 0.1298           |          | \$182      |          | \$182    | \$0        | \$182    |
|      | FORT ERIE TOWN                 | 0-10045 BAY WOODS               | 270302001819600 | 819600 | 0.130  | 0.1299           |          | \$182      |          | \$182    | \$0        | \$182    |
|      | WILDWOOD PROPERTIES INC        | 4882 WILDWOOD AVENUE            | 270302001820900 | 820900 | 0.123  | 0.1205           |          | \$169      |          | \$169    | \$0        | \$169    |
|      | ROYAL ROBERT JAMES             | 4894 WILDWOOD AVENUE            | 270302001821000 | 821000 | 0.123  | 0.1209           |          | \$170      |          | \$170    | \$0        | \$170    |
|      | WEINERT DIANNE LOGAN           | 0-10060 WILDWOOD AVENUE         | 270302001821100 | 821100 | 0.123  | 0.1206           |          | \$169      |          | \$169    | \$0        | \$169    |
|      | CYR RUSSELL NORMAN             | 0-10061 WILDWOOD AVENUE         | 270302001821200 | 821200 | 0.123  | 0.1203           |          | \$169      |          | \$169    | \$0        | \$169    |
|      | CYR RUSSELL NORMAN             | 4920 WILDWOOD AVENUE            | 270302001821300 | 821300 | 0.123  | 0.12             |          | \$168      |          | \$168    | \$0        | \$168    |
|      | CYR RUSSELL NORMAN             | 0-10063 WILDWOOD AVENUE         | 270302001821400 | 821400 | 0.123  | 0.1198           |          | \$168      |          | \$168    | \$0        | \$168    |
|      | WARREN WILLIAM DAVID           | 4958 ORIOLE LANE                | 270302001822100 | 822100 | 0.814  | 0.9513           |          | \$1,334    |          | \$1,334  | \$0        | \$1,334  |
|      | MCCORMICK JEAN CAROL           | 0-10070 ORIOLE LANE             | 270302001822500 | 822500 | 0.342  | 0.1979           |          | \$278      |          | \$278    | \$0        | \$278    |
|      | WRIGHT ALLAN                   | 4959 ORIOLE LANE                | 270302001822600 | 822600 | 1.141  | 1.1415           |          | \$1,601    |          | \$1,601  | \$0        | \$1,601  |
|      | HAHN CHARLES J IN TRUST        | 0-10072 POINT ABINO ROAD SOUTH  | 270302001822700 | 822700 | 14.523 | 14.5257          |          | \$16,976   |          | \$16,976 | \$0        | \$16,976 |
|      | DIETERS KARIN                  | 366 MATHEWS ROAD SOUTH          | 270302001822701 | 822701 | 18.909 | 18.9133          |          | \$22,104   |          | \$22,104 | \$0        | \$22,104 |
|      | BRETON TEUNIS ADRIANIS         | 340 MATHEWS ROAD SOUTH          | 270302001822702 | 822702 | 1.243  | 1.2432           |          | \$1,744    |          | \$1,744  | \$0        | \$1,744  |
|      | FIJAVZ BORIS                   | 0-10075 POINT ABINO ROAD SOUTH  | 270302001822710 | 822710 | 5.287  | 5.2881           |          | \$7,416    |          | \$7,416  | \$0        | \$7,416  |
|      | HOWARD SALLY                   | 391 POINT ABINO ROAD SOUTH      | 270302001822800 | 822800 | 5.981  | 5.9823           |          | \$8,390    |          | \$8,390  | \$0        | \$8,390  |
|      | RIITTNER CHARLES               | 328 MATHEWS ROAD SOUTH          | 270302001822900 | 822900 | 0.994  | 0.9938           |          | \$1,394    |          | \$1,394  | \$0        | \$1,394  |
|      | 5009865 ONTARIO LTD.           | 300 MATHEWS ROAD SOUTH          | 270302001822901 | 822901 | 0.658  | 0.6583           |          | \$923      |          | \$923    | \$0        | \$923    |
|      | CROWN LANDSCAPING LTD          | 0-10079 MATHEWS ROAD SOUTH      | 270302001823000 | 823000 | 6.915  | 6.9164           |          | \$9,700    |          | \$9,700  | \$0        | \$9,700  |
|      | GGP INVESTMENTS INC            | 0-10080 MATHEWS ROAD SOUTH      | 270302001823100 | 823100 | 3.876  | 3.8772           |          | \$5,438    |          | \$5,438  | \$0        | \$5,438  |
| F    | FAZZARI ALEXANDER / SEBASTIANO | 200 MATHEWS ROAD SOUTH          | 270302001823101 | 823101 | 8.180  | 8.1819           |          | \$13,387   |          | \$13,387 | \$0        | \$13,387 |
|      | GARVIN RANDALL CHARLES         | 158 MATHEWS ROAD SOUTH          | 270302001823200 | 823200 | 2.354  | 2.3547           |          | \$3,302    |          | \$3,302  | \$0        | \$3,302  |
|      | ADAMS LAWRENCE KENNETH         | 150 MATHEWS ROAD SOUTH          | 270302001823300 | 823300 | 0.152  | 0.1525           |          | \$214      |          | \$214    | \$0        | \$214    |
|      | WAINMAN MARK WILLIAM           | 142 MATHEWS ROAD SOUTH          | 270302001823400 | 823400 | 0.271  | 0.2712           |          | \$380      |          | \$380    | \$0        | \$380    |
|      | BORKOVSKY BARBARA              | 32 MATHEWS ROAD SOUTH           | 270302001823500 | 823500 | 3.699  | 3.7              |          | \$5,189    |          | \$5,189  | \$0        | \$5,189  |
|      | FOX GORDON ALLEN STANLEY       | 5085 MICHENER ROAD              | 270302001823600 | 823600 | 0.405  | 0.4047           |          | \$568      |          | \$568    | \$0        | \$568    |
|      | DARBYSON DOUGLAS ALLEN         | 5045 MICHENER ROAD              | 270302001823601 | 823601 | 6.134  | 6.1355           |          | \$10,039   |          | \$10,039 | \$0        | \$10,039 |
|      | DARBYSON DOUGLAS ALLEN         | 5045 MICHENER ROAD              | 270302001823603 | 823603 | 0.099  | 0.0987           |          | \$138      |          | \$138    | \$0        | \$138    |
|      | LEWIS PAUL KENNEDY             | 5005 MICHENER ROAD              | 270302001823610 | 823610 | 6.190  | 6.1915           |          | \$10,130   |          | \$10,130 | \$0        | \$10,130 |
|      | PINO JAVIER                    | 5115 MICHENER ROAD              | 270302001823700 | 823700 | 0.416  | 0.4162           |          | \$584      |          | \$584    | \$0        | \$584    |
|      | GREENBERG INTERNATIONAL INC    | 0-10090 MARCY LANE              | 270302001823800 | 823800 | 12.443 | 8.3694           |          | \$7,825    |          | \$7,825  | \$0        | \$7,825  |
|      | GREENBERG INTERNATIONAL INC    | 0-10091 MARCY LANE              | 270302001823900 | 823900 | 3.247  | 0.1673           |          | \$156      |          | \$156    | \$0        | \$156    |
|      | 1992293 ONTARIO INC            | 478 MARCY LANE                  | 270302001824100 | 824100 | 0.976  | 0.1171           |          | \$109      |          | \$109    | \$0        | \$109    |
|      | D B M E INC                    | 0-10094 MARCEY LANE             | 270302001824200 | 824200 | 0.451  | 0.0469           |          | \$44       |          | \$44     | \$0        | \$44     |
|      | D B M E INC                    | 0-10095 HOLLOWAY BAY ROAD SOUTH | 270302001824300 | 824300 | 1.794  | 0.1403           |          | \$131      |          | \$131    | \$0        | \$131    |
|      | GREENBERG INTERNATIONAL INC    | 476 MARCY LANE                  | 270302001824400 | 824400 | 2.599  | 2.39             |          | \$2,235    |          | \$2,235  | \$0        | \$2,235  |
|      | D B M E INC                    | 0-10097 MARCY LANE              | 270302001824500 | 824500 | 0.543  | 0.5432           |          | \$508      |          | \$508    | \$0        | \$508    |
|      | 0                              | 0-19827 MARCY LANE              | 270302001824600 | 824600 | 0.462  | 0.4617           |          | \$432      |          | \$432    | \$0        | \$432    |
|      | D B M E INC                    | 466 MARCY LANE                  | 270302001824700 | 824700 | 2.291  | 2.2238           |          | \$2,079    |          | \$2,079  | \$0        | \$2,079  |
|      | D B M E INC                    | 400 HOLLOWAY BAY ROAD SOUTH     | 270302001824700 | 824700 | 7.554  | 7.5556           |          | \$8,830    |          | \$8,830  | \$0        | \$8,830  |
|      | PATTERSON WAYNE                | 0-10100 ABINO HILLS ROAD        | 270302001824800 | 824800 | 5.422  | 5.4232           |          | \$5,070    |          | \$5,070  | \$0        | \$5,070  |
|      | FRETZ KIRK                     | 411 MATHEWS ROAD NORTH          | 270302001824900 | 824900 | 13.720 | 13.7229          |          | \$16,038   |          | \$16,038 | \$0        | \$16,038 |
|      | MACNEIL LORNE CHRISTOPHER      | 339 MATHEWS ROAD SOUTH          | 270302001824905 | 824905 | 6.084  | 6.0854           |          | \$8,534    |          | \$8,534  | \$0        | \$8,534  |
| F    | GREENBERG INTERNATIONAL INC.   | 0-10103 MATHEWS ROAD SOUTH      | 270302001825000 | 825000 | 24.411 | 24.2198          |          | \$28,305   |          | \$28,305 | \$0        | \$28,305 |
|      | GREENBERG INTERNATIONAL INC.   | 0-10104 MATHEWS ROAD SOUTH      | 270302001825100 | 825100 | 3.771  | 3.7716           |          | \$5,289    |          | \$5,289  | \$0        | \$5,289  |
| F    | GIGONE JUSTIN GIANCARLO        | 291 MATHEWS ROAD SOUTH          | 270302001825200 | 825200 | 3.409  | 3.4099           |          | \$4,782    |          | \$4,782  | \$0        | \$4,782  |
|      | GREENBERG INTERNATIONAL INC    | 0-10106 MATHEWS ROAD SOUTH      | 270302001825300 | 825300 | 15.982 | 15.9851          |          | \$18,682   |          | \$18,682 | \$0        | \$18,682 |
|      | CARVER ANDREW                  | 5145 MICHENER ROAD              | 270302001825400 | 825400 | 10.422 | 10.4246          |          | \$17,056   |          | \$17,056 | \$0        | \$17,056 |
|      | ORCUTT WAYNE DARREN            | 5183 MICHENER ROAD              | 270302001825500 | 825500 | 0.335  | 0.335            |          | \$470      |          | \$470    | \$0        | \$470    |
|      | CHEN MEI FENG                  | 5197 MICHENER ROAD              | 270302001825600 | 825600 | 1.012  | 1.0118           |          | \$1,419    |          | \$1,419  | \$0        | \$1,419  |
|      | SIDER BROS BUILDERS LTD        | 5199 MICHENER ROAD              | 270302001825650 | 825650 | 1.431  | 1.4315           |          | \$2,008    |          | \$2,008  | \$0        | \$2,008  |
|      | GREENBERG INTERNATIONAL INC    | 0-10111 MICHENER ROAD           | 270302001825700 | 825700 | 16.550 | 16.5539          |          | \$27,085   |          | \$27,085 | \$0        | \$27,085 |
|      | PIRSON WANDA                   | 5263 MICHENER ROAD              | 270302001825800 | 825800 | 0.101  | 0.1014           |          | \$142      |          | \$142    | \$0        | \$142    |



| Farm | Owner                       | Legal_Txt                       | ARN             |        |        | Area in Drain |          |            |          | Total    | Allowances | Net      |
|------|-----------------------------|---------------------------------|-----------------|--------|--------|---------------|----------|------------|----------|----------|------------|----------|
|      |                             |                                 | Roll No         | ABBREV | Area   |               | Sect. 22 | Section 23 | Sect. 24 |          |            |          |
| F    | GREENBERG INTERNATIONAL INC | 5353 MICHENER ROAD              | 270302001825900 | 825900 | 40.368 | 40.3768       |          | \$66,063   |          | \$66,063 | \$0        | \$66,063 |
|      | VANDERENDE MICHAEL PETER    | 5381 MICHENER ROAD              | 270302001826000 | 826000 | 0.818  | 0.8177        |          | \$1,147    |          | \$1,147  | \$0        | \$1,147  |
|      | 525230 ONTARIO LTD TRUSTEE  | 0-10115 HOLLOWAY BAY ROAD SOUTH | 270302001826100 | 826100 | 6.134  | 6.1352        |          | \$8,604    |          | \$8,604  | \$0        | \$8,604  |
|      | GREENBERG INTERNATIONAL INC | 0-10116 HOLLOWAY BAY ROAD SOUTH | 270302001826200 | 826200 | 1.140  | 1.1405        |          | \$1,066    |          | \$1,066  | \$0        | \$1,066  |
|      | BENNETT KLARA LEE           | 30 HOLLOWAY BAY ROAD SOUTH      | 270302001826300 | 826300 | 1.002  | 1.0291        |          | \$1,443    |          | \$1,443  | \$0        | \$1,443  |
|      | SEELEY COREY JAMES          | 4831 SHERKSTON ROAD             | 270302001827400 | 827400 | 0.480  | 0.0447        |          | \$63       |          | \$63     | \$0        | \$63     |
| F    | DAY JOHN MARTIN HARLOW      | 4924 SHERKSTON ROAD             | 270302001828100 | 828100 | 28.716 | 1.3082        |          | \$2,140    |          | \$2,140  | \$0        | \$2,140  |
|      | ASHBY BRIAN CHRISTOPHER     | 4869 SHERKSTON ROAD             | 270302001828300 | 828300 | 1.038  | 1.0384        |          | \$1,456    |          | \$1,456  | \$0        | \$1,456  |
|      | EBERLY ALFRED GERALD        | 4894 SHERKSTON ROAD             | 270302001828400 | 828400 | 0.562  | 0.2005        |          | \$281      |          | \$281    | \$0        | \$281    |
| F    | WINGER CLINTON ROSS         | 0-10146 SHERKSTON ROAD          | 270302001828500 | 828500 | 4.470  | 1.5825        |          | \$2,589    |          | \$2,589  | \$0        | \$2,589  |
|      | DE MEL JULIAN FREDRIK       | 4911 SHERKSTON ROAD             | 270302001828600 | 828600 | 1.579  | 1.5792        |          | \$2,215    |          | \$2,215  | \$0        | \$2,215  |
| F    | HOUSE ARNOLD GARY           | 4963 SHERKSTON ROAD             | 270302001828700 | 828700 | 4.343  | 4.3439        |          | \$7,107    |          | \$7,107  | \$0        | \$7,107  |
|      | CLARKE PAIGE CORA           | 5069 SHERKSTON ROAD             | 270302001828710 | 828710 | 14.327 | 14.3297       |          | \$23,446   |          | \$23,446 | \$0        | \$23,446 |
|      | SIMMONS BETTY DOROTHY       | 4998 SHERKSTON ROAD             | 270302001829000 | 829000 | 2.045  | 0.7957        |          | \$1,116    |          | \$1,116  | \$0        | \$1,116  |
|      | SAHS-MEYER EVA-LYN          | 5187 SHERKSTON ROAD             | 270302001829200 | 829200 | 24.610 | 24.6149       |          | \$40,274   |          | \$40,274 | \$0        | \$40,274 |
| F    | O'HEARN PATRICK JAMES       | 5286 SHERKSTON ROAD             | 270302001829300 | 829300 | 4.199  | 0.7809        |          | \$1,095    |          | \$1,095  | \$0        | \$1,095  |
|      | DRURY STEVEN / DRURY DAYNA  | 5277 SHERKSTON ROAD             | 270302001829400 | 829400 | 0.401  | 0.4015        |          | \$563      |          | \$563    | \$0        | \$563    |
|      | ROWLAND SHAWN               | 5297 SHERKSTON ROAD             | 270302001829500 | 829500 | 11.885 | 11.8873       |          | \$19,450   |          | \$19,450 | \$0        | \$19,450 |
|      | GRANT STEVEN CRAIG          | 5321 SHERKSTON ROAD             | 270302001829700 | 829700 | 3.377  | 3.3779        |          | \$5,527    |          | \$5,527  | \$0        | \$5,527  |
|      | BRETHREN IN CHRIST CHURCH   | 5348 SHERKSTON ROAD             | 270302001829800 | 829800 | 1.992  | 0.9189        |          | \$1,289    |          | \$1,289  | \$0        | \$1,289  |
|      | WALL JACOB                  | 5384 SHERKSTON ROAD             | 270302001829900 | 829900 | 0.564  | 0.1733        |          | \$243      |          | \$243    | \$0        | \$243    |
|      | SCHINKEL BRUCE VICTOR C     | 5398 SHERKSTON ROAD             | 270302001830000 | 830000 | 0.369  | 0.0884        |          | \$124      |          | \$124    | \$0        | \$124    |
|      | OSINGA MARK                 | 5409 SHERKSTON ROAD             | 270302001830100 | 830100 | 2.247  | 2.2474        |          | \$3,677    |          | \$3,677  | \$0        | \$3,677  |
|      | SERADA MARK                 | 5365 SHERKSTON ROAD             | 270302001830200 | 830200 | 7.587  | 7.5883        |          | \$12,416   |          | \$12,416 | \$0        | \$12,416 |
|      | VAN HOECKEL MAARTEN JOOST   | 184 HOLLOWAY BAY ROAD NORTH     | 270302001830300 | 830300 | 0.934  | 0.9346        |          | \$1,311    |          | \$1,311  | \$0        | \$1,311  |
|      | ZUCCHET MICHAEL FRANK       | 170 HOLLOWAY BAY ROAD NORTH     | 270302001830400 | 830400 | 0.158  | 0.1579        |          | \$221      |          | \$221    | \$0        | \$221    |
|      | BENNETT LAWRENCE WILLIAM    | 148 HOLLOWAY BAY ROAD NORTH     | 270302001830500 | 830500 | 0.644  | 0.6438        |          | \$903      |          | \$903    | \$0        | \$903    |
|      | CULP JENNIFER ELIZABETH     | 124 HOLLOWAY BAY ROAD NORTH     | 270302001830600 | 830600 | 0.295  | 0.2951        |          | \$414      |          | \$414    | \$0        | \$414    |
|      | MARACLE ELIZABETH GRACE     | 104 HOLLOWAY BAY ROAD NORTH     | 270302001830700 | 830700 | 0.138  | 0.1381        |          | \$194      |          | \$194    | \$0        | \$194    |
|      | 1784413 ONTARIO LTD         | 78 HOLLOWAY BAY ROAD NORTH      | 270302001830800 | 830800 | 0.672  | 0.6723        |          | \$943      |          | \$943    | \$0        | \$943    |
|      | WARWICK DARBY ROYCE         | 5414 MICHENER ROAD              | 270302001830900 | 830900 | 0.510  | 0.5097        |          | \$715      |          | \$715    | \$0        | \$715    |
|      | HARDY DEREK DENIS           | 5404 MICHENER ROAD              | 270302001831000 | 831000 | 0.522  | 0.5223        |          | \$732      |          | \$732    | \$0        | \$732    |
|      | KUCY RODNEY ALLEN           | 5392 MICHENER ROAD              | 270302001831100 | 831100 | 0.371  | 0.3716        |          | \$521      |          | \$521    | \$0        | \$521    |
| F    | BERNARD JAMES DOUGLAS       | 5378 MICHENER ROAD              | 270302001831200 | 831200 | 9.829  | 9.8312        |          | \$16,085   |          | \$16,085 | \$0        | \$16,085 |
|      | HAGGERTY TIMOTHY ROGER      | 5354 MICHENER ROAD              | 270302001831201 | 831201 | 0.431  | 0.4311        |          | \$605      |          | \$605    | \$0        | \$605    |
|      | GUENTHER PETER              | 5274 MICHENER ROAD              | 270302001831300 | 831300 | 0.479  | 0.4793        |          | \$672      |          | \$672    | \$0        | \$672    |

|             |     |             |
|-------------|-----|-------------|
| \$1,135,383 | \$0 | \$1,135,383 |
|-------------|-----|-------------|

Roads

| City of Port Colborne                                           | Municipal             | OBJECTID | PA_Area |
|-----------------------------------------------------------------|-----------------------|----------|---------|
| Beach Rd From Watershed To Pleasant Beach Rd                    | City of Port Colborne | 150498   | 1.1757  |
| Firelane (No Name) From Firelane 22 To End                      | City of Port Colborne | 149593   | 0.2387  |
| Firelane 22 From Pleasant Beach Rd. To No Name                  | City of Port Colborne | 149574   | 0.2786  |
| Firelane 23 From Firelane 22 To End                             | City of Port Colborne | 149573   | 0.1949  |
| Firelane 28 27 From Pleasant Beach Rd. To Holloway Bay Rd South | City of Port Colborne | 149692   | 0.6895  |
| Michener Rd From Pleasant Beach Rd To Holloway Bay Rd South     | City of Port Colborne | 150592   | 0.8798  |
| NW Beach and Pleasant Beach Rd From To                          | City of Port Colborne | 150616   | 0.0112  |
| Pleasant Beach Rd From Michener Rd To Sherkston Rd              | City of Port Colborne | 150545   | 2.5693  |
| Pleasant Beach Rd From Watershed Bndy. To Michener Rd           | City of Port Colborne | 149550   | 2.1516  |
| Sherkston Rd From Empire Rd To Pleasant Beach Rd                | City of Port Colborne | 150488   | 0.572   |
| Sherkston Rd From Pleasant Beach Rd To Holloway Bay Rd N        | City of Port Colborne | 150563   | 0.5682  |
| \$37,607                                                        |                       |          |         |
| Town of Fort Erie                                               |                       |          |         |
| Abino Hills Rd From Blind Line To Point Abino Rd                | Town of Fort Erie     | 1000002  | 1.4236  |
| Abino Hills Rd From Blind Line To                               | Town of Fort Erie     | 152091   | 3.8542  |



| Farm | Owner                                                           | Legal_Txt         | Roll No | ARN    |      | Area in Drain | Sect. 22 | Section 23  | Sect. 24 | Total | Allowances | Net |
|------|-----------------------------------------------------------------|-------------------|---------|--------|------|---------------|----------|-------------|----------|-------|------------|-----|
|      |                                                                 |                   |         | ABBREV | Area |               |          |             |          |       |            |     |
|      | Bay Woods From Point Abino Rd S To Blind Line ROW               | Town of Fort Erie | 1000000 |        |      | 0.1387        |          | \$259.36    |          |       |            |     |
|      | Blind Line From Abino Hills Rd To Michener Rd                   | Town of Fort Erie | 1000001 |        |      | 5.7427        |          | \$10,738.31 |          |       |            |     |
|      | Marcy Lane From Holloway Bay Rd S To Part 1                     | Town of Fort Erie | 1000006 |        |      | 0.4592        |          | \$1,502.66  |          |       |            |     |
|      | Holloway Bay Rd From Watershed Bndy. To Michener Rd             | Town of Fort Erie | 151906  |        |      | 3.0335        |          | \$12,762.81 |          |       |            |     |
|      | Holloway Bay Road North From Michener Rd To Sherkston Rd        | Town of Fort Erie | 151585  |        |      | 2.1285        |          | \$8,955.21  |          |       |            |     |
|      | Marcy Lane From To Part 2                                       | Town of Fort Erie | 152042  |        |      | 0.6317        |          | \$2,067.13  |          |       |            |     |
|      | Mathews Rd S From S Part 1 To                                   | Town of Fort Erie | 152189  |        |      | 0.6702        |          | \$2,506.42  |          |       |            |     |
|      | Mathews Rd S From S Part 2 To                                   | Town of Fort Erie | 152260  |        |      | 0.0746        |          | \$278.99    |          |       |            |     |
|      | Mathews Rd S From S Part 3 To                                   | Town of Fort Erie | 152253  |        |      | 0.1158        |          | \$433.07    |          |       |            |     |
|      | Mathews Rd S From S Part 4 To                                   | Town of Fort Erie | 152256  |        |      | 0.4322        |          | \$1,616.35  |          |       |            |     |
|      | Mathews Rd S From S Part 5 To                                   | Town of Fort Erie | 152190  |        |      | 0.2242        |          | \$838.47    |          |       |            |     |
|      | Mathews Rd S From S Part 6 To                                   | Town of Fort Erie | 151919  |        |      | 0.2369        |          | \$885.96    |          |       |            |     |
|      | Mathews Rd S From S Part 7 To                                   | Town of Fort Erie | 152258  |        |      | 0.4114        |          | \$1,538.56  |          |       |            |     |
|      | Mathews Road North From Michener Rd To Sherkston Rd             | Town of Fort Erie | 151651  |        |      | 0.9566        |          | \$1,788.75  |          |       |            |     |
|      | Michener Rd From Holloway Bay Rd South To Point Abino Rd        | Town of Fort Erie | 151781  |        |      | 3.6017        |          | \$15,153.39 |          |       |            |     |
|      | Oriole Lane From To                                             | Town of Fort Erie | 1000004 |        |      | 0.1647        |          | \$538.95    |          |       |            |     |
|      | Point Abino Rd From Michener Rd To Sherkston Rd                 | Town of Fort Erie | 1000005 |        |      | 0.1835        |          | \$772.04    |          |       |            |     |
|      | Point Abino Rd From To                                          | Town of Fort Erie | 1000003 |        |      | 0.5731        |          | \$2,411.20  |          |       |            |     |
|      | Sherkston Rd From Mathews Rd. N To Point Abino Rd N             | Town of Fort Erie | 151726  |        |      | 1.1423        |          | \$4,805.99  |          |       |            |     |
|      | Sherkston Rd From Mathews Rd. N To Holloway Bay Rd North        | Town of Fort Erie | 151701  |        |      | 1.2335        |          | \$5,189.69  |          |       |            |     |
|      | Unopened Road Allowance Between Holloway Bay Rd. and Mathews Rd | Town of Fort Erie | 151913  |        |      | 2.2918        |          | \$4,285.45  |          |       |            |     |
|      |                                                                 |                   |         |        |      |               |          |             | \$99,067 |       |            |     |
|      |                                                                 |                   |         |        |      |               |          |             |          |       | \$136,673  |     |

|                                                                                                                                                                                 |                                                                                                                                  |             |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|
| Section 26 - Special Assessments                                                                                                                                                |                                                                                                                                  |             |                |
| Utilities - Enbridge                                                                                                                                                            | Move existing Gas Line for construction of Point Abino Rd. Crossing.                                                             | \$17,226    | \$17,226.00    |
| Town of Fort Erie                                                                                                                                                               | PA-02 & PA-03 Demolition of existing concrete box culvert with construction of new concrete box culvert crossing Point Abino Rd. | \$1,035,131 | \$1,035,131.40 |
|                                                                                                                                                                                 | Move Watermain move or protect                                                                                                   | \$5,940     | \$5,940.00     |
|                                                                                                                                                                                 |                                                                                                                                  | \$0         | \$0.00         |
|                                                                                                                                                                                 |                                                                                                                                  | \$1,058,297 | \$1,058,297.40 |
| Point Abino Drain                                                                                                                                                               |                                                                                                                                  |             |                |
| Total Assessed:                                                                                                                                                                 |                                                                                                                                  |             | \$2,330,353.77 |
| Notes:                                                                                                                                                                          |                                                                                                                                  |             |                |
| 1. The above lands marked "F" are currently classified as agricultural according to the OMAFRA and are therefore entitled to a 1/3 grant.                                       |                                                                                                                                  |             |                |
| 2. Section 21 of the Drainage Act, RSO 1990 requires that assessments be shown for each parcel of land and road affected. The affected parcels of land are identified using the |                                                                                                                                  |             |                |
| 3. The value of the assessments identified in this schedule are estimates only, and should not be considered final.                                                             |                                                                                                                                  |             |                |



Table 5 Haggerty Branch Drain Assessment Summary

Haggerty Branch Drain

| Farm<br>As 'F' | Owner                         | Legal_Txt                                                             | Roll No         | ARN<br>ABBREV | Area<br>Ha | Area in<br>Drain<br>Ha | Sect. 22 | Section 23 | Sect. 24   | Total<br>Assessed | Allowances | Net        |
|----------------|-------------------------------|-----------------------------------------------------------------------|-----------------|---------------|------------|------------------------|----------|------------|------------|-------------------|------------|------------|
| Port Colborne  |                               |                                                                       |                 |               |            |                        |          |            |            |                   |            |            |
|                | Customer_N                    | Legal_Desc                                                            | Roll_Numbe      |               | Area_ha    | Catch_Ha               |          |            |            |                   |            |            |
|                | D B M E Inc                   | CON 1 PT LOT 1 RP 59R8890 PT 2 D B M E INC 75% INT M RICHARDS 25% INT | 271104000102800 | 102800        | 14.366     | 0.4678                 |          | \$138.89   | \$8,228.44 | \$8,367           |            | \$8,367.33 |
|                | Scarlett John Frederick       | CON 1 PT LOT 1 RP 59R5913 PARTS 2 TO 4                                | 271104000102900 | 102900        | 1.508      | 0.6494                 |          | \$221.97   |            | \$222             |            | \$221.97   |
|                | Boles Diane Lynn              | CON 1 PT LOT 1 RP 59R5913 PART 1                                      | 271104000102901 | 102901        | 0.470      | 0.4365                 |          | \$166.03   |            | \$166             |            | \$166.03   |
|                | Phibbs Stephanie Diane        | CON 1 PT LOT 1                                                        | 271104000103100 | 103100        | 4.141      | 4.1423                 |          | \$1,721.71 |            | \$1,722           |            | \$1,721.71 |
|                | Lander Blake                  | CON 1 PT LOT 1                                                        | 271104000103200 | 103200        | 0.319      | 0.3190                 |          | \$113.66   |            | \$114             |            | \$113.66   |
|                | Nadeau Gerrard                | CON 1 PT LOT 1                                                        | 271104000103300 | 103300        | 0.809      | 0.8092                 |          | \$288.24   |            | \$288             |            | \$288.24   |
|                | Muileboom Ashley Arlene       | CON 1 PT LOT 1                                                        | 271104000103400 | 103400        | 0.809      | 0.8094                 |          | \$288.24   |            | \$288             |            | \$288.24   |
|                | Kennedy Nancy Jane            | CON 1 PT LOT 1                                                        | 271104000103500 | 103500        | 1.507      | 1.5070                 |          | \$536.93   |            | \$537             |            | \$536.93   |
|                | Pruyn Kirk                    | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PART 3                         | 271104000103600 | 103600        | 5.400      | 5.4008                 |          | \$2,245.04 |            | \$2,245           |            | \$2,245.04 |
|                | Shaubel Brian                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PARTS 1 AND 2                  | 271104000103610 | 103610        | 2.596      | 2.5966                 |          | \$925.28   |            | \$925             |            | \$925.28   |
|                | Harriettha Thomas             | HUMBERSTONE CON 1 PT LOT 1 RP 59R10180 PART 1                         | 271104000103700 | 103700        | 0.405      | 0.4047                 |          | \$144.30   |            | \$144             |            | \$144.30   |
|                | 2293020 Ontario Ltd           | CON 1 PT LOT 1 RP 59R10180 PART 2                                     | 271104000103705 | 103705        | 0.669      | 0.6695                 |          | \$238.36   |            | \$238             |            | \$238.36   |
|                | Annett Matthew                | CON 1 PT LOT 1 RP 59R10819 PARTS 1 & 2                                | 271104000103800 | 103800        | 0.398      | 0.3985                 |          | \$142.16   |            | \$142             |            | \$142.16   |
|                | Cirone David                  | CON 1 PT LOT 1 RP 59R10180 PT PART 3                                  | 271104000103805 | 103805        | 0.475      | 0.4749                 |          | \$169.24   |            | \$169             |            | \$169.24   |
|                | Lehocki Teresa Mary           | CON 1 PT LOT 1 59R-10180 PARTS 4 & 5                                  | 271104000103810 | 103810        | 9.155      | 9.0234                 |          | \$3,684.51 |            | \$3,685           |            | \$3,684.51 |
|                | Manuel Robert George          | CON 1 PT LOT 1                                                        | 271104000103900 | 103900        | 0.105      | 0.0918                 |          | \$32.78    |            | \$33              |            | \$32.78    |
|                | Eberly Michael David          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 5                         | 271104000107300 | 107300        | 15.497     | 2.5843                 |          | \$1,046.66 |            | \$1,047           |            | \$1,046.66 |
|                | Khan Dina                     | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 4                         | 271104000107305 | 107305        | 2.443      | 1.1164                 |          | \$356.48   |            | \$356             |            | \$356.48   |
| F              | Rickman Erin Heather          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 3                         | 271104000107306 | 107306        | 2.446      | 1.1007                 |          | \$386.41   |            | \$386             |            | \$386.41   |
|                | Benvenuti Shane               | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 2                         | 271104000107307 | 107307        | 2.448      | 1.0304                 |          | \$365.46   |            | \$365             |            | \$365.46   |
|                | Eberly William Warren         | HUMBERSTONE CON 1 PT LOT 2 AND RP 59R14998 PART 1                     | 271104000107400 | 107400        | 2.148      | 0.9102                 |          | \$297.62   |            | \$298             |            | \$297.62   |
| F              | Berry Gordon Albert           | CON 1 PT LOT 2                                                        | 271104000107600 | 107600        | 8.624      | 5.7849                 |          | \$2,136.55 |            | \$2,137           |            | \$2,136.55 |
|                | Robins Jodee Lee              | CON 1 PT LOT 2 RP 59R9210 PART 1                                      | 271104000107900 | 107900        | 0.746      | 0.2518                 |          | \$89.79    |            | \$90              |            | \$89.79    |
|                | Koren Amir                    | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 1                         | 271104000107901 | 107901        | 0.999      | 0.9997                 |          | \$352.37   |            | \$352             |            | \$352.37   |
| F              | Davies Norman Stewart         | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 2                         | 271104000107903 | 107903        | 1.524      | 0.8187                 |          | \$255.10   |            | \$255             |            | \$255.10   |
| F              | Vongphakdy Soupahone Chastity | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R5691 PT PART 1                | 271104000107930 | 107930        | 22.056     | 2.4822                 |          | \$778.14   |            | \$778             |            | \$778.14   |
|                | Lodomez-Miller Anne Marie     | CON 1 PT LOT 1 RP 59R12984 PART 3                                     | 271104000107932 | 107932        | 2.235      | 2.2357                 |          | \$796.66   |            | \$797             |            | \$796.66   |
|                | Aquilina Daniel D             | CON 1 PT LOT 1 PT LOT 2 RP 59R12984 PART 2                            | 271104000107934 | 107934        | 0.667      | 0.6671                 |          | \$237.65   |            | \$238             |            | \$237.65   |
|                | Aquilina Daniel D             | CON 1 PT LOT 1 RP 59R12984 PART 1                                     | 271104000107935 | 107935        | 0.667      | 0.6673                 |          | \$237.65   |            | \$238             |            | \$237.65   |
|                | Lee Stephen                   | HUMBERSTONE CON 1 PT LOT 2 RP 59R15397 PART 1                         | 271104000107937 | 107937        | 1.000      | 0.5307                 |          | \$208.79   |            | \$209             |            | \$208.79   |
|                | Engels Bryan                  | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R15397 PART 2                  | 271104000107938 | 107938        | 1.000      | 0.7449                 |          | \$265.79   |            | \$266             |            | \$265.79   |
|                | Emonds Ashley                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R16961 PART 1                         | 271104000107940 | 107940        | 1.009      | 1.0087                 |          | \$323.51   |            | \$324             |            | \$323.51   |

Town of Fort Erie

|   |                             |                                 |                 |        |            |          |  |            |  |         |         |            |
|---|-----------------------------|---------------------------------|-----------------|--------|------------|----------|--|------------|--|---------|---------|------------|
|   | OWNER1                      | LOCATION                        | ARN             |        | Shape_Area | Catch_Ha |  |            |  |         |         |            |
| F | GREENBERG INTERNATIONAL INC | 5353 MICHENER ROAD              | 270302001825900 | 825900 | 40.368     | 19.4046  |  | \$6,714.64 |  | \$6,715 | \$1,339 | \$5,375.33 |
|   | VANDERENDE MICHAEL PETER    | 5381 MICHENER ROAD              | 270302001826000 | 826000 | 0.818      | 0.8177   |  | \$340.02   |  | \$340   |         | \$340.02   |
|   | 525230 ONTARIO LTD TRUSTEE  | 0-10115 HOLLOWAY BAY ROAD SOUTH | 270302001826100 | 826100 | 6.134      | 3.5077   |  | \$1,249.86 |  | \$1,250 |         | \$1,249.86 |
|   | BENNETT KLARA LEE           | 30 HOLLOWAY BAY ROAD SOUTH      | 270302001826300 | 826300 | 0.000      | 1.0291   |  | \$416.50   |  | \$417   |         | \$416.50   |
| F | SAHS-MEYER EVA-LYN          | 5187 SHERKSTON ROAD             | 270302001829200 | 829200 | 24.610     | 24.6149  |  | \$8,775.06 |  | \$8,775 |         | \$8,775.06 |
| F | O'HEARN PATRICK JAMES       | 5286 SHERKSTON ROAD             | 270302001829300 | 829300 | 4.199      | 0.7809   |  | \$278.26   |  | \$278   |         | \$278.26   |
|   | DRURY STEVEN / DRURY DAYNA  | 5277 SHERKSTON ROAD             | 270302001829400 | 829400 | 0.401      | 0.4015   |  | \$166.68   |  | \$167   |         | \$166.68   |
|   | ROWLAND SHAWN               | 5297 SHERKSTON ROAD             | 270302001829500 | 829500 | 11.885     | 11.8873  |  | \$4,235.22 |  | \$4,235 |         | \$4,235.22 |



| Farm | Owner                     | Legal_Txt                   | ARN             |        |       | Area in Drain | Sect. 22 | Section 23 | Sect. 24 | Total   | Allowances | Net        |
|------|---------------------------|-----------------------------|-----------------|--------|-------|---------------|----------|------------|----------|---------|------------|------------|
|      |                           |                             | Roll No         | ABBREV | Area  |               |          |            |          |         |            |            |
|      | GRANT STEVEN CRAIG        | 5321 SHERKSTON ROAD         | 270302001829700 | 829700 | 3.377 | 3.3779        |          | \$1,404.14 |          | \$1,404 |            | \$1,404.14 |
|      | BRETHREN IN CHRIST CHURCH | 5348 SHERKSTON ROAD         | 270302001829800 | 829800 | 1.992 | 0.9189        |          | \$382.00   |          | \$382   |            | \$382.00   |
|      | WALL JACOB                | 5384 SHERKSTON ROAD         | 270302001829900 | 829900 | 0.564 | 0.1733        |          | \$61.64    |          | \$62    |            | \$61.64    |
|      | SCHINKEL BRUCE VICTOR C   | 5398 SHERKSTON ROAD         | 270302001830000 | 830000 | 0.369 | 0.0884        |          | \$36.58    |          | \$37    |            | \$36.58    |
|      | OSINGA MARK               | 5409 SHERKSTON ROAD         | 270302001830100 | 830100 | 2.247 | 2.2474        |          | \$800.58   |          | \$801   |            | \$800.58   |
|      | SERADA MARK               | 5365 SHERKSTON ROAD         | 270302001830200 | 830200 | 7.587 | 7.5883        |          | \$2,703.53 |          | \$2,704 |            | \$2,703.53 |
|      | VAN HOECKEL MAARTEN JOOST | 184 HOLLOWAY BAY ROAD NORTH | 270302001830300 | 830300 | 0.934 | 0.9346        |          | \$388.65   |          | \$389   |            | \$388.65   |
|      | ZUCCHET MICHAEL FRANK     | 170 HOLLOWAY BAY ROAD NORTH | 270302001830400 | 830400 | 0.158 | 0.1579        |          | \$65.68    |          | \$66    |            | \$65.68    |
|      | BENNETT LAWRENCE WILLIAM  | 148 HOLLOWAY BAY ROAD NORTH | 270302001830500 | 830500 | 0.644 | 0.6438        |          | \$229.45   |          | \$229   |            | \$229.45   |
|      | CULP JENNIFER ELIZABETH   | 124 HOLLOWAY BAY ROAD NORTH | 270302001830600 | 830600 | 0.295 | 0.2951        |          | \$105.11   |          | \$105   |            | \$105.11   |
|      | MARACLE ELIZABETH GRACE   | 104 HOLLOWAY BAY ROAD NORTH | 270302001830700 | 830700 | 0.138 | 0.1381        |          | \$49.17    |          | \$49    |            | \$49.17    |
|      | 1784413 ONTARIO LTD       | 78 HOLLOWAY BAY ROAD NORTH  | 270302001830800 | 830800 | 0.672 | 0.6723        |          | \$279.33   |          | \$279   |            | \$279.33   |
|      | WARWICK DARBY ROYCE       | 5414 MICHENER ROAD          | 270302001830900 | 830900 | 0.510 | 0.5097        |          | \$211.99   |          | \$212   |            | \$211.99   |
|      | HARDY DEREK DENIS         | 5404 MICHENER ROAD          | 270302001831000 | 831000 | 0.522 | 0.5223        |          | \$185.98   |          | \$186   |            | \$185.98   |
|      | KUCY RODNEY ALLEN         | 5392 MICHENER ROAD          | 270302001831100 | 831100 | 0.371 | 0.3716        |          | \$132.54   |          | \$133   |            | \$132.54   |
| F    | BERNARD JAMES DOUGLAS     | 5378 MICHENER ROAD          | 270302001831200 | 831200 | 9.829 | 9.8312        |          | \$3,502.68 |          | \$3,503 |            | \$3,502.68 |
|      | HAGGERTY TIMOTHY ROGER    | 5354 MICHENER ROAD          | 270302001831201 | 831201 | 0.431 | 0.4311        |          | \$153.56   |          | \$154   |            | \$153.56   |
|      | GUENTHER PETER            | 5274 MICHENER ROAD          | 270302001831300 | 831300 | 0.479 | 0.4793        |          | \$170.66   |          | \$171   |            | \$170.66   |

\$60,460

\$59,121

Roads

|                                                              |                       |  |  |  |  |        |  |            |  |         |         |
|--------------------------------------------------------------|-----------------------|--|--|--|--|--------|--|------------|--|---------|---------|
| City of Port Colborne                                        |                       |  |  |  |  |        |  |            |  |         |         |
| Michener Rd From Pleasant Beach Rd To Hollowway Bay Rd South | City of Port Colborne |  |  |  |  | 0.6698 |  | \$715.93   |  | \$716   |         |
| Sherkston Rd From Pleasant Beach Rd To Holloway Bay Rd N     | City of Port Colborne |  |  |  |  | 0.2392 |  | \$255.67   |  | \$256   |         |
|                                                              |                       |  |  |  |  |        |  |            |  | \$972   |         |
| Town of Fort Erie                                            |                       |  |  |  |  |        |  |            |  |         |         |
| Mathews Road North From Michener Rd To Sherkston Rd          | Town of Fort Erie     |  |  |  |  | 0.4867 |  | \$231.21   |  | \$231   |         |
| Michener Rd From Holloway Bay Rd South To Point Abino Rd     | Town of Fort Erie     |  |  |  |  | 1.4477 |  | \$1,547.40 |  | \$1,547 |         |
| Holloway Bay Rd From Watershed To Michener Rd                | Town of Fort Erie     |  |  |  |  | 1.3732 |  | \$1,467.77 |  | \$1,468 |         |
| Holloway Bay Road North From Michener Rd To Sherkston Rd     | Town of Fort Erie     |  |  |  |  | 2.1285 |  | \$2,275.09 |  | \$2,275 |         |
| Sherkston Rd From Mathews Rd. N To Holloway Bay Rd North     | Town of Fort Erie     |  |  |  |  | 1.2239 |  | \$1,308.19 |  | \$1,308 |         |
| Unopened Road Allowance From Holloway Bay Rd. To Mathews Rd  | Town of Fort Erie     |  |  |  |  | 0.2774 |  | \$131.78   |  | \$132   |         |
|                                                              |                       |  |  |  |  |        |  |            |  | \$6,961 |         |
|                                                              |                       |  |  |  |  |        |  |            |  |         | \$7,933 |

Section 26 - Special Assessments

|                                    |
|------------------------------------|
| Regional Municipality of Niagara   |
| MINISTRY OF TRANSPORTATION ONTARIO |
| City of Port Colborne              |
| Town of Fort Erie                  |
| Utilities - Enbridge               |
| Utilities - other                  |

\$0

\$0.00  
\$0.00  
\$0.00  
\$0.00  
\$0.00  
\$0.00

Haggerty Branch Drain

Total Assessed:

\$68,393

Notes:

1. The above lands marked "F" are currently classified as agricultural according to the OMAFRA and are therefore entitled to a 1/3 grant.
2. Section 21 of the Drainage Act, RSO 1990 requires that assessments be shown for each parcel of land and road affected. The affected parcels of land are identified using the
3. The value of the assessments identified in this schedule are estimates only, and should not be considered final.



Table 6 East Branch Drain Assessment Summary

East Branch Drain

| Farm<br>As 'F'    | Owner                    | Legal_Txt                      | Roll No         | ARN<br>ABBREV | Area<br>Ha | Area in<br>Drain<br>Ha | Sect. 22 | Section 23 | Sect. 24 | Total<br>Assessed | Allowances | Net        |
|-------------------|--------------------------|--------------------------------|-----------------|---------------|------------|------------------------|----------|------------|----------|-------------------|------------|------------|
| Town of Fort Erie |                          |                                |                 |               |            |                        |          |            |          |                   |            |            |
|                   | OWNER1                   | LOCATION                       | ARN             |               | PA_area    |                        |          |            |          |                   |            |            |
|                   | NIAGARA PENINSULA        | 0-9990 WILDWOOD AVENUE         | 270302001814800 | 814800        | 20.693     | 0.6676                 |          | \$658      |          | \$658             |            | \$658.40   |
|                   | DRULLARD DAVID W         | 0-9991 POINT ABINO ROAD SOUTH  | 270302001814900 | 814900        | 1.492      | 0.1476                 |          | \$146      |          | \$146             |            | \$145.57   |
|                   | WILDWOOD PROPERTIES INC  | 0-9992 POINT ABINO ROAD SOUTH  | 270302001815000 | 815000        | 3.401      | 0.3384                 |          | \$334      |          | \$334             |            | \$333.74   |
|                   | FLYNN GREGORY JAMES      | 421 POINT ABINO ROAD SOUTH     | 270302001815100 | 815100        | 1.353      | 0.1133                 |          | \$112      |          | \$112             |            | \$111.74   |
|                   | WARD DANIEL F            | 413 POINT ABINO ROAD SOUTH     | 270302001815200 | 815200        | 2.741      | 0.2382                 |          | \$235      |          | \$235             |            | \$234.92   |
|                   | ASIP HOLDINGS INC        | 393 POINT ABINO ROAD SOUTH     | 270302001815300 | 815300        | 11.596     | 1.1522                 | \$589    | \$1,136    |          | \$1,725           |            | \$1,724.82 |
|                   | 1254345 ONTARIO INC      | 371 POINT ABINO ROAD SOUTH     | 270302001815400 | 815400        | 14.954     | 1.491                  | \$153    | \$1,470    |          | \$1,623           |            | \$1,623.45 |
|                   | 357 POINT ABINO ROAD INC | 357 POINT ABINO ROAD SOUTH     | 270302001815500 | 815500        | 1.866      | 0.1838                 |          | \$181      |          | \$181             |            | \$181.27   |
|                   | STARCK COTTAGE LLC       | 349 POINT ABINO ROAD SOUTH     | 270302001815600 | 815600        | 1.100      | 0.1084                 |          | \$107      |          | \$107             |            | \$106.91   |
|                   | PAGE DONALD STEWART      | 329 POINT ABINO ROAD SOUTH     | 270302001815800 | 815800        | 14.795     | 5.9736                 |          | \$5,891    |          | \$5,891           |            | \$5,891.28 |
|                   | WILDWOOD PROPERTIES INC  | 4882 WILDWOOD AVENUE           | 270302001820900 | 820900        | 1.226      | 0.1205                 |          | \$119      |          | \$119             |            | \$118.84   |
|                   | ROYAL ROBERT JAMES       | 4894 WILDWOOD AVENUE           | 270302001821000 | 821000        | 1.226      | 0.1209                 |          | \$119      |          | \$119             |            | \$119.23   |
|                   | WEINERT DIANNE LOGAN     | 0-10060 WILDWOOD AVENUE        | 270302001821100 | 821100        | 1.226      | 0.1206                 |          | \$119      |          | \$119             |            | \$118.94   |
|                   | CYR RUSSELL NORMAN       | 0-10061 WILDWOOD AVENUE        | 270302001821200 | 821200        | 1.226      | 0.1203                 |          | \$119      |          | \$119             |            | \$118.64   |
|                   | CYR RUSSELL NORMAN       | 4920 WILDWOOD AVENUE           | 270302001821300 | 821300        | 1.226      | 0.12                   |          | \$118      |          | \$118             |            | \$118.35   |
|                   | CYR RUSSELL NORMAN       | 0-10063 WILDWOOD AVENUE        | 270302001821400 | 821400        | 1.226      | 0.1198                 |          | \$118      |          | \$118             |            | \$118.15   |
|                   | FIJAVZ BORIS             | 0-10075 POINT ABINO ROAD SOUTH | 270302001822710 | 822710        | 52.870     | 5.2879                 | \$1,430  | \$5,215    |          | \$6,645           |            | \$6,645.03 |
|                   |                          |                                |                 |               |            |                        |          |            |          |                   |            | \$18,369   |

Roads

City of Port Colborne

No CofPC roads

Town of Fort Erie

|                    |                   |         |   |   |        |     |          |  |       |     |          |
|--------------------|-------------------|---------|---|---|--------|-----|----------|--|-------|-----|----------|
| Blind Line From To | Town of Fort Erie | 1000001 | 0 | 0 | 0.2934 | \$0 | \$385.81 |  | \$386 | \$0 | \$385.81 |
|                    |                   |         |   |   |        |     |          |  |       |     | \$386    |

| Section 26 - Special Assessments                                                                                                                                                                                                                                                                           |     |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------|
| Regional Municipality of Niagara                                                                                                                                                                                                                                                                           | \$0 | \$0.00             |
| MINISTRY OF TRANSPORTATION ONTARIO                                                                                                                                                                                                                                                                         | \$0 | \$0.00             |
| City of Port Colborne                                                                                                                                                                                                                                                                                      | \$0 | \$0.00             |
| Town of Fort Erie                                                                                                                                                                                                                                                                                          | \$0 | \$0.00             |
| Utilities - Enbridge                                                                                                                                                                                                                                                                                       | \$0 | \$0.00             |
| Utilities - other                                                                                                                                                                                                                                                                                          |     |                    |
|                                                                                                                                                                                                                                                                                                            | \$0 | \$0.00             |
| <b>East Branch Drain</b>                                                                                                                                                                                                                                                                                   |     |                    |
| <b>Total Assessed:</b>                                                                                                                                                                                                                                                                                     |     | <b>\$18,755.08</b> |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                              |     |                    |
| 1. The above lands marked "F" are currently classified as agricultural according to the OMAFRA and are therefore entitled to a 1/3 grant.                                                                                                                                                                  |     |                    |
| 2. Section 21 of the Drainage Act, RSO 1990 requires that assessments be shown for each parcel of land and road affected. The affected parcels of land are identified using the roll number received from the City. For convenience only, the owners' names are shown by the last revised assessment roll. |     |                    |
| 3. The value of the assessments identified in this schedule are estimates only, and should not be considered final.                                                                                                                                                                                        |     |                    |

## 7 Point Abino Drain Report Conclusions

This report has identified a series of drain improvements, including maintenance, to ensure suitable channel design flows are achieved.

The following are summary descriptions of the planned improvements:

1. The existing Point Abino Outlet requires replacement based on the structural assessment completed by inspection. The existing 84m twin concrete box culvert is to be replaced by a single Point Abino Rd S culvert consisting of precast concrete box segments 3000x1500 of a total length of 14m, with the remainder of the 24m Point Abino Rd S allowance converted to a trapezoidal open channel cross-section using precast concrete blocks. The Point Abino Rd S crossing is wholly paid for by the Town of Fort Erie; however, the replacement of the existing flap gate is assessed to the watershed.
2. Two proposed access culvert crossings, a 3000x1500 – 4m box culvert and a triple 1200 CSP – 6m with inlet grate, are located near the existing outlet and costs are shared 12% to the benefitting landowner and 88% to the watershed.
3. A culvert is to be reconstructed for a wider access lane to 341 Pleasant Beach Rd, Roll No. 271104000108500 and those costs are shared 50% to the benefitting landowner and 50% to the Point Abino watershed.
4. A culvert is to be replaced for private access to 226 Holloway Bay Rd, Roll No. 271104000102800 and those costs are shared 50% to the benefitting landowner and 50% to the Haggerty Branch Drain watershed.
5. Proposed Haggerty Branch maintenance from station 20+010 to 20+960, 950m of clearing and excavation to design grade.
6. The former Branch #1, referred to in this report as the Haggerty Branch Drain, is proposed to be abandoned as a municipal drain north of station 20+960. This portion of the Drain was introduced in the previous report but removed from construction.
7. The portion of the Drain that once was the original Point Abino Drain outlet, is proposed as the Point Abino Drain East Branch. From the review of documents covering the history of the Drain, it would appear that this portion of the Drain was not formerly abandoned by a report. The proposed East Branch Drain It extends from the existing confluence as the outlet on the Point Abino Drain at station 1+902 for 457m west of the Point Abino Rd S allowance property line. The East Branch does not include the Point Abino Rd S runoff and serves the properties adjacent to the Drain. The proposed Drain cross-section is a two-stage channel of low and flood flow banks so that the flood flow channel can be mowed.
8. Point Abino Drain maintenance in the City of Port Colborne from station 3+345 to 4+719, 1,374m of clearing and excavation to design grade. Includes the removal of existing pipes from the end of the drain.
9. Point Abino Drain spot maintenance in the Town of Fort Erie from station 0+225 to 3+345 is a program to remove tree falls and other flow obstructions.



The best method for access and performance is to be determined by the Drainage Superintendent.

**Appendix A:**  
**Drainage Design Drawings;**  
**Plans, Profiles**

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# POINT ABINO MUNICIPAL DRAIN

CITY OF PORT COLBORNE AND THE TOWN OF FORT ERIE

APRIL 9, 2025

## DRAWING INDEX

| DWG I.D.           | DWG Title                                                   |
|--------------------|-------------------------------------------------------------|
| DWG-001            | POINT ABINO DRAIN WATERSHED PLAN OF CONSTRUCTION            |
| <del>DWG-002</del> | <del>OVERALL WATERSHED PLAN - ENLARGEMENT</del>             |
| DWG-003            | POINT ABINO DRAIN - OVERALL PROFILE                         |
| DWG-004            | POINT ABINO DRAIN PROFILE 1 OF 3                            |
| DWG-005            | POINT ABINO DRAIN PROFILE 2 OF 3                            |
| DWG-006            | POINT ABINO DRAIN PROFILE 3 OF 3                            |
| DWG-007            | HAGGERTY BRANCH DRAIN PROFILE                               |
| DWG-008            | EAST BRANCH PLAN AND PROFILE                                |
| DWG-009            | POINT ABINO DRAIN PLAN/PROFILE - OUTLET CULVERT             |
| DWG-010            | PAM-CS-04 TRIPLE CULVERT REPLACEMENT WITH HEADWALL -DETAILS |
| DWG-011            | POINT ABINO DRAIN OUTLET CONTROL STRUCTURE - DETAILS        |
| DWG-GD01           | GENERAL DETAILS                                             |
| DWG-GD02           | GENERAL NOTES                                               |
| DWG-CS01           | POINT ABINO CONSTRUCTION STAGING - EXISTING AND PROPOSED    |
| DWG-CS02           | POINT ABINO CONSTRUCTION STAGING - STAGES 1, 2A AND 2B      |
| DWG-CS03           | POINT ABINO CONSTRUCTION STAGING -STAGES 3A, 3B AND 3C      |
|                    |                                                             |
|                    |                                                             |

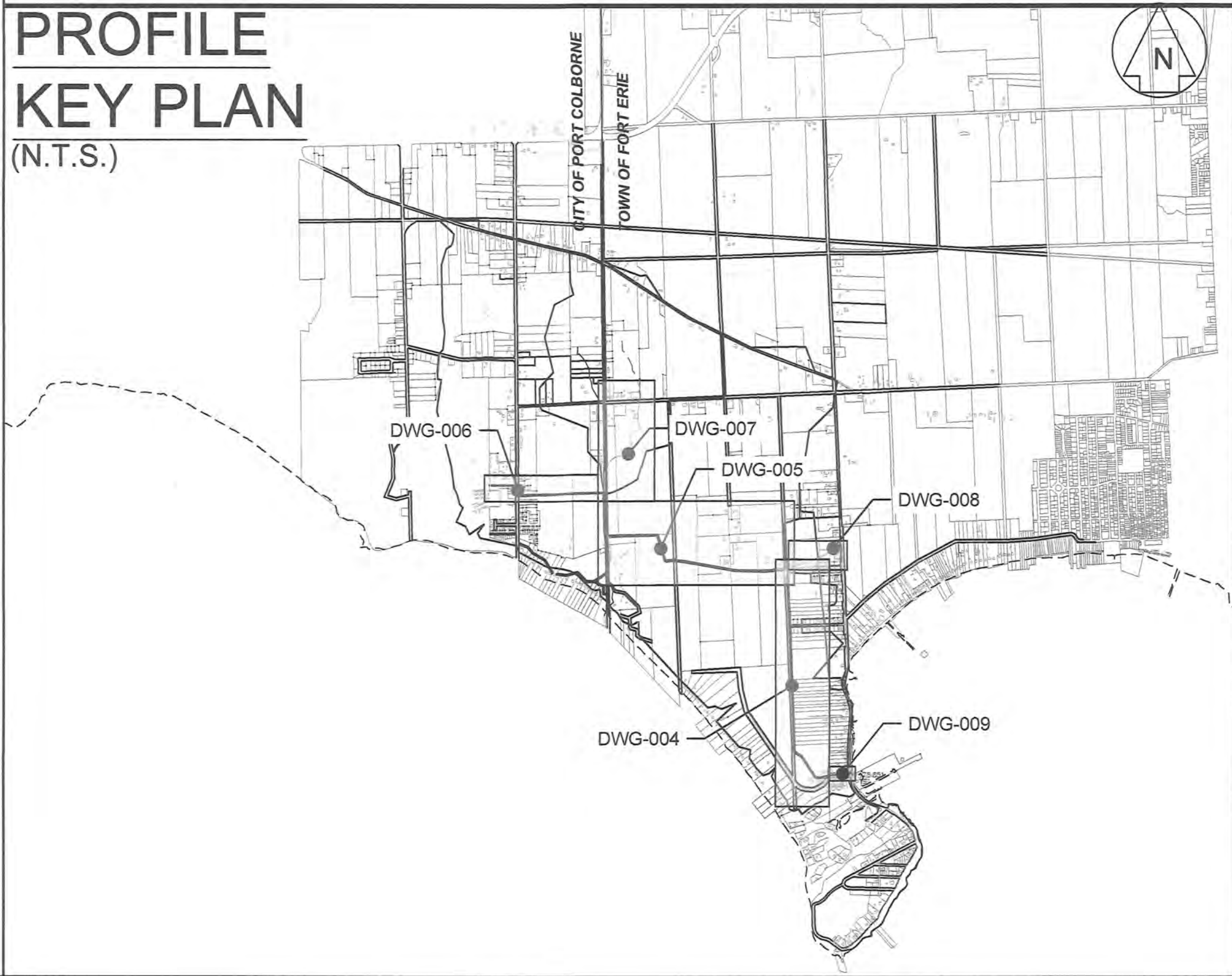
## LOCATION PLAN

(N.T.S.)



## PROFILE KEY PLAN

(N.T.S.)

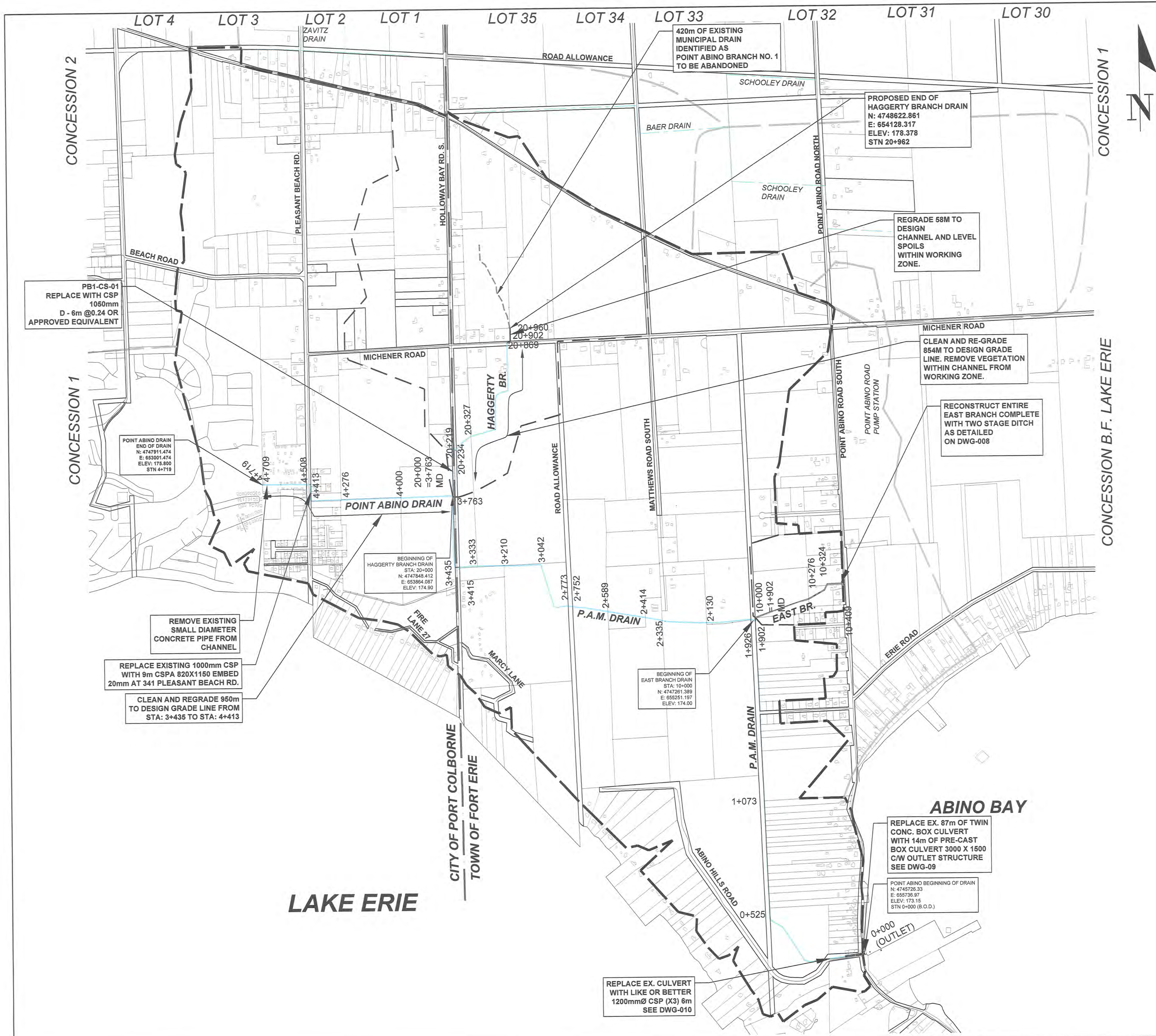


BYLAW APPOINTMENT BY CITY OF PORT COLBORNE  
6729/93/19

DRAINAGE ENGINEER: PAUL C. MARSH, P. ENG  
ISSUED WITH POINT ABINO DRAIN REPORT DATED:  
APRIL 9, 2025







**LEGEND**

- PROJECT DRAIN CENTRELINE
- ADJACENT DRAIN CENTRELINE
- WATERSHED BOUNDARY
- INTERIOR WATERSHED LINES
- ADJACENT WATERSHED BOUNDARIES
- 1983 CLARKE REPORT WATERSHED
- ROAD/STREET
- ROAD ALLOWANCE LIMITS
- PROPERTY ASSESSMENT ROLL NUMBERS
- LIMITS OF EX. HAGGERTY BRANCH TO BE ABANDONED

**NOTES**

DRAWINGS ARE BASED ON INFORMATION PROVIDED BY THE CITY OF PORT COLBORNE, TOWN OF FORT ERIE AND OPEN DATA FROM ONTARIO, NIAGARA PENINSULA CONSERVATION AUTHORITY, REGIONAL MUNICIPALITY OF NIAGARA AND OTHER ACCESSIBLE DATA. ALL OTHER INFORMATION IS PROVIDED FOR PROJECT REFERENCE BUT IS NOT TO BE RELIED ON FOR CONSTRUCTION OR ANY OTHER PURPOSE OTHER THAN INCLUSION IN THE BASELINE REPORT.

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| ISSUED FOR/REVISIONS | No. | YYYY/MM/DD | BY |

CONTROL POINTS:

CONSULTANT:



DESIGN BY: P.M.

DRAWN BY: A.J.L/P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024

STAMP:



**POINT ABINO DRAIN**

**WATERSHED PLAN OF  
CONSTRUCTION**

HOR. SCALE - F.T.P. VERT. SCALE - N/A

STN: N/A TO: N/A

PROJECT NO: 19-9997

DWG NO: DWG-001







LEGEND

- EX. WATER LEVEL  
PROPOSED DRAIN BOTTOM  
EX. DITCH BOTTOM  
EX. TOP OF BANK

NOTES

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APPROVED BY: P.M.

DATE: DEC 20, 2024

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POINT ABINO DRAIN

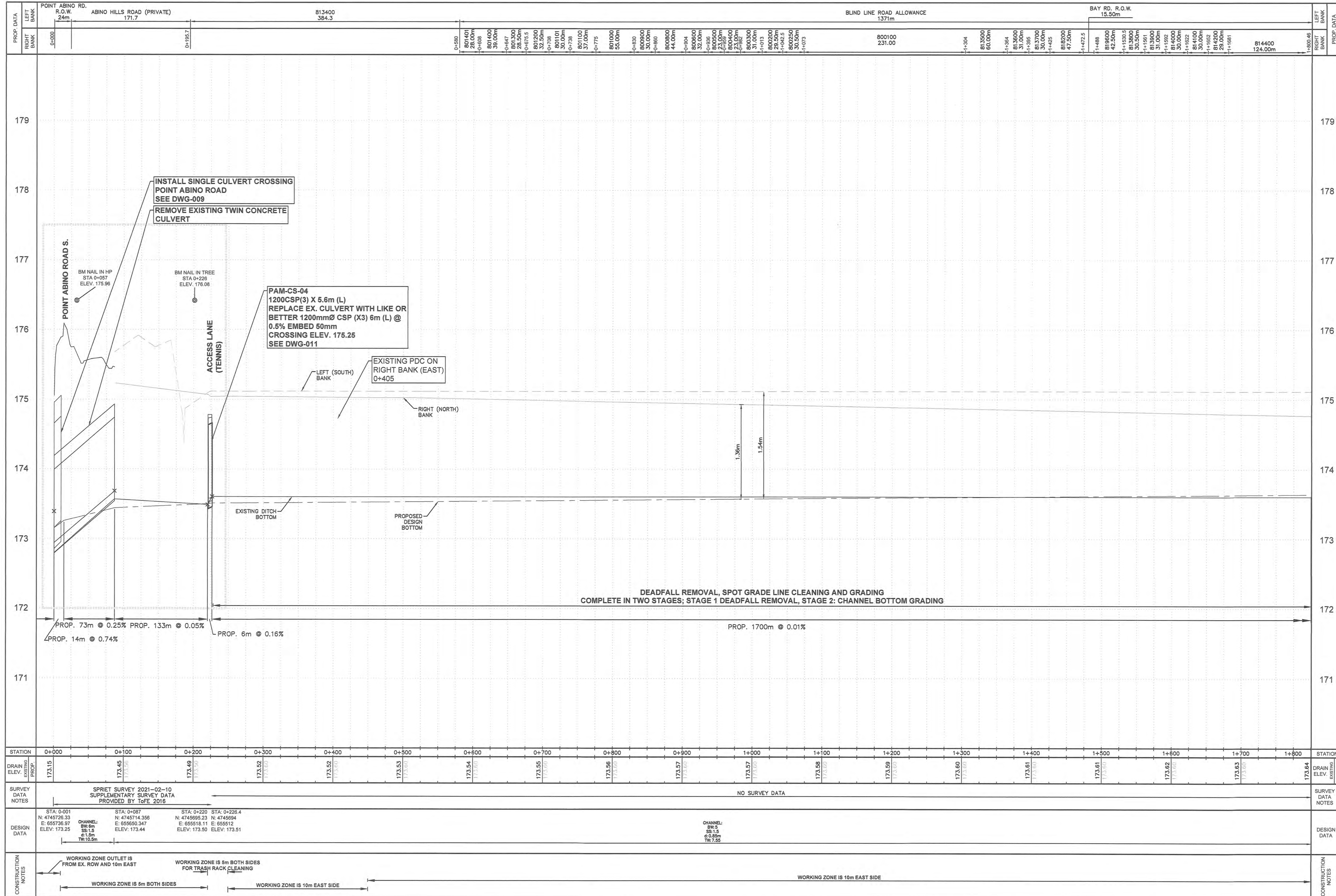
POINT ABINO DRAIN  
PROFILE 1 OF 3

HOR. SCALE - 1:2500 VERT. SCALE - 1:25

STN: 0+000 TO: 1+800

PROJECT NO: 19-9997

DWG NO: DWG-004





### LEGEND

EX. WATER LEVEL  
PROPOSED DRAIN BOTTOM  
EX. DITCH BOTTOM  
EX. TOP OF BANK

## NOTES

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CONTROL POINTS:

CONSULTANT:



DESIGN BY: P.M.

DRAWN BY: A.J.L/P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024



### POINT ABINO DRAIN

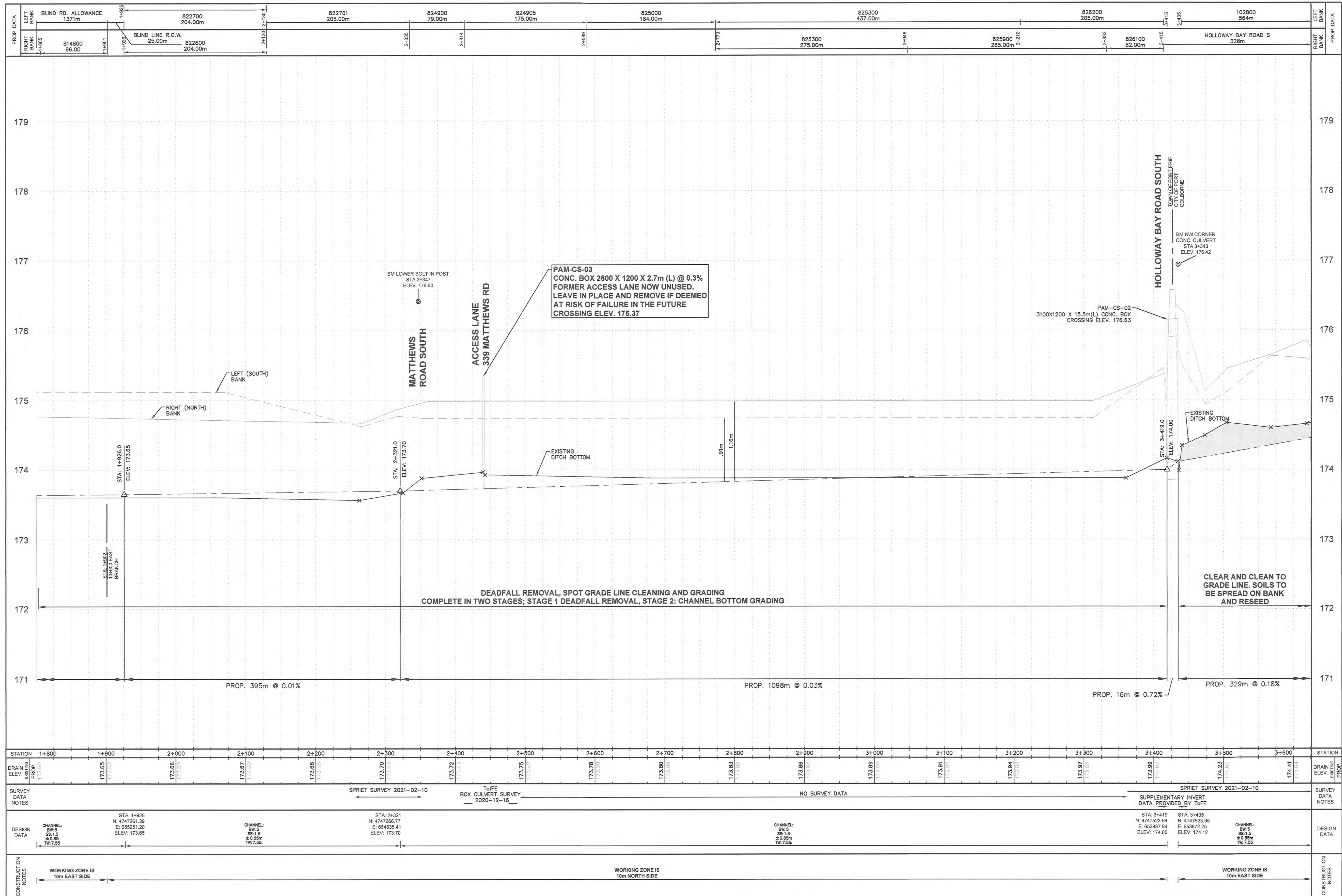
# POINT ABINO DRAIN PROFILE 2 OF 3

HOR. SCALE - 1:2500      VERT. SCALE - 1:25

STN: 1+800 TO: 3+600

PROJECT NO: 19-9997

DWG NO: DWG-005





LEGEND

- EX. WATER LEVEL  
EX. DESIGN BOTTOM  
EX. DITCH BOTTOM  
EX. TOP OF BANK

NOTES

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CONTROL POINTS:

CONSULTANT:



DESIGN BY: P.M.

DRAWN BY: A.J.L/P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024

STAMP:



POINT ABINO DRAIN

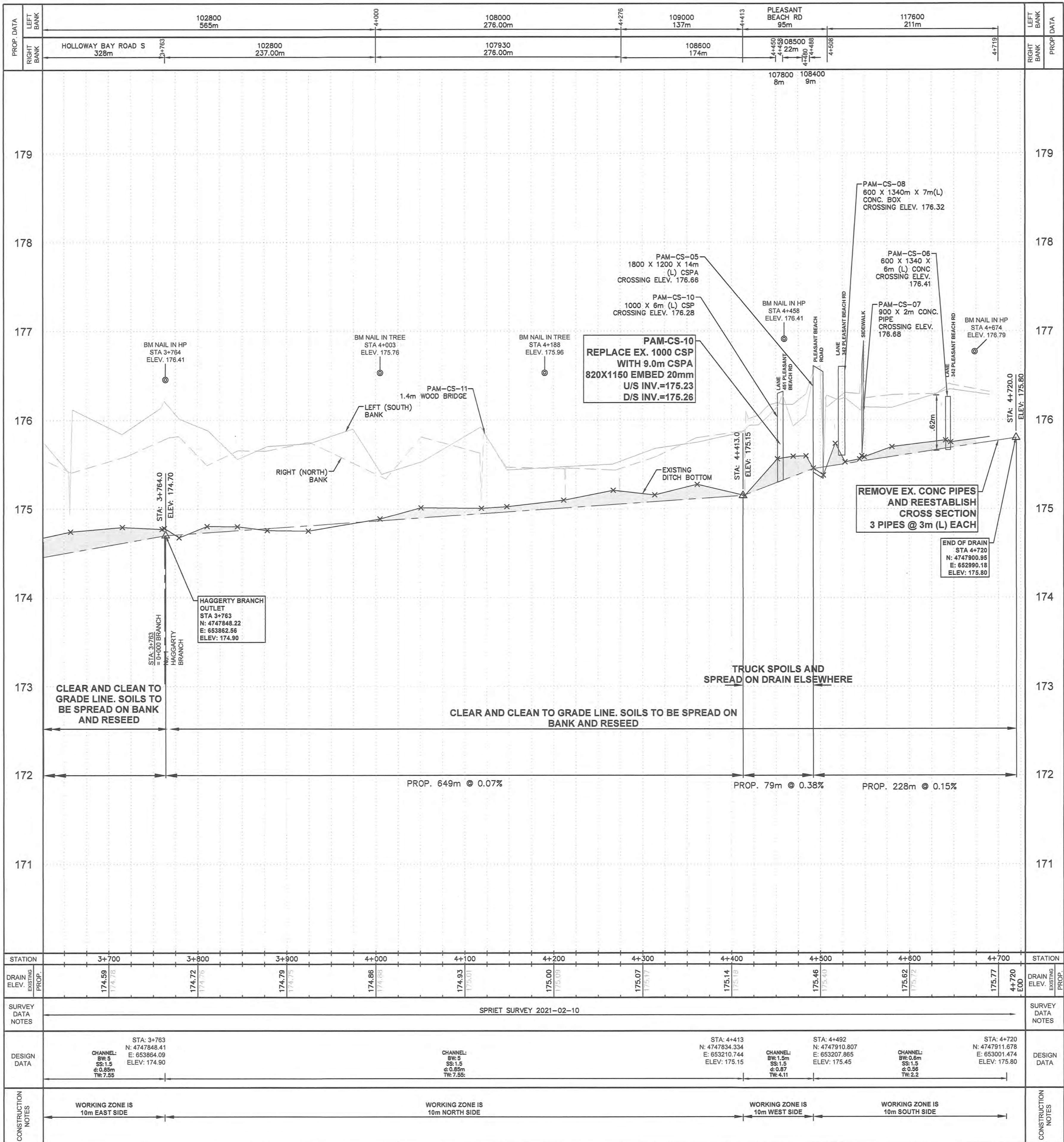
POINT ABINO DRAIN  
PROFILE 3 OF 3

HOR. SCALE - 1:2500 VERT. SCALE - 1:25

STN: 3+600 TO: 4+700

PROJECT NO: 19-9997

DWG NO: DWG-006







66 CHARLOTTE ST. PORT  
COLBORNE ON, L3K 3C8  
905-835-2900



1 MUNICIPAL CENTRE DR.  
FORT ERIE ON, L2A 2S6  
905-871-1600

LEGEND

- EX. WATER LEVEL  
EX. DESIGN BOTTOM  
EX. DITCH BOTTOM  
EX. TOP OF BANK

NOTES

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CONTROL POINTS:

CONSULTANT:



DESIGN BY: P.M.

DRAWN BY: A.J.L/P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024



POINT ABINO DRAIN

HAGGERTY BRANCH DRAIN  
PROFILE

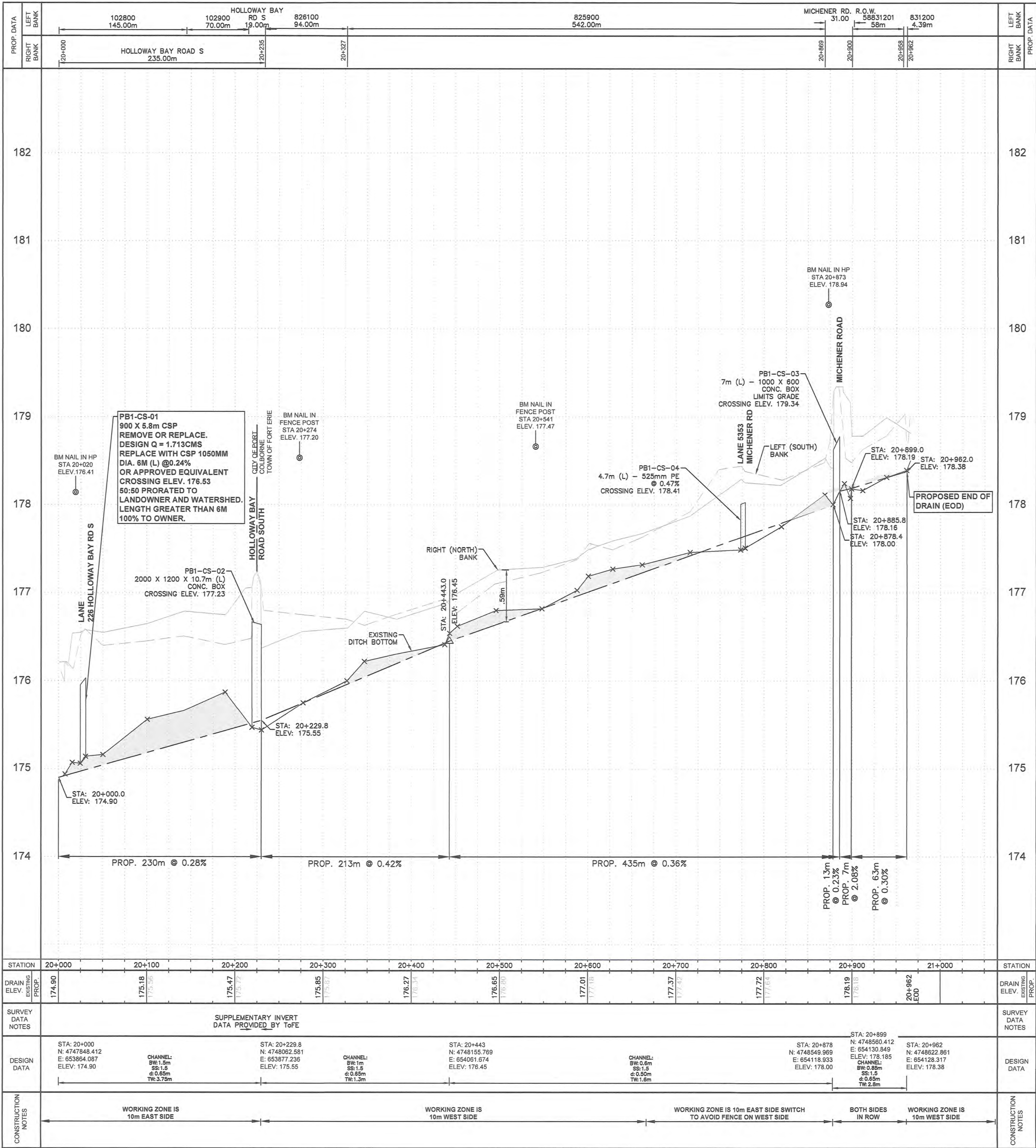
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STN: 20+000 TO: 21+000

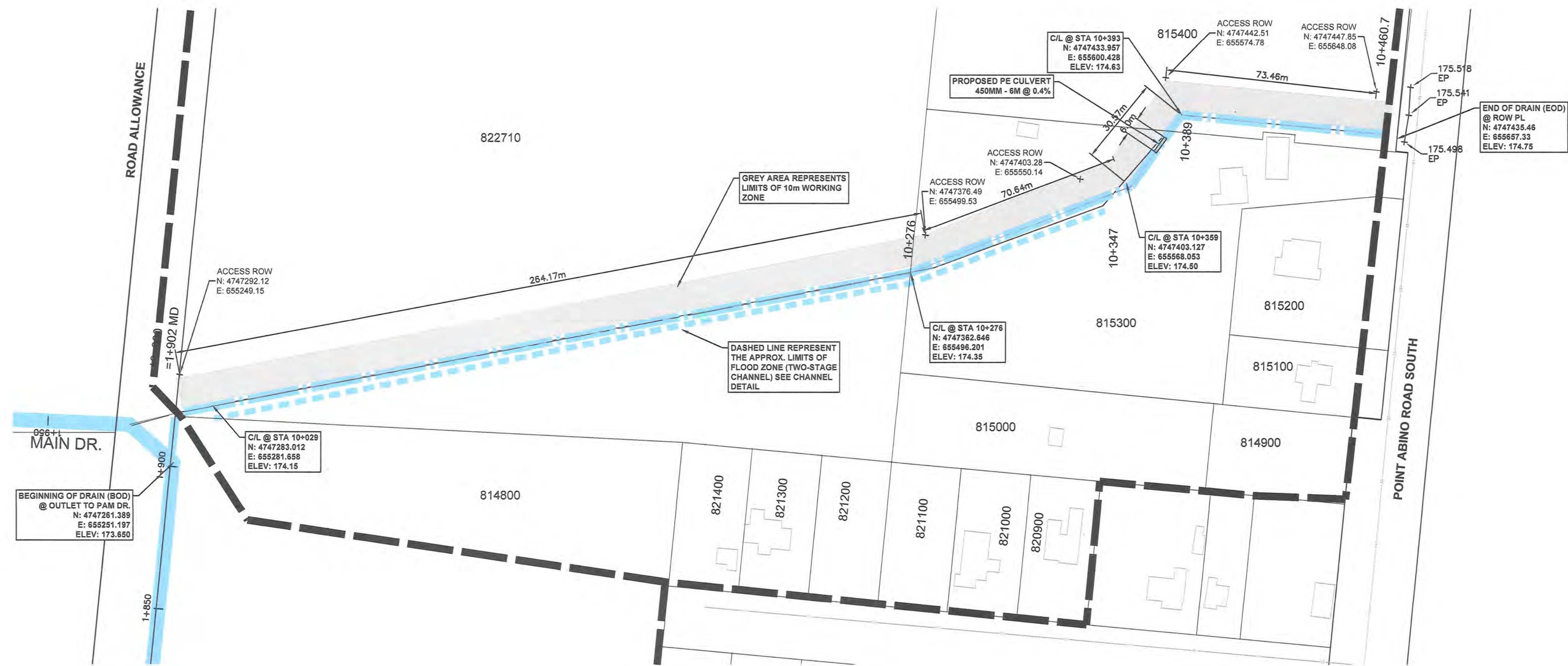
PROJECT NO: 19-9997

DWG NO: DWG-007

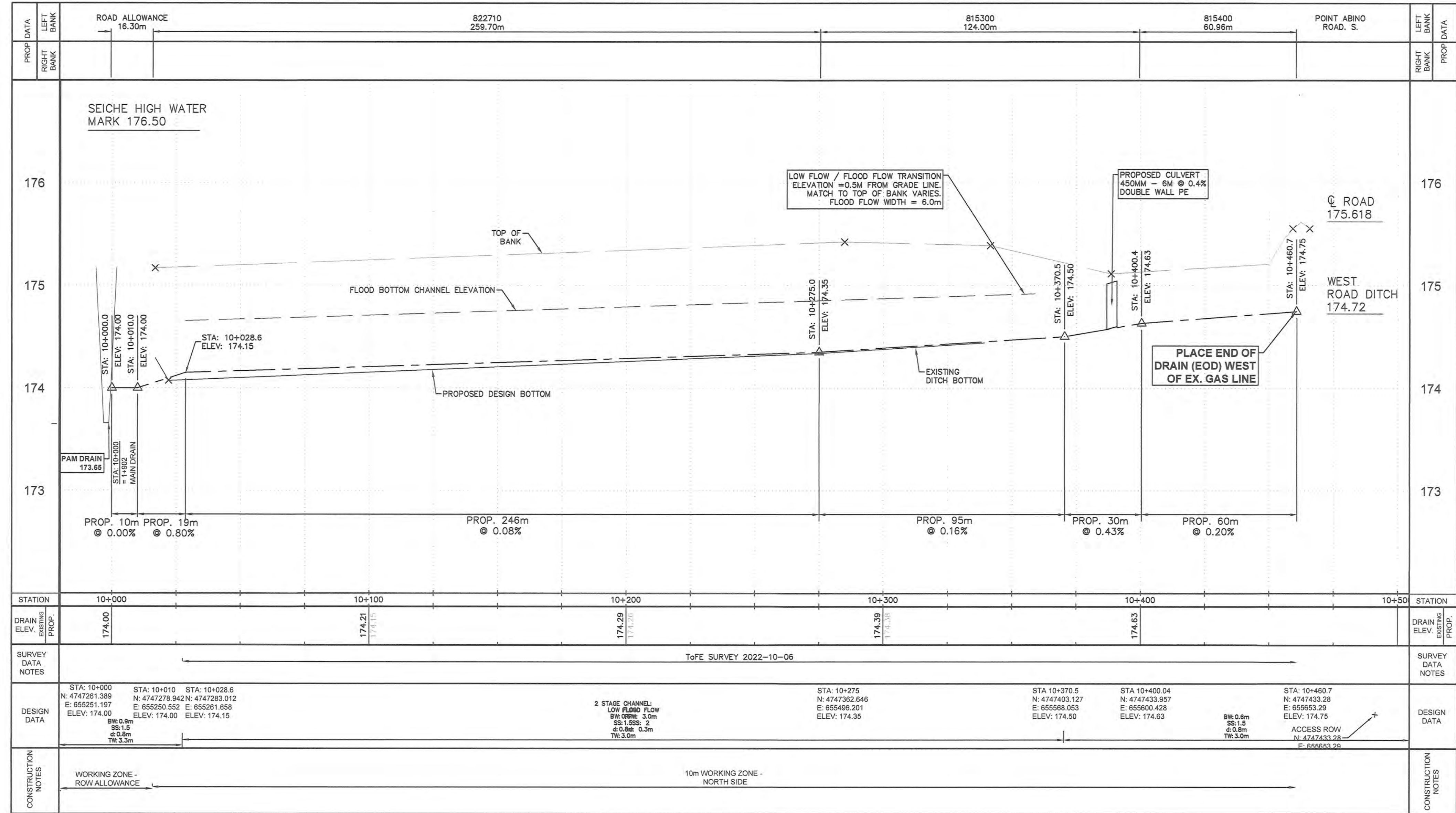
HAGGERTY BRANCH DRAIN



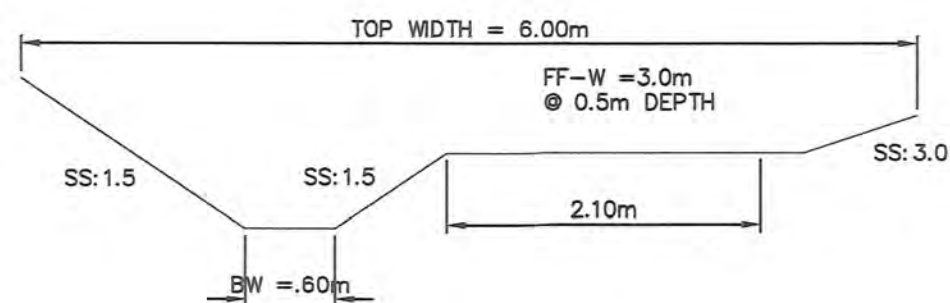




EAST BRANCH



WORKING ZONE:  
10m



LOW FLOW/FLOOD FLOW  
CHANNEL DETAIL - EAST  
BRANCH  
SCALE: NTS

LEGEND

- EX. WATER LEVEL
- EX. DESIGN BOTTOM
- EX. DITCH BOTTOM
- EX. TOP OF BANK

NOTES

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| ISSUED FOR REPORT    | 01  | 2025/04/09 | PM |
| ISSUED FOR/REVISIONS | No. | YYYY/MM/DD | BY |

CONTROL POINTS:

CONSULTANT:



DESIGN BY: P.M.

DRAWN BY: A.J.L/P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024

STAMP:



POINT ABINO DRAIN

EAST BRANCH PLAN AND  
PROFILE

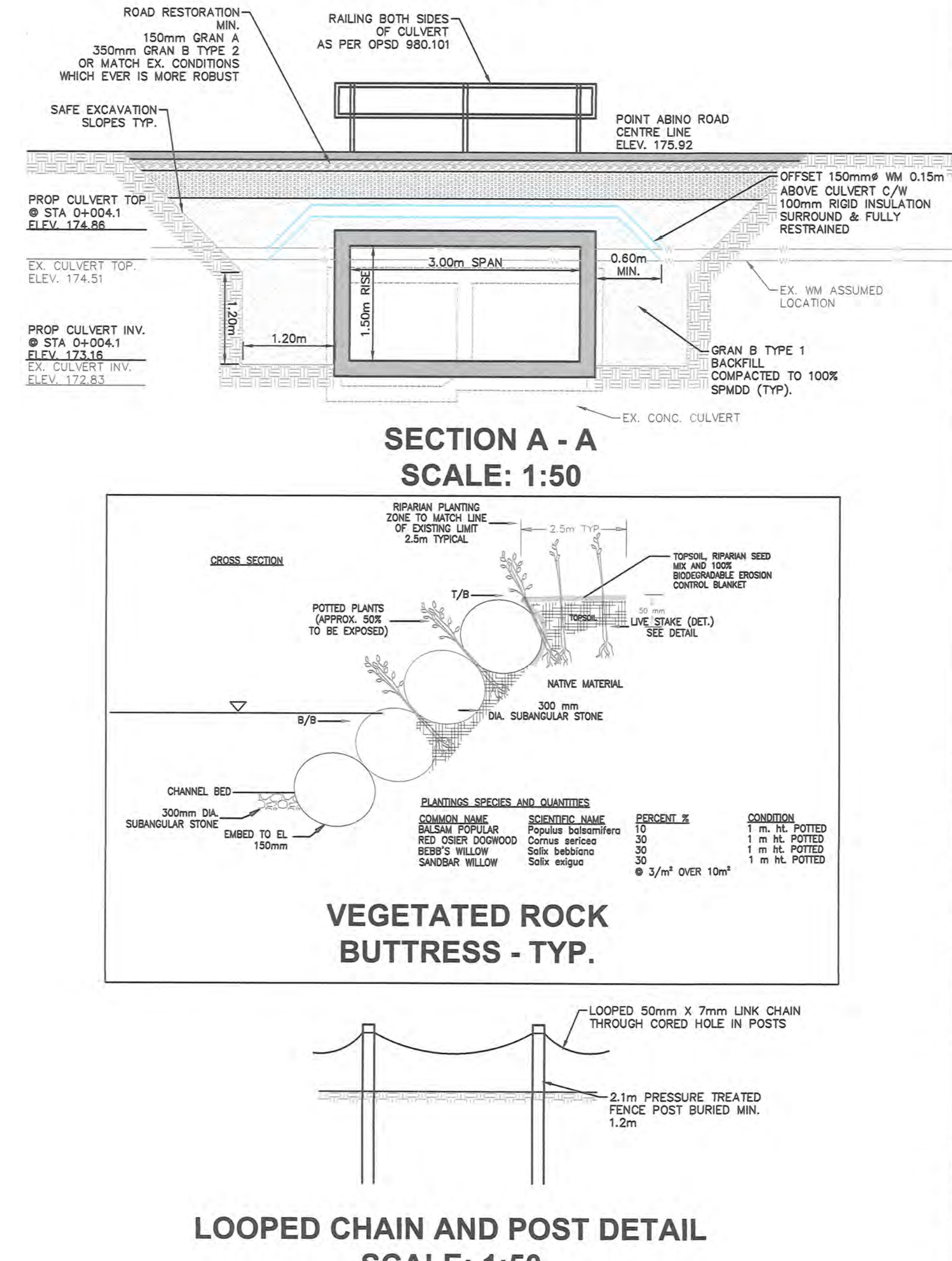
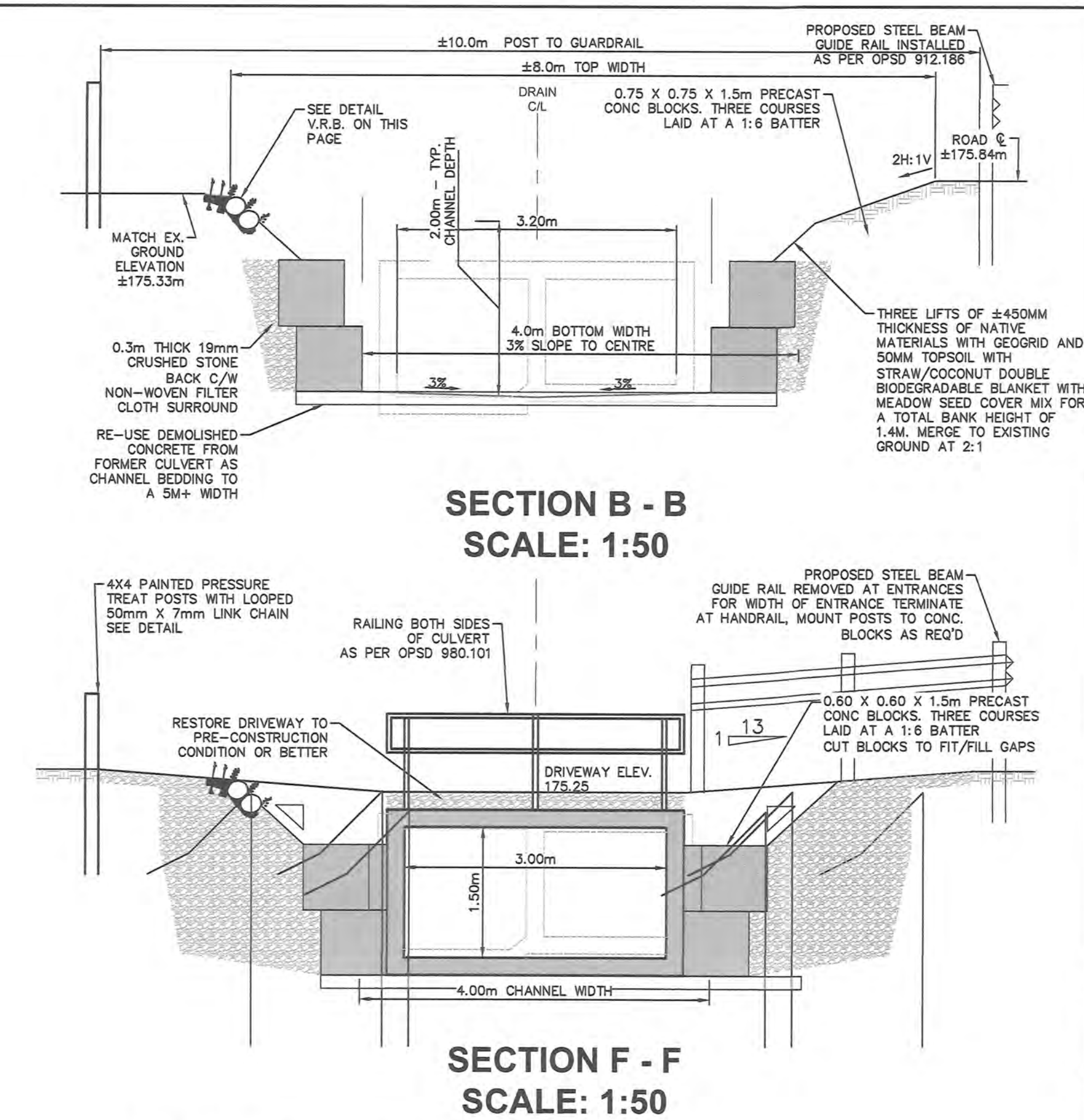
HOR. SCALE - 1:1000 VERT. SCALE - 1:25

STN: 10+000 TO: 10+457

PROJECT NO: 19-9997

DWG NO: DWG-008





## LEGEND

|             |                              |
|-------------|------------------------------|
| —S(4)—      | SANITARY SEWER               |
| —ST—        | STORM SEWER                  |
| —W—         | WATER MAIN                   |
| —WS—        | WATER SERVICE                |
| —G—         | NATURAL GAS LINE             |
| —UP—        | UNDERGROUND POWER LINE       |
| —OHP—       | OVERHEAD POWER LINE          |
| —FOF—       | UNDERGROUND FIBRE OPTIC LINE |
| —B—         | UNDERGROUND BELL LINE        |
| —C—         | UNDERGROUND CABLE LINE       |
| —DTS—       | DITCH/SWALE                  |
| ——X——       | TOP OF SLOPE, TOP OF BANK    |
| —X—X—X—X—X— | FENCE                        |
| —E—         | EDGE OF GRAVEL               |
| —C—         | CURB, DROPPED CURB           |
| —EP—        | EDGE OF PAVEMENT             |
| —MH—        | MAINTENANCE HOLE             |
| —CH—        | CLEAN OUT                    |
| —CB—        | CATCH BASIN                  |
| —V—         | VALVE                        |
| —S—         | SIGN                         |
| —GV—        | GAS VALVE                    |
| —UD—        | UTILITY PEDestal             |

## NOTES

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CONTROL POINTS:

CONSULTANT:

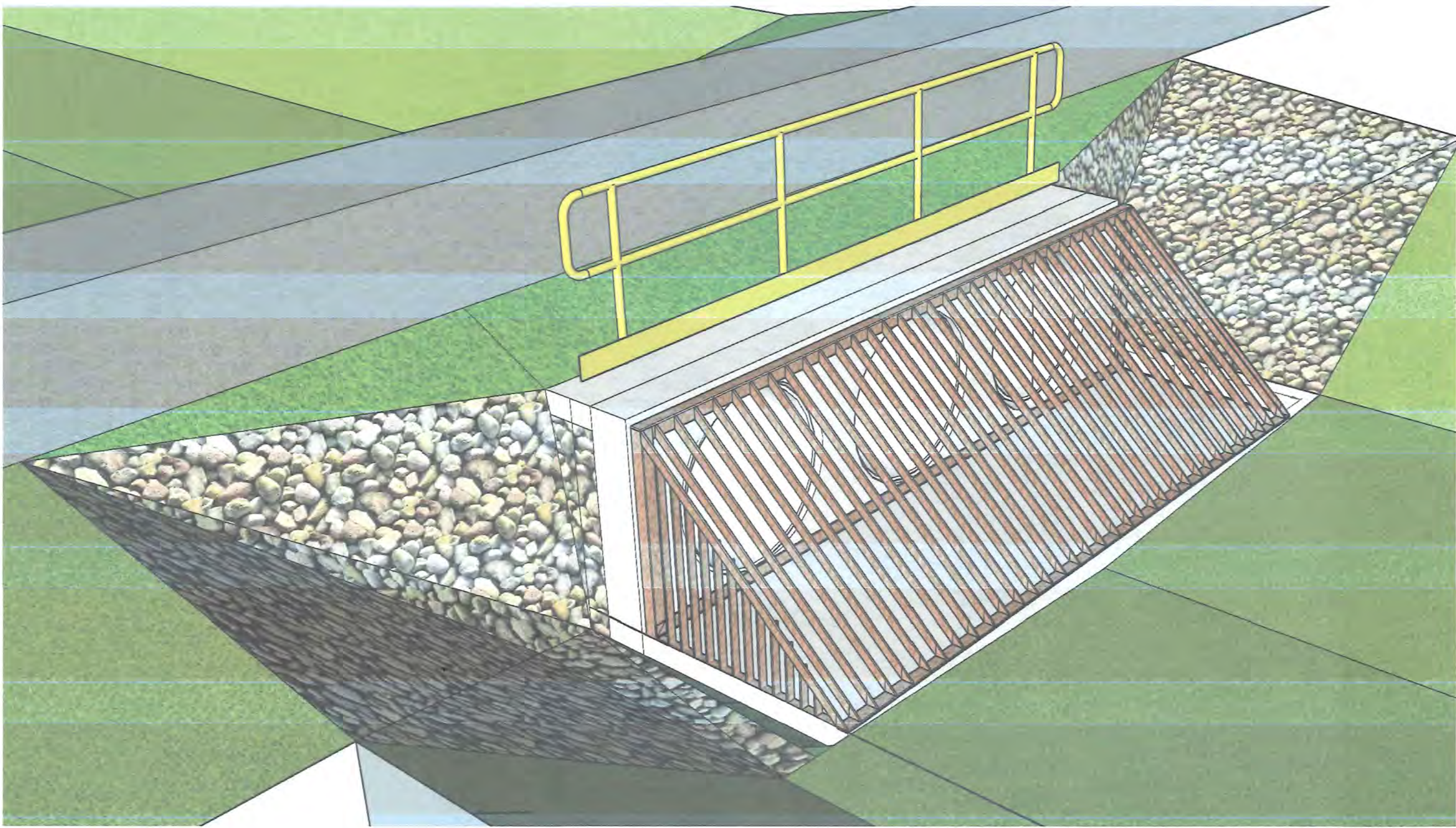


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| DESIGN BY: P.M.      | STAMP:<br> |
| DRAWN BY: A.J.L/P.M. |                                                                                                 |
| CHECKED BY: P.M.     |                                                                                                 |
| APPROVED BY: P.M.    |                                                                                                 |
| DATE: DEC 20, 2024   |                                                                                                 |

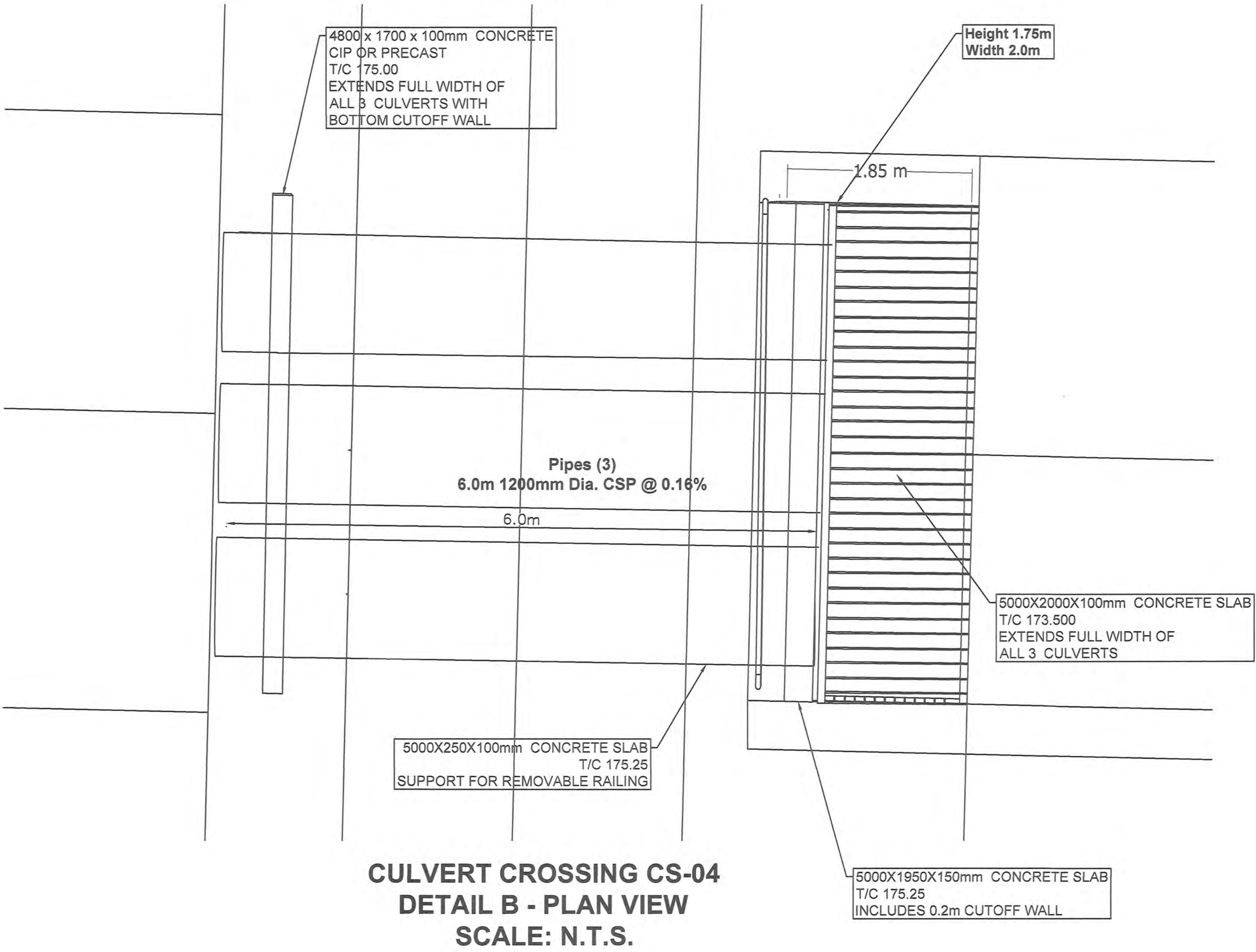
POINT ABINO DRAIN  
POINT ABINO DRAIN  
PLAN/PROFILE - OUTLET  
CULVERT

|                     |                    |
|---------------------|--------------------|
| HOR. SCALE - 1:250  | VERT. SCALE - 1:25 |
| STN: - 0+010        | TO: 0+100          |
| PROJECT NO: 19-9997 |                    |
| DWG NO: DWG-009     |                    |





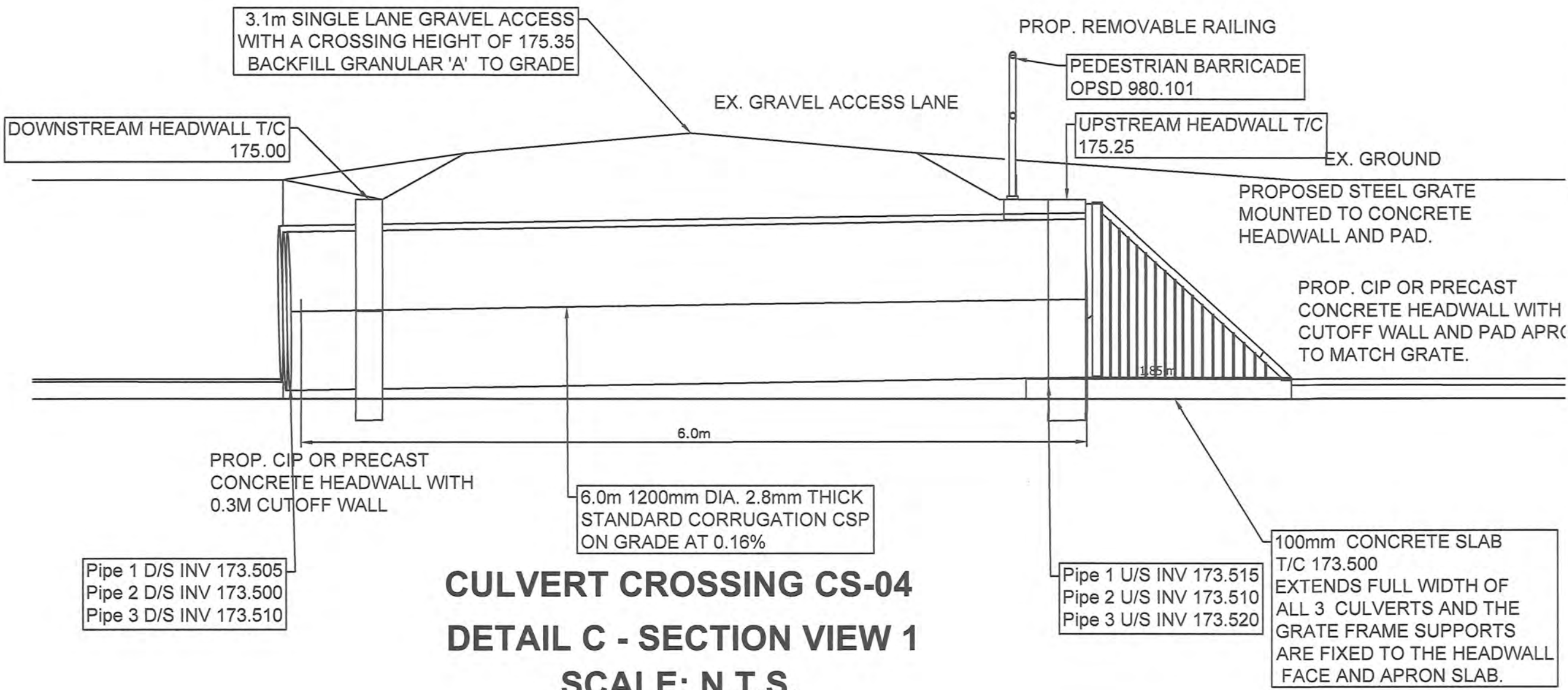
CULVERT CROSSING CS-04  
DETAIL A - PERSPECTIVE VIEW  
SCALE: N.T.S.



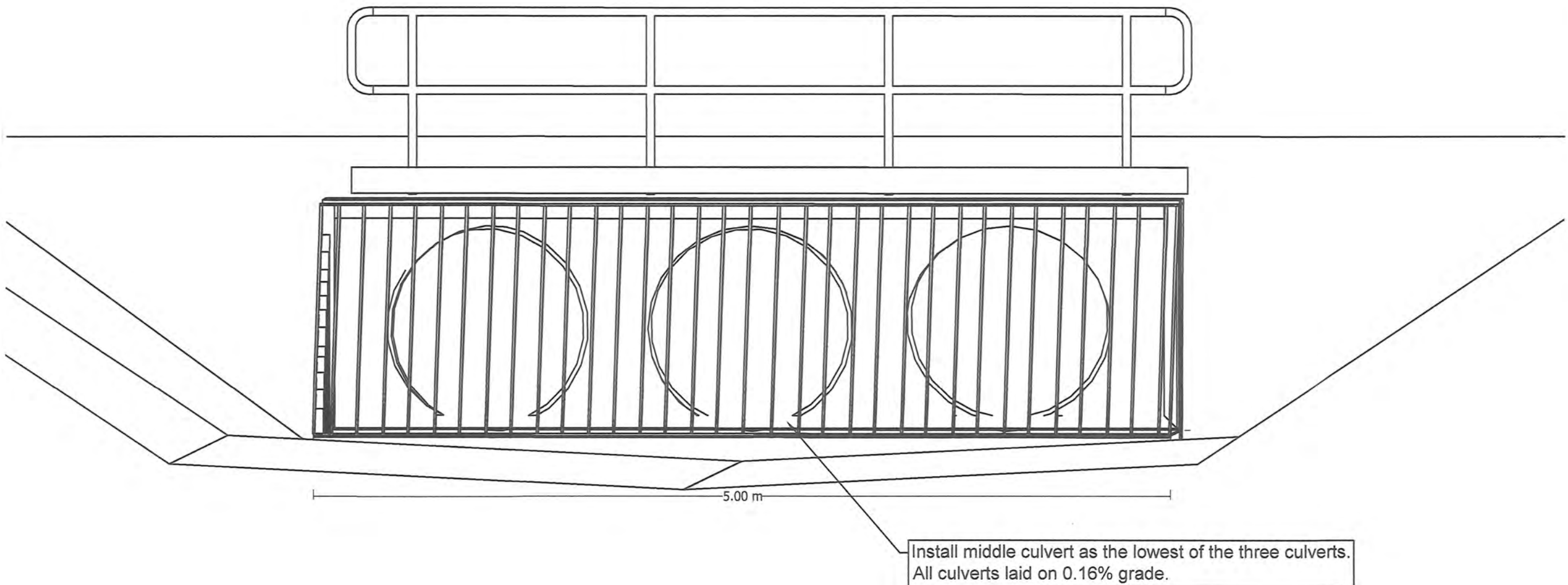
CULVERT CROSSING CS-04  
DETAIL B - PLAN VIEW  
SCALE: N.T.S.

PAM-CS-04 TENNIS COURTS TRIPLE CULVERT ACCESS LANE

- A. CSP IS TO BE STANDARD 6M LENGTH. CORRUGATED STEEL PIPE (CSP) 68MM X 13MM CORRUGATED WITH 2.8MM THICKNESS. OTHER CULVERT MATERIALS ARE ACCEPTABLE THROUGH THE SUBMISSION FOR EQUIVALENCY PROCESS USING A SHOP DRAWING.
- B. THREE STANDARD CSP SIZED AT 1200MM DIAMETER ACHIEVING A 4 CMS FLOW INLET CONDITION WITH 0.3M FREE BOARD ON THE CROSSING HEIGHT.
- C. THE HEADWALL ON THE UPSTREAM SIDE OF THE CULVERTS IS REQUIRED AS PER OPSD 804.040. DIMENSIONS 'B' AND 'C' ARE MODIFIED TO 2000MM AND 2400MM RESPECTIVELY. PRECAST IS PREFERRED BUT ALTERNATE METHODS CAN BE CONSIDERED USING THE SHOP DRAWING SUBMITTAL PROCESS. UPSTREAM HEADWALL TO HAVE A FINISHED HEIGHT OF 175.25 ELEVATION.
- D. THE STEEL GRATE IS TO BE SUPPLIED FOR THE UPSTREAM HEADWALL. THE STEEL GRATE IS TO BE REMOVABLE. THE GRATE IS TO BE ATTACHED TO THE TOP OF THE HEADWALL 175.25 ELEVATION FITTING A HEIGHT OF 1.75M AND A BASE OF 2M WITH A LENGTH OF 2.66M OF VERTICAL INSTALL SLATS OF 0.313 X 1.500 MILD STEEL HOT ROLLED FLAT BAR. GRATE BAR SPACING IS TO BE NO GREATER THAN 100MM. THE GRATE IS SUPPLIED AS 3 SECTIONS THAT ARE REMOVABLE USING TWO LIFTING HOOKS, (ONE AT THE TOP AND ONE AT MIDPOINT BETWEEN THE TOP AND THE BOTTOM) FOR EACH GRATE. THE TWO END GRATES ARE TO HAVE SIDE BARS TO MATCH THE WING WALLS.
- E. THE HEADWALL ON THE DOWNSTREAM SIDE OF THE CULVERT IS REQUIRED AS PER OPSD 804.030 INSTALLED WITH A TOP HEIGHT OF 175.00. THERE IS NO GRATE REQUIRED ON THE DOWNSTREAM HEADWALL.
- F. CONSTRUCT WITH APPROVED GRAVEL MATERIALS AND PROVIDE A 3.1M WIDE GRANULAR 'A' SINGLE CROSSING LANE WITH A 100MM DEPTH AND GRADED WITH A 3% CROWN ON A MINIMUM 175.35M CROSSING HEIGHT GRADED TO MATCH THE ENTRANCE LOCATED ON POINT ABINO HILLS ROAD.
- G. RIP RAP CULVERT ENTRANCE BANKS. GRADE BANKS TO 1.5:1 SIDE SLOPE.



CULVERT CROSSING CS-04  
DETAIL C - SECTION VIEW 1  
SCALE: N.T.S.



CULVERT CROSSING CS-04  
DETAIL D - SECTION VIEW 2  
SCALE: N.T.S.

LEGEND

NOTES

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| ISSUED FOR FINAL REPORT                                                                        | 01  | 2025/04/09 | PM |
| ISSUED FOR REVISIONS                                                                           | No. | YYYY/MM/DD | BY |
| CONTROL POINTS:<br>BENCHMARK: NAIL IN TREE<br>pt. 104 N 4745675.094 E 655522.139 Elev. 176.082 |     |            |    |

CONSULTANT:



|                    |                                                                                                 |
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| DESIGN BY: P.M.    | STAMP:<br> |
| DRAWN BY: P.M.     |                                                                                                 |
| CHECKED BY: P.M.   |                                                                                                 |
| APPROVED BY: P.M.  |                                                                                                 |
| DATE: DEC 20, 2024 |                                                                                                 |

|                                                              |               |
|--------------------------------------------------------------|---------------|
| POINT ABINO DRAIN                                            |               |
| PAM-CS-04 TRIPLE CULVERT REPLACEMENT WITH HEADWALL - DETAILS |               |
| HOR. SCALE -                                                 | VERT. SCALE - |
| STN: -                                                       | TO:           |
| PROJECT NO: 19-9997                                          |               |
| DWG NO: DWG-010                                              |               |



ORIGIN BM: 999  
N: 4745725.300  
E: 655735.902  
ELEV: 175.045  
DESC: CUT CROSS TOP  
OF HEAD WALL

REF. BENCHMARK: 1859  
N: 4745711.383  
E: 655713.997  
ELEV: 175.841  
DESC: FH

ABINO HILLS RD.

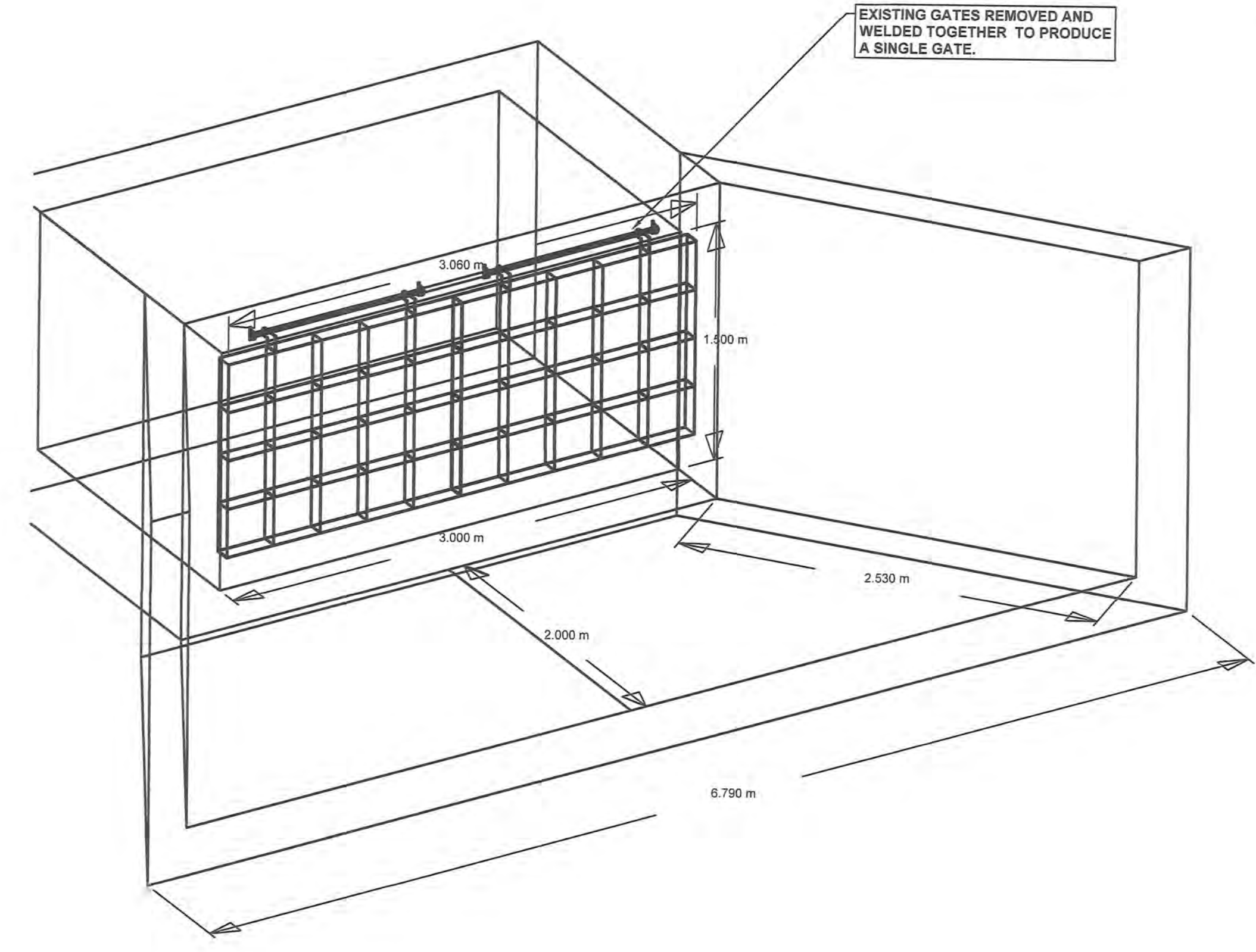
INSTALL STEEL GRATE ON UPSTREAM SIDE OF  
POINT ABINO RD CULVERT CROSSING.  
STEEL GRATE TO BE SUPPLIED AS A REMOVABLE  
GRATE. CONFIRM CONFIGURATION WITH SHOP  
DRAWING SUBMITTALS.  
GATE TO BE NOT LESS THAN 3.4m WIDE AND 1.7m  
TALL.  
GRATE BAR SPACING TO BE 100mm MAXIMUM.

PROPOSED OUTLET  
STRUCTURE WITH WING  
WALLS AND UNDERFLOW  
CUTOFF WALL.  
REMOVE EXISTING STEEL  
SWING GATES AND REMOUNT  
AS A SINGLE GATE ON  
PROPOSED 3000X1500  
PRECAST OUTLET.

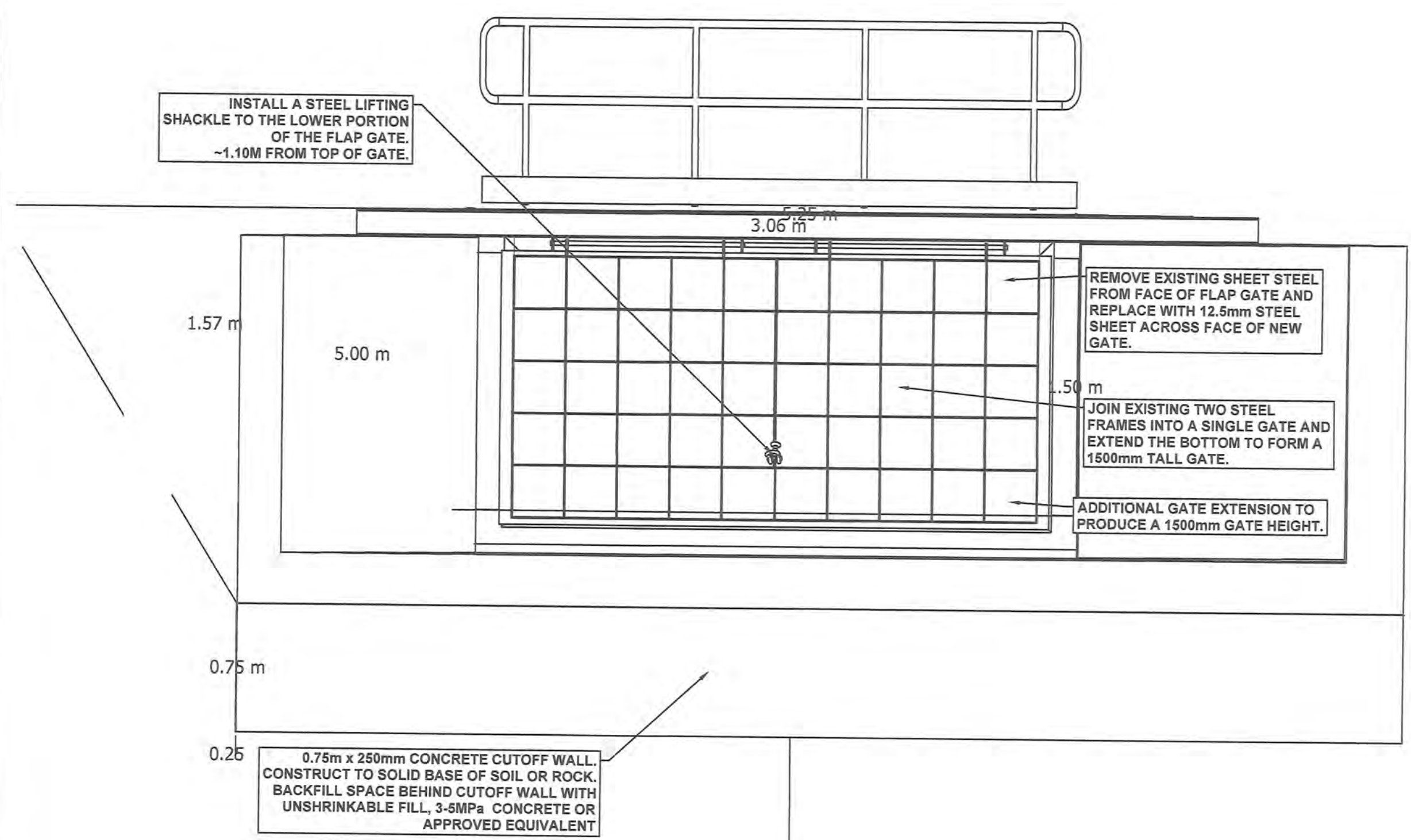
ABINO  
BAY

POINT ABINO RD. S.

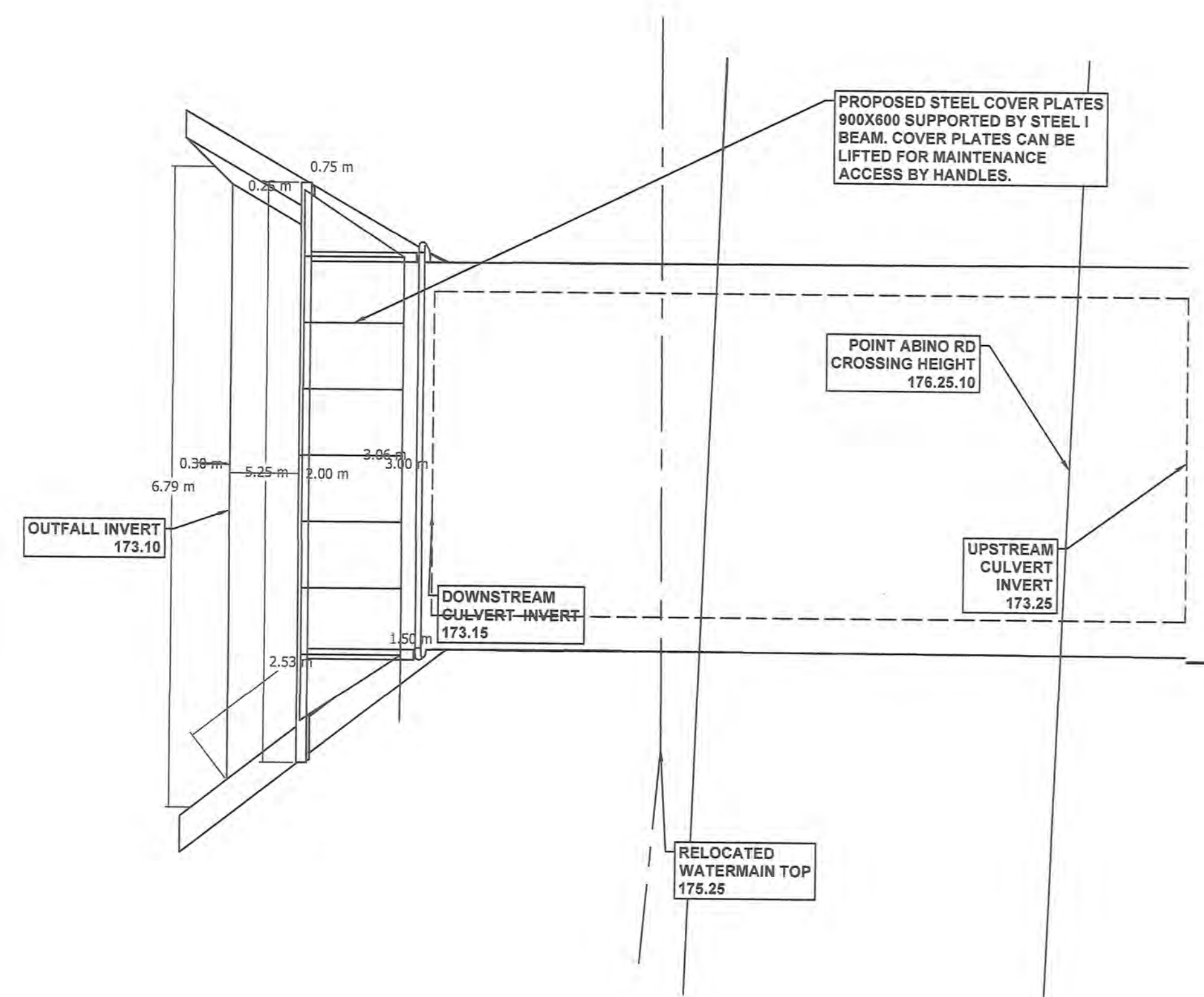
POINT ABINO DRAIN OUTLET  
DETAIL F- OUTLET PLAN VIEW  
SCALE: 1:250



OUTLET HEADWALL &  
FLAP GATE ELEVATION  
PERSPECTIVE VIEW  
SCALE: 1:25



POINT ABINO DRAIN OUTLET  
DETAIL F- OUTLET SECTION VIEW  
SCALE: N.T.S.



POINT ABINO DRAIN OUTLET  
DETAIL F- OUTLET PLAN VIEW  
SCALE: N.T.S.

PAM-CS-10  
PROPOSED POINT ABINO DRAIN OUTLET  
STRUCTURE WITH GATE

A. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO COMMENCING CONSTRUCTION. ALL PRE-CAST CONCRETE TO MEET CPCI STRUCTURAL PRECAST CONCRETE, SECTION 03 41 00, SEPTEMBER 2023. CONCRETE MIXES: DESIGN TO CSA A23.4 INCLUDING SUBMISSIONS AND TESTING.

B. THE CONTRACTOR SHALL COORDINATE WITH THE PRE-CAST CULVERT SUPPLIER TO ENSURE THAT FASTENERS FOR THE GATE ARE INSTALLED PRIOR TO THE PRE-CAST CULVERT SECTION BEING DELIVERED TO SITE.

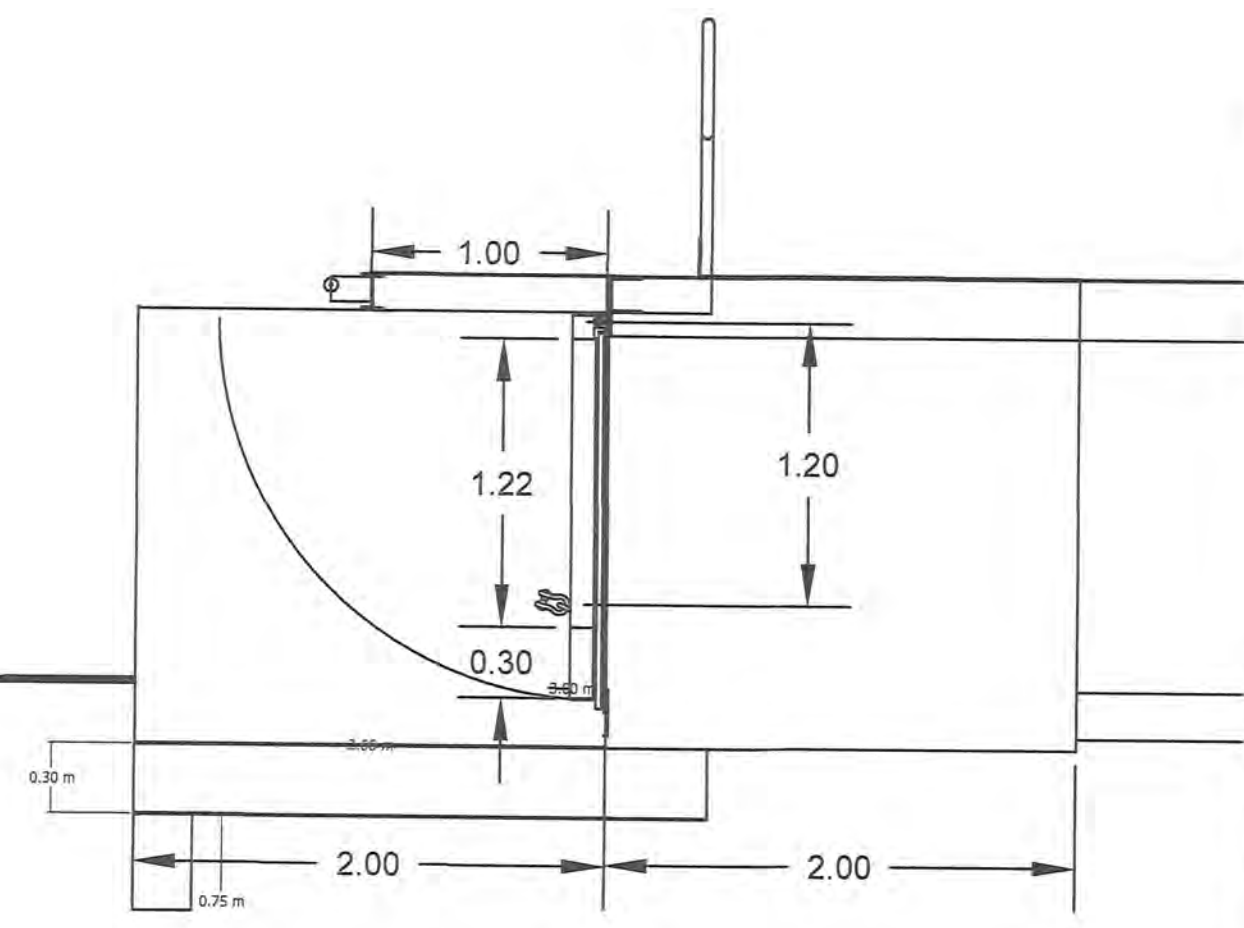
C. THE NEW GATE IS TO REUSE THE EXISTING GATES WITHOUT THE FRAMES BY JOINING THE GRID STEEL STRUCTURE TOGETHER AND EXTENDING TO THE REQUIRED HEIGHT TO MATCH THE PRE-CAST CULVERT. THE CONTRACTOR SHALL SUBMIT A WELDING SHOP DRAWING FOR REVIEW PRIOR TO GATE ASSEMBLY.

D. THE OUTLET STRUCTURE CONSISTS OF THE FOLLOWING KEY ELEMENTS:  
D.1. PRE-CAST CULVERT SEGMENT 1.5M HIGH X 3.0M WIDE WITH PRE-CONFIGURED MOUNTING RECEIVERS FOR THE GATE.  
D.2. STEEL GATE TO PASSIVELY OPEN AND CLOSE BASED ON HEAD.  
D.3. WING WALLS AND AN OUTLET APRON 2M X 6.8M WITH A MINIMUM THICKNESS OF 250MM.  
D.4. A 750MM DEEP CUTOFF WALL TO MATCH BEARING SOIL OR ROCK.

E. THE OUTLET APRON AND WING WALLS ARE TO BEAR ON SUITABLE SOIL-BEARING CAPACITY OR ROCK. NON-SHRINK BACKFILL MATERIAL ONLY. GROUT AS PER APPROVED SHOP DRAWINGS.

F. ALL STEEL TO COMPLY WITH CSA G40.20-04, "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL". THIS STANDARD SETS OUT THE GENERAL REQUIREMENTS AND RELATED DEFINITIONS GOVERNING THE DELIVERY OF STRUCTURAL STEEL CONFORMING TO CSA G40.21. THESE REQUIREMENTS INCLUDE VARIATIONS IN DIMENSIONS, MARKING, REPAIR OF DEFECTS, AND METHODS AND FREQUENCY OF TESTING. NEW STEEL IS TO COMPLY WITH TYPE W WELDABLE STEEL 350W.

G. RIP RAP STONE TO BE PLACED ON SIDE SLOPES WITH A 1.5:1 GRADE.



POINT ABINO DRAIN OUTLET  
DETAIL G - OUTLET GATE  
SCALE: N.T.S.

**PORT COLBORNE**  
66 CHARLOTTE ST. PORT  
COLBORNE ON, L3K 3C8  
905-835-2900

**FORT-ERIE**  
1 MUNICIPAL CENTRE DR.  
FORT ERIE ON, L2A 2S6  
905-871-1600

**LEGEND**

|       |                              |      |                        |
|-------|------------------------------|------|------------------------|
| — S—  | SANITARY SEWER               | — G— | GUY WIRE, UTILITY POLE |
| — ST— | STORM SEWER                  | — L— | LIGHT STANDARD         |
| — W—  | WATERMAIN                    | — T— | TRAFFIC SIGNAL         |
| — WS— | WATER SERVICE                | — V— | VALVE                  |
| — NG— | NATURAL GAS LINE             | — S— | SIGN                   |
| — U—  | UNDERGROUND POWER LINE       | — G— | GAS VALVE              |
| — OF— | OVERHEAD POWER LINE          | — U— | UTILITY PEDESTAL       |
| — FO— | UNDERGROUND FIBRE OPTIC LINE |      |                        |
| — BL— | UNDERGROUND BELL LINE        |      |                        |
| — CL— | UNDERGROUND CABLE LINE       |      |                        |
| — D—  | DITCH/SWALE                  |      |                        |
| — S—  | TOE OF SLOPE, TOP OF BANK    |      |                        |
| — F—  | FENCE                        |      |                        |
| — E—  | EDGE OF GRAVEL               |      |                        |
| — C—  | CURB, DROPPED CURB           |      |                        |
| — P—  | EDGE OF PAVEMENT             |      |                        |
| — M—  | MAINTENANCE HOLE             |      |                        |
| — C—  | CLEAN OUT                    |      |                        |
| — B—  | CATCH BASIN                  |      |                        |
| — V—  | WATER VALVE                  |      |                        |
| — S—  | CURB STOP                    |      |                        |
| — H—  | HYDRANT                      |      |                        |
| — T—  | TRANSFORMER                  |      |                        |
| — S—  | SURVEY BARS                  |      |                        |
| — C—  | CONIFEROUS, DECIDUOUS TREE   |      |                        |
| — S—  | SHRUB                        |      |                        |
| — E—  | EDGE OF BUSH/DRIP LINE       |      |                        |

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| ISSUED FOR REPORT    | 01  | 2025/04/09 PM |
| ISSUED FOR/REVISIONS | No. | YYYY/MM/DD BY |

CONTROL POINTS:

CONSULTANT:

**EWA**  
EARTH WATER AIR  
ENGINEERING

DESIGN BY: P.M.

DRAWN BY: P.M.

CHECKED BY: P.M.

APPROVED BY: P.M.

DATE: DEC 20, 2024

STAMP:

LICENSED PROFESSIONAL ENGINEER  
2025-04-09  
PAUL C MARSH  
PROVINCE OF ONTARIO

POINT ABINO DRAIN

POINT ABINO DRAIN OUTLET  
CONTROL STRUCTURE -  
DETAILS

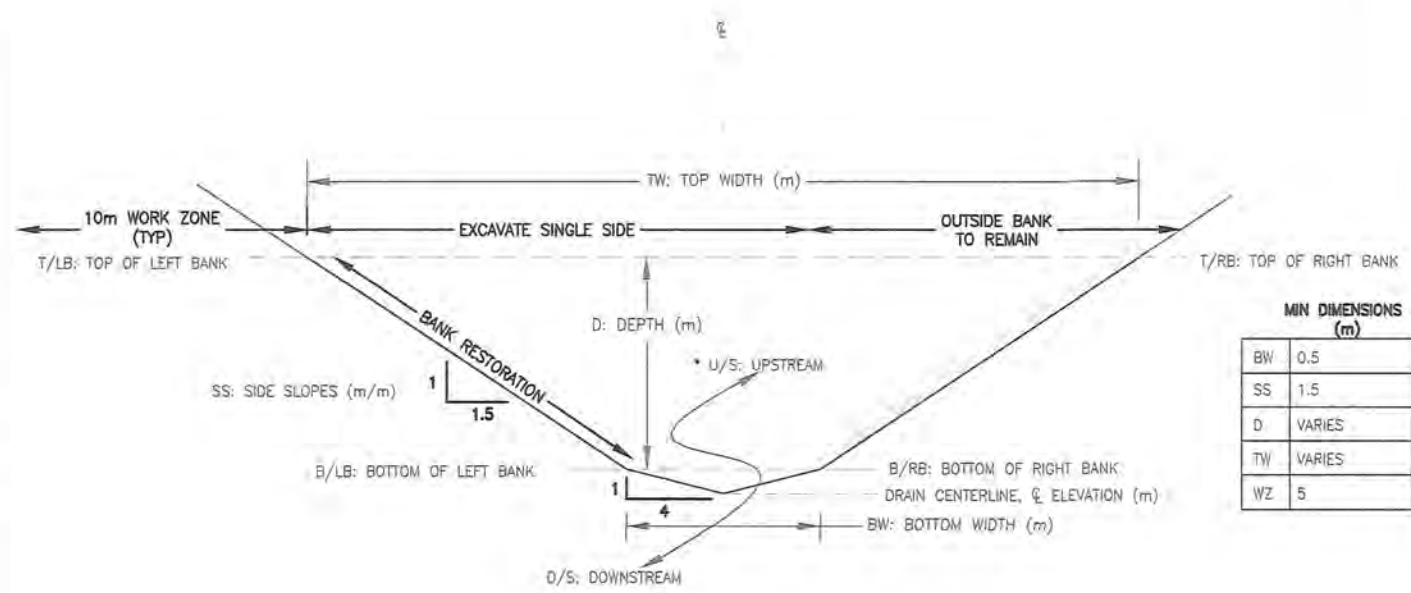
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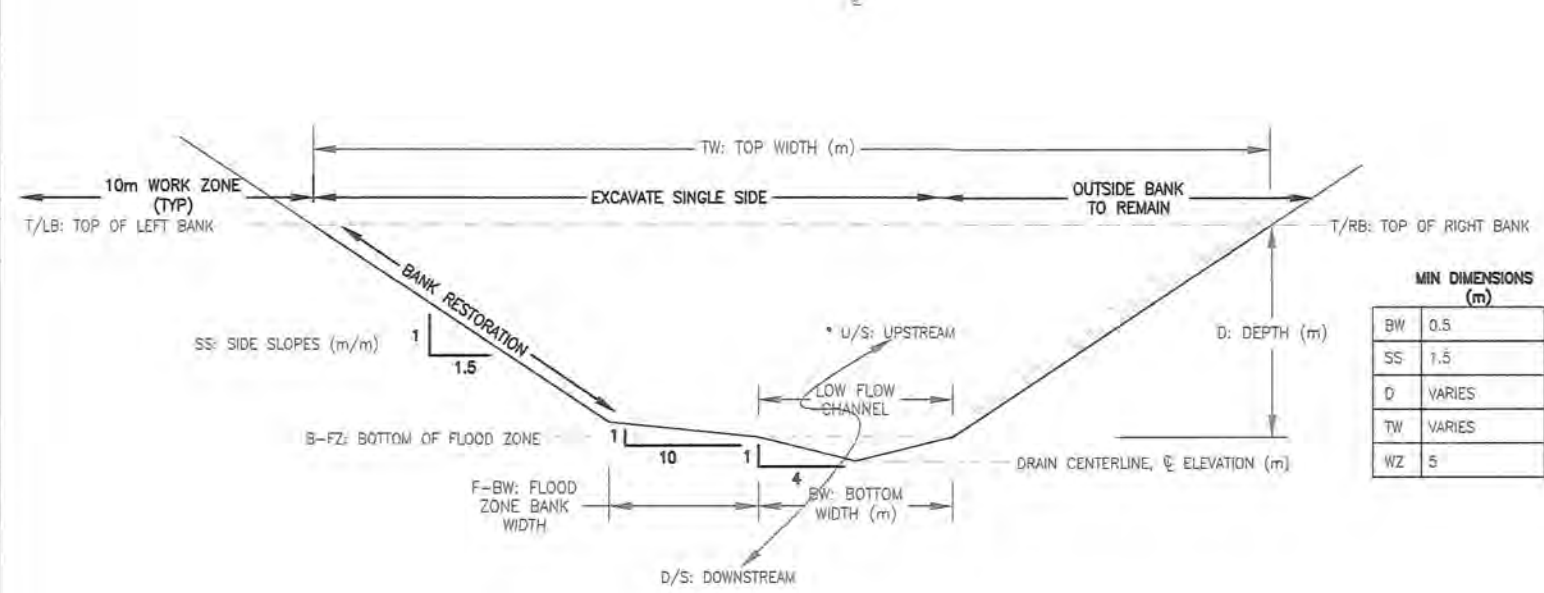
PROJECT NO: 19-9997

DWG NO: DWG-011

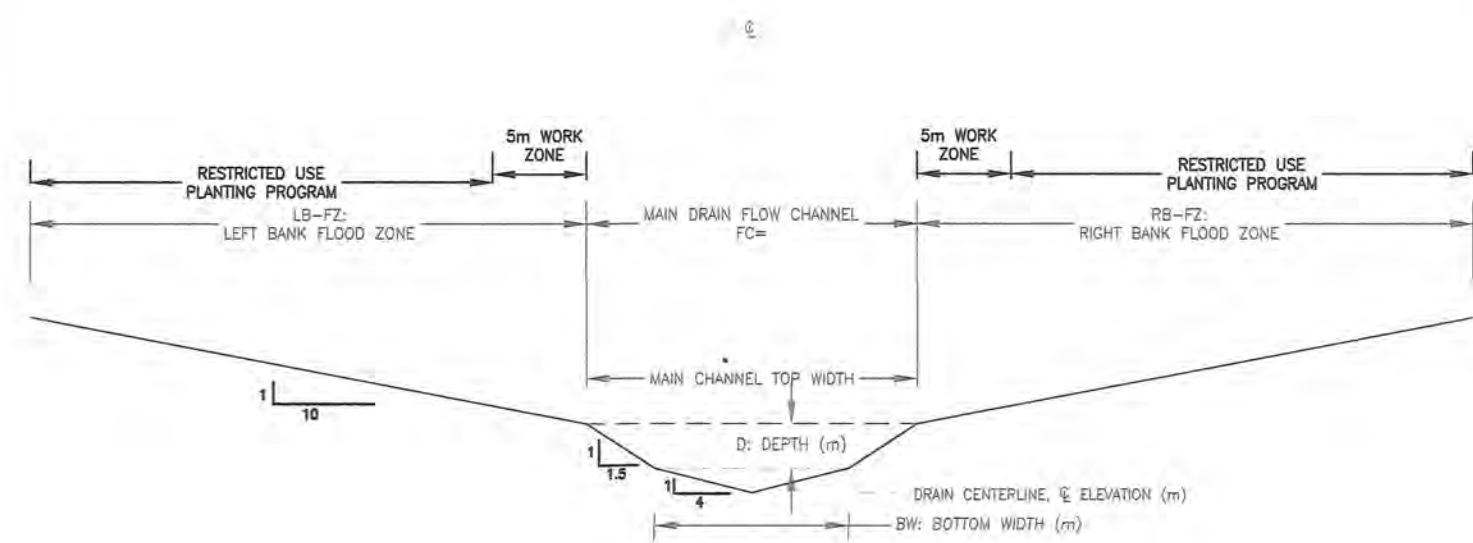




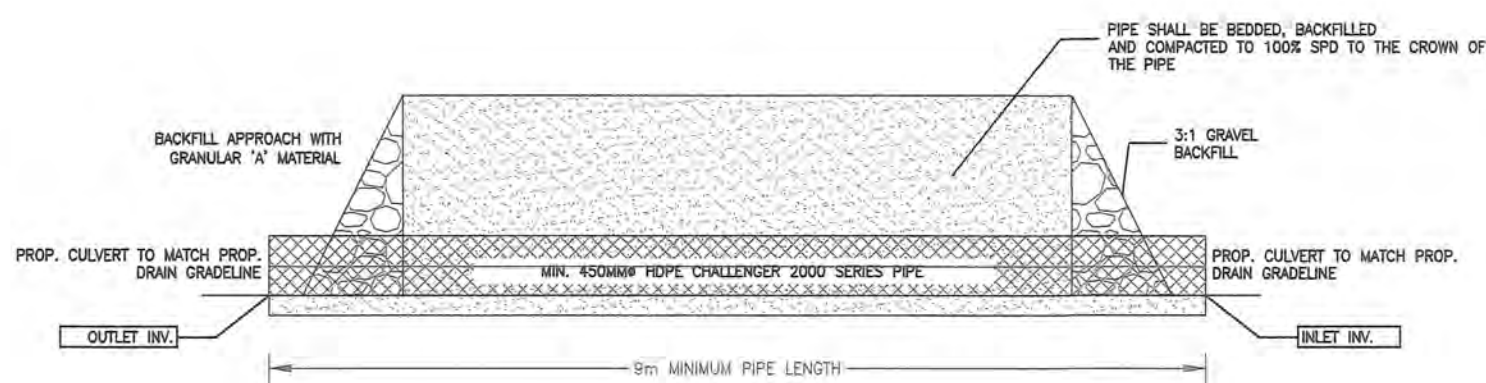
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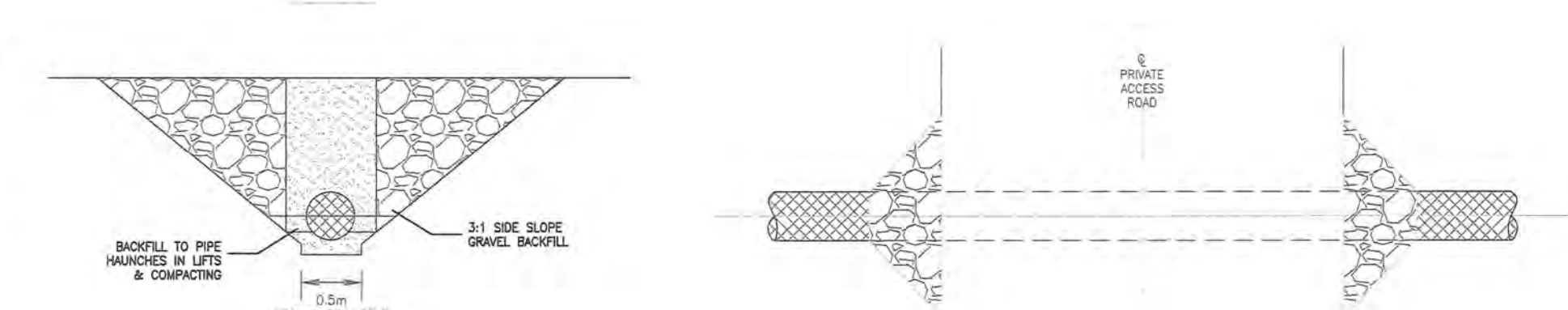
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NOT TO SCALE



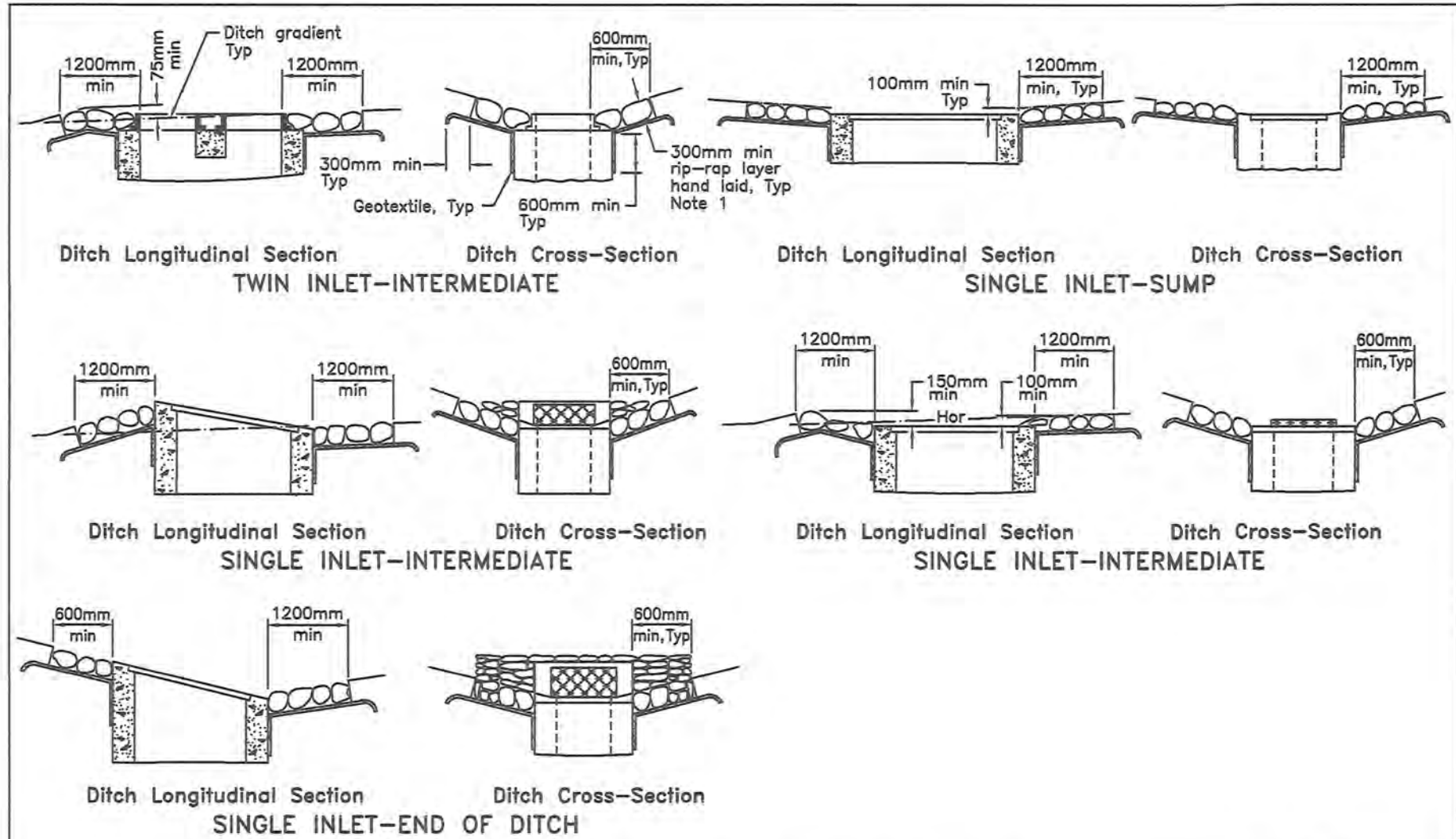
NATURAL DRAIN CHANNEL DIMENSIONS  
NOT TO SCALE



TYPICAL PRIVATE ACCESS ROAD CIRCULAR CULVERT INSTALLATION  
NOT TO SCALE



TYPICAL MUNICIPAL 20m ROW CULVERT INSTALLATION  
NOT TO SCALE



NOTES:  
1 The thickness of the rip-rap layer shall be at least 1.5 times the rip-rap mean diameter.  
A All dimensions are in millimetres unless otherwise shown.

|                                         |  |              |       |
|-----------------------------------------|--|--------------|-------|
| ONTARIO PROVINCIAL STANDARD DRAWING     |  | Nov 2018     | Rev 3 |
| GENERAL RIP-RAP LAYOUT FOR DITCH INLETS |  | OPSD 810.020 |       |

NOTES

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| ISSUED FOR/REVISIONS |    | No. | YYYY/MM/DD BY |

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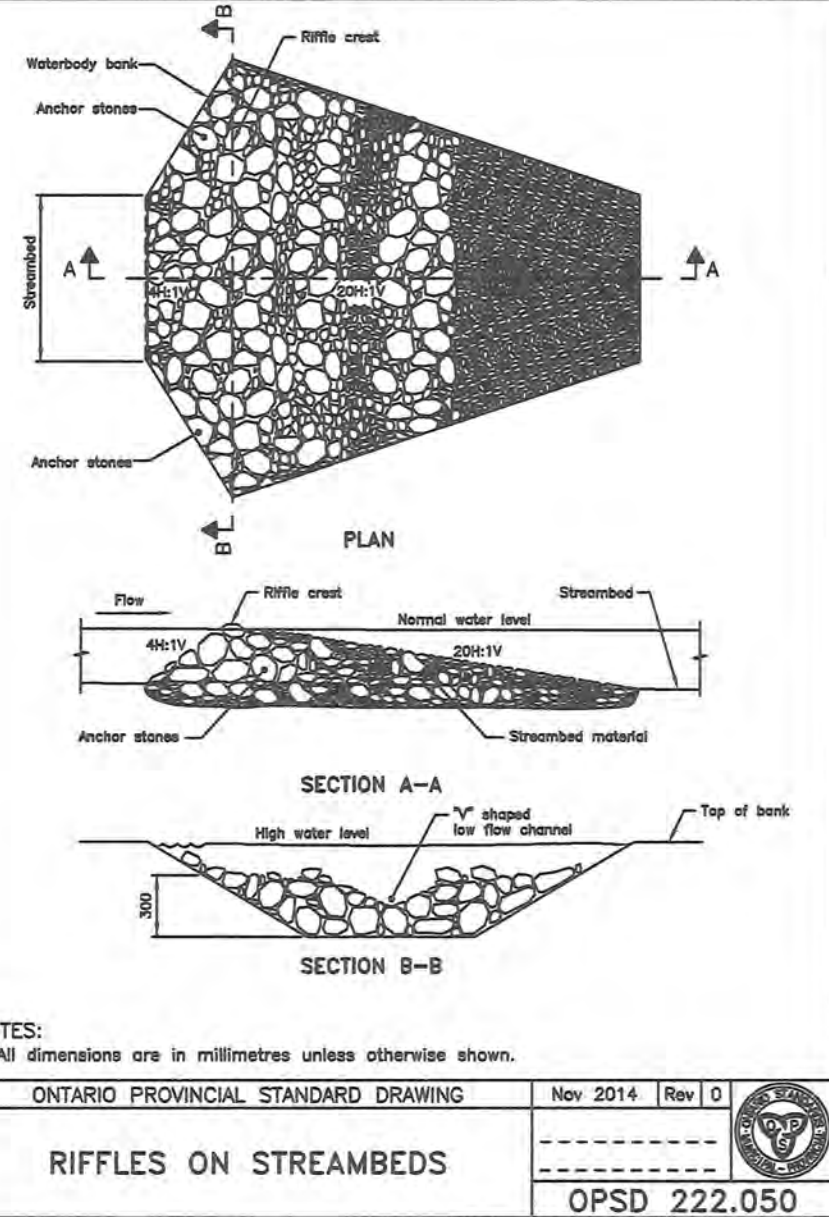
DESIGN BY: P.M.  
DRAWN BY: P.M.  
CHECKED BY: P.M.  
APPROVED BY: P.M.  
DATE: DEC 20, 2024



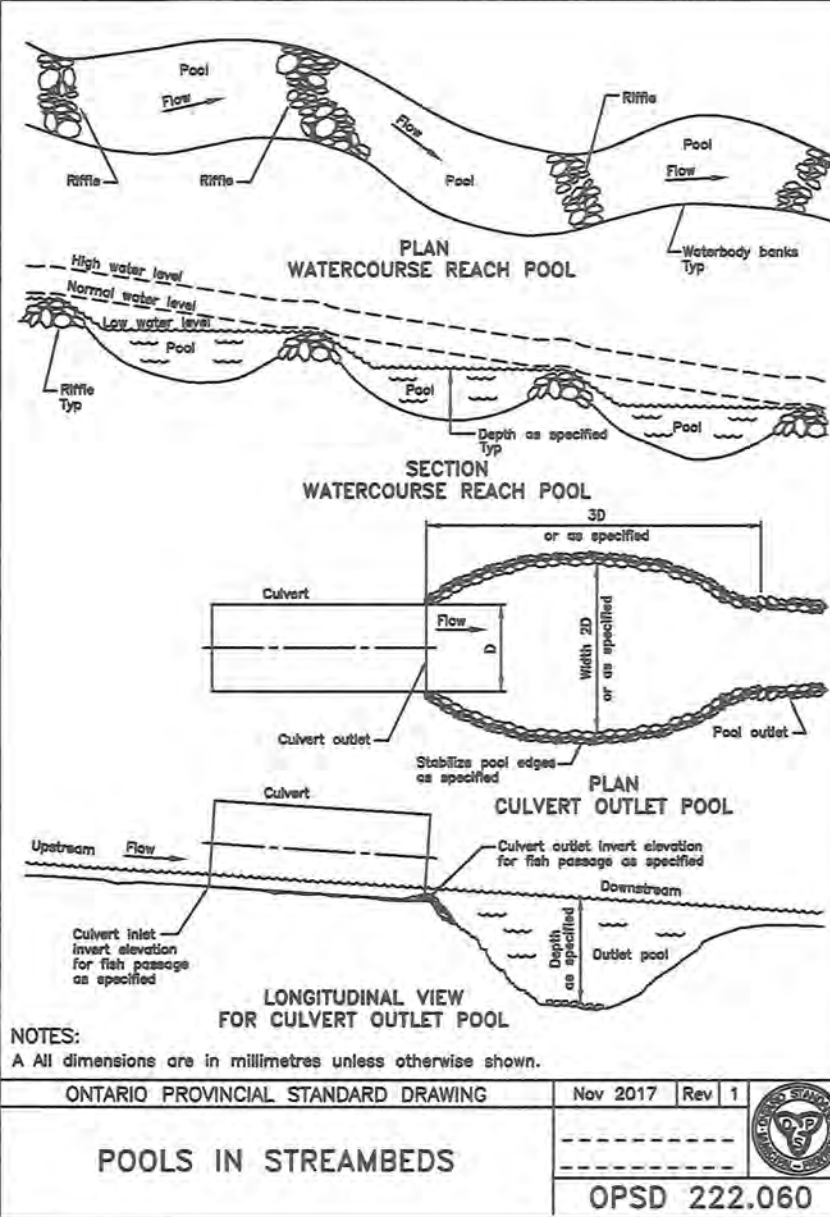
POINT ABINO DRAIN

GENERAL DETAILS

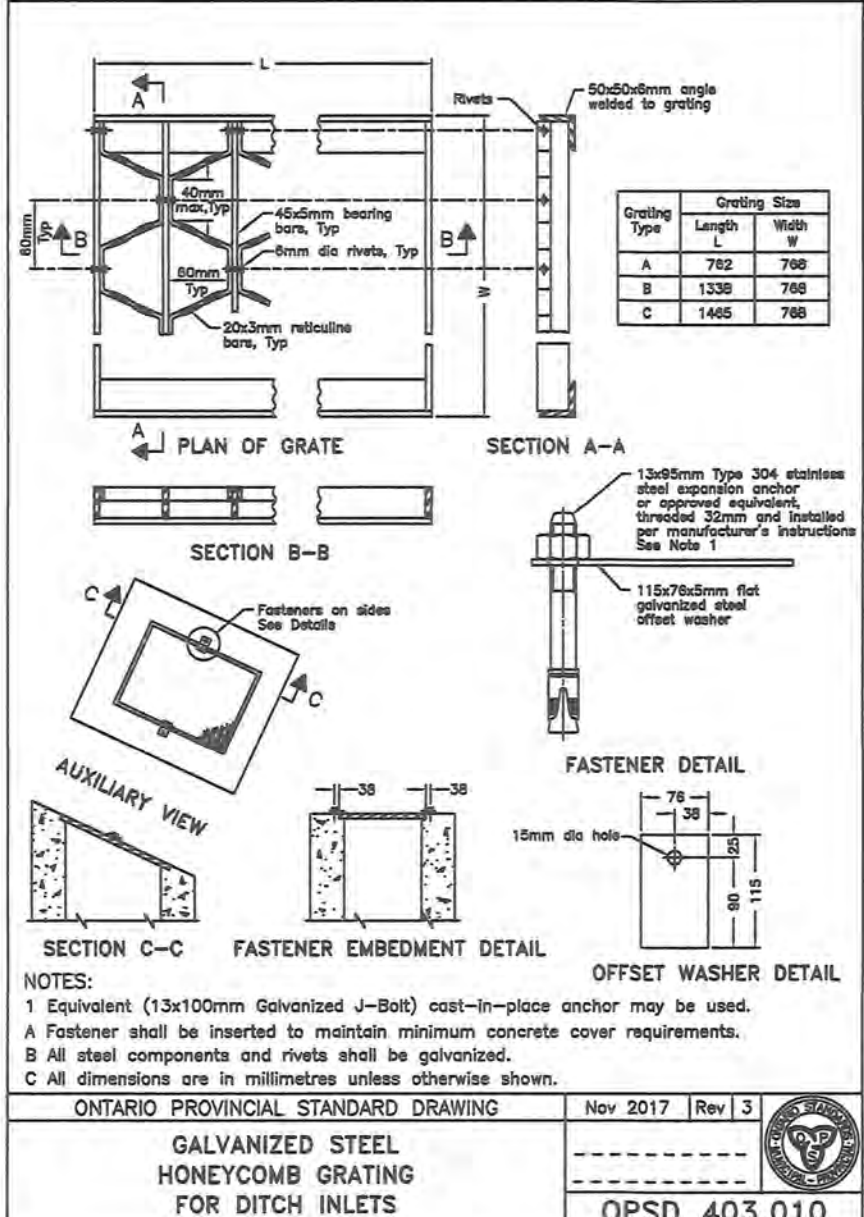
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STN: TO:  
PROJECT NO: 19-9997  
DWG NO: DWG-GD-01



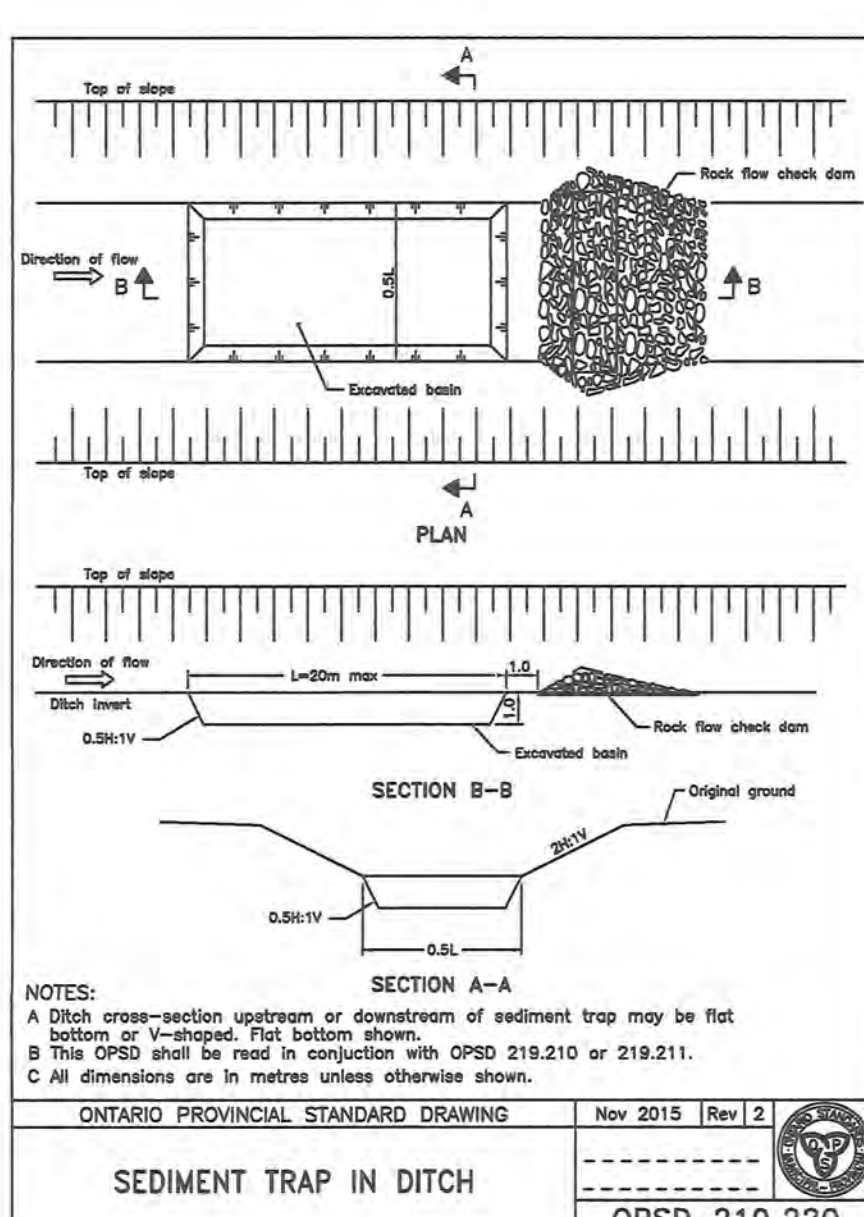
ONTARIO PROVINCIAL STANDARD DRAWING  
RIFFILES ON STREAMBEDS  
Nov 2014 Rev 0  
OPSD 222.050



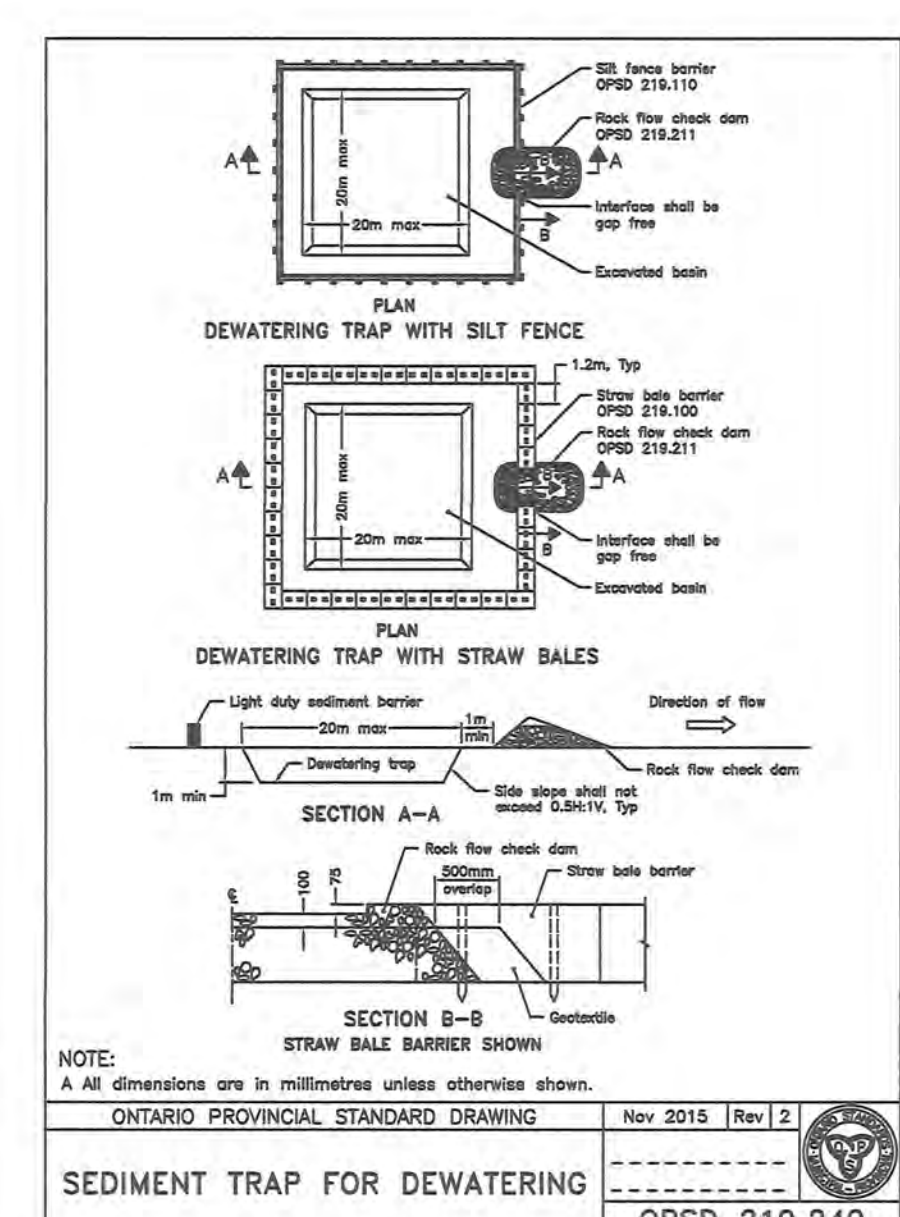
ONTARIO PROVINCIAL STANDARD DRAWING  
POOLS IN STREAMBEDS  
Nov 2017 Rev 1  
OPSD 222.060



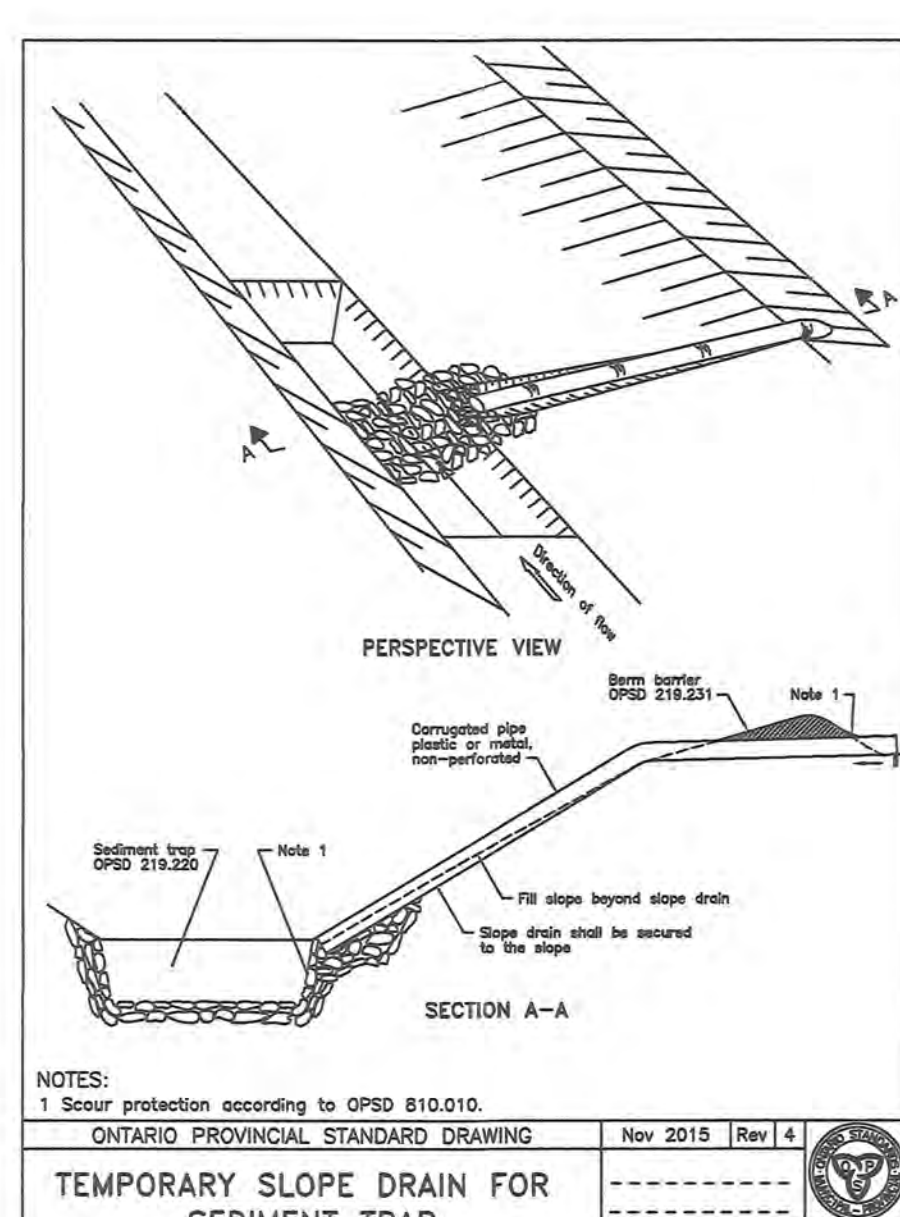
ONTARIO PROVINCIAL STANDARD DRAWING  
GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS  
Nov 2017 Rev 3  
OPSD 403.010



ONTARIO PROVINCIAL STANDARD DRAWING  
SEDIMENT TRAP IN DITCH  
Nov 2015 Rev 2  
OPSD 219.220



ONTARIO PROVINCIAL STANDARD DRAWING  
SEDIMENT TRAP FOR DEWATERING  
Nov 2015 Rev 2  
OPSD 219.240



ONTARIO PROVINCIAL STANDARD DRAWING  
TEMPORARY SLOPE DRAIN FOR SEDIMENT TRAP  
Nov 2018 Rev 4  
OPSD 219.230



CITY OF PORT COLBORNE CONTACT:

DRAINAGE SUPERINTENDENT:  
ALANA VANDER VEEN  
DRAINAGE SUPERINTENDENT  
1 KILLALY STREET WEST, PORT COLBORNE, ONTARIO L3K 6H1  
TEL: 905-228-8127  
ALANA.VANDERVEEN@PORTCOLBORNE.CA

TOWN OF FORT ERIE CONTACT:

DRAINAGE SUPERINTENDENT:  
TROY DAVIDSON  
TOWN OF FORT ERIE  
INFRASTRUCTURE SERVICES  
DRAINAGE SUPERINTENDENT  
1 MUNICIPAL CENTRE DRIVE  
(905) 871-1600,ext 2405  
tdavidson@forterie.on.ca

PROJECT DRAINAGE CONTACTS:

APPOINTED DRAINAGE ENGINEER:  
MR. PAUL C. MARSH, P.ENG.  
EWA ENGINEERING INC.  
27 CHADWICK AVENUE, GUELPH, ON N1G 3E7  
PCMARSH@EWAENG.COM  
647.400.2824

DEPARTMENT OF FISHERIES AND OCEANS:

867 LAKESHORE RD  
BURLINGTON ON L7S 1A1  
TELEPHONE: 905-336-4999  
EMAIL: INFO@DFO-MPO.GC.CA

MINISTRY OF NATURAL RESOURCES

ELIZABETH REIMER  
ADMINISTRATION BUILDING  
4890 VICTORIA AVE N  
VINELAND STATION, ON L0R 2E0  
905-562-4147

NIAGARA PARKS CONSERVATION AUTHORITY, NPCA

DAVID DELUCE, MCIP, RPP  
DIRECTOR, PLANNING AND DEVELOPMENT  
NIAGARA PENINSULA CONSERVATION AUTHORITY  
250 THOROLD ROAD WEST, 3RD FLOOR  
WELLAND, ON, L3C 3W2  
P: 905-788-3135  
F: 905-788-1121  
WWW.NPCA.CA

GENERAL NOTES:

THE CITY SHALL ARRANGE A PRE-CONSTRUCTION MEETING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

ALL CONSTRUCTION MATERIALS AND METHODOLOGIES SHALL BE IN ACCORDANCE WITH:

- SPECIAL PROVISIONS – SUPPLEMENTARY GENERAL CONDITIONS (SPSGC)
- SPECIAL PROVISIONS – SUPPLEMENTARY CONTRACT ITEMS (SPSCI)
- NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS (NPSCD)
- ONTARIO PROVINCIAL STANDARDS FOR ROADS & PUBLIC WORKS (OPSS & OPSD)

AND ANY OTHER APPLICABLE STANDARDS THAT MAY APPLY.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THESE MATERIALS AND METHODOLOGIES ARE STRICTLY ADHERED TO.

THE CITY OF PORT COLBORNE AND STAFF DISCLAIMS ANY LIABILITY AS TO THE CURRENT ACCURACY OF THE DRAWINGS PROVIDED. IN USING THE INFORMATION SHOWN OR CONTAINED ON THESE DRAWINGS, THE USER AGREES IMPLICITLY AND EXPLICITLY THAT THE CITY OF PORT COLBORNE AND STAFF SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES ARISING FOR THE USE OF SUCH INFORMATION. THE USER SHALL DO AN IN-FIELD VERIFICATION OF THE INFORMATION SHOWN ON OR CONTAINED WITHIN THESE DRAWINGS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY APPROVALS WHICH MAY BE REQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE CONTRACT ADMINISTRATOR.

DIMENSIONING SHALL GOVERN OVER SCALED DIMENSIONS.

ANY WORKS COMPLETED IN SET-BACK AREAS, AND DISCHARGE TO CREEKS, STREAMS AND WATERCOURSES MAY BE SUBJECT TO FEDERAL AND PROVINCIAL APPROVALS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN SUCH APPROVALS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION IF REQUIRED FOR THE PROJECT.

PUBLIC UTILITIES:

THE CONTRACTOR SHALL NOTE THAT PUBLIC UTILITIES SHALL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING, HYDRO, GAS, BELL, CABLE AND FIBRE OPTIC.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN THE NECESSARY CLEARANCES FROM SAID PUBLIC UTILITIES WHICH MAY BE IN DIRECT CONFLICT WITH THIS PROJECT.

ANY WORK REQUIRING EITHER RELOCATION/LOWERING OF SAID PUBLIC UTILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY, AND ANY WORKS WILL BE REQUIRED TO BE COMPLETE PRIOR TO THE INSTALLATION OF THE WORK.

ENVIRONMENTAL COMPLIANCE:

THE CONTRACTOR SHALL PREPARE AN ENVIRONMENTAL MANAGEMENT PLAN (EMP) PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. THE EMP WILL ADDRESS THE FOLLOWING MAJOR SUBJECT AREAS:

- EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION
- TREE PROTECTION & REMOVAL (SAR – BUTTERNUT)
- MINIMIZE AND/OR MITIGATION MEASURES FOR CONSTRUCTION IMPACTS ON SPECIES AND SPECIES HABITAT INCLUDING STOPPING CONSTRUCTION PROCEDURES.
- AGENCY CONTACTS – IDENTIFY RESOURCES & CONTACT INFO.

THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH SPECIES AT RISK (SAR) LEGISLATION. BY LAW, YOU MUST IMMEDIATELY:

- AVOID DRAINAGE WORK DURING REPRODUCTION AND REARING SEASONS
- PREVENT A SPECIES FROM ENTERING THE WORK AREA (E.G. PUTTING UP A FENCE)
- GIVE THE SPECIES ADEQUATE TIME TO LEAVE THE AREA, BEFORE STARTING WORK
- GET ADVICE/HELP BEFORE YOU MOVE IT
- PROTECT AREAS THAT ARE IMPORTANT TO THE SPECIES (E.G. SPAWNING AREAS)
- CONTROL EROSION AND SEDIMENT
- STABILIZE WATER BANKS IN AFFECTED AREAS

TURTLES:

- YOU CANNOT REDUCE THE AMOUNT OF WATER IN A DRAIN OR DITCH WHERE A TURTLE IS HIBERNATING.

ABREVIATIONS USED:

- BD – SEDIMENT BASIN BOTTOM DEPTH (FROM GRADE LINE)
- BL – SEDIMENT BASIN LENGTH
- BOD – BEGINNING OF DRAIN
- BW – BOTTOM WIDTH OF CHANNEL
- CL – CENTRELINE OF ROAD, CHANNEL
- CLCK – CENTRELINE OF CREEK OR CHANNEL
- D – DEPTH
- E – EASTING
- ELEV – ELEVATION
- EX. – EXISTING
- INV – INVERT
- LB – LEFT BANK, LOOKING UPSTREAM
- N – NORTHING
- PL – PROPERTY LINE
- PR. – PROPOSED
- RB – RIGHT BANK, LOOKING UPSTREAM
- RH – RIFFLE HEIGHT
- ROW – RIGHT OF WAY
- SS – SIDE SLOPE; RUN(m)/RISE, WHERE RISE=1m
- SB – SEDIMENT BASIN
- T/C – TOP OF CONCRETE
- T/B – TOP OF BANK
- TW – TOP WIDTH OF CHANNEL
- TYP – TYPICAL
- WZ – WORK ZONE
- EOD – END OF DRAIN
- U/S – UPSTREAM
- D/S – DOWNSTREAM

OPSD REFERENCED DETAILS:

- OPSD 219.200
- OPSD 219.220
- OPSD 222.050
- OPSD 400.020
- OPSD 403.010
- OPSD 705.040
- OPSD 803.010



NOTES

DRAWINGS ARE BASED ON INFORMATION PROVIDED BY THE CITY OF PORT COLBORNE, TOWN OF FORT ERIE AND OPEN DATA FROM ONTARIO, NIAGARA PENINSULA CONSERVATION AUTHORITY, REGIONAL MUNICIPALITY OF NIAGARA AND OTHER ACCESSIBLE DATA. ALL OTHER INFORMATION IS PROVIDED FOR PROJECT REFERENCE BUT IS NOT TO BE RELIED ON FOR CONSTRUCTION OR ANY OTHER PURPOSE OTHER THAN INCLUSION IN THE BASELINE REPORT.

|                      |     |            |    |
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|                      | 06  |            |    |
|                      | 05  |            |    |
|                      | 04  |            |    |
|                      | 03  |            |    |
|                      | 02  |            |    |
| ISSUED FOR REPORT    | 01  | 2025/04/09 | PM |
| ISSUED FOR/REVISIONS | No. | YYYY/MM/DD | BY |

CONTROL POINTS:

CONSULTANT:



|                    |            |
|--------------------|------------|
| DESIGN BY: P.M.    | STAMP:<br> |
| DRAWN BY: P.M.     |            |
| CHECKED BY: P.M.   |            |
| APPROVED BY: P.M.  |            |
| DATE: DEC 20, 2024 |            |

POINT ABINO DRAIN

GENERAL NOTES

|                     |               |
|---------------------|---------------|
| HOR. SCALE -        | VERT. SCALE - |
| STN:                | TO:           |
| PROJECT NO: 19-9997 |               |
| DWG NO: DWG-GD-02   |               |



**Appendix B:**  
**Cost Estimates &**  
**Assessment Schedules**

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Point Abino Municipal Drain  
City of Port Colborne and Town of Fort Erie  
Regional Municipality of Niagara

Section 74/78 & Section 84 Works under the Municipal Drainage Act.

| Point Abino Drain Summary of Proposed Works                   |              |                |
|---------------------------------------------------------------|--------------|----------------|
| Eligible Administration Costs                                 | \$212,564.78 |                |
| Total Cost of Administration and Engineering in PAM Watershed |              | \$212,564.78   |
| Previous Construction Works Completed but not Assessed        |              | \$0.00         |
| Estimated Cost of Construction                                |              |                |
| Construction Management Estimated Costs                       | \$151,000.00 |                |
| Section 78 - Proposed Improvements for Construction           |              |                |
| Haggerty Branch Improvements                                  | \$27,615.00  |                |
| East Branch Drain Channel Improvements                        | \$14,301.50  |                |
| Point Abino Outlet Improvements                               |              |                |
| Point Abino Rd Culvert Replacement                            | \$877,230.00 |                |
| Point Abino Outlet Gate Improvements                          | \$102,750.00 |                |
| Point Abino Outlet Conversion to Open                         | \$684,430.00 |                |
| Section 74 - Maintenance Works for Construction               |              |                |
| Point Abino Drain Maintenance - Port Colborne                 | \$26,090.00  |                |
| Point Abino Drain Maintenance - Fort Erie                     | \$152,500.00 |                |
| Sub-Total Estimated Cost of Construction                      |              | \$2,035,916.50 |
| Contingency Allowance, (15%)                                  | \$305,387.48 |                |
| Total Estimated Cost of Construction                          |              | \$2,341,303.98 |
| Drain Allowances                                              |              |                |
| Point Abino Drain - Port Colborne                             |              |                |
| Point Abino Drain - Fort Erie                                 |              |                |
| Haggerty Branch - Port Colborne                               |              |                |
| Haggerty Branch - Fort Erie                                   | \$1,339.31   |                |
| East Branch                                                   | \$0.00       |                |
| Sub-Total Drain Allowances                                    |              | \$1,339.31     |
|                                                               |              | \$2,555,208.06 |

Point Abino Drain

|                                                     |                |                |
|-----------------------------------------------------|----------------|----------------|
| Estimated Cost of Construction                      |                |                |
| Estimate of Captial Construction Costs              |                |                |
| Construction Management Costs                       |                |                |
| Contingency                                         |                | \$2,299,387.48 |
| Previous Construction                               |                | \$0.00         |
| Share of Admin & Engineering                        |                | \$168,672.56   |
| Drain Allowances                                    |                | \$0.00         |
| Total Drain Costs to be Assessed:                   |                | \$2,468,060.03 |
| Benefit Assessment (Section 22)                     |                |                |
| subTotal - Benefit Assessment (Section 22)          | \$0.00         |                |
| Outlet Liability Assessment (Section 23)            |                |                |
| City of Port Colborne                               |                |                |
| Private Lands                                       | \$449,110.54   |                |
| Road Right of Way Lands                             | \$39,663.97    |                |
| Town of Fort Erie                                   |                |                |
| Private Lands                                       | \$670,524.98   |                |
| Road Right of Way Lands                             | \$99,066.74    |                |
| subTotal - Outlet Liability Assessment (Section 23) |                | \$1,258,366.23 |
| Special Benefit Assessment (Section 24)             |                |                |
| City of Port Colborne                               |                |                |
| 271104000108500 Andreacchi Franchina                | \$5,638.00     |                |
| Town of Fort Erie                                   |                |                |
| 270302001802200 MATHEWSON CHRISTOPHER               | \$15,725.46    |                |
| 270302001813200 5395 ABINO HILLS ROAD               | \$14,657.59    |                |
| subTotal - Special Benefit Assessment (Section 24)  |                | \$36,021.05    |
| Special Assessments (Section 26)                    |                |                |
| City of Port Colborne                               |                |                |
| Town of Fort Erie                                   | \$1,156,446.74 |                |
| Utilities - Enbridge                                | \$17,226.00    |                |
| subTotal - Special Assessments (Section 26)         |                | \$1,173,672.74 |
| Total Benefits Assessed:                            |                | \$2,468,060.03 |



Haggerty Branch Drain

|                                          |                                        |             |             |
|------------------------------------------|----------------------------------------|-------------|-------------|
| Estimated Cost of Construction           |                                        |             |             |
|                                          | Estimate of Captial Construction Costs | \$27,615.00 |             |
|                                          | Construction Management Costs          |             |             |
|                                          | Contingency                            |             |             |
|                                          |                                        |             | \$27,615.00 |
| Previous Construction                    |                                        |             | \$0.00      |
| Share of Admin & Engineering             |                                        |             | \$39,438.64 |
| Drain Allowances                         |                                        |             | \$1,339.31  |
|                                          |                                        |             |             |
| Total Drain Costs to be Assessed:        |                                        |             | \$68,392.95 |
|                                          |                                        |             |             |
| Benefit Assessment (Section 22)          |                                        |             | \$0.00      |
|                                          |                                        |             |             |
| Outlet Liability Assessment (Section 23) |                                        |             |             |
| City of Port Colborne                    |                                        |             |             |
|                                          | Private Lands                          | \$19,191.95 |             |
|                                          | Road Right of Way Lands                | \$971.60    |             |
| Town of Fort Erie                        |                                        |             |             |
|                                          | Private Lands                          | \$33,039.52 |             |
|                                          | Road Right of Way Lands                | \$6,961.44  |             |
|                                          |                                        |             | \$60,164.51 |
| Special Benefit Assessment (Section 24)  |                                        |             |             |
|                                          | 271104000102800 D B M E Inc            | \$8,228.44  |             |
|                                          |                                        |             | \$8,228.44  |
| Special Assessments (Section 26)         |                                        |             |             |
| City of Port Colborne                    |                                        | \$0.00      |             |
| Town of Fort Erie                        |                                        | \$0.00      |             |
|                                          |                                        |             | \$0.00      |
| Total Benefits Assessed:                 |                                        |             | \$68,392.95 |

East Branch Drain

|                                          |                                                                      |              |             |
|------------------------------------------|----------------------------------------------------------------------|--------------|-------------|
| Estimated Cost of Construction           |                                                                      |              |             |
|                                          | Estimate of Captial Construction Costs                               | \$ 14,301.50 |             |
|                                          | Construction Management Costs                                        |              |             |
|                                          | Contingency                                                          |              |             |
|                                          |                                                                      |              | \$14,301.50 |
| Previous Construction                    |                                                                      |              | \$0.00      |
| Share of Admin & Engineering             |                                                                      |              | \$4,453.58  |
| Drain Allowances                         |                                                                      |              | \$0.00      |
|                                          |                                                                      |              |             |
| Total Drain Costs to be Assessed:        |                                                                      |              | \$18,755.08 |
|                                          |                                                                      |              |             |
| Benefit Assessment (Section 22)          |                                                                      |              |             |
|                                          | Riparian benefit for two stage channel assessed to three properties. | \$2,171.50   |             |
|                                          |                                                                      |              | \$2,171.50  |
| Outlet Liability Assessment (Section 23) |                                                                      |              |             |
| Town of Fort Erie                        |                                                                      |              |             |
|                                          | Private Lands                                                        | \$16,197.77  |             |
|                                          | Road Right of Way Lands                                              | \$385.81     |             |
|                                          |                                                                      |              | \$16,583.58 |
| Special Benefit Assessment (Section 24)  |                                                                      |              |             |
|                                          |                                                                      |              | \$0.00      |
| Special Assessments (Section 26)         |                                                                      |              |             |
| City of Port Colborne                    |                                                                      | \$0.00       |             |
| Town of Fort Erie                        |                                                                      | \$0.00       |             |
|                                          |                                                                      |              | \$0.00      |
| Total Benefits Assessed:                 |                                                                      |              | \$18,755.08 |

\$2,555,208.06  
\$0.00

Prepared by: \_\_\_\_\_ Paul C. Marsh, P.Eng.

Dated: \_\_\_\_\_  
Seal





**Point Abino Municipal Drain**  
City of Port Colborne  
Regional Municipality of Niagara

**Administration Costs**

| Categories            | Eligible Costs as per Act                                                                              | Items                              | Cost         | HST         | Sub-totals, \$      | Totals, \$          |
|-----------------------|--------------------------------------------------------------------------------------------------------|------------------------------------|--------------|-------------|---------------------|---------------------|
| <b>ENGINEERING</b>    |                                                                                                        |                                    |              |             |                     |                     |
|                       | Report Preparation by EWA Engineering Inc.                                                             | Study, Analysis and Report         | \$161,653.00 | \$21,014.89 |                     |                     |
|                       |                                                                                                        | Progress Tracking, Disb. and Mgmt. |              |             |                     |                     |
|                       | Spriet Associates                                                                                      | Survey - Topographic               | \$12,181.89  | \$2,001.29  |                     |                     |
|                       |                                                                                                        | CAD Services                       |              |             |                     |                     |
|                       |                                                                                                        | CAD Services                       |              |             |                     |                     |
|                       |                                                                                                        | CAD Services                       |              |             |                     |                     |
|                       | Tribunal Costs (not estimated and assumed to be zero)                                                  |                                    | \$0.00       |             |                     |                     |
|                       | Engineering services during Tendering, Contract Administration and Construction Inspection (estimated) |                                    | \$1,500.00   |             |                     |                     |
|                       |                                                                                                        | <b>Total - ENGINEERING</b>         |              |             | <b>\$175,334.89</b> |                     |
| <b>ADMINISTRATION</b> |                                                                                                        |                                    |              |             |                     |                     |
|                       | Interim Financing Allowance                                                                            | Interest on Project                | \$30,276.49  |             |                     |                     |
|                       | Legal and Permitting Fees                                                                              |                                    |              |             |                     |                     |
|                       | Expenses, where applicable                                                                             |                                    |              |             |                     |                     |
|                       | Applicable Taxes                                                                                       | HST from Engineering fees          |              | \$6,953.40  |                     |                     |
|                       |                                                                                                        | <b>Total - ADMINISTRATION</b>      |              |             | <b>\$37,229.89</b>  |                     |
|                       | <b>Total Administration Cost</b>                                                                       |                                    |              |             |                     | <b>\$212,564.78</b> |

**Pro-rated Admin Costs by Area**

|                        | Area, Ha | Area, Ha | Area Ratio |              |              |
|------------------------|----------|----------|------------|--------------|--------------|
| Point Abino Total Area | 799.9    |          | 1          | \$212,564.78 |              |
| Point Abino Drain      | 799.897  |          | 100.00%    |              | \$168,672.56 |
| Haggerty Branch Drain  | 148.411  |          | 18.55%     |              | \$39,438.64  |
| East Branch Drain      | 16.759   |          | 2.10%      |              | \$4,453.58   |
|                        |          |          |            |              | \$212,564.78 |
|                        |          |          | 0.00%      |              |              |



**Point Abino Municipal Drain**  
City of Port Colborne  
Town of Fort Erie  
Regional Municipality of Niagara

**Proposed Construction - Cost Estimate**

**Construction Management Estimated Costs**

| PA-C     |                   |          |        |                                                                     |                                                                                                                                    |                    | Linear, Each or Lump Sum |      |     |          |              |                                        |  |
|----------|-------------------|----------|--------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|------|-----|----------|--------------|----------------------------------------|--|
| Cost ID: | Drain             | From STA | To STA | Work                                                                | Description                                                                                                                        | Cost Type          | Length                   | \$/m | Qty | /each    | \$           | Notes                                  |  |
| PAC-01   | Point Abino Drain |          |        | Bonding                                                             |                                                                                                                                    |                    |                          |      |     |          | \$ 60,000.00 | Budget @ 3.0% of total                 |  |
| PAC-02   | Point Abino Drain |          |        | Environmental Management - Compliance with legislative requirements | Preparation of Environmental Management Plan - Exclusions for SAR incidents that require on site expertise.                        | Lump Sum           |                          |      |     |          | \$ 12,500.00 | Program budget - actual cost will vary |  |
| PAC-03   | Point Abino Drain |          |        | Erosion Control During construction -                               |                                                                                                                                    | Lump Sum           |                          |      |     |          | \$ 3,500.00  | Program budget - actual cost will vary |  |
| PAC-04   | Point Abino Drain |          |        | Construction Management                                             | Traffic Control, Layout, and all compliance items for submission on construction startup.                                          | pro-rated lump sum |                          |      |     |          | \$ 70,000.00 | Budget @ 3.5% of total                 |  |
| PAC-05   | Point Abino Drain |          |        | Tree Replacement Program                                            | Where private trees are removed for the drain and in lieu of compensation a 2 for 1 tree planting program is available for owners. | Each               |                          |      | 100 | \$ 50.00 | \$ 5,000.00  | Program budget - actual cost will vary |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
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|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |
|          |                   |          |        |                                                                     |                                                                                                                                    |                    |                          |      |     |          |              |                                        |  |

**Section 78 - Proposed Improvements for Construction**

| PA-O-1 Point Abino Rd Culvert Replacement        |                   |          |        |                                                                                           |                                                                                   |           | Linear, Each or Lump Sum |             |     |              |               |       |  |
|--------------------------------------------------|-------------------|----------|--------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------|--------------------------|-------------|-----|--------------|---------------|-------|--|
| Cost ID:                                         | Drain             | From STA | To STA | Work                                                                                      | Description                                                                       | Cost Type | Length                   | \$/m        | Qty | /each        | \$            | Notes |  |
| PA-02                                            | Point Abino Drain |          |        |                                                                                           | existing concrete demolition and removal                                          |           | 64                       | \$1,150.00  |     |              | \$ 73,600.00  |       |  |
|                                                  |                   |          |        | Point Abino Rd Culvert                                                                    | site preparation                                                                  | lump sum  | 0                        | \$32,500.00 | 1   | \$ 45,000.00 | \$ 45,000.00  |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
| PA-03                                            |                   |          |        | DFO compliance for construction of works within water.                                    | install pumping bypass and coffer dams as per staging drawing during construction |           |                          |             | 90  | \$550.00     | \$ 49,500.00  |       |  |
|                                                  |                   |          |        | Removal of existing Box culvert as per staging.                                           |                                                                                   |           | 24                       | \$445.00    | 20  | \$225.00     | \$ 15,180.00  |       |  |
|                                                  |                   |          |        | Move Gas line                                                                             |                                                                                   |           | 34                       | \$175.00    | 1   | \$ 10,000.00 | \$ 15,950.00  |       |  |
|                                                  |                   |          |        | Move Watermain move or protect                                                            |                                                                                   |           | 20                       | \$275.00    |     |              | \$ 5,500.00   |       |  |
|                                                  |                   |          |        | Culvert Base prep                                                                         |                                                                                   |           |                          |             | 1   | \$ 15,000.00 | \$ 15,000.00  |       |  |
|                                                  |                   |          |        | Purchase & install pre-cast box segments                                                  | 3000x1500x 2m segments                                                            |           |                          |             | 6   | \$ 85,000.00 | \$ 510,000.00 |       |  |
|                                                  |                   |          |        | Purchase & install pre-cast box segment with preconfigured metal frame for the flap gate. |                                                                                   |           |                          |             | 1   | \$ 95,000.00 | \$ 95,000.00  |       |  |
|                                                  |                   |          |        | Top cast in place slab                                                                    |                                                                                   |           |                          |             | 1   | \$ 8,500.00  | \$ 8,500.00   |       |  |
|                                                  |                   |          |        | includes steel trash rack on upstream side of the Point Abino Rd Culvert                  |                                                                                   |           |                          |             | 1   | \$ 11,000.00 | \$ 11,000.00  |       |  |
| PA-05                                            |                   |          |        | Road restoration                                                                          |                                                                                   |           |                          |             | 600 | \$ 55.00     | \$ 33,000.00  |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ -          |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              |               |       |  |
|                                                  |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              |               |       |  |
| SubTotal for: Point Abino Rd Culvert Replacement |                   |          |        |                                                                                           |                                                                                   |           |                          |             |     |              | \$ 877,230.00 |       |  |



| PA-O-2    Point Abino Outlet Gate Improvements     |       |          |        |                                        |                                                        | Linear, Each or Lump Sum |        |      |     |              |               |       |
|----------------------------------------------------|-------|----------|--------|----------------------------------------|--------------------------------------------------------|--------------------------|--------|------|-----|--------------|---------------|-------|
| Cost ID:                                           | Drain | From STA | To STA | Work                                   | Description                                            | Cost Type                | Length | \$/m | Qty | /each        | \$            | Notes |
| PA-01                                              |       |          |        | Flap Gate Improvements                 | conversion from two steel gates to a single steel gate | lump sum                 |        |      | 1   | \$ 25,000.00 | \$ 25,000.00  |       |
|                                                    |       |          |        |                                        | control replacement of winch - additional              | each                     |        |      | 1   | \$ 18,500.00 | \$ 18,500.00  |       |
|                                                    |       |          |        | Outlet concrete works                  | Wing walls, cutoff wall and base                       | lump                     |        |      | 1   | \$82,750.00  | \$ 82,750.00  |       |
|                                                    |       |          |        | Restoration                            |                                                        |                          |        |      | 1   | \$ 3,500.00  | \$ 3,500.00   |       |
|                                                    |       |          |        | Special work to include frame mounting | insert frame mount on outside pre-cast culvert         | lump sum                 |        |      | 1   | \$ 16,500.00 | \$ 16,500.00  |       |
|                                                    |       |          |        |                                        |                                                        |                          |        |      |     |              |               |       |
|                                                    |       |          |        |                                        |                                                        |                          |        |      |     |              |               |       |
|                                                    |       |          |        |                                        |                                                        |                          |        |      |     |              |               |       |
|                                                    |       |          |        |                                        |                                                        |                          |        |      |     |              |               |       |
|                                                    |       |          |        |                                        |                                                        |                          |        |      |     |              |               |       |
| SubTotal for: Point Abino Outlet Gate Improvements |       |          |        |                                        |                                                        |                          |        |      |     |              | \$ 102,750.00 |       |

| PA-O-3    Point Abino Outlet Conversion to Open     |       |          |        |                                                                                                  |                                                                                   | Linear, Each or Lump Sum |        |             |     |              |               |                           |
|-----------------------------------------------------|-------|----------|--------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------|--------|-------------|-----|--------------|---------------|---------------------------|
| Cost ID:                                            | Drain | From STA | To STA | Work                                                                                             | Description                                                                       | Cost Type                | Length | \$/m        | Qty | /each        | \$            | Notes                     |
| PA-08                                               |       |          |        | DFO compliance for construction of works within water.                                           | install pumping bypass and coffer dams as per staging drawing during construction |                          |        |             | 90  | \$550.00     | \$ 49,500.00  |                           |
|                                                     |       |          |        | Removal of existing Box culvert as per staging.                                                  |                                                                                   |                          | 24     | \$445.00    | 20  | \$225.00     | \$ 15,180.00  |                           |
|                                                     |       |          |        | Open Channel                                                                                     | reuse concrete demo slabs as base layer                                           |                          |        |             | 360 | \$ 55.00     | \$ 19,800.00  |                           |
|                                                     |       |          |        |                                                                                                  | Construct 2 level concrete box wall, 2ft x 4t x 6ft                               |                          | 120    | \$1,450.00  |     |              | \$ 174,000.00 |                           |
|                                                     |       |          |        |                                                                                                  | 2 – 375mm lifts of geogrid backfill with soil (site material) and cover seed      |                          | 240    | \$885.00    |     |              | \$ 212,400.00 |                           |
|                                                     |       |          |        |                                                                                                  | 0.2m vegetated rock buttress at Top of Bank. TOB                                  |                          | 130    | \$45.00     |     |              | \$ 5,850.00   |                           |
| PA-04                                               |       |          |        | Point Abino Private Access                                                                       |                                                                                   | both                     | 1      | \$32,500.00 | 1   | \$ 75,000.00 | \$ 107,500.00 |                           |
| PA-06                                               |       |          |        | Replace three culverts with new CSP pipe and install a concrete headwall with a steel trashrack. |                                                                                   | both                     | 18     | \$3,650.00  | 1   | \$ 34,500.00 | \$ 100,200.00 |                           |
|                                                     |       |          |        |                                                                                                  |                                                                                   |                          |        |             |     |              |               |                           |
|                                                     |       |          |        |                                                                                                  |                                                                                   |                          |        |             |     |              |               |                           |
| SubTotal for: Point Abino Outlet Conversion to Open |       |          |        |                                                                                                  |                                                                                   |                          |        |             |     |              | \$ 684,430.00 |                           |
|                                                     |       |          |        |                                                                                                  |                                                                                   |                          |        |             |     |              | \$ 97,775.71  | Town of Fort Erie portion |

| PHB    Haggerty Branch Improvements        |       |          |        |                                                                                                  |                                                                                                                   | Linear, Each or Lump Sum |        |            |     |             |              |       |
|--------------------------------------------|-------|----------|--------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------|--------|------------|-----|-------------|--------------|-------|
| Cost ID:                                   | Drain | From STA | To STA | Work                                                                                             | Description                                                                                                       | Cost Type                | Length | \$/m       | Qty | /each       | \$           | Notes |
|                                            |       |          |        |                                                                                                  |                                                                                                                   |                          |        |            |     |             | \$ -         |       |
|                                            |       |          |        | PB1-CS-01<br>900 X 5.8m CSP existing REMOVE and REPLACE.<br>226 Holloway Bay Rd S Private Access | DESIGN Q = 1.713CMS<br>REPLACE WITH CSP 1050MM DIA. 6M (L) @0.24% OR APPROVED EQUIVALENT<br>CROSSING ELEV. 176.53 | both                     | 6      | \$1,500.00 | 1   | \$ 4,500.00 | \$ 13,500.00 |       |
|                                            |       |          |        | Clean and clear to grade line.                                                                   |                                                                                                                   |                          | 230    | \$15.00    |     |             | \$ 3,450.00  |       |
|                                            |       |          |        | Clean and clear to grade line.                                                                   |                                                                                                                   |                          | 213    | \$15.00    |     |             | \$ 3,195.00  |       |
|                                            |       |          |        | Clean and clear to grade line.                                                                   |                                                                                                                   |                          | 435    | \$15.00    |     |             | \$ 6,525.00  |       |
|                                            |       |          |        | Clean and clear to grade line.                                                                   |                                                                                                                   |                          | 63     | \$15.00    |     |             | \$ 945.00    |       |
|                                            |       |          |        |                                                                                                  |                                                                                                                   |                          |        |            |     |             | \$ -         |       |
|                                            |       |          |        |                                                                                                  |                                                                                                                   |                          |        |            |     |             | \$ -         |       |
|                                            |       |          |        |                                                                                                  |                                                                                                                   |                          |        |            |     |             |              |       |
| SubTotal for: Haggerty Branch Improvements |       |          |        |                                                                                                  |                                                                                                                   |                          |        |            |     |             | \$ 27,615.00 |       |

|                                               |
|-----------------------------------------------|
| PEB    East Branch Drain Channel Improvements |
|-----------------------------------------------|

Linear, Each or Lump Sum



| Cost ID:                                             | Drain                          | From STA | To STA | Work                             | Description                                                              | Cost Type | Length | \$/m | Qty  | /each   | \$           | Notes |
|------------------------------------------------------|--------------------------------|----------|--------|----------------------------------|--------------------------------------------------------------------------|-----------|--------|------|------|---------|--------------|-------|
| East Branch Drain                                    |                                |          |        |                                  |                                                                          |           |        |      |      |         |              |       |
| PAE-01                                               | East Branch Low flow channel   |          |        | Clear existing to proposed grade | 457m of excavation including spreading of material adjacent to the drain |           | 456.8  | 17.5 |      |         | \$ 7,994.00  |       |
| PAE-02                                               | East Branch Flood Flow channel |          |        |                                  | 350m of flood way channel construction                                   |           | 347    | 15   |      |         | \$ 5,205.00  |       |
| PAE-03                                               |                                |          |        |                                  | Seeding                                                                  |           |        |      | 4410 | \$ 0.25 | \$ 1,102.50  |       |
|                                                      |                                |          |        |                                  |                                                                          |           |        |      |      |         |              |       |
|                                                      |                                |          |        |                                  |                                                                          |           |        |      |      |         |              |       |
| SubTotal for: East Branch Drain Channel Improvements |                                |          |        |                                  |                                                                          |           |        |      |      |         | \$ 14,301.50 |       |

Section 74 - Maintenance Works for Construction

| PA-M-PC                                                     | Point Abino Drain Maintenance - Port Colborne |          |        |                                                   |                                | Linear, Each or Lump Sum |        |      |     |             |              |       |
|-------------------------------------------------------------|-----------------------------------------------|----------|--------|---------------------------------------------------|--------------------------------|--------------------------|--------|------|-----|-------------|--------------|-------|
| Cost ID:                                                    | Drain                                         | From STA | To STA | Work                                              | Description                    | Cost Type                | Length | \$/m | Qty | /each       | \$           | Notes |
| PA-M1                                                       |                                               | 3+763    | 4+719  |                                                   |                                |                          |        |      |     |             |              |       |
|                                                             |                                               |          |        | Clean and clear to design grade                   |                                | per m                    | 956    | 15   |     |             | \$ 14,340.00 |       |
|                                                             |                                               |          |        | PAM - CS- 10                                      | Extend existing culvert to 10m | both                     | 9      | 750  | 1   | \$ 2,500.00 | \$ 9,250.00  |       |
|                                                             |                                               |          |        | remove existing concrete pipe debris and dispose. |                                | each                     |        |      | 5   | \$ 500.00   | \$ 2,500.00  |       |
|                                                             |                                               |          |        |                                                   |                                | each                     |        |      |     |             | \$ -         |       |
|                                                             |                                               |          |        |                                                   |                                | each                     |        |      |     |             | \$ -         |       |
|                                                             |                                               |          |        |                                                   |                                |                          |        |      |     |             |              |       |
| SubTotal for: Point Abino Drain Maintenance - Port Colborne |                                               |          |        |                                                   |                                |                          |        |      |     |             | \$ 26,090.00 |       |

| PA-M-FE                                                 | Point Abino Drain Maintenance - Fort Erie |          |        |                   |                                                                                | Linear, Each or Lump Sum |        |      |     |             |               |       |
|---------------------------------------------------------|-------------------------------------------|----------|--------|-------------------|--------------------------------------------------------------------------------|--------------------------|--------|------|-----|-------------|---------------|-------|
| Cost ID:                                                | Drain                                     | From STA | To STA | Work              | Description                                                                    | Cost Type                | Length | \$/m | Qty | /each       | \$            | Notes |
| PA-M2                                                   |                                           |          |        |                   |                                                                                |                          |        |      |     |             |               |       |
|                                                         |                                           | 0+250    | 2+750  | Clean and clear   | spot repairs on an as needed where needed basis. Estimated to be 50.           |                          | 3193   | 0    | 50  | \$ 1,250.00 | \$ 62,500.00  |       |
|                                                         |                                           |          |        | Deadfall removals | Significant removals required mostly ash trees. Disposal to prevent beaver use |                          |        |      | 300 | \$ 250.00   | \$ 75,000.00  |       |
|                                                         |                                           | 2+750    | 3+750  |                   |                                                                                |                          | 1000   | 15   |     |             | \$ 15,000.00  |       |
|                                                         |                                           |          |        |                   |                                                                                |                          |        |      |     |             |               |       |
| SubTotal for: Point Abino Drain Maintenance - Fort Erie |                                           |          |        |                   |                                                                                |                          |        |      |     |             | \$ 152,500.00 |       |

Section 84 - Abandoning an existing portion of a Municipal Drain by Report

|                                                                                          |                                   |  |  |  |  |  |  |  |  |  |                 |
|------------------------------------------------------------------------------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|-----------------|
| PHB-A                                                                                    | Haggerty Branch Drain - Fort Erie |  |  |  |  |  |  |  |  |  |                 |
| SubTotal for: Section 84 - Abandoning an existing portion of a Municipal Drain by Report |                                   |  |  |  |  |  |  |  |  |  | \$0.00          |
| Sub-Total Cost of Construction                                                           |                                   |  |  |  |  |  |  |  |  |  | \$ 2,035,916.50 |
| Contingency Allowance, (15%)                                                             |                                   |  |  |  |  |  |  |  |  |  | \$ 305,387.48   |
| Cost of Construction:                                                                    |                                   |  |  |  |  |  |  |  |  |  | \$ 2,341,303.98 |



Point Abino Municipal Drain  
City of Port Colborne  
Town of Fort Erie  
Regional Municipality of Niagara  
Future Maintenance Table

PA Drain Assessed Benefit

| Farm<br>As 'F'                         | Owner                          | Legal_Txt                                                                            | Municipal Addres      | Roll No         | Area<br>Ha  | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CoFPC<br>QRF | QRF Ratio |
|----------------------------------------|--------------------------------|--------------------------------------------------------------------------------------|-----------------------|-----------------|-------------|------------------------|-------------------|-----------|-----|------|-----------|------------------------|--------------------------|-----------|
| City of Port Colborne - Lands Assessed |                                |                                                                                      |                       |                 |             |                        |                   |           |     |      |           |                        |                          |           |
|                                        | Customer_N                     | Legal_Desc                                                                           | Municipal_            | Roll_Numbe      | Area_ha     | Catch_Ha               | C_Factor          |           |     |      |           |                        |                          |           |
|                                        | Corless Trevor Alexander       | PLAN 45 PT LOT 1 NP804                                                               | FIRELANE 29           | 271104000100100 | 0.19296331  | 0.013                  | 20                | 0.016962  | 0   | 0    | 0.016962  | 0.000010               | 0.000                    | 0.0000    |
|                                        | D B M E Inc                    | PLAN 45 LOT 2 PT LOT 1 NP804 RP 59R8890 PT 1 D B M E INC 75% INT M RICHARDS 25% INT  | FIRELANE 29           | 271104000100200 | 1.308703691 | 0.0757                 | 20                | 0.098773  | 0   | 0    | 0.098773  | 0.000057               | 0.000                    | 0.0000    |
|                                        | Colyocorvid Inc                | PLAN 45 LOT 3 NP804                                                                  | 5949 FIRELANE 29      | 271104000100300 | 0.784703381 | 0.0766                 | 20                | 0.099948  | 0   | 0    | 0.099948  | 0.000058               | 0.000                    | 0.0000    |
|                                        | Colyocorvid Inc                | PLAN 45 PCL A B C NP804                                                              | 5971 FIRELANE 29      | 271104000100400 | 0.509245401 | 0.5094                 | 20                | 0.664665  | 0   | 0    | 0.664665  | 0.000385               | 0.000                    | 0.0000    |
|                                        | Vance Beverly Diane            | PLAN 45 LOT 4 NP804                                                                  | 5941 FIRELANE 29      | 271104000100401 | 0.76885272  | 0.1152                 | 20                | 0.150313  | 0   | 0    | 0.150313  | 0.000087               | 0.000                    | 0.0000    |
|                                        | Ressel Charles                 | PLAN 45 LOT 5 NP804                                                                  | 5921 FIRELANE 29      | 271104000100500 | 0.781451768 | 0.1492                 | 20                | 0.194676  | 0   | 0    | 0.194676  | 0.000113               | 0.000                    | 0.0000    |
|                                        | Vogelsang Christopher          | PLAN 45 LOT 6 NP 804                                                                 | 5913 FIRELANE 28      | 271104000100600 | 0.773825503 | 0.1672                 | 20                | 0.218163  | 0   | 0    | 0.218163  | 0.000126               | 0.000                    | 0.0000    |
|                                        | Ray David Michael              | PLAN 45 LOT 7 + ROW NP804                                                            | 5893 FIRELANE 28      | 271104000100700 | 0.742147252 | 0.1156                 | 20                | 0.150835  | 0   | 0    | 0.150835  | 0.000087               | 0.000                    | 0.0000    |
|                                        | O'Hern-Lodge Inc               | PLAN 804 LOT 8                                                                       | 5867 FIRELANE 28      | 271104000100701 | 0.698363262 | 0.047                  | 20                | 0.061326  | 0   | 0    | 0.061326  | 0.000035               | 0.000                    | 0.0000    |
|                                        | Jones Wendy Kelly              | PLAN 45 LOT 9 NP804                                                                  | 5855 FIRELANE 28      | 271104000100800 | 0.71117439  | 0.0352                 | 20                | 0.045929  | 0   | 0    | 0.045929  | 0.000027               | 0.000                    | 0.0000    |
|                                        | Leon Leah                      | PLAN 45 LOT 10 NP804                                                                 | 5823 FIRELANE 28      | 271104000100900 | 0.737706402 | 0.0367                 | 20                | 0.047886  | 0   | 0    | 0.047886  | 0.000028               | 0.000                    | 0.0000    |
|                                        | Narciso Wayne                  | PLAN 45 LOT 11 LOT 12 NP804                                                          | 5807 FIRELANE 28      | 271104000101000 | 1.437491031 | 0.033                  | 20                | 0.043058  | 0   | 0    | 0.043058  | 0.000025               | 0.000                    | 0.0000    |
|                                        | DWHA Properties Inc            | 27 NS CON 1 PT BLKS P K & L PLAN 45 LOT 16 NP804 RP 59R5691 PART 3 RP 59R8356 PART 1 | 5727 FIRELANE 27      | 271104000101400 | 0.920713223 | 0.2823                 | 20                | 0.368345  | 0   | 0    | 0.368345  | 0.000213               | 0.368                    | 0.0007    |
|                                        | Simunic Joseph E Jr            | PLAN 45 LOT 17 PT PCL P NP804                                                        | 5687 FIRELANE 27      | 271104000101500 | 0.393325519 | 0.3246                 | 20                | 0.423538  | 0   | 0    | 0.423538  | 0.000245               | 0.424                    | 0.0008    |
|                                        | MCLP Inc                       | PLAN 45 LOT 18 LOT 19 PT PCL P & L NP804                                             | 5685 FIRELANE 27      | 271104000101600 | 0.544738758 | 0.5418                 | 20                | 0.706941  | 0   | 0    | 0.706941  | 0.000409               | 0.707                    | 0.0014    |
|                                        | MCLP Inc                       | PLAN 45 LOT 18 LOT 19 PT PCL P & L NP804                                             | 5685 FIRELANE 27      | 271104000101600 | 1.16140389  | 0.0682                 | 20                | 0.088987  | 0   | 0    | 0.088987  | 0.000052               | 0.707                    | 0.0014    |
|                                        | Buscaglia Carol                | PLAN 45 LOT 20 PT PCL P NP804                                                        | 5605 FIRELANE 27      | 271104000101700 | 0.646603929 | 0.1042                 | 20                | 0.135960  | 0   | 0    | 0.135960  | 0.000079               | 0.136                    | 0.0003    |
|                                        | Buscaglia Carol                | PLAN 45 LOT 20 PT PCL P NP804                                                        | 5605 FIRELANE 27      | 271104000101700 | 0.174009837 | 0.174                  | 20                | 0.227035  | 0   | 0    | 0.227035  | 0.000131               | 0.136                    | 0.0003    |
|                                        | Campbell Mary Lou              | PLAN 45 LOT 21 PT PCL P PT PCL M NP804                                               | 5603 FIRELANE 27      | 271104000101800 | 0.657787237 | 0.111                  | 20                | 0.144833  | 0   | 0    | 0.144833  | 0.000084               | 0.145                    | 0.0003    |
|                                        | Campbell Mary Lou              | PLAN 45 LOT 21 PT PCL P PT PCL M NP804                                               | 5603 FIRELANE 27      | 271104000101800 | 0.145307902 | 0.1453                 | 20                | 0.189587  | 0   | 0    | 0.189587  | 0.000110               | 0.145                    | 0.0003    |
|                                        | Leon Leslie                    | PLAN 804 LOT 22 PT PCL P NP804 RP 59R13659 PART 1 RP 30R13059 PARTS 2 AND 3          | 5543 FIRELANE 27      | 271104000101900 | 0.653466147 | 0.1155                 | 20                | 0.150704  | 0   | 0    | 0.150704  | 0.000087               | 0.151                    | 0.0003    |
|                                        | Leon Leslie                    | PLAN 804 LOT 22 PT PCL P NP804 RP 59R13659 PART 1 RP 30R13059 PARTS 2 AND 3          | 5543 FIRELANE 27      | 271104000101900 | 0.118295538 | 0.1183                 | 20                | 0.154358  | 0   | 0    | 0.154358  | 0.000089               | 0.151                    | 0.0003    |
|                                        | N & J Signs                    | PLAN 45 PT BLK P NP804                                                               | 5520 FIRELANE 27      | 271104000102000 | 0.177186725 | 0.1772                 | 20                | 0.231211  | 0   | 0    | 0.231211  | 0.000134               | 0.231                    | 0.0004    |
|                                        | Sahlem Susan                   | PLAN 45 LOT 23 NP804                                                                 | 5531 FIRELANE 27      | 271104000102100 | 0.535224469 | 0.1242                 | 20                | 0.162056  | 0   | 0    | 0.162056  | 0.000094               | 0.162                    | 0.0003    |
|                                        | Marshall-Petty Rebecca Anne    | PLAN 804 LOT 24                                                                      | 5515 FIRELANE 27      | 271104000102200 | 0.365881803 | 0.1426                 | 20                | 0.186064  | 0   | 0    | 0.186064  | 0.000108               | 0.186                    | 0.0004    |
|                                        | Craig Glen Francis             | PLAN 804 PT PCL P                                                                    | FIRELANE 27           | 271104000102202 | 0.171277138 | 0.1713                 | 20                | 0.223512  | 0   | 0    | 0.223512  | 0.000129               | 0.224                    | 0.0004    |
|                                        | Palumbo Joseph Louis Jr        | PLAN 45 LOT 25 NP804                                                                 | 5511 FIRELANE 27      | 271104000102300 | 0.500822071 | 0.2193                 | 20                | 0.286143  | 0   | 0    | 0.286143  | 0.000166               | 0.286                    | 0.0005    |
|                                        | Pizzo Edward Michael           | PLAN 45 LOT 26 PT PCL P NP804                                                        | 239 PLEASANT BEACH RD | 271104000102400 | 0.4495903   | 0.1921                 | 20                | 0.250652  | 0   | 0    | 0.250652  | 0.000145               | 0.251                    | 0.0005    |
|                                        | Williamson Michael Patrick     | PLAN 45 PT PCL P NP804                                                               | PLEASANT BEACH RD     | 271104000102500 | 0.300511303 | 0.3006                 | 20                | 0.392223  | 0   | 0    | 0.392223  | 0.000227               | 0.392                    | 0.0008    |
|                                        | Holloway Bay Property Owners I | PLAN 45 PT PCL P NP804                                                               | HOLLOWAY BAY RD       | 271104000102600 | 5.455342765 | 5.1122                 | 20                | 6.670399  | 0   | 0    | 6.670399  | 0.003861               | 0.431                    | 0.0008    |
|                                        | Panto Nicholas                 | PLAN 45 PT PCL P NP804                                                               | 212 HOLLOWAY BAY RD   | 271104000102700 | 0.145123269 | 0.1452                 | 20                | 0.189457  | 0   | 0    | 0.189457  | 0.000110               | 0.000                    | 0.0000    |
|                                        | D B M E Inc                    | CON 1 PT LOT 1 RP 59R8890 PT 2 D B M E INC 75% INT M RICHARDS 25% INT                | 226 HOLLOWAY BAY RD   | 271104000102800 | 14.36603592 | 14.3692                | 25                | 23.436165 | 0   | 0    | 23.436165 | 0.013566               | 5.979                    | 0.0115    |
|                                        | Scarlett John Frederick        | CON 1 PT LOT 1 RP 59R5913 PARTS 2 TO 4                                               | 370 HOLLOWAY BAY RD   | 271104000102900 | 1.508069476 | 1.5084                 | 30                | 2.952240  | 0   | 0    | 2.952240  | 0.001709               | 1.662                    | 0.0032    |
|                                        | Boles Diane Lynn               | CON 1 PT LOT 1 RP 59R5913 PART 1                                                     | 386 HOLLOWAY BAY RD   | 271104000102901 | 0.470327714 | 0.4704                 | 30                | 0.920667  | 0   | 0    | 0.920667  | 0.000533               | 0.066                    | 0.0001    |
|                                        | Phibbs Stephanie Diane         | CON 1 PT LOT 1                                                                       | 5930 MICHENER RD      | 271104000103100 | 4.141347314 | 4.1423                 | 35                | 9.458528  | 0   | 0    | 9.458528  | 0.005475               | 0.000                    | 0.0000    |
|                                        | Lander Blake                   | CON 1 PT LOT 1                                                                       | 534 HOLLOWAY BAY RD   | 271104000103200 | 0.31896273  | 0.319                  | 30                | 0.624347  | 0   | 0    | 0.624347  | 0.000361               | 0.000                    | 0.0000    |
|                                        | Nadeau Gerrard                 | CON 1 PT LOT 1                                                                       | 542 HOLLOWAY BAY RD   | 271104000103300 | 0.809001097 | 0.8092                 | 30                | 1.583766  | 0   | 0    | 1.583766  | 0.000917               | 0.000                    | 0.0000    |
|                                        | Muilleboom Ashley Arlene       | CON 1 PT LOT 1                                                                       | 554 HOLLOWAY BAY RD   | 271104000103400 | 0.809204495 | 0.8094                 | 30                | 1.584158  | 0   | 0    | 1.584158  | 0.000917               | 0.000                    | 0.0000    |
|                                        | Kennedy Nancy Jane             | CON 1 PT LOT 1                                                                       | 566 HOLLOWAY BAY RD   | 271104000103500 | 1.506676678 | 1.507                  | 30                | 2.949500  | 0   | 0    | 2.949500  | 0.001707               | 0.000                    | 0.0000    |
|                                        | Pruyn Kirk                     | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PART 3                                        | 614 HOLLOWAY BAY RD   | 271104000103600 | 5.399598462 | 5.4008                 | 35                | 12.332187 | 0   | 0    | 12.332187 | 0.007138               | 0.000                    | 0.0000    |
|                                        | Shaubel Brian                  | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PARTS 1 AND 2                                 | 588 HOLLOWAY BAY RD   | 271104000103610 | 2.596061856 | 2.5966                 | 30                | 5.082066  | 0   | 0    | 5.082066  | 0.002942               | 0.000                    | 0.0000    |
|                                        | Harriettha Thomas              | HUMBERSTONE CON 1 PT LOT 1 RP 59R10180 PART 1                                        | 5987 SHERKSTON RD     | 271104000103700 | 0.404592354 | 0.4047                 | 30                | 0.792079  | 0   | 0    | 0.792079  | 0.000458               | 0.000                    | 0.0000    |
|                                        | 2293020 Ontario Ltd            | CON 1 PT LOT 1 RP 59R10180 PART 2                                                    | 5961 SHERKSTON RD     | 271104000103705 | 0.669331113 | 0.6695                 | 30                | 1.310345  | 0   | 0    | 1.310345  | 0.000758               | 0.000                    | 0.0000    |
|                                        | Annett Matthew                 | CON 1 PT LOT 1 RP 59R10819 PARTS 1 & 2                                               | 5891 SHERKSTON RD     | 271104000103800 | 0.39841988  | 0.3985                 | 30                | 0.779944  | 0   | 0    | 0.779944  | 0.000451               | 0.000                    | 0.0000    |
|                                        | Cirone David                   | CON 1 PT LOT 1 RP 59R10180 PT PART 3                                                 | 5841 SHERKSTON RD     | 271104000103805 | 0.474789753 | 0.4749                 | 30                | 0.929474  | 0   | 0    | 0.929474  | 0.000538               | 0.000                    | 0.0000    |
|                                        | Lehocki Teresa Mary            | CON 1 PT LOT 1 59R-10180 PARTS 4 & 5                                                 | HOLLOWAY BAY RD       | 271104000103810 | 9.154561189 | 9.1566                 | 35                | 20.908180 | 0   | 0    | 20.908180 | 0.012102               | 0.268                    | 0.0005    |



| Farm<br>As 'F' | Owner                          | Legal_Txt                                                    | Municipal Address         | Roll No         | Area<br>Ha  | Area in     |                   | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|----------------|--------------------------------|--------------------------------------------------------------|---------------------------|-----------------|-------------|-------------|-------------------|-----------|-----|------|-----------|------------------------|-------------------|-----------|
|                |                                |                                                              |                           |                 |             | Drain<br>Ha | Runoff Factor 'C' |           |     |      |           |                        | QRF               | QRF Ratio |
|                | Manuel Robert George           | CON 1 PT LOT 1                                               | 5795 SHERKSTON RD         | 271104000103900 | 0.1045604   | 0.1046      | 30                | 0.204723  | 0   | 0    | 0.204723  | 0.000119               | 0.024             | 0.0000    |
|                | Belanger Shayna Michlyn        | CON 1 PT LOT 2                                               | 5676 SHERKSTON RD         | 271104000104800 | 0.579785779 | 0.5799      | 30                | 1.134980  | 0   | 0    | 1.134980  | 0.000657               | 1.135             | 0.0022    |
|                | Durant Dylan Tanner            | CON 1 PT LOT 2 RP 59R4019 PART 1                             | 5713 SHERKSTON RD         | 271104000104900 | 0.812815493 | 0.813       | 30                | 1.591204  | 0   | 0    | 1.591204  | 0.000921               | 1.591             | 0.0030    |
|                | Waldram Craig Thomas           | CON 1 PT LOT 2                                               | 5755 SHERKSTON RD         | 271104000105000 | 0.714374035 | 0.7145      | 30                | 1.398419  | 0   | 0    | 1.398419  | 0.000809               | 1.398             | 0.0027    |
|                | Lampshire Melanie Dawn         | CON 1 PT LOT 2 RP 59R12528 PART 1 641700135 UNREG            | 5457 SHERKSTON RD         | 271104000105900 | 0.60160436  | 0.6017      | 30                | 1.177647  | 0   | 0    | 1.177647  | 0.000682               | 1.178             | 0.0023    |
|                | Vanderende Lori Ann            | CON 1 PT LOT 2                                               | 5489 SHERKSTON RD         | 271104000106000 | 0.216479199 | 0.2165      | 30                | 0.423734  | 0   | 0    | 0.423734  | 0.000245               | 0.424             | 0.0008    |
|                | Langlois Julie Marie           | CON 1 PT LOT 2                                               | 5549 SHERKSTON RD         | 271104000106100 | 0.648193455 | 0.6483      | 30                | 1.268853  | 0   | 0    | 1.268853  | 0.000734               | 1.269             | 0.0024    |
|                | Brennan George                 | CON 1 PT LOT 2                                               | 5571 SHERKSTON RD         | 271104000106101 | 0.242056348 | 0.2421      | 30                | 0.473838  | 0   | 0    | 0.473838  | 0.000274               | 0.474             | 0.0009    |
|                | Phillips Ralph John            | CON 1 PT LOT 2 RP 59R4043 PART 1                             | 5613 SHERKSTON RD         | 271104000106200 | 1.70636311  | 1.7067      | 28                | 3.117663  | 0   | 0    | 3.117663  | 0.001805               | 3.118             | 0.0060    |
|                | Sergnese Brittany Lennie       | CON 1 PT LOT 2                                               | 5651 SHERKSTON RD         | 271104000106300 | 0.431199193 | 0.4313      | 30                | 0.844140  | 0   | 0    | 0.844140  | 0.000489               | 0.844             | 0.0016    |
|                | Marois David Rosaire           | CON 1 PT LOT 2                                               | 781 PLEASANT BEACH RD     | 271104000106800 | 0.162147758 | 0.1622      | 30                | 0.317458  | 0   | 0    | 0.317458  | 0.000184               | 0.317             | 0.0006    |
|                | Grenke Kevin Michael           | HIMBERSTONE CON 1 PT LOT 2 RP 59R14932 PART 1                | 765 PLEASANT BEACH RD     | 271104000106900 | 0.973891665 | 0.9741      | 30                | 1.906509  | 0   | 0    | 1.906509  | 0.001104               | 1.907             | 0.0037    |
|                | Pooler Steven                  | CON 1 PT LOT 2                                               | 755 PLEASANT BEACH RD     | 271104000107000 | 0.721166279 | 0.7213      | 30                | 1.411728  | 0   | 0    | 1.411728  | 0.000817               | 1.412             | 0.0027    |
|                | Bonenfant Wendy                | CON 1 PT LOT 2                                               | 743 PLEASANT BEACH RD     | 271104000107100 | 0.208929036 | 0.209       | 30                | 0.409055  | 0   | 0    | 0.409055  | 0.000237               | 0.409             | 0.0008    |
|                | Vander Veen John               | CON 1 PT LOT 2                                               | 737 PLEASANT BEACH RD     | 271104000107200 | 0.240261725 | 0.2403      | 30                | 0.470315  | 0   | 0    | 0.470315  | 0.000272               | 0.470             | 0.0009    |
|                | Eberly Michael David           | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 5                | 727 PLEASANT BEACH RD     | 271104000107300 | 15.49682866 | 15.5003     | 35                | 35.393385 | 0   | 0    | 35.393385 | 0.020487               | 29.492            | 0.0565    |
|                | Khan Dina                      | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 4                | PLEASANT BEACH RD         | 271104000107305 | 2.44349372  | 2.444       | 28                | 4.464504  | 0   | 0    | 4.464504  | 0.002584               | 2.425             | 0.0046    |
|                | Rickman Erin Heather           | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 3                | 635 PLEASANT BEACH RD     | 271104000107306 | 2.445571445 | 2.4461      | 28                | 4.468340  | 0   | 0    | 4.468340  | 0.002586               | 2.458             | 0.0047    |
|                | Benvenuti Shane                | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 2                | 625 PLEASANT BEACH RD     | 271104000107307 | 2.447630514 | 2.4482      | 28                | 4.472176  | 0   | 0    | 4.472176  | 0.002589               | 2.590             | 0.0050    |
|                | Eberly William Warren          | HUMBERSTONE CON 1 PT LOT 2 AND RP 59R14998 PART 1            | 603 PLEASANT BEACH RD     | 271104000107400 | 2.148189418 | 2.1487      | 28                | 3.925073  | 0   | 0    | 3.925073  | 0.002272               | 2.262             | 0.0043    |
|                | Hartley-Rybka Kimberly         | CON 1 PT LOT 2 RP 59R6260 PART 1                             | 591 PLEASANT BEACH RD     | 271104000107500 | 0.817403414 | 0.8176      | 30                | 1.600207  | 0   | 0    | 1.600207  | 0.000926               | 1.600             | 0.0031    |
|                | Berry Gordon Albert            | CON 1 PT LOT 2                                               | 569 PLEASANT BEACH RD     | 271104000107600 | 8.624192751 | 8.6261      | 35                | 19.696837 | 0   | 0    | 19.696837 | 0.011401               | 6.488             | 0.0124    |
|                | Willwerth Donald R             | CON 1 PT LOT 2                                               | 545 PLEASANT BEACH RD     | 271104000107700 | 2.641495017 | 2.6421      | 30                | 5.171118  | 0   | 0    | 5.171118  | 0.002993               | 5.171             | 0.0099    |
|                | Thomas Leslie Marilyn          | CON 1 PT LOT 2 RP 59R10459 PARTS 1 & 2                       | 5449 MICHENER RD          | 271104000107735 | 1.331246211 | 1.3315      | 30                | 2.606012  | 0   | 0    | 2.606012  | 0.001508               | 2.606             | 0.0050    |
|                | Shaubel Sophia Ann             | CON 1 PT LOT 2 ROW & ESMT                                    | 451 PLEASANT BEACH RD     | 271104000107800 | 6.668048207 | 6.6695      | 35                | 15.229136 | 0   | 0    | 15.229136 | 0.008815               | 15.229            | 0.0292    |
|                | Robins Jodee Lee               | CON 1 PT LOT 2 RP 59R9210 PART 1                             | 5591 MICHENER RD          | 271104000107900 | 0.745861217 | 0.746       | 30                | 1.460071  | 0   | 0    | 1.460071  | 0.000845               | 0.967             | 0.0019    |
|                | Koren Amir                     | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 1                | 5670 MICHENER RD          | 271104000107901 | 0.99946194  | 0.9997      | 30                | 1.956613  | 0   | 0    | 1.956613  | 0.001133               | 0.000             | 0.0000    |
|                | Davies Norman Stewart          | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 2                | 5650 MICHENER RD          | 271104000107903 | 1.52373046  | 1.5241      | 30                | 2.982969  | 0   | 0    | 2.982969  | 0.001727               | 1.381             | 0.0026    |
|                | Vongphakdy Souphahone Chastity | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R5691 PT PART 1       | 5685 MICHENER RD          | 271104000107930 | 22.05588334 | 22.0607     | 35                | 50.373402 | 0   | 0    | 50.373402 | 0.029158               | 44.706            | 0.0857    |
|                | Lodomez-Miller Anne Marie      | CON 1 PT LOT 1 RP 59R12984 PART 3                            | 454 HOLLOWAY BAY RD       | 271104000107932 | 2.235170878 | 2.2357      | 30                | 4.375712  | 0   | 0    | 4.375712  | 0.002533               | 0.000             | 0.0000    |
|                | Aquilina Daniel D              | CON 1 PT LOT 1 PT LOT 2 RP 59R12984 PART 2                   | MICHENER RD               | 271104000107934 | 0.666926923 | 0.6671      | 30                | 1.305648  | 0   | 0    | 1.305648  | 0.000756               | 0.000             | 0.0000    |
|                | Aquilina Daniel D              | CON 1 PT LOT 1 RP 59R12984 PART 1                            | 5963 MICHENER RD          | 271104000107935 | 0.667180811 | 0.6673      | 30                | 1.306040  | 0   | 0    | 1.306040  | 0.000756               | 0.000             | 0.0000    |
|                | Lee Stephen                    | HUMBERSTONE CON 1 PT LOT 2 RP 59R15397 PART 1                | MICHENER RD               | 271104000107937 | 0.999741135 | 1           | 30                | 1.957200  | 0   | 0    | 1.957200  | 0.001133               | 0.919             | 0.0018    |
|                | Engels Bryan                   | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R15397 PART 2         | 5831 MICHENER RD          | 271104000107938 | 1.000218077 | 1.0004      | 30                | 1.957983  | 0   | 0    | 1.957983  | 0.001133               | 0.500             | 0.0010    |
|                | Emonds Ashley                  | HUMBERSTONE CON 1 PT LOT 1 RP 59R16961 PART 1                | MICHENER RD               | 271104000107940 | 1.008511504 | 1.0087      | 30                | 1.974228  | 0   | 0    | 1.974228  | 0.001143               | 0.000             | 0.0000    |
|                | Ginther George Eagan           | CON 1 PT LOT 2 RP59R5691 PART 2 PART 4 PT PCL PLAN 45 NP 804 | 5714 FIRELANE 27          | 271104000108000 | 12.23911855 | 12.2418     | 25                | 19.966376 | 0   | 0    | 19.966376 | 0.011557               | 19.915            | 0.0382    |
|                | Andreacchi Giuseppe            | CON 1 PT LOT 2                                               | 361 PLEASANT BEACH RD     | 271104000108200 | 0.072458832 | 0.0725      | 40                | 0.189196  | 0   | 0    | 0.189196  | 0.000110               | 0.189             | 0.0004    |
|                | Ross James J                   | CON 1 PT LOT 2                                               | 357 PLEASANT BEACH RD     | 271104000108300 | 0.144875379 | 0.1449      | 40                | 0.378131  | 0   | 0    | 0.378131  | 0.000219               | 0.378             | 0.0007    |
|                | Lungu Ana                      | CON 1 PT LOT 2                                               | 345 PLEASANT BEACH RD     | 271104000108400 | 0.209000631 | 0.209       | 40                | 0.545406  | 0   | 0    | 0.545406  | 0.000316               | 0.545             | 0.0010    |
|                | Andreacchi Franchina           | HUMBERSTONE CON 1 PT LOT 2                                   | 341 PLEASANT BEACH RD     | 271104000108500 | 0.182862068 | 0.1829      | 40                | 0.477296  | 0   | 0    | 0.477296  | 0.000276               | 0.477             | 0.0009    |
|                | Parisi Giacomo                 | CON 1 PT LOT 2                                               | 333 PLEASANT BEACH RD     | 271104000108600 | 0.503527917 | 0.5036      | 35                | 1.149920  | 0   | 0    | 1.149920  | 0.000666               | 1.150             | 0.0022    |
|                | Andreacchi Salvatore           | CON 1 PT LOT 2                                               | 341 1/2 PLEASANT BEACH RD | 271104000108900 | 0.078361238 | 0.0784      | 40                | 0.204593  | 0   | 0    | 0.204593  | 0.000118               | 0.205             | 0.0004    |
|                | Elliott Jordan                 | CON 1 PT LOT 2                                               | PLEASANT BEACH RD         | 271104000109000 | 0.404932748 | 0.405       | 35                | 0.924777  | 0   | 0    | 0.924777  | 0.000535               | 0.925             | 0.0018    |
|                | Elliott Jordan                 | CON 1 PT LOT 2                                               | PLEASANT BEACH RD         | 271104000109100 | 0.363083239 | 0.3632      | 35                | 0.829331  | 0   | 0    | 0.829331  | 0.000480               | 0.829             | 0.0016    |
|                | Elliott Jordan                 | CON 1 PT LOT 2                                               | 311 PLEASANT BEACH RD     | 271104000109200 | 0.141438877 | 0.1415      | 35                | 0.323101  | 0   | 0    | 0.323101  | 0.000187               | 0.323             | 0.0006    |
|                | Ariganello Rosina              | CON 1 PT LOT 2                                               | 307 PLEASANT BEACH RD     | 271104000109300 | 0.302955156 | 0.303       | 35                | 0.691870  | 0   | 0    | 0.691870  | 0.000400               | 0.692             | 0.0013    |
|                | Andreacchi Vito                | CON 1 PT LOT 2                                               | PLEASANT BEACH RD         | 271104000109400 | 0.115444129 | 0.1155      | 25                | 0.188381  | 0   | 0    | 0.188381  | 0.000109               | 0.188             | 0.0004    |
|                | Tompkins Daniel                | CON 1 PT LOT 2                                               | 275 PLEASANT BEACH RD     | 271104000109500 | 0.104290657 | 0.1043      | 25                | 0.170113  | 0   | 0    | 0.170113  | 0.000098               | 0.170             | 0.0003    |
|                | MacDougald Heather Alanna      | CON 1 PT LOT 2 AND PLAN 806 LOTS 19 AND 28                   | 5474 FIRELANE 22          | 271104000109600 | 0.158259949 | 0.1583      | 35                | 0.361462  | 0   | 0    | 0.361462  | 0.000209               | 0.361             | 0.0007    |
|                | Obeid Nabhan                   | CON 1 PT LOT 2                                               | 5548 FIRELANE 22          | 271104000109700 | 0.065212246 | 0.0652      | 35                | 0.148878  | 0   | 0    | 0.148878  | 0.000086               | 0.149             | 0.0003    |
|                | Bihl Dennis Charles Dennis</   |                                                              |                           |                 |             |             |                   |           |     |      |           |                        |                   |           |



| Farm<br>As 'F' | Owner                                          | Legal_Txt                                                                  | Municipal Address     | Roll No         | Area<br>Ha  | Area in     |                   | QRF      | SWM | SWMF | QRF-SWMF | Watershed<br>QRF Ratio | Interval 1: CofPC |        |
|----------------|------------------------------------------------|----------------------------------------------------------------------------|-----------------------|-----------------|-------------|-------------|-------------------|----------|-----|------|----------|------------------------|-------------------|--------|
|                |                                                |                                                                            |                       |                 |             | Drain<br>Ha | Runoff Factor 'C' |          |     |      |          |                        | QRF               |        |
|                | Sacco Andrew                                   | PLAN 47 LOT 14 LOT 15 NP806                                                | 288 FIRELANE 23       | 271104000110700 | 0.099058393 | 0.0991      | 25                | 0.161632 | 0   | 0    | 0.161632 | 0.000094               | 0.162             | 0.0003 |
|                | Arruda Victor                                  | PLAN 47 LOT 16 LOT 17 NP806                                                | 282 FIRELANE 23       | 271104000110800 | 0.077509177 | 0.0775      | 25                | 0.126403 | 0   | 0    | 0.126403 | 0.000073               | 0.126             | 0.0002 |
|                | Devans Russell                                 | PLAN 47 LOT 18 NP806                                                       | 277 FIRELANE 23       | 271104000110900 | 0.065486216 | 0.0655      | 25                | 0.106831 | 0   | 0    | 0.106831 | 0.000062               | 0.107             | 0.0002 |
|                | Muraco Frederick                               | PLAN 47 806 LOTS 20 21 26 AND 27 NP806                                     | 289 FIRELANE 23       | 271104000111000 | 0.185747943 | 0.1858      | 35                | 0.424256 | 0   | 0    | 0.424256 | 0.000246               | 0.424             | 0.0008 |
|                | Ariganello Aldo Peter                          | PLAN 47 LOT 22 TO LOT 25 NP806 CON 1 PT LOT 2                              | 297 FIRELANE 23       | 271104000111100 | 0.351565161 | 0.3516      | 35                | 0.802843 | 0   | 0    | 0.802843 | 0.000465               | 0.803             | 0.0015 |
|                | Williamson Michael Patrick                     | PLAN 41 LOT 1 LOT 2 NP800 PLAN 47 PT LOT 8 NP806                           | 259 PLEASANT BEACH RD | 271104000111200 | 0.092771774 | 0.0928      | 20                | 0.121085 | 0   | 0    | 0.121085 | 0.000070               | 0.121             | 0.0002 |
|                | Elia Sandro                                    | PLAN 41 LOT 3 PT LOT 4 NP800                                               | 5468 FIRELANE 25      | 271104000111300 | 0.054950566 | 0.055       | 20                | 0.071764 | 0   | 0    | 0.071764 | 0.000042               | 0.072             | 0.0001 |
|                | Kennedy Kurt                                   | PLAN 800 LOT 5 PT LOTS 4 AND 6                                             | 5488 FIRELANE 25      | 271104000111400 | 0.054905584 | 0.0549      | 20                | 0.071634 | 0   | 0    | 0.071634 | 0.000041               | 0.072             | 0.0001 |
|                | Elia Sandro                                    | PLAN 41 LOT 7 PT LOT 6 PT LOT 8 NP800                                      | 5502 FIRELANE 25      | 271104000111500 | 0.054792199 | 0.0548      | 20                | 0.071503 | 0   | 0    | 0.071503 | 0.000041               | 0.072             | 0.0001 |
|                | Vecchi Vitorrio                                | PLAN 41 PT LOT 8 PT LOT 9 NP800                                            | 5516 FIRELANE 25      | 271104000111600 | 0.054791474 | 0.0548      | 20                | 0.071503 | 0   | 0    | 0.071503 | 0.000041               | 0.072             | 0.0001 |
|                | Pacheco John                                   | PLAN 800 LOT 10 PT LOTS 9 AND 11                                           | 5534 FIRELANE 25      | 271104000111700 | 0.05479118  | 0.0548      | 20                | 0.071503 | 0   | 0    | 0.071503 | 0.000041               | 0.072             | 0.0001 |
|                | Puntoriero Antonio                             | PLAN 800 LOT 12 PT LOT 11                                                  | FIRELANE 25           | 271104000111800 | 0.05545927  | 0.0555      | 20                | 0.072416 | 0   | 0    | 0.072416 | 0.000042               | 0.072             | 0.0001 |
|                | Hibbard David                                  | PLAN 41 LOT 13 NP 800                                                      | 5551 FIRELANE 25      | 271104000111900 | 0.030644672 | 0.0307      | 20                | 0.040057 | 0   | 0    | 0.040057 | 0.000023               | 0.040             | 0.0001 |
|                | Zaparaniuk Judith Grace                        | PLAN 41 LOT 14 LOT 15 NP800                                                | 249 FIRELANE 26       | 271104000112000 | 0.062222562 | 0.0622      | 20                | 0.081159 | 0   | 0    | 0.081159 | 0.000047               | 0.081             | 0.0002 |
|                | Sanderson Linda                                | PLAN 41 LOT 16 PT LOT 17 NP800                                             | 243 FIRELANE 26       | 271104000112100 | 0.048755805 | 0.0488      | 20                | 0.063674 | 0   | 0    | 0.063674 | 0.000037               | 0.064             | 0.0001 |
|                | Webb Ronald Joseph                             | PLAN 41 LOT 18 PT LOT 17 NP800                                             | 239 FIRELANE 26       | 271104000112200 | 0.048756381 | 0.0488      | 20                | 0.063674 | 0   | 0    | 0.063674 | 0.000037               | 0.064             | 0.0001 |
|                | Cardwell Jason                                 | PLAN 41 LOT 19 NP800                                                       | 237 FIRELANE 26       | 271104000112300 | 0.047566946 | 0.0476      | 20                | 0.062108 | 0   | 0    | 0.062108 | 0.000036               | 0.062             | 0.0001 |
|                | Thuersam Lester                                | PLAN 41 LOT 20 LOT 21 NP800 PT BLK B                                       | 5515 FIRELANE 25      | 271104000112400 | 0.069650245 | 0.0697      | 20                | 0.090945 | 0   | 0    | 0.090945 | 0.000053               | 0.091             | 0.0002 |
|                | Paradise Shores Holdings Inc                   | PLAN 41 BLK A BLK C PT BLK B NP800                                         | PLEASANT BEACH RD     | 271104000112500 | 0.526216342 | 0.5263      | 70                | 2.403507 | 0   | 0    | 2.403507 | 0.001391               | 2.404             | 0.0046 |
|                | Paradise Shores Holdings Inc                   | PLAN 41 BLK A BLK C PT BLK B NP800                                         | PLEASANT BEACH RD     | 271104000112500 | 0.152430612 | 0.1525      | 70                | 0.696437 | 0   | 0    | 0.696437 | 0.000403               | 2.404             | 0.0046 |
|                | Pacheco John                                   | PLAN 800 PT BLK A                                                          | FIRELANE 25           | 271104000112515 | 0.002321029 | 0.0023      | 0                 | 0.000000 | 0   | 0    | 0.000000 | 0.000000               | 0.000             | 0.0000 |
|                | Pleasant Beach Property Owners Corporation Ltd | CON 1 PT LOT 3 2000 NOV29 TAX CLASS REVIEW CT STANDS<br>SEE DOCU FILE 1869 | 238 PLEASANT BEACH RD | 271104000112600 | 0.366669232 | 0.3668      | 20                | 0.478601 | 0   | 0    | 0.478601 | 0.000277               | 0.479             | 0.0009 |
|                | Comazzolo Mary                                 | CON 1 PT LOT 3                                                             | 260 PLEASANT BEACH RD | 271104000112700 | 0.029874534 | 0.0299      | 20                | 0.039014 | 0   | 0    | 0.039014 | 0.000023               | 0.039             | 0.0001 |
|                | De Sousa Mariette                              | CON 1 PT LOT 3 SIMON SKETCH LOT 2                                          | 258 PLEASANT BEACH RD | 271104000112800 | 0.029778317 | 0.0298      | 20                | 0.038883 | 0   | 0    | 0.038883 | 0.000023               | 0.039             | 0.0001 |
|                | Eimiller Thomas Keith                          | CON 1 PT LOT 3 SIMON SKETCH                                                | FIRELANE 24           | 271104000112900 | 0.029775782 | 0.0298      | 20                | 0.038883 | 0   | 0    | 0.038883 | 0.000023               | 0.039             | 0.0001 |
|                | Eimiller Sandra Ann                            | CON 1 PT LOT 3 (SIMON SKETCH LOT 4 - FOR REFERENCE ONLY)                   | FIRELANE 24           | 271104000113000 | 0.02977354  | 0.0298      | 20                | 0.038883 | 0   | 0    | 0.038883 | 0.000023               | 0.039             | 0.0001 |
|                | McLintock Ann                                  | CON 1 PT LOT 3 SIMON SKETCH LOT 5 TO LOT 7                                 | 5384 FIRELANE 24      | 271104000113100 | 0.089524733 | 0.0895      | 20                | 0.116780 | 0   | 0    | 0.116780 | 0.000068               | 0.117             | 0.0002 |
|                | Van Patten Shawn                               | CON 1 PT LOT 3 SIMON SKETCH LOT 8 PT LOT 9                                 | 5364 FIRELANE 24      | 271104000113400 | 0.044594249 | 0.0446      | 20                | 0.058194 | 0   | 0    | 0.058194 | 0.000034               | 0.058             | 0.0001 |
|                | Sacco Anthony Thomas                           | HUMBERSTONE CON 1 PT LOT 3                                                 | 5350 FIRELANE 24      | 271104000113600 | 0.044660075 | 0.0447      | 20                | 0.058325 | 0   | 0    | 0.058325 | 0.000034               | 0.058             | 0.0001 |
|                | Paolini Richard John                           | CON 1 PT LOT 3 SIMON SKETCH LOT 11 LOT 12                                  | 5340 FIRELANE 24      | 271104000113700 | 0.059550429 | 0.0596      | 20                | 0.077766 | 0   | 0    | 0.077766 | 0.000045               | 0.078             | 0.0001 |
|                | Armao Matilda Kathryn                          | CON 1 PT LOT 3 SIMON SKETCH LOT 13                                         | 5330 FIRELANE 24      | 271104000113800 | 0.02977351  | 0.0298      | 20                | 0.038883 | 0   | 0    | 0.038883 | 0.000023               | 0.039             | 0.0001 |
|                | Gigliotti Anthony                              | CON 1 PT LOT 3 RP 59R2535 PART 1                                           | 5320 FIRELANE 24      | 271104000113900 | 0.046894175 | 0.0469      | 20                | 0.061195 | 0   | 0    | 0.061195 | 0.000035               | 0.061             | 0.0001 |
|                | Lozovoi Gueorgui                               | CON 1 PT LOT 3 RP 59R2535 PART 2                                           | 5304 FIRELANE 24      | 271104000114000 | 0.054265285 | 0.0543      | 20                | 0.070851 | 0   | 0    | 0.070851 | 0.000041               | 0.071             | 0.0001 |
|                | Hudi Martin                                    | CON 1 PT LOT 3                                                             | 5323 FIRELANE 24      | 271104000114200 | 0.106736308 | 0.1068      | 20                | 0.139353 | 0   | 0    | 0.139353 | 0.000081               | 0.139             | 0.0003 |
|                | Allen Troy Edmund                              | CON 1 PT LOT 3                                                             | 5333 FIRELANE 24      | 271104000114300 | 0.089627758 | 0.0896      | 20                | 0.116910 | 0   | 0    | 0.116910 | 0.000068               | 0.117             | 0.0002 |
|                | Shomers John Peter                             | CON 1 PT LOT 3                                                             | 5345 FIRELANE 24      | 271104000114400 | 0.052254326 | 0.0523      | 20                | 0.068241 | 0   | 0    | 0.068241 | 0.000040               | 0.068             | 0.0001 |
|                | Labarber Louis P                               | CON 1 PT LOT 3                                                             | 5351 FIRELANE 24      | 271104000114500 | 0.057218004 | 0.0572      | 20                | 0.074635 | 0   | 0    | 0.074635 | 0.000043               | 0.075             | 0.0001 |
|                | Palumbo Vito                                   | CON 1 PT LOT 3                                                             | 5357 FIRELANE 24      | 271104000114600 | 0.062177546 | 0.0622      | 20                | 0.081159 | 0   | 0    | 0.081159 | 0.000047               | 0.081             | 0.0002 |
|                | Catherine Ruby Josephine                       | CON 1 PT LOT 3                                                             | FIRELANE 24           | 271104000114700 | 0.067139902 | 0.0672      | 20                | 0.087683 | 0   | 0    | 0.087683 | 0.000051               | 0.088             | 0.0002 |
|                | Brown Judith Evelyn                            | CON 1 PT LOT 3                                                             | 5373 FIRELANE 24      | 271104000114800 | 0.057670098 | 0.0577      | 20                | 0.075287 | 0   | 0    | 0.075287 | 0.000044               | 0.075             | 0.0001 |
|                | Browne Michael Robert                          | CON 1 PT LOT 3                                                             | 5385 FIRELANE 24      | 271104000114900 | 0.057672542 | 0.0577      | 20                | 0.075287 | 0   | 0    | 0.075287 | 0.000044               | 0.075             | 0.0001 |
|                | Hildreth Ronald James                          | CON 1 PT LOT 3                                                             | 5395 FIRELANE 24      | 271104000115000 | 0.038450238 | 0.0385      | 20                | 0.050235 | 0   | 0    | 0.050235 | 0.000029               | 0.050             | 0.0001 |
|                | 1000609385 Ontario Inc                         | CON 1 PT LOT 3                                                             | 5401 FIRELANE 24      | 271104000115100 | 0.089338431 | 0.0894      | 20                | 0.116649 | 0   | 0    | 0.116649 | 0.000068               | 0.117             | 0.0002 |
|                | Saulnier Neil                                  | PLAN 46 LOT 1 LOT 2 NP805 ROW OVER BLKS A & B                              | 262 PLEASANT BEACH RD | 271104000115300 | 0.093099781 | 0.0931      | 20                | 0.121477 | 0   | 0    | 0.121477 | 0.000070               | 0.121             | 0.0002 |
|                | Eimiller Thomas Wayne                          | PLAN 46 LOT 3 NP805                                                        | 5399 FIRELANE 21      | 271104000115400 | 0.046661949 | 0.0467      | 20                | 0.060934 | 0   | 0    | 0.060934 | 0.000035               | 0.061             | 0.0001 |
|                | Bull Joanna                                    | PLAN 46 LOT 4 NP805                                                        | 5389 FIRELANE 21      | 271104000115500 | 0.046751766 | 0.0468      | 20                | 0.061065 | 0   | 0    | 0.061065 | 0.000035               | 0.061             | 0.0001 |
|                | Wojcik Daniel Stanley                          | PLAN 46 LOT 5 LOT 6 NP805                                                  | 5373 FIRELANE 21      | 271104000115600 | 0.09377452  | 0.0938      | 20                | 0.122390 | 0   | 0    | 0.122390 | 0.000071               | 0.122             | 0.0002 |
|                | Sacco Jo-Ann Mary                              | PLAN 46 LOT 7 NP805                                                        | 5359 FIRELANE 21      | 271104000115700 | 0.047023816 | 0.047       | 20                | 0.061326 | 0   | 0    | 0.061326 | 0.000035               | 0.061             | 0.0001 |
|                | Vizzari Sara                                   | PLAN 46 LOT 8 NP805                                                        | FIRELANE 21           | 271104000115800 | 0.047302317 | 0.0473      | 20                | 0.061717 | 0   | 0    | 0.061717 | 0.000036               | 0.062             | 0.0001 |
|                | Clements Alton W                               | PLAN 805 BLKS A AND B                                                      | PLEASANT BEACH RD     |                 |             |             |                   |          |     |      |          |                        |                   |        |



| Farm<br>As 'F' | Owner                                | Legal _Txt                                                                                                                                                                 | Municipal Address     | Roll No         | Area<br>Ha  | Area in     |  | Runoff Factor 'C' | QRF        | SWM | SWMF | QRF-SWMF   | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|----------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|-------------|-------------|--|-------------------|------------|-----|------|------------|------------------------|-------------------|-----------|
|                |                                      |                                                                                                                                                                            |                       |                 |             | Drain<br>Ha |  |                   |            |     |      |            |                        | QRF               | QRF Ratio |
|                | Janik Edward Matthew In Trust        | CON 1 PT LOT 3                                                                                                                                                             | 312 PLEASANT BEACH RD | 271104000117100 | 0.139307277 | 0.1393      |  | 40                | 0.363517   | 0   | 0    | 0.363517   | 0.000210               | 0.364             | 0.0007    |
|                | Smith Gordon Franklin                | CON 1 PT LOT 3                                                                                                                                                             | 328 PLEASANT BEACH RD | 271104000117200 | 0.222897766 | 0.2229      |  | 40                | 0.581680   | 0   | 0    | 0.581680   | 0.000337               | 0.582             | 0.0011    |
|                | Mitro Dominic                        | CON 1 PT LOT 3                                                                                                                                                             | 332 PLEASANT BEACH RD | 271104000117300 | 0.11144736  | 0.1115      |  | 40                | 0.290970   | 0   | 0    | 0.290970   | 0.000168               | 0.291             | 0.0006    |
|                | Senese Thomas Anthony                | CON 1 PT LOT 3                                                                                                                                                             | 338 PLEASANT BEACH RD | 271104000117500 | 0.111446417 | 0.1115      |  | 40                | 0.290970   | 0   | 0    | 0.290970   | 0.000168               | 0.291             | 0.0006    |
|                | SSI Property GP INC                  | HUMBERSTONE CON 1 PT LOT 3 RP 59R16901 PART 1                                                                                                                              | 342 PLEASANT BEACH RD | 271104000117600 | 4.694129605 | 4.6952      |  | 45                | 13.784168  | 0   | 0    | 13.784168  | 0.007979               | 13.784            | 0.0264    |
|                | Sider Roger                          | CON 1 PT LOT 3                                                                                                                                                             | 434 PLEASANT BEACH RD | 271104000117700 | 0.747294493 | 0.7475      |  | 30                | 1.463007   | 0   | 0    | 1.463007   | 0.000847               | 1.463             | 0.0028    |
|                | Malandrino Paola                     | CON 1 PT LOT 3                                                                                                                                                             | 480 PLEASANT BEACH RD | 271104000117701 | 0.26013655  | 0.2602      |  | 30                | 0.509263   | 0   | 0    | 0.509263   | 0.000295               | 0.509             | 0.0010    |
|                | MacDonald Gordon Ross                | CON 1 PT LOT 3                                                                                                                                                             | 484 PLEASANT BEACH RD | 271104000117800 | 0.314098265 | 0.3142      |  | 30                | 0.614952   | 0   | 0    | 0.614952   | 0.000356               | 0.615             | 0.0012    |
|                | Pleasant Beach Sherkston Estates Inc | CON 1 PT LOT 3                                                                                                                                                             | 478 PLEASANT BEACH RD | 271104000117900 | 6.110766107 | 6.1121      |  | 30                | 11.962602  | 0   | 0    | 11.962602  | 0.006924               | 11.963            | 0.0229    |
|                | O'Shea Noreen                        | CON 1 PT LOT 3                                                                                                                                                             | 488 PLEASANT BEACH RD | 271104000118200 | 0.268902964 | 0.269       |  | 30                | 0.526487   | 0   | 0    | 0.526487   | 0.000305               | 0.526             | 0.0010    |
|                | Ventresca Mary Yollanda              | HUMBERSTONE CON 1 PT LOT 3 RP 59R16488 PART 2                                                                                                                              | 534 PLEASANT BEACH RD | 271104000118300 | 3.48631306  | 3.4871      |  | 30                | 6.824952   | 0   | 0    | 6.824952   | 0.003951               | 6.825             | 0.0131    |
|                | Luckasavitch Diane                   | HUMBERSTONE CON 1 PT LOT 3 RP 59R16488 PART 1                                                                                                                              | 542 PLEASANT BEACH RD | 271104000118303 | 1.213993253 | 1.2143      |  | 30                | 2.376628   | 0   | 0    | 2.376628   | 0.001376               | 2.377             | 0.0046    |
|                | Pavao Dennis                         | HUMBERSTONE CON 1 PT LOT 3 RP 59R15358 PART 2                                                                                                                              | 5293 BEACH RD         | 271104000118400 | 0.995121537 | 0.9953      |  | 30                | 1.948001   | 0   | 0    | 1.948001   | 0.001128               | 1.948             | 0.0037    |
|                | Winney James                         | HUMBERSTONE CON 1 PT LOT 3 RP 59R13237 PART 1 RP 59R15358 PART 1                                                                                                           | 566 PLEASANT BEACH RD | 271104000118450 | 1.407309532 | 1.4076      |  | 30                | 2.754955   | 0   | 0    | 2.754955   | 0.001595               | 2.755             | 0.0053    |
|                | PC City Hall                         | CON 1 PT LOTS 3,4 PLAN 35 LOTS 1-108,LANES NP794 RP59R4679 PARTS 1,2,4,5                                                                                                   | BEACH RD              | 271104000118501 | 0.73844658  | 0.7386      |  | 30                | 1.445588   | 0   | 0    | 1.445588   | 0.000837               | 1.446             | 0.0028    |
|                | Marr Gerald Murray                   | CON 1 PT LOT 3                                                                                                                                                             | 634 PLEASANT BEACH RD | 271104000118502 | 0.860214005 | 0.8604      |  | 30                | 1.683975   | 0   | 0    | 1.683975   | 0.000975               | 1.684             | 0.0032    |
|                | Franklin Adam                        | CON 1 PT LOT 3 RP 59R11998 PART 2                                                                                                                                          | 622 PLEASANT BEACH RD | 271104000118503 | 0.661284621 | 0.6614      |  | 30                | 1.294492   | 0   | 0    | 1.294492   | 0.000749               | 1.294             | 0.0025    |
|                | Nan Kenneth Henry                    | CON 1 PT LOT 3 RP 59R11998 PART 1                                                                                                                                          | 612 PLEASANT BEACH RD | 271104000118504 | 0.657505476 | 0.6577      |  | 30                | 1.287250   | 0   | 0    | 1.287250   | 0.000745               | 1.287             | 0.0025    |
|                | O'Quinn Christopher Leonard          | PLAN 59M365 LOT 1                                                                                                                                                          | 5416 BEACH RD         | 271104000118510 | 0.798236065 | 0.7984      |  | 30                | 1.562628   | 0   | 0    | 1.562628   | 0.000905               | 1.563             | 0.0030    |
|                | Kelley Scott Andrew                  | PLAN 59M365 LOT 2                                                                                                                                                          | 5294 BEACH RD         | 271104000118514 | 0.930012685 | 0.9302      |  | 30                | 1.820587   | 0   | 0    | 1.820587   | 0.001054               | 1.821             | 0.0035    |
|                | Senra Shawn Cordeiro                 | PLAN 59M365 LOT 3                                                                                                                                                          | 5278 BEACH RD         | 271104000118518 | 0.861068322 | 0.8613      |  | 30                | 1.685736   | 0   | 0    | 1.685736   | 0.000976               | 1.686             | 0.0032    |
|                | Ward Lisa                            | PLAN 59M365 LOT 4                                                                                                                                                          | 5256 BEACH RD         | 271104000118522 | 0.847293448 | 0.8475      |  | 30                | 1.658727   | 0   | 0    | 1.658727   | 0.000960               | 1.659             | 0.0032    |
|                | Paladino Alfredo                     | PLAN 59M365 LOT 5                                                                                                                                                          | 5226 BEACH RD         | 271104000118526 | 0.805371502 | 0.8056      |  | 30                | 1.576720   | 0   | 0    | 1.576720   | 0.000913               | 1.577             | 0.0030    |
|                | Pruyn Joe                            | PLAN 59M365 LOT 6                                                                                                                                                          | 5196 BEACH RD         | 271104000118530 | 0.662175954 | 0.6623      |  | 30                | 1.296254   | 0   | 0    | 1.296254   | 0.000750               | 1.296             | 0.0025    |
|                | Belperio Enrico                      | HUMBERSTONE CON 1 PT LOT 4 RP 59R15508 PART 1                                                                                                                              | 671 EMPIRE RD         | 271104000118600 | 20.53358629 | 7.4077      |  | 35                | 16.914742  | 0   | 0    | 16.914742  | 0.009791               | 16.909            | 0.0324    |
|                | Shisler Stanley Bruce                | CON 1 PT LOT 4                                                                                                                                                             | 5063 BEACH RD         | 271104000118602 | 0.414195393 | 0.0394      |  | 30                | 0.077114   | 0   | 0    | 0.077114   | 0.000045               | 0.077             | 0.0001    |
|                | Shisler Stanley Bruce                | CON 1 PT LOT 4                                                                                                                                                             | BEACH RD              | 271104000118603 | 0.074012085 | 0.0441      |  | 30                | 0.086313   | 0   | 0    | 0.086313   | 0.000050               | 0.086             | 0.0002    |
|                | Hoover David Allan                   | CON 1 PT LOT 3                                                                                                                                                             | 5201 BEACH RD         | 271104000118604 | 1.138131556 | 1.1384      |  | 30                | 2.228076   | 0   | 0    | 2.228076   | 0.001290               | 2.228             | 0.0043    |
|                | Hoover David Allan                   | CON 1 PT LOT 3                                                                                                                                                             | 5251 BEACH RD         | 271104000118800 | 0.856252839 | 0.8564      |  | 30                | 1.676146   | 0   | 0    | 1.676146   | 0.000970               | 1.676             | 0.0032    |
|                | Kramer Ryan                          | CON 1 PT LOT 3                                                                                                                                                             | 5289 BEACH RD         | 271104000118900 | 0.793750003 | 0.7939      |  | 30                | 1.553821   | 0   | 0    | 1.553821   | 0.000899               | 1.554             | 0.0030    |
|                | Marlatt Brandon                      | HUMBERSTONE CON 1 PT LOT 3                                                                                                                                                 | 700 PLEASANT BEACH RD | 271104000119000 | 15.572804   | 15.5763     |  | 35                | 35.566923  | 0   | 0    | 35.566923  | 0.020587               | 35.567            | 0.0682    |
|                | Scrada Stephen                       | HUMBERSTONE CON 1 PT LOT 3 RP 59R17643 PART 1                                                                                                                              | 690 PLEASANT BEACH RD | 271104000119002 | 1.003787175 | 1.004       |  | 30                | 1.965029   | 0   | 0    | 1.965029   | 0.001137               | 1.965             | 0.0038    |
|                | Topa Anne Shirley                    | HUMBERSTONE CON 1 PT LOT 3 RP 59R15804 PART 2                                                                                                                              | 742 PLEASANT BEACH RD | 271104000119100 | 0.409496826 | 0.4096      |  | 30                | 0.801669   | 0   | 0    | 0.801669   | 0.000464               | 0.802             | 0.0015    |
|                | Topa Travis                          | HUMBERSTONE CON 1 PT LOT 3 RP 59R15804 PART 1                                                                                                                              | 730 PLEASANT BEACH RD | 271104000119102 | 0.83435607  | 0.8345      |  | 30                | 1.633283   | 0   | 0    | 1.633283   | 0.000945               | 1.633             | 0.0031    |
|                | Young Samuel Bare                    | CON 1 PT LOT 3 RP 59R5195 PART 2                                                                                                                                           | 754 PLEASANT BEACH RD | 271104000119105 | 1.409417971 | 1.4097      |  | 28                | 2.575127   | 0   | 0    | 2.575127   | 0.001491               | 2.575             | 0.0049    |
|                | O'Neal Aaron                         | CON 1 PT LOT 3 RP 59R5195 PART 3                                                                                                                                           | 762 PLEASANT BEACH RD | 271104000119200 | 1.168020376 | 1.1683      |  | 30                | 2.286597   | 0   | 0    | 2.286597   | 0.001324               | 2.287             | 0.0044    |
|                | Rowland Jeffrey Alan                 | CON 1 PT LOT 3 RP 59R5195 PART 1                                                                                                                                           | 778 PLEASANT BEACH RD | 271104000119201 | 0.85444894  | 0.8546      |  | 30                | 1.672623   | 0   | 0    | 1.672623   | 0.000968               | 1.673             | 0.0032    |
|                | Lostracco Douglas Edward             | CON 1 PT LOT 3 RP 59R11965 PART 1                                                                                                                                          | 788 PLEASANT BEACH RD | 271104000119300 | 0.472793355 | 0.4729      |  | 30                | 0.925560   | 0   | 0    | 0.925560   | 0.000536               | 0.926             | 0.0018    |
|                | Serniak Greg                         | CON 1 PT LOT 3 RP59R5431 PART 1                                                                                                                                            | 5323 SHERKSTON RD     | 271104000119400 | 0.528780854 | 0.5289      |  | 30                | 1.035163   | 0   | 0    | 1.035163   | 0.000599               | 1.035             | 0.0020    |
|                | Jaskolka Edward Joseph               | CON 1 PT LOT 3 RP 59R5431 PART 2                                                                                                                                           | 5353 SHERKSTON RD     | 271104000119401 | 0.475543771 | 0.4757      |  | 30                | 0.931040   | 0   | 0    | 0.931040   | 0.000539               | 0.931             | 0.0018    |
|                | Johnson Robert Alexander             | CON 1 PT LOT 3 RP 59R5431 PART 3                                                                                                                                           | 5375 SHERKSTON RD     | 271104000119402 | 0.422308881 | 0.4224      |  | 30                | 0.826721   | 0   | 0    | 0.826721   | 0.000479               | 0.827             | 0.0016    |
|                | Frost Paul William                   | CON 1 PT LOT 3 RP 59R5431 PART 4                                                                                                                                           | 796 PLEASANT BEACH RD | 271104000119403 | 0.453677703 | 0.4538      |  | 30                | 0.888177   | 0   | 0    | 0.888177   | 0.000514               | 0.888             | 0.0017    |
|                | Vorstenbosch Cathy Marie             | CON 1 PT LOT 3                                                                                                                                                             | 5248 SHERKSTON RD     | 271104000119800 | 0.235077213 | 0.2348      |  | 30                | 0.459551   | 0   | 0    | 0.459551   | 0.000266               | 0.460             | 0.0009    |
|                | Woelke Helena                        | HUMBERSTONE CON 1 PT LOT 3 RP 59R14079 PART 1                                                                                                                              | 5232 SHERKSTON RD     | 271104000119900 | 0.109553356 | 0.1096      |  | 30                | 0.214509   | 0   | 0    | 0.214509   | 0.000124               | 0.215             | 0.0004    |
|                | Buick Robert                         | HUMBERSTONE CON 1 PT LOT 3                                                                                                                                                 | 5212 SHERKSTON RD     | 271104000120000 | 0.124212147 | 0.1242      |  | 30                | 0.243084   | 0   | 0    | 0.243084   | 0.000141               | 0.243             | 0.0005    |
|                | Kirkwood Graeme Scott                | CON 1 PT LOT 3 PT LOT 4                                                                                                                                                    | 5188 SHERKSTON RD     | 271104000120100 | 0.186733933 | 0.1868      |  | 30                | 0.365605   | 0   | 0    | 0.365605   | 0.000212               | 0.366             | 0.0007    |
|                | Damude Raymond Harold Jr             | CON 1 PT LOT 4                                                                                                                                                             | SHERKSTON RD          | 271104000120400 | 4.205696562 | 1.6133      |  | 35                | 3.683809   | 0   | 0    | 3.683809   | 0.002132               | 3.684             | 0.0071    |
|                | Priebe James Arthur                  | CON 1 PT LOT 4 AND RP59R10512 PARTS 1 AND 5                                                                                                                                | 5151 SHERKSTON RD     | 271104000120700 | 1.635361555 | 1.5865      |  | 28                | 2.898091   | 0   | 0    | 2.898091   | 0.001678               | 2.897             | 0.0056    |
|                | Dykstra David Gary                   | CON 1 PT LOT 3                                                                                                                                                             | 5231 SHERKSTON RD     | 271104000120800 | 0.572887665 | 0.573       |  | 30                | 1.121476   | 0   | 0    | 1.121476   | 0.000649               | 1.121             | 0.0021    |
|                | Penny William John                   | CON 1 PT LOT 3                                                                                                                                                             | 5249 SHERKSTON RD     | 271104000120900 | 0.889396962 | 0.8896      |  | 30                | 1.741125   | 0   | 0    | 1.741125   | 0.001008               | 1.741             | 0.0033    |
|                | Robison Darlene Raye                 | CON 1 PT LOT 3                                                                                                                                                             | 5305 SHERKSTON RD     | 271104000121000 | 1.659984799 | 1.6604      |  | 28                | 3.033086   | 0   | 0    | 3.033086   | 0.001756               | 3.033             | 0.0058    |
|                | Kostuk William Roger                 | CON 1 PT LOT 3                                                                                                                                                             | 5307 SHERKSTON RD     | 271104000121100 | 0.38222804  | 0.3823      |  | 30                | 0.748238   | 0   | 0    | 0.748238   | 0.000433               | 0.748             | 0.0014    |
|                | Desrochers Christina Maria           | CON 1 PT LOT 3 RP 59R10512 PARTS 3 AND 8                                                                                                                                   | 5215 SHERKSTON RD     | 271104000123496 | 1.196243619 | 1.1965      |  | 28                | 2.185670   | 0   | 0    | 2.185670   | 0.001265               | 2.186             | 0.0042    |
|                | Gillis Nicole Jennifer               | HUMBERSTONE CON 1 PT LOTS 3 AND 4 RP 59R10512 PARTS 4 7 AND 11                                                                                                             | 5199 SHERKSTON RD     | 271104000123498 | 2.045954345 | 2.0464      |  | 28                | 3.738200   | 0   | 0    | 3.738200   | 0.002164               | 3.738             | 0.0072    |
|                | Godla Jiri                           | CON 1 PT LOT 4 RP 59R10512 PARTS 2 6 AND 10                                                                                                                                | 5183 SHERKSTON RD     | 271104000123500 | 2.609459797 | 2.6101      |  | 28                | 4.767922   | 0   | 0    | 4.767922   | 0.002760               | 4.768             | 0.0091    |
|                | Shisler Terry                        | CON 1 PT LOT 4 RP59R4654 PART 1                                                                                                                                            | 577 EMPIRE RD         | 271104000123900 | 2.554297427 | 0.0827      |  | 30                | 0.161860   | 0   | 0    | 0.161860   | 0.000094               | 0.162             | 0.0003    |
|                | SSI Property GP Inc                  | HUMBERSTONE CON 1 PT LOTS 3 TO 8 PT RD ALLOW PT BED LAKE ERIE RP 59R5042 PARTS 6 TO 12 PT PART 5 RP 59R4991 PART 1 RP 59R9347 PART 1 RP 59R16102 PART 1 RP 59R16103 PART 1 | EMPIRE RD             | 271104000124600 | 82.76897452 | 39.772      |  | 45                | 116.762638 | 0   | 0    | 116.762638 | 0.067586               | 116.738           | 0.2238    |



| Farm<br>As 'F'    | Owner                        | Legal_Txt                                  | Municipal Addres               | Roll No         | Area<br>Ha  | Area in     |                   | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|-------------------|------------------------------|--------------------------------------------|--------------------------------|-----------------|-------------|-------------|-------------------|-----------|-----|------|-----------|------------------------|-------------------|-----------|
|                   |                              |                                            |                                |                 |             | Drain<br>Ha | Runoff Factor 'C' |           |     |      |           |                        | QRF               | QRF Ratio |
|                   | Canadian Niagara Power Inc   | HUMBERSTONE CON 1 PT LOT 4 59R13714 PART 1 | BEACH RD                       | 271104000124610 | 0.207783782 | 0.2078      | 30                | 0.406706  | 0   | 0    | 0.406706  | 0.000235               | 0.407             | 0.0008    |
|                   | PC City Hall                 | CON 1 PT LOTS 1-22                         | 1-12 DUNNVILLE SUBD            | 271104000499900 | 0.99236855  | 0.248       | 45                | 0.728078  | 0   | 0    | 0.728078  | 0.000421               | 0.728             | 0.0014    |
| Town of Fort Erie |                              |                                            |                                |                 |             |             |                   |           |     |      |           |                        |                   |           |
|                   | OWNER1                       | Not provided                               | LOCATION                       | ARN             | Shape_Area  | Catch_Ha    | C_Factor          |           |     |      |           |                        |                   |           |
|                   | SHORE OAKS INC               |                                            | 683 POINT ABINO ROAD SOUTH     | 270302001800100 | 94182.338   | 6.161       | 30                | 12.058309 | 0   | 0    | 12.058309 | 0.006980               |                   |           |
|                   | VAN BOLDEREN ADOLPHUS L      |                                            | 725 POINT ABINO ROAD SOUTH     | 270302001800200 | 12321.589   | 1.198       | 30                | 2.345508  | 0   | 0    | 2.345508  | 0.001358               |                   |           |
|                   | RLC POINT ABINO INC          |                                            | 715 POINT ABINO ROAD SOUTH     | 270302001800250 | 11890.470   | 1.081       | 30                | 2.114950  | 0   | 0    | 2.114950  | 0.001224               |                   |           |
|                   | JOHNSON KAREN                |                                            | 739 POINT ABINO ROAD SOUTH     | 270302001800300 | 11870.336   | 1.187       | 30                | 2.323784  | 0   | 0    | 2.323784  | 0.001345               |                   |           |
|                   | PICTOR WILLIAM               |                                            | 745 POINT ABINO ROAD SOUTH     | 270302001800400 | 8940.515    | 0.894       | 30                | 1.750128  | 0   | 0    | 1.750128  | 0.001013               |                   |           |
|                   | POSSLER HEIDI CARMEN         |                                            | 753 POINT ABINO ROAD SOUTH     | 270302001800500 | 9202.109    | 0.920       | 30                | 1.801407  | 0   | 0    | 1.801407  | 0.001043               |                   |           |
|                   | DURRANT GRAHAM               |                                            | 761 POINT ABINO ROAD SOUTH     | 270302001800600 | 12966.336   | 1.297       | 30                | 2.538293  | 0   | 0    | 2.538293  | 0.001469               |                   |           |
|                   | WILSON BRIAN                 |                                            | 781 POINT ABINO ROAD SOUTH     | 270302001800800 | 18587.776   | 1.859       | 30                | 3.638826  | 0   | 0    | 3.638826  | 0.002106               |                   |           |
|                   | MES REALTY COMPANY LLC       |                                            | 787 POINT ABINO ROAD SOUTH     | 270302001800900 | 13192.842   | 1.320       | 30                | 2.582721  | 0   | 0    | 2.582721  | 0.001495               |                   |           |
|                   | DICIENZO ALYSSSA MARIE       |                                            | 801 POINT ABINO ROAD SOUTH     | 270302001801000 | 19808.609   | 2.380       | 30                | 4.657157  | 0   | 0    | 4.657157  | 0.002696               |                   |           |
|                   | DICIENZO ANTHONY             |                                            | 819 POINT ABINO ROAD SOUTH     | 270302001801100 | 15698.854   | 1.570       | 30                | 3.073195  | 0   | 0    | 3.073195  | 0.001779               |                   |           |
|                   | SCHMITT MAUREEN              |                                            | 829 POINT ABINO ROAD SOUTH     | 270302001801101 | 12944.330   | 1.295       | 30                | 2.533987  | 0   | 0    | 2.533987  | 0.001467               |                   |           |
|                   | GIBSON SHIRLEY               |                                            | 839 POINT ABINO ROAD SOUTH     | 270302001801200 | 12817.364   | 1.282       | 30                | 2.509130  | 0   | 0    | 2.509130  | 0.001452               |                   |           |
|                   | IAFRATE MICHAEL              |                                            | 849 POINT ABINO ROAD SOUTH     | 270302001801300 | 13749.030   | 1.301       | 30                | 2.545730  | 0   | 0    | 2.545730  | 0.001474               |                   |           |
|                   | SEUBERT SCOTT BEAL           |                                            | 857 POINT ABINO ROAD SOUTH     | 270302001801400 | 17131.131   | 1.609       | 30                | 3.148743  | 0   | 0    | 3.148743  | 0.001823               |                   |           |
|                   | JOHNSON DAVID / MOSIER AMY   |                                            | 873 POINT ABINO ROAD SOUTH     | 270302001801401 | 13462.692   | 1.263       | 30                | 2.472335  | 0   | 0    | 2.472335  | 0.001431               |                   |           |
|                   | GREGORY K M / GREGORY M M    |                                            | 879 POINT ABINO ROAD SOUTH     | 270302001801500 | 4168.426    | 0.417       | 30                | 0.815957  | 0   | 0    | 0.815957  | 0.000472               |                   |           |
|                   | CRABTREE ROBERT              |                                            | 891 POINT ABINO ROAD SOUTH     | 270302001801600 | 3431.982    | 0.343       | 30                | 0.671907  | 0   | 0    | 0.671907  | 0.000389               |                   |           |
|                   | FERRONI RICHARD JOSEPH       |                                            | 897 POINT ABINO ROAD SOUTH     | 270302001801700 | 2107.237    | 0.211       | 30                | 0.412578  | 0   | 0    | 0.412578  | 0.000239               |                   |           |
|                   | LISI ANTHONY                 |                                            | 903 POINT ABINO ROAD SOUTH     | 270302001801800 | 2835.600    | 0.284       | 30                | 0.555062  | 0   | 0    | 0.555062  | 0.000321               |                   |           |
|                   | FAIRFIELD BRENNAN DOROTHY D  |                                            | 913 POINT ABINO ROAD SOUTH     | 270302001801900 | 3816.539    | 0.382       | 30                | 0.747063  | 0   | 0    | 0.747063  | 0.000432               |                   |           |
|                   | SANDERS STEPHEN              |                                            | 921 POINT ABINO ROAD SOUTH     | 270302001802000 | 4446.544    | 0.445       | 30                | 0.870367  | 0   | 0    | 0.870367  | 0.000504               |                   |           |
|                   | MCCABE REGINA ANNE           |                                            | 931 POINT ABINO ROAD SOUTH     | 270302001802100 | 4099.537    | 0.410       | 30                | 0.802452  | 0   | 0    | 0.802452  | 0.000464               |                   |           |
|                   | GEPHARDT HELENE H            |                                            | 4874 ABINO HILLS ROAD          | 270302001802101 | 5658.889    | 0.566       | 30                | 1.107775  | 0   | 0    | 1.107775  | 0.000641               |                   |           |
|                   | MATHEWSON CHRISTOPHER        |                                            | 949 POINT ABINO ROAD SOUTH     | 270302001802200 | 674.845     | 0.068       | 30                | 0.132111  | 0   | 0    | 0.132111  | 0.000076               |                   |           |
|                   | BUFFALO YACHT CLUB           |                                            | 917 POINT ABINO ROAD SOUTH     | 270302001802500 | 45891.149   | 2.263       | 20                | 2.953023  | 0   | 0    | 2.953023  | 0.001709               |                   |           |
|                   | ABINO DUNES CORPORATION      |                                            | 0-9865 POINT ABINO ROAD SOUTH  | 270302001802950 | 229247.360  | 1.127       | 20                | 1.470901  | 0   | 0    | 1.470901  | 0.000851               |                   |           |
|                   | 0                            |                                            | 4961-1 ABINO HILLS ROAD        | 270302001811000 | 6126.365    | 0.215       | 20                | 0.280141  | 0   | 0    | 0.280141  | 0.000162               |                   |           |
|                   | MUNSCHAUER EDWIN A JR        |                                            | 4961 ABINO HILLS ROAD          | 270302001811000 | 17864.512   | 1.787       | 20                | 2.331417  | 0   | 0    | 2.331417  | 0.001350               |                   |           |
|                   | IAFRATE BRUNO                |                                            | 4971 ABINO HILLS ROAD          | 270302001811100 | 8071.777    | 0.464       | 20                | 0.605558  | 0   | 0    | 0.605558  | 0.000351               |                   |           |
|                   | FWGB CORP                    |                                            | 4981 ABINO HILLS ROAD          | 270302001811200 | 15496.830   | 0.562       | 20                | 0.733037  | 0   | 0    | 0.733037  | 0.000424               |                   |           |
|                   | BUTSCH JOHN LORD O'BRIAN     |                                            | 4991 ABINO HILLS ROAD          | 270302001811400 | 15208.433   | 0.521       | 20                | 0.679409  | 0   | 0    | 0.679409  | 0.000393               |                   |           |
|                   | BUTSCH D / BUTSCH J          |                                            | 5003 ABINO HILLS ROAD          | 270302001811401 | 20472.913   | 0.677       | 20                | 0.883872  | 0   | 0    | 0.883872  | 0.000512               |                   |           |
|                   | BECHTEL LURA HESS            |                                            | 5047 ABINO HILLS ROAD          | 270302001811500 | 29006.505   | 1.296       | 20                | 1.691151  | 0   | 0    | 1.691151  | 0.000979               |                   |           |
|                   | BRANTHAM HOLDINGS INC        |                                            | 5077 ABINO HILLS ROAD          | 270302001811600 | 22082.830   | 1.473       | 20                | 1.922362  | 0   | 0    | 1.922362  | 0.001113               |                   |           |
|                   | LEON JULIE ANNE              |                                            | 0-9960 ABINO HILLS ROAD        | 270302001811700 | 7429.706    | 0.502       | 20                | 0.654618  | 0   | 0    | 0.654618  | 0.000379               |                   |           |
|                   | LEON JULIE ANNE              |                                            | 5109 ABINO HILLS ROAD          | 270302001811800 | 12479.958   | 0.839       | 20                | 1.094466  | 0   | 0    | 1.094466  | 0.000634               |                   |           |
|                   | BERGEVIN ANNE                |                                            | 5125 ABINO HILLS ROAD          | 270302001811900 | 9522.292    | 0.534       | 20                | 0.697285  | 0   | 0    | 0.697285  | 0.000404               |                   |           |
|                   | 5141 ABINO HILLS RD INC      |                                            | 5141 ABINO HILLS ROAD          | 270302001812000 | 7538.582    | 0.438       | 20                | 0.571502  | 0   | 0    | 0.571502  | 0.000331               |                   |           |
|                   | 5141 ABINO HILLS RD INC      |                                            | 0-9964 ABINO HILLS ROAD        | 270302001812100 | 7530.870    | 0.513       | 20                | 0.669623  | 0   | 0    | 0.669623  | 0.000388               |                   |           |
|                   | LFPB INC                     |                                            | 5161 ABINO HILLS ROAD          | 270302001812200 | 11467.476   | 0.842       | 20                | 1.098250  | 0   | 0    | 1.098250  | 0.000636               |                   |           |
|                   | FITZPATRICK MOLLY            |                                            | 5179 ABINO HILLS ROAD          | 270302001812400 | 15732.567   | 0.871       | 20                | 1.135959  | 0   | 0    | 1.135959  | 0.000658               |                   |           |
|                   | FERGUSON DOROTHYMAE TRUSTEE  |                                            | 5189 ABINO HILLS ROAD          | 270302001812500 | 26530.263   | 1.508       | 20                | 1.967899  | 0   | 0    | 1.967899  | 0.001139               |                   |           |
|                   | CLICK JAMES HARLAN           |                                            | 5223 ABINO HILLS ROAD          | 270302001812600 | 29774.536   | 1.403       | 20                | 1.831026  | 0   | 0    | 1.831026  | 0.001060               |                   |           |
|                   | 816176 ONTARIO INC           |                                            | 5243 ABINO HILLS ROAD          | 270302001812700 | 34339.425   | 1.736       | 20                | 2.264741  | 0   | 0    | 2.264741  | 0.001311               |                   |           |
|                   | HUMASON ELIZABETH            |                                            | 5271 ABINO HILLS ROAD          | 270302001812800 | 32599.987   | 2.511       | 20                | 3.276222  | 0   | 0    | 3.276222  | 0.001896               |                   |           |
|                   | JARDINE TANYA                |                                            | 5321 ABINO HILLS ROAD          | 270302001812900 | 27487.938   | 2.370       | 20                | 3.092637  | 0   | 0    | 3.092637  | 0.001790               |                   |           |
|                   | PATTERSON WAYNE              |                                            | 5349 ABINO HILLS ROAD          | 270302001813000 | 13266.553   | 1.140       | 20                | 1.487602  | 0   | 0    | 1.487602  | 0.000861               |                   |           |
|                   | NORRIS BRADLEY WILLIAM       |                                            | 5379 ABINO HILLS ROAD          | 270302001813100 | 11449.132   | 0.946       | 20                | 1.233819  | 0   | 0    | 1.233819  | 0.000714               |                   |           |
|                   | LEON JOSEPH                  |                                            | 5395 ABINO HILLS ROAD          | 270302001813200 | 9973.978    | 0.800       | 20                | 1.043318  | 0   | 0    | 1.043318  | 0.000604               |                   |           |
|                   | 1000880232 ONTARIO INC       |                                            | 5459 ABINO HILLS ROAD          | 270302001813300 | 9265.727    | 0.678       | 20                | 0.884915  | 0   | 0    | 0.884915  | 0.000512               |                   |           |
|                   | PERE ABINEAU PARK            |                                            | 0-9976 POINT ABINO ROAD SOUTH  | 270302001813400 | 197758.534  | 19.780      | 25                | 32.261180 | 0   | 0    | 32.261180 | 0.018674               |                   |           |
|                   | 0                            |                                            | 0-18321 POINT ABINO ROAD SOUTH | 270302001813400 | 79981.746   | 8.000       | 25                | 13.047674 | 0   | 0    | 13.047674 | 0.007552               |                   |           |
|                   | EL-SAYED SHERIF FOUAD YACOUT |                                            | 633 POINT ABINO ROAD SOUTH     | 270302001813500 | 25438.301   | 2.320       | 30                | 4.541487  | 0   | 0    | 4.541487  | 0.002629               |                   |           |
|                   | XU AMY                       |                                            | 609 POINT ABINO ROAD SOUTH     | 270302001813600 | 13372.548   | 1.113       | 30                | 2.177776  | 0   | 0    | 2.177776  | 0.001261               |                   |           |
|                   | RITCH MONKELBAAN MARSHA      |                                            | 599 POINT ABINO ROAD SOUTH     | 270302001813700 | 11924.878   | 0.950       | 30                | 1.858557  | 0   | 0    | 1.858557  | 0.001076               |                   |           |
|                   | DIFABIO LEONARDO             |                                            | 557 POINT ABINO ROAD SOUTH     | 270302001813800 | 12478.964   | 0.927       | 30                | 1.814912  | 0   | 0    | 1.814912  | 0.001051               |                   |           |
|                   | TROJNAR RICHARD JOHN         |                                            | 551 POINT ABINO ROAD SOUTH     | 270302001813900 | 12627.056   | 0.921       | 30                | 1.802973  | 0   | 0    | 1.802973  | 0.001044               |                   |           |



| Farm<br>As 'F' | Owner                          | Legal_Txt | Municipal Addres                | Roll No         | Area<br>Ha | Area in     |                   |           |     |      | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|----------------|--------------------------------|-----------|---------------------------------|-----------------|------------|-------------|-------------------|-----------|-----|------|-----------|------------------------|-------------------|-----------|
|                |                                |           |                                 |                 |            | Drain<br>Ha | Runoff Factor 'C' | QRF       | SWM | SWMF |           |                        | QRF               | QRF Ratio |
|                | SYKES CLARK MANSFIELD          |           | 537 POINT ABINO ROAD SOUTH      | 270302001814000 | 12423.907  | 0.920       | 30                | 1.800233  | 0   | 0    | 1.800233  | 0.001042               |                   |           |
|                | MISETICH MILDRED               |           | 531 POINT ABINO ROAD SOUTH      | 270302001814100 | 12346.210  | 1.033       | 30                | 2.021983  | 0   | 0    | 2.021983  | 0.001170               |                   |           |
|                | MORRIS LAURIE ANN              |           | 511 POINT ABINO ROAD SOUTH      | 270302001814200 | 17588.015  | 1.443       | 30                | 2.823261  | 0   | 0    | 2.823261  | 0.001634               |                   |           |
|                | THOMSON FLORENCE MARIE         |           | 497 POINT ABINO ROAD SOUTH      | 270302001814300 | 1762.241   | 0.065       | 30                | 0.127609  | 0   | 0    | 0.127609  | 0.000074               |                   |           |
|                | SPIECE COREY JOHN              |           | 491 POINT ABINO ROAD SOUTH      | 270302001814400 | 38998.364  | 3.679       | 30                | 7.200930  | 0   | 0    | 7.200930  | 0.004168               |                   |           |
|                | WEAVER JOSEPH                  |           | 463 POINT ABINO ROAD SOUTH      | 270302001814500 | 812.789    | 0.081       | 30                | 0.159120  | 0   | 0    | 0.159120  | 0.000092               |                   |           |
|                | KNIBLOE WAYNE                  |           | 487 POINT ABINO ROAD SOUTH      | 270302001814600 | 1800.341   | 0.040       | 30                | 0.077701  | 0   | 0    | 0.077701  | 0.000045               |                   |           |
|                | NIAGARA PENINSULA              |           | 0-9990 WILDWOOD AVENUE          | 270302001814800 | 20692.655  | 2.069       | 30                | 4.049447  | 0   | 0    | 4.049447  | 0.002344               |                   |           |
|                | DRULLARD DAVID W               |           | 0-9991 POINT ABINO ROAD SOUTH   | 270302001814900 | 1491.734   | 0.148       | 30                | 0.288883  | 0   | 0    | 0.288883  | 0.000167               |                   |           |
|                | WILDWOOD PROPERTIES INC        |           | 0-9992 POINT ABINO ROAD SOUTH   | 270302001815000 | 3400.579   | 0.338       | 30                | 0.662316  | 0   | 0    | 0.662316  | 0.000383               |                   |           |
|                | FLYNN GREGORY JAMES            |           | 421 POINT ABINO ROAD SOUTH      | 270302001815100 | 1353.334   | 0.113       | 30                | 0.221751  | 0   | 0    | 0.221751  | 0.000128               |                   |           |
|                | WARD DANIEL F                  |           | 413 POINT ABINO ROAD SOUTH      | 270302001815200 | 2741.201   | 0.238       | 30                | 0.466205  | 0   | 0    | 0.466205  | 0.000270               |                   |           |
|                | ASIP HOLDINGS INC              |           | 393 POINT ABINO ROAD SOUTH      | 270302001815300 | 11596.491  | 1.152       | 30                | 2.255086  | 0   | 0    | 2.255086  | 0.001305               |                   |           |
|                | 1254345 ONTARIO INC            |           | 371 POINT ABINO ROAD SOUTH      | 270302001815400 | 14953.776  | 1.491       | 30                | 2.918185  | 0   | 0    | 2.918185  | 0.001689               |                   |           |
|                | 357 POINT ABINO ROAD INC       |           | 357 POINT ABINO ROAD SOUTH      | 270302001815500 | 1866.163   | 0.184       | 30                | 0.359733  | 0   | 0    | 0.359733  | 0.000208               |                   |           |
|                | STARCK COTTAGE LLC             |           | 349 POINT ABINO ROAD SOUTH      | 270302001815600 | 1099.870   | 0.108       | 30                | 0.212160  | 0   | 0    | 0.212160  | 0.000123               |                   |           |
|                | PAGE DONALD STEWART            |           | 329 POINT ABINO ROAD SOUTH      | 270302001815800 | 14794.759  | 6.142       | 30                | 12.020535 | 0   | 0    | 12.020535 | 0.006958               |                   |           |
|                | LAROCQUE WAYNE LAWRENCE        |           | 203 POINT ABINO ROAD SOUTH      | 270302001816600 | 45270.411  | 1.870       | 35                | 4.269273  | 0   | 0    | 4.269273  | 0.002471               |                   |           |
|                | THE NATURE CONSERVANCY OF      |           | 155 POINT ABINO ROAD SOUTH      | 270302001816601 | 121570.166 | 5.348       | 35                | 12.212308 | 0   | 0    | 12.212308 | 0.007069               |                   |           |
| F              | WOODS ELEANOR DEBELTGENS       |           | 31 POINT ABINO ROAD SOUTH       | 270302001816800 | 109773.880 | 9.342       | 35                | 21.331294 | 0   | 0    | 21.331294 | 0.012347               |                   |           |
|                | HUGHES WILLIAM                 |           | 0-10029 BAY WOODS               | 270302001818000 | 1427.483   | 0.143       | 30                | 0.279488  | 0   | 0    | 0.279488  | 0.000162               |                   |           |
|                | FORT ERIE TOWN                 |           | 0-10030 BAY WOODS               | 270302001818100 | 1435.227   | 0.144       | 30                | 0.281054  | 0   | 0    | 0.281054  | 0.000163               |                   |           |
|                | CULP RICHARD                   |           | 0-10031 BAY WOODS               | 270302001818200 | 1450.878   | 0.145       | 30                | 0.283990  | 0   | 0    | 0.283990  | 0.000164               |                   |           |
|                | LOU AMIN                       |           | 0-10043 BAY WOODS               | 270302001819400 | 1301.443   | 0.130       | 30                | 0.254827  | 0   | 0    | 0.254827  | 0.000148               |                   |           |
|                | LOU AMIN                       |           | 0-10044 BAY WOODS               | 270302001819500 | 1297.247   | 0.130       | 30                | 0.254045  | 0   | 0    | 0.254045  | 0.000147               |                   |           |
|                | FORT ERIE TOWN                 |           | 0-10045 BAY WOODS               | 270302001819600 | 1299.061   | 0.130       | 30                | 0.254240  | 0   | 0    | 0.254240  | 0.000147               |                   |           |
|                | WILDWOOD PROPERTIES INC        |           | 4882 WILDWOOD AVENUE            | 270302001820900 | 1226.084   | 0.121       | 30                | 0.235843  | 0   | 0    | 0.235843  | 0.000137               |                   |           |
|                | ROYAL ROBERT JAMES             |           | 4894 WILDWOOD AVENUE            | 270302001821000 | 1226.082   | 0.121       | 30                | 0.236625  | 0   | 0    | 0.236625  | 0.000137               |                   |           |
|                | WEINERT DIANNE LOGAN           |           | 0-10060 WILDWOOD AVENUE         | 270302001821100 | 1226.095   | 0.121       | 30                | 0.236038  | 0   | 0    | 0.236038  | 0.000137               |                   |           |
|                | CYR RUSSELL NORMAN             |           | 0-10061 WILDWOOD AVENUE         | 270302001821200 | 1226.095   | 0.120       | 30                | 0.235451  | 0   | 0    | 0.235451  | 0.000136               |                   |           |
|                | CYR RUSSELL NORMAN             |           | 4920 WILDWOOD AVENUE            | 270302001821300 | 1226.070   | 0.120       | 30                | 0.234864  | 0   | 0    | 0.234864  | 0.000136               |                   |           |
|                | CYR RUSSELL NORMAN             |           | 0-10063 WILDWOOD AVENUE         | 270302001821400 | 1226.120   | 0.120       | 30                | 0.234473  | 0   | 0    | 0.234473  | 0.000136               |                   |           |
|                | WARREN WILLIAM DAVID           |           | 4958 ORIOLE LANE                | 270302001822100 | 8144.902   | 0.951       | 30                | 1.861884  | 0   | 0    | 1.861884  | 0.001078               |                   |           |
|                | MCCORMICK JEAN CAROL           |           | 0-10070 ORIOLE LANE             | 270302001822500 | 3423.395   | 0.198       | 30                | 0.387330  | 0   | 0    | 0.387330  | 0.000224               |                   |           |
|                | WRIGHT ALLAN                   |           | 4959 ORIOLE LANE                | 270302001822600 | 11412.342  | 1.142       | 30                | 2.234144  | 0   | 0    | 2.234144  | 0.001293               |                   |           |
|                | HAHN CHARLES J IN TRUST        |           | 0-10072 POINT ABINO ROAD SOUTH  | 270302001822700 | 145226.441 | 14.526      | 25                | 23.691417 | 0   | 0    | 23.691417 | 0.013713               |                   |           |
|                | DIETERS KARIN                  |           | 366 MATHEWS ROAD SOUTH          | 270302001822701 | 189092.956 | 18.913      | 25                | 30.847592 | 0   | 0    | 30.847592 | 0.017856               |                   |           |
|                | BRETON TEUNIS ADRIANIS         |           | 340 MATHEWS ROAD SOUTH          | 270302001822702 | 12429.311  | 1.243       | 30                | 2.433191  | 0   | 0    | 2.433191  | 0.001408               |                   |           |
|                | FIJAVZ BORIS                   |           | 0-10075 POINT ABINO ROAD SOUTH  | 270302001822710 | 52870.152  | 5.288       | 30                | 10.349869 | 0   | 0    | 10.349869 | 0.005991               |                   |           |
|                | HOWARD SALLY                   |           | 391 POINT ABINO ROAD SOUTH      | 270302001822800 | 59810.353  | 5.982       | 30                | 11.708558 | 0   | 0    | 11.708558 | 0.006777               |                   |           |
|                | RIITNER CHARLES                |           | 328 MATHEWS ROAD SOUTH          | 270302001822900 | 9936.209   | 0.994       | 30                | 1.945065  | 0   | 0    | 1.945065  | 0.001126               |                   |           |
|                | 5009865 ONTARIO LTD.           |           | 300 MATHEWS ROAD SOUTH          | 270302001822901 | 6581.974   | 0.658       | 30                | 1.288425  | 0   | 0    | 1.288425  | 0.000746               |                   |           |
|                | CROWN LANDSCAPING LTD          |           | 0-10079 MATHEWS ROAD SOUTH      | 270302001823000 | 69149.860  | 6.916       | 30                | 13.536778 | 0   | 0    | 13.536778 | 0.007836               |                   |           |
|                | GGP INVESTMENTS INC            |           | 0-10080 MATHEWS ROAD SOUTH      | 270302001823100 | 38764.176  | 3.877       | 30                | 7.588456  | 0   | 0    | 7.588456  | 0.004392               |                   |           |
| F              | FAZZARI ALEXANDER / SEBASTIANO |           | 200 MATHEWS ROAD SOUTH          | 270302001823101 | 81802.414  | 8.182       | 35                | 18.682550 | 0   | 0    | 18.682550 | 0.010814               |                   |           |
|                | GARVIN RANDALL CHARLES         |           | 158 MATHEWS ROAD SOUTH          | 270302001823200 | 23542.377  | 2.355       | 30                | 4.608619  | 0   | 0    | 4.608619  | 0.002668               |                   |           |
|                | ADAMS LAWRENCE KENNETH         |           | 150 MATHEWS ROAD SOUTH          | 270302001823300 | 1524.534   | 0.153       | 30                | 0.298473  | 0   | 0    | 0.298473  | 0.000173               |                   |           |
|                | WAINMAN MARK WILLIAM           |           | 142 MATHEWS ROAD SOUTH          | 270302001823400 | 2711.699   | 0.271       | 30                | 0.530793  | 0   | 0    | 0.530793  | 0.000307               |                   |           |
|                | BORKOVSKY BARBARA              |           | 32 MATHEWS ROAD SOUTH           | 270302001823500 | 36991.805  | 3.700       | 30                | 7.241640  | 0   | 0    | 7.241640  | 0.004192               |                   |           |
|                | FOX GORDON ALLEN STANLEY       |           | 5085 MICHENER ROAD              | 270302001823600 | 4045.988   | 0.405       | 30                | 0.792079  | 0   | 0    | 0.792079  | 0.000458               |                   |           |
|                | DARBYSON DOUGLAS ALLEN         |           | 5045 MICHENER ROAD              | 270302001823601 | 61342.003  | 6.136       | 35                | 14.009801 | 0   | 0    | 14.009801 | 0.008109               |                   |           |
|                | DARBYSON DOUGLAS ALLEN         |           | 5045 MICHENER ROAD              | 270302001823603 | 986.845    | 0.099       | 30                | 0.193176  | 0   | 0    | 0.193176  | 0.000112               |                   |           |
|                | LEWIS PAUL KENNEDY             |           | 5005 MICHENER ROAD              | 270302001823610 | 61902.186  | 6.192       | 35                | 14.137671 | 0   | 0    | 14.137671 | 0.008183               |                   |           |
|                | PINO JAVIER                    |           | 5115 MICHENER ROAD              | 270302001823700 | 4160.681   | 0.416       | 30                | 0.814587  | 0   | 0    | 0.814587  | 0.000472               |                   |           |
|                | GREENBERG INTERNATIONAL INC    |           | 0-10090 MARCY LANE              | 270302001823800 | 124434.155 | 8.369       | 20                | 10.920393 | 0   | 0    | 10.920393 | 0.006321               |                   |           |
|                | GREENBERG INTERNATIONAL INC    |           | 0-10091 MARCY LANE              | 270302001823900 | 32472.473  | 0.167       | 20                | 0.218293  | 0   | 0    | 0.218293  | 0.000126               |                   |           |
|                | 1992293 ONTARIO INC            |           | 478 MARCY LANE                  | 270302001824100 | 9756.679   | 0.117       | 20                | 0.152792  | 0   | 0    | 0.152792  | 0.000088               |                   |           |
|                | D B M E INC                    |           | 0-10094 MARCEY LANE             | 270302001824200 | 4513.357   | 0.047       | 20                | 0.061195  | 0   | 0    | 0.061195  | 0.000035               |                   |           |
|                | D B M E INC                    |           | 0-10095 HOLLOWAY BAY ROAD SOUTH | 270302001824300 | 17940.172  | 0.140       | 20                | 0.183063  | 0   | 0    | 0.183063  | 0.000106               |                   |           |
|                | GREENBERG INTERNATIONAL INC    |           | 476 MARCY LANE                  | 270302001824400 | 25994.928  | 2.390       | 20                | 3.118472  | 0   | 0    | 3.118472  | 0.001805               |                   |           |
|                | D B M E INC                    |           | 0-10097 MARCY LANE              | 270302001824500 | 5430.498   | 0.543       | 20                | 0.708767  | 0   | 0    | 0.708767  | 0.000410               |                   |           |
|                |                                | 0         | 0-19827 MARCY LANE              | 270302001824600 | 4615.948   | 0.462       | 20                | 0.602426  | 0   | 0    | 0.602426  | 0.000349               |                   |           |
|                | D B M E INC                    |           | 466 MARCY LANE                  | 270302001824700 | 22912.423  | 2.224       | 20                | 2.901614  | 0   | 0    | 2.901614  | 0.001680               |                   |           |



| Farm<br>As 'F'        | Owner                                            | Legal_Txt             | Municipal Addres                | Roll No         | Area<br>Ha | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC<br>QRFQRF Ratio |        |
|-----------------------|--------------------------------------------------|-----------------------|---------------------------------|-----------------|------------|------------------------|-------------------|-----------|-----|------|-----------|------------------------|-----------------------------------|--------|
|                       | D B M E INC                                      |                       | 400 HOLLOWAY BAY ROAD SOUTH     | 270302001824700 | 75539.656  | 7.556                  | 25                | 12.323184 | 0   | 0    | 12.323184 | 0.007133               |                                   |        |
|                       | PATTERSON WAYNE                                  |                       | 0-10100 ABINO HILLS ROAD        | 270302001824800 | 54220.672  | 5.423                  | 20                | 7.076191  | 0   | 0    | 7.076191  | 0.004096               |                                   |        |
|                       | FRETZ KIRK                                       |                       | 411 MATHEWS ROAD NORTH          | 270302001824900 | 137200.450 | 13.723                 | 25                | 22.382050 | 0   | 0    | 22.382050 | 0.012956               |                                   |        |
|                       | MACNEIL LORNE CHRISTOPHER                        |                       | 339 MATHEWS ROAD SOUTH          | 270302001824905 | 60841.400  | 6.085                  | 30                | 11.910345 | 0   | 0    | 11.910345 | 0.006894               |                                   |        |
| F                     | GREENBERG INTERNATIONAL INC.                     |                       | 0-10103 MATHEWS ROAD SOUTH      | 270302001825000 | 244114.376 | 24.220                 | 25                | 39.502494 | 0   | 0    | 39.502494 | 0.022865               |                                   |        |
|                       | GREENBERG INTERNATIONAL INC.                     |                       | 0-10104 MATHEWS ROAD SOUTH      | 270302001825100 | 37708.339  | 3.772                  | 30                | 7.381776  | 0   | 0    | 7.381776  | 0.004273               |                                   |        |
| F                     | GIGONE JUSTIN GIANCARLO                          |                       | 291 MATHEWS ROAD SOUTH          | 270302001825200 | 34092.209  | 3.410                  | 30                | 6.673856  | 0   | 0    | 6.673856  | 0.003863               |                                   |        |
|                       | GREENBERG INTERNATIONAL INC                      |                       | 0-10106 MATHEWS ROAD SOUTH      | 270302001825300 | 159816.481 | 15.985                 | 25                | 26.071698 | 0   | 0    | 26.071698 | 0.015091               |                                   |        |
|                       | CARVER ANDREW                                    |                       | 5145 MICHENER ROAD              | 270302001825400 | 104223.920 | 10.425                 | 35                | 23.803532 | 0   | 0    | 23.803532 | 0.013778               |                                   |        |
|                       | ORCUTT WAYNE DARREN                              |                       | 5183 MICHENER ROAD              | 270302001825500 | 3348.806   | 0.335                  | 30                | 0.655662  | 0   | 0    | 0.655662  | 0.000380               |                                   |        |
|                       | CHEN MEI FENG                                    |                       | 5197 MICHENER ROAD              | 270302001825600 | 10115.703  | 1.012                  | 30                | 1.980295  | 0   | 0    | 1.980295  | 0.001146               |                                   |        |
|                       | SIDER BROS BUILDERS LTD                          |                       | 5199 MICHENER ROAD              | 270302001825650 | 14311.943  | 1.432                  | 30                | 2.801732  | 0   | 0    | 2.801732  | 0.001622               |                                   |        |
|                       | GREENBERG INTERNATIONAL INC                      |                       | 0-10111 MICHENER ROAD           | 270302001825700 | 165503.667 | 16.554                 | 35                | 37.799175 | 0   | 0    | 37.799175 | 0.021880               |                                   |        |
|                       | PIRSON WANDA                                     |                       | 5263 MICHENER ROAD              | 270302001825800 | 1014.282   | 0.101                  | 30                | 0.198460  | 0   | 0    | 0.198460  | 0.000115               |                                   |        |
| F                     | GREENBERG INTERNATIONAL INC                      |                       | 5353 MICHENER ROAD              | 270302001825900 | 403681.138 | 40.377                 | 35                | 92.196385 | 0   | 0    | 92.196385 | 0.053367               |                                   |        |
|                       | VANDERENDE MICHAEL PETER                         |                       | 5381 MICHENER ROAD              | 270302001826000 | 8175.264   | 0.818                  | 30                | 1.600402  | 0   | 0    | 1.600402  | 0.000926               |                                   |        |
|                       | 525230 ONTARIO LTD TRUSTEE                       |                       | 0-10115 HOLLOWAY BAY ROAD SOUTH | 270302001826100 | 61339.078  | 6.135                  | 30                | 12.007813 | 0   | 0    | 12.007813 | 0.006951               |                                   |        |
|                       | GREENBERG INTERNATIONAL INC                      |                       | 0-10116 HOLLOWAY BAY ROAD SOUTH | 270302001826200 | 11402.642  | 1.141                  | 20                | 1.488124  | 0   | 0    | 1.488124  | 0.000861               |                                   |        |
|                       | BENNETT KLARA LEE                                |                       | 30 HOLLOWAY BAY ROAD SOUTH      | 270302001826300 | 10022.741  | 1.029                  | 30                | 2.014155  | 0   | 0    | 2.014155  | 0.001166               |                                   |        |
|                       | SEELEY COREY JAMES                               |                       | 4831 SHERKSTON ROAD             | 270302001827400 | 4801.887   | 0.045                  | 30                | 0.087487  | 0   | 0    | 0.087487  | 0.000051               |                                   |        |
| F                     | DAY JOHN MARTIN HARLOW                           |                       | 4924 SHERKSTON ROAD             | 270302001828100 | 287161.800 | 1.308                  | 35                | 2.987144  | 0   | 0    | 2.987144  | 0.001729               |                                   |        |
|                       | ASHBY BRIAN CHRISTOPHER                          |                       | 4869 SHERKSTON ROAD             | 270302001828300 | 10381.865  | 1.038                  | 30                | 2.032356  | 0   | 0    | 2.032356  | 0.001176               |                                   |        |
|                       | EBERLY ALFRED GERALD                             |                       | 4894 SHERKSTON ROAD             | 270302001828400 | 5620.038   | 0.201                  | 30                | 0.392419  | 0   | 0    | 0.392419  | 0.000227               |                                   |        |
| F                     | WINGER CLINTON ROSS                              |                       | 0-10146 SHERKSTON ROAD          | 270302001828500 | 44701.946  | 1.583                  | 35                | 3.613481  | 0   | 0    | 3.613481  | 0.002092               |                                   |        |
|                       | DE MEL JULIAN FREDRIK                            |                       | 4911 SHERKSTON ROAD             | 270302001828600 | 15789.233  | 1.579                  | 30                | 3.090810  | 0   | 0    | 3.090810  | 0.001789               |                                   |        |
| F                     | HOUSE ARNOLD GARY                                |                       | 4963 SHERKSTON ROAD             | 270302001828700 | 43430.208  | 4.344                  | 35                | 9.918861  | 0   | 0    | 9.918861  | 0.005741               |                                   |        |
|                       | CLARKE PAIGE CORA                                |                       | 5069 SHERKSTON ROAD             | 270302001828710 | 143267.152 | 14.330                 | 35                | 32.720437 | 0   | 0    | 32.720437 | 0.018940               |                                   |        |
|                       | SIMMONS BETTY DOROTHY                            |                       | 4998 SHERKSTON ROAD             | 270302001829000 | 20448.544  | 0.796                  | 30                | 1.557344  | 0   | 0    | 1.557344  | 0.000901               |                                   |        |
| F                     | SAHS-MEYER EVA-LYN                               |                       | 5187 SHERKSTON ROAD             | 270302001829200 | 246096.978 | 24.615                 | 35                | 56.205663 | 0   | 0    | 56.205663 | 0.032534               |                                   |        |
| F                     | O'HEARN PATRICK JAMES                            |                       | 5286 SHERKSTON ROAD             | 270302001829300 | 41994.548  | 0.781                  | 30                | 1.528377  | 0   | 0    | 1.528377  | 0.000885               |                                   |        |
|                       | DRURY STEVEN / DRURY DAYNA                       |                       | 5277 SHERKSTON ROAD             | 270302001829400 | 4013.993   | 0.402                  | 30                | 0.785816  | 0   | 0    | 0.785816  | 0.000455               |                                   |        |
|                       | ROWLAND SHAWN                                    |                       | 5297 SHERKSTON ROAD             | 270302001829500 | 118847.206 | 11.887                 | 35                | 27.143461 | 0   | 0    | 27.143461 | 0.015712               |                                   |        |
|                       | GRANT STEVEN CRAIG                               |                       | 5321 SHERKSTON ROAD             | 270302001829700 | 33771.670  | 3.378                  | 35                | 7.713097  | 0   | 0    | 7.713097  | 0.004465               |                                   |        |
|                       | BRETHREN IN CHRIST CHURCH                        |                       | 5348 SHERKSTON ROAD             | 270302001829800 | 19915.019  | 0.919                  | 30                | 1.798471  | 0   | 0    | 1.798471  | 0.001041               |                                   |        |
|                       | WALL JACOB                                       |                       | 5384 SHERKSTON ROAD             | 270302001829900 | 5644.101   | 0.173                  | 30                | 0.339183  | 0   | 0    | 0.339183  | 0.000196               |                                   |        |
|                       | SCHINKEL BRUCE VICTOR C                          |                       | 5398 SHERKSTON ROAD             | 270302001830000 | 3686.275   | 0.088                  | 30                | 0.173016  | 0   | 0    | 0.173016  | 0.000100               |                                   |        |
|                       | OSINGA MARK                                      |                       | 5409 SHERKSTON ROAD             | 270302001830100 | 22469.621  | 2.247                  | 35                | 5.131713  | 0   | 0    | 5.131713  | 0.002970               |                                   |        |
|                       | SERADA MARK                                      |                       | 5365 SHERKSTON ROAD             | 270302001830200 | 75866.616  | 7.588                  | 35                | 17.327124 | 0   | 0    | 17.327124 | 0.010030               |                                   |        |
|                       | VAN HOECKEL MAARTEN JOOST                        |                       | 184 HOLLOWAY BAY ROAD NORTH     | 270302001830300 | 9343.548   | 0.935                  | 30                | 1.829199  | 0   | 0    | 1.829199  | 0.001059               |                                   |        |
|                       | ZUCCHET MICHAEL FRANK                            |                       | 170 HOLLOWAY BAY ROAD NORTH     | 270302001830400 | 1578.220   | 0.158                  | 30                | 0.309042  | 0   | 0    | 0.309042  | 0.000179               |                                   |        |
|                       | BENNETT LAWRENCE WILLIAM                         |                       | 148 HOLLOWAY BAY ROAD NORTH     | 270302001830500 | 6436.810   | 0.644                  | 30                | 1.260045  | 0   | 0    | 1.260045  | 0.000729               |                                   |        |
|                       | CULP JENNIFER ELIZABETH                          |                       | 124 HOLLOWAY BAY ROAD NORTH     | 270302001830600 | 2950.755   | 0.295                  | 30                | 0.577570  | 0   | 0    | 0.577570  | 0.000334               |                                   |        |
|                       | MARACLE ELIZABETH GRACE                          |                       | 104 HOLLOWAY BAY ROAD NORTH     | 270302001830700 | 1381.115   | 0.138                  | 30                | 0.270289  | 0   | 0    | 0.270289  | 0.000156               |                                   |        |
|                       | 1784413 ONTARIO LTD                              |                       | 78 HOLLOWAY BAY ROAD NORTH      | 270302001830800 | 6721.481   | 0.672                  | 30                | 1.315826  | 0   | 0    | 1.315826  | 0.000762               |                                   |        |
|                       | WARWICK DARBY ROYCE                              |                       | 5414 MICHENER ROAD              | 270302001830900 | 5096.233   | 0.510                  | 30                | 0.997585  | 0   | 0    | 0.997585  | 0.000577               |                                   |        |
|                       | HARDY DEREK DENIS                                |                       | 5404 MICHENER ROAD              | 270302001831000 | 5221.867   | 0.522                  | 30                | 1.022246  | 0   | 0    | 1.022246  | 0.000592               |                                   |        |
|                       | KUCY RODNEY ALLEN                                |                       | 5392 MICHENER ROAD              | 270302001831100 | 3714.873   | 0.372                  | 30                | 0.727296  | 0   | 0    | 0.727296  | 0.000421               |                                   |        |
| F                     | BERNARD JAMES DOUGLAS                            |                       | 5378 MICHENER ROAD              | 270302001831200 | 98290.699  | 9.831                  | 35                | 22.448562 | 0   | 0    | 22.448562 | 0.012994               |                                   |        |
|                       | HAGGERTY TIMOTHY ROGER                           |                       | 5354 MICHENER ROAD              | 270302001831201 | 4310.473   | 0.431                  | 30                | 0.843749  | 0   | 0    | 0.843749  | 0.000488               |                                   |        |
|                       | GUENTHER PETER                                   |                       | 5274 MICHENER ROAD              | 270302001831300 | 4792.385   | 0.479                  | 30                | 0.938086  | 0   | 0    | 0.938086  | 0.000543               |                                   |        |
|                       |                                                  |                       |                                 |                 |            |                        |                   |           |     |      | 1537      | 89.0%                  |                                   |        |
|                       |                                                  |                       |                                 |                 |            |                        |                   |           |     |      | 1536.87   | 0.889594               |                                   |        |
|                       |                                                  |                       |                                 |                 |            |                        |                   |           |     |      |           |                        |                                   |        |
| Roads                 |                                                  |                       |                                 |                 |            |                        |                   |           |     |      |           |                        |                                   |        |
| City of Port Colborne |                                                  | Municipal             |                                 | OBJECTID        |            | PA_Area                | C_Factor          | QRF       | SWM | SWMF | QRF-SWMF  | QRF Ratio              |                                   |        |
|                       | Beach Rd From Watershed To Pleasant Beach Rd     | City of Port Colborne |                                 | 150498          |            | 1.1757                 | 90                | 6.903240  | 0   | 0    | 6.903240  | 0.003996               | 6.90324                           | 0.0132 |
|                       | Firelane (No Name) From Firelane 22 To End       | City of Port Colborne |                                 | 149593          |            | 0.2387                 | 40                | 0.622912  | 0   | 0    | 0.622912  | 0.000361               | 0.62291                           | 0.0012 |
|                       | Firelane 22 From Pleasant Beach Rd. To No Name   | City of Port Colborne |                                 | 149574          |            | 0.2786                 | 70                | 1.272310  | 0   | 0    | 1.272310  | 0.000736               | 1.27231                           | 0.0024 |
|                       | Firelane 23 From Firelane 22 To End              | City of Port Colborne |                                 | 149573          |            | 0.1949                 | 70                | 0.890069  | 0   | 0    | 0.890069  | 0.000515               | 0.89007                           | 0.0017 |
|                       | Firelane 28 27 From Pleasant Beach Rd. To Hollow | City of Port Colborne |                                 | 149692          |            | 0.6895                 | 70                | 3.148809  | 0   | 0    | 3.148809  | 0.001823               | 3.14881                           | 0.0060 |
|                       | Michener Rd From Pleasant Beach Rd To Holloway   | City of Port Colborne |                                 | 150592          |            | 0.8798                 | 90                | 5.165834  | 0   | 0    | 5.165834  | 0.002990               | 5.16583                           | 0.0099 |
|                       | NW Beach and Pleasant Beach Rd From To           | City of Port Colborne |                                 | 150616          |            | 0.0112                 | 90                | 0.065762  | 0   | 0    | 0.065762  | 0.000038               | 0.06576                           | 0.0001 |
|                       | Pleasant Beach Rd From Michener Rd To Sherksto   | City of Port Colborne |                                 | 150545          |            | 2.5693                 | 90                | 15.085902 | 0   | 0    | 15.085902 | 0.008732               | 15.08590                          | 0.0289 |



| Farm<br>As 'F'    | Owner                                            | Legal_Txt             | Municipal Addres | Roll No | Area<br>Ha | Area in     |  | Runoff Factor 'C' | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|-------------------|--------------------------------------------------|-----------------------|------------------|---------|------------|-------------|--|-------------------|-----------|-----|------|-----------|------------------------|-------------------|-----------|
|                   |                                                  |                       |                  |         |            | Drain<br>Ha |  |                   |           |     |      |           |                        | QRF               | QRF Ratio |
|                   | Pleasant Beach Rd From Watershed Bndy. To Mich   | City of Port Colborne |                  | 149550  |            | 2.1516      |  | 90                | 12.633335 | 0   | 0    | 12.633335 | 0.007313               | 12.63333          | 0.0242    |
|                   | Sherkston Rd From Empire Rd To Pleasant Beach R  | City of Port Colborne |                  | 150488  |            | 0.572       |  | 90                | 3.358555  | 0   | 0    | 3.358555  | 0.001944               | 3.35856           | 0.0064    |
|                   | Sherkston Rd From Pleasant Beach Rd To Holloway  | City of Port Colborne |                  | 150563  |            | 0.5682      |  | 90                | 3.336243  | 0   | 0    | 3.336243  | 0.001931               | 3.33624           | 0.0064    |
| Town of Fort Erie |                                                  |                       |                  |         |            |             |  |                   |           |     |      |           |                        |                   |           |
|                   | Abino Hills Rd From Blind Line To Point Abino Rd | Town of Fort Erie     |                  | 1000002 |            | 1.4236      |  | 80                | 7.430053  | 0   | 0    | 7.430053  | 0.004301               |                   |           |
|                   | Abino Hills Rd From Blind Line To                | Town of Fort Erie     |                  | 152091  |            | 3.8542      |  | 80                | 20.115841 | 0   | 0    | 20.115841 | 0.011644               |                   |           |
|                   | Bay Woods From Point Abino Rd S To Blind Line Rd | Town of Fort Erie     |                  | 1000000 |            | 0.1387      |  | 40                | 0.361952  | 0   | 0    | 0.361952  | 0.000210               |                   |           |
|                   | Blind Line From Abino Hills Rd To Michener Rd    | Town of Fort Erie     |                  | 1000001 |            | 5.7427      |  | 40                | 14.986150 | 0   | 0    | 14.986150 | 0.008675               |                   |           |
|                   | Marcy Lane From Holloway Bay Rd S To Part 1      | Town of Fort Erie     |                  | 1000006 |            | 0.4592      |  | 70                | 2.097075  | 0   | 0    | 2.097075  | 0.001214               |                   |           |
|                   | Holloway Bay Rd From Watershed Bndy. To Miche    | Town of Fort Erie     |                  | 151906  |            | 3.0335      |  | 90                | 17.811499 | 0   | 0    | 17.811499 | 0.010310               |                   |           |
|                   | Holloway Bay Road North From Michener Rd To Sh   | Town of Fort Erie     |                  | 151585  |            | 2.1285      |  | 90                | 12.497701 | 0   | 0    | 12.497701 | 0.007234               |                   |           |
|                   | Marcy Lane From To Part 2                        | Town of Fort Erie     |                  | 152042  |            | 0.6317      |  | 70                | 2.884848  | 0   | 0    | 2.884848  | 0.001670               |                   |           |
|                   | Mathews Rd S From S Part 1 To                    | Town of Fort Erie     |                  | 152189  |            | 0.6702      |  | 80                | 3.497908  | 0   | 0    | 3.497908  | 0.002025               |                   |           |
|                   | Mathews Rd S From S Part 2 To                    | Town of Fort Erie     |                  | 152260  |            | 0.0746      |  | 80                | 0.389352  | 0   | 0    | 0.389352  | 0.000225               |                   |           |
|                   | Mathews Rd S From S Part 3 To                    | Town of Fort Erie     |                  | 152253  |            | 0.1158      |  | 80                | 0.604383  | 0   | 0    | 0.604383  | 0.000350               |                   |           |
|                   | Mathews Rd S From S Part 4 To                    | Town of Fort Erie     |                  | 152256  |            | 0.4322      |  | 80                | 2.255738  | 0   | 0    | 2.255738  | 0.001306               |                   |           |
|                   | Mathews Rd S From S Part 5 To                    | Town of Fort Erie     |                  | 152190  |            | 0.2242      |  | 80                | 1.170145  | 0   | 0    | 1.170145  | 0.000677               |                   |           |
|                   | Mathews Rd S From S Part 6 To                    | Town of Fort Erie     |                  | 151919  |            | 0.2369      |  | 80                | 1.236428  | 0   | 0    | 1.236428  | 0.000716               |                   |           |
|                   | Mathews Rd S From S Part 7 To                    | Town of Fort Erie     |                  | 152258  |            | 0.4114      |  | 80                | 2.147179  | 0   | 0    | 2.147179  | 0.001243               |                   |           |
|                   | Mathews Road North From Michener Rd To Sherks    | Town of Fort Erie     |                  | 151651  |            | 0.9566      |  | 40                | 2.496343  | 0   | 0    | 2.496343  | 0.001445               |                   |           |
|                   | Michener Rd From Holloway Bay Rd South To Poin   | Town of Fort Erie     |                  | 151781  |            | 3.6017      |  | 90                | 21.147742 | 0   | 0    | 21.147742 | 0.012241               |                   |           |
|                   | Oriole Lane From To                              | Town of Fort Erie     |                  | 1000004 |            | 0.1647      |  | 70                | 0.752152  | 0   | 0    | 0.752152  | 0.000435               |                   |           |
|                   | Point Abino Rd From Michener Rd To Sherkston Rd  | Town of Fort Erie     |                  | 1000005 |            | 0.1835      |  | 90                | 1.077439  | 0   | 0    | 1.077439  | 0.000624               |                   |           |
|                   | Point Abino Rd From To                           | Town of Fort Erie     |                  | 1000003 |            | 0.5731      |  | 90                | 3.365014  | 0   | 0    | 3.365014  | 0.001948               |                   |           |
|                   | Sherkston Rd From Mathews Rd. N To Point Abino   | Town of Fort Erie     |                  | 151726  |            | 1.1423      |  | 90                | 6.707129  | 0   | 0    | 6.707129  | 0.003882               |                   |           |
|                   | Sherkston Rd From Mathews Rd. N To Holloway Ba   | Town of Fort Erie     |                  | 151701  |            | 1.2335      |  | 90                | 7.242619  | 0   | 0    | 7.242619  | 0.004192               |                   |           |
|                   | Unopened Road Allowance Between Holloway Bay     | Town of Fort Erie     |                  | 151913  |            | 2.2918      |  | 40                | 5.980681  | 0   | 0    | 5.980681  | 0.003462               |                   |           |
|                   |                                                  |                       |                  |         |            |             |  |                   |           |     |      | 190.74    | 0.110406               |                   |           |
|                   |                                                  |                       |                  |         |            |             |  |                   |           |     |      | 1727.61   | 1.000000               | 521.73            | 1.000000  |



| Farm<br>As 'F' | Owner | Legal_ Txt | Municipal Addres | Roll No | Area<br>Ha | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF | SWM | SWMF | QRF-SWMF | Watershed<br>QRF Ratio | Interval 1: CofPC<br>QRF | QRF Ratio |
|----------------|-------|------------|------------------|---------|------------|------------------------|-------------------|-----|-----|------|----------|------------------------|--------------------------|-----------|
|----------------|-------|------------|------------------|---------|------------|------------------------|-------------------|-----|-----|------|----------|------------------------|--------------------------|-----------|

Haggerty Branch Drain

| Farm<br>As 'F' | Owner | Legal_ Txt |  | Roll No | Area<br>Ha | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF | SWM | SWMF | QRF-SWMF | QRF Ratio |
|----------------|-------|------------|--|---------|------------|------------------------|-------------------|-----|-----|------|----------|-----------|
|----------------|-------|------------|--|---------|------------|------------------------|-------------------|-----|-----|------|----------|-----------|

Port Colborne

|   | Customer_N                    | Legal_Desc                                                            | Municipal_            | Roll_Numbe      | Area_ha | Catch_Ha |    |           |   |   |           |          |
|---|-------------------------------|-----------------------------------------------------------------------|-----------------------|-----------------|---------|----------|----|-----------|---|---|-----------|----------|
|   | D B M E Inc                   | CON 1 PT LOT 1 RP 59R8890 PT 2 D B M E INC 75% INT M RICHARDS 25% INT | 226 HOLLOWAY BAY RD   | 271104000102800 | 14.366  | 0.4678   | 25 | 0.762982  | 0 | 0 | 0.762982  | 0.002309 |
|   | Scarlett John Frederick       | CON 1 PT LOT 1 RP 59R5913 PARTS 2 TO 4                                | 370 HOLLOWAY BAY RD   | 271104000102900 | 1.508   | 0.6494   | 30 | 1.219336  | 0 | 0 | 1.219336  | 0.003689 |
|   | Boles Diane Lynn              | CON 1 PT LOT 1 RP 59R5913 PART 1                                      | 386 HOLLOWAY BAY RD   | 271104000102901 | 0.470   | 0.4365   | 30 | 0.912055  | 0 | 0 | 0.912055  | 0.002760 |
|   | Phibbs Stephanie Diane        | CON 1 PT LOT 1                                                        | 5930 MICHENER RD      | 271104000103100 | 4.141   | 4.1423   | 35 | 9.457843  | 0 | 0 | 9.457843  | 0.028617 |
|   | Lander Blake                  | CON 1 PT LOT 1                                                        | 534 HOLLOWAY BAY RD   | 271104000103200 | 0.319   | 0.319    | 30 | 0.624347  | 0 | 0 | 0.624347  | 0.001889 |
|   | Nadeau Gerrard                | CON 1 PT LOT 1                                                        | 542 HOLLOWAY BAY RD   | 271104000103300 | 0.809   | 0.8092   | 30 | 1.583375  | 0 | 0 | 1.583375  | 0.004791 |
|   | Muilleboom Ashley Arlene      | CON 1 PT LOT 1                                                        | 554 HOLLOWAY BAY RD   | 271104000103400 | 0.809   | 0.8094   | 30 | 1.583375  | 0 | 0 | 1.583375  | 0.004791 |
|   | Kennedy Nancy Jane            | CON 1 PT LOT 1                                                        | 566 HOLLOWAY BAY RD   | 271104000103500 | 1.507   | 1.507    | 30 | 2.949500  | 0 | 0 | 2.949500  | 0.008924 |
|   | Pruyn Kirk                    | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PART 3                         | 614 HOLLOWAY BAY RD   | 271104000103600 | 5.400   | 5.4008   | 35 | 12.332643 | 0 | 0 | 12.332643 | 0.037315 |
|   | Shaubel Brian                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R14398 PARTS 1 AND 2                  | 588 HOLLOWAY BAY RD   | 271104000103610 | 2.596   | 2.5966   | 30 | 5.082848  | 0 | 0 | 5.082848  | 0.015379 |
|   | Harrietha Thomas              | HUMBERSTONE CON 1 PT LOT 1 RP 59R10180 PART 1                         | 5987 SHERKSTON RD     | 271104000103700 | 0.405   | 0.4047   | 30 | 0.792666  | 0 | 0 | 0.792666  | 0.002398 |
|   | 2293020 Ontario Ltd           | CON 1 PT LOT 1 RP 59R10180 PART 2                                     | 5961 SHERKSTON RD     | 271104000103705 | 0.669   | 0.6695   | 30 | 1.309367  | 0 | 0 | 1.309367  | 0.003962 |
|   | Annett Matthew                | CON 1 PT LOT 1 RP 59R10819 PARTS 1 & 2                                | 5891 SHERKSTON RD     | 271104000103800 | 0.398   | 0.3985   | 30 | 0.780923  | 0 | 0 | 0.780923  | 0.002363 |
|   | Cirone David                  | CON 1 PT LOT 1 RP 59R10180 PT PART 3                                  | 5841 SHERKSTON RD     | 271104000103805 | 0.475   | 0.4749   | 30 | 0.929670  | 0 | 0 | 0.929670  | 0.002813 |
|   | Lehocki Teresa Mary           | CON 1 PT LOT 1 59R-10180 PARTS 4 & 5                                  | HOLLOWAY BAY RD       | 271104000103810 | 9.155   | 9.0234   | 35 | 20.240058 | 0 | 0 | 20.240058 | 0.061241 |
|   | Manuel Robert George          | CON 1 PT LOT 1                                                        | 5795 SHERKSTON RD     | 271104000103900 | 0.105   | 0.0918   | 30 | 0.180062  | 0 | 0 | 0.180062  | 0.000545 |
|   | Eberly Michael David          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 5                         | 727 PLEASANT BEACH RD | 271104000107300 | 15.497  | 2.5843   | 35 | 5.749601  | 0 | 0 | 5.749601  | 0.017397 |
|   | Khan Dina                     | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 4                         | PLEASANT BEACH RD     | 271104000107305 | 2.443   | 1.1164   | 28 | 1.958244  | 0 | 0 | 1.958244  | 0.005925 |
| F | Rickman Erin Heather          | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 3                         | 635 PLEASANT BEACH RD | 271104000107306 | 2.446   | 1.1007   | 28 | 2.122649  | 0 | 0 | 2.122649  | 0.006423 |
|   | Benvenuti Shane               | HUMBERSTONE CON 1 PT LOT 2 RP 59R14998 PART 2                         | 625 PLEASANT BEACH RD | 271104000107307 | 2.448   | 1.0304   | 28 | 2.007565  | 0 | 0 | 2.007565  | 0.006074 |
|   | Eberly William Warren         | HUMBERSTONE CON 1 PT LOT 2 AND RP 59R14998 PART 1                     | 603 PLEASANT BEACH RD | 271104000107400 | 2.148   | 0.9102   | 28 | 1.634914  | 0 | 0 | 1.634914  | 0.004947 |
| F | Berry Gordon Albert           | CON 1 PT LOT 2                                                        | 569 PLEASANT BEACH RD | 271104000107600 | 8.624   | 5.7849   | 35 | 11.736676 | 0 | 0 | 11.736676 | 0.035512 |
|   | Robins Jodee Lee              | CON 1 PT LOT 2 RP 59R9210 PART 1                                      | 5591 MICHENER RD      | 271104000107900 | 0.746   | 0.2518   | 30 | 0.493214  | 0 | 0 | 0.493214  | 0.001492 |
|   | Koren Amir                    | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 1                         | 5670 MICHENER RD      | 271104000107901 | 0.999   | 0.9997   | 30 | 1.935671  | 0 | 0 | 1.935671  | 0.005857 |
| F | Davies Norman Stewart         | HUMBERSTONE CON 1 PT LOT 2 RP 59R16264 PART 2                         | 5650 MICHENER RD      | 271104000107903 | 1.524   | 0.8187   | 30 | 1.401355  | 0 | 0 | 1.401355  | 0.004240 |
| F | Vongphakdy Soupahone Chastity | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R5691 PT PART 1                | 5685 MICHENER RD      | 271104000107930 | 22.056  | 2.4822   | 35 | 4.274525  | 0 | 0 | 4.274525  | 0.012933 |
|   | Lodomez-Miller Anne Marie     | CON 1 PT LOT 1 RP 59R12984 PART 3                                     | 454 HOLLOWAY BAY RD   | 271104000107932 | 2.235   | 2.2357   | 30 | 4.376299  | 0 | 0 | 4.376299  | 0.013241 |
|   | Aquilina Daniel D             | CON 1 PT LOT 1 PT LOT 2 RP 59R12984 PART 2                            | MICHENER RD           | 271104000107934 | 0.667   | 0.6671   | 30 | 1.305452  | 0 | 0 | 1.305452  | 0.003950 |
|   | Aquilina Daniel D             | CON 1 PT LOT 1 RP 59R12984 PART 1                                     | 5963 MICHENER RD      | 271104000107935 | 0.667   | 0.6673   | 30 | 1.305452  | 0 | 0 | 1.305452  | 0.003950 |
|   | Lee Stephen                   | HUMBERSTONE CON 1 PT LOT 2 RP 59R15397 PART 1                         | MICHENER RD           | 271104000107937 | 1.000   | 0.5307   | 30 | 1.146919  | 0 | 0 | 1.146919  | 0.003470 |
|   | Engels Bryan                  | HUMBERSTONE CON 1 PT LOTS 1 AND 2 RP 59R15397 PART 2                  | 5831 MICHENER RD      | 271104000107938 | 1.000   | 0.7449   | 30 | 1.460071  | 0 | 0 | 1.460071  | 0.004418 |
|   | Emonds Ashley                 | HUMBERSTONE CON 1 PT LOT 1 RP 59R16961 PART 1                         | MICHENER RD           | 271104000107940 | 1.009   | 1.0087   | 30 | 1.777138  | 0 | 0 | 1.777138  | 0.005377 |

Town of Fort Erie

|   | STREET_NAM                  | LOCATION                        | ARN             | Shape_Area | Catch_Ha |    |           |   |   |           |          |
|---|-----------------------------|---------------------------------|-----------------|------------|----------|----|-----------|---|---|-----------|----------|
| F | GREENBERG INTERNATIONAL INC | 5353 MICHENER ROAD              | 270302001825900 | 40.368     | 19.4046  | 30 | 36.885391 | 0 | 0 | 36.885391 | 0.111605 |
|   | VANDERENDE MICHAEL PETER    | 5381 MICHENER ROAD              | 270302001826000 | 0.818      | 0.8177   | 35 | 1.867821  | 0 | 0 | 1.867821  | 0.005651 |
|   | 525230 ONTARIO LTD TRUSTEE  | 0-10115 HOLLOWAY BAY ROAD SOUTH | 270302001826100 | 6.134      | 3.5077   | 30 | 6.865858  | 0 | 0 | 6.865858  | 0.020774 |
|   | BENNETT KLARA LEE           | 30 HOLLOWAY BAY ROAD SOUTH      | 270302001826300 | 0.000      | 1.0291   | 35 | 2.287967  | 0 | 0 | 2.287967  | 0.006923 |
| F | SAHS-MEYER EVA-LYN          | 5187 SHERKSTON ROAD             | 270302001829200 | 24.610     | 24.6149  | 30 | 48.203879 | 0 | 0 | 48.203879 | 0.145851 |
| F | O'HEARN PATRICK JAMES       | 5286 SHERKSTON ROAD             | 270302001829300 | 4.199      | 0.7809   | 30 | 1.528573  | 0 | 0 | 1.528573  | 0.004625 |
|   | DRURY STEVEN / DRURY DAYNA  | 5277 SHERKSTON ROAD             | 270302001829400 | 0.401      | 0.4015   | 35 | 0.915643  | 0 | 0 | 0.915643  | 0.002770 |
|   | ROWLAND SHAWN               | 5297 SHERKSTON ROAD             | 270302001829500 | 11.885     | 11.8873  | 30 | 23.265236 | 0 | 0 | 23.265236 | 0.070394 |
|   | GRANT STEVEN CRAIG          | 5321 SHERKSTON ROAD             | 270302001829700 | 3.377      | 3.3779   | 35 | 7.713325  | 0 | 0 | 7.713325  | 0.023338 |
|   | BRETHREN IN CHRIST CHURCH   | 5348 SHERKSTON ROAD             | 270302001829800 | 1.992      | 0.9189   | 35 | 2.098445  | 0 | 0 | 2.098445  | 0.006349 |
|   | WALL JACOB                  | 5384 SHERKSTON ROAD             | 270302001829900 | 0.564      | 0.1733   | 30 | 0.338596  | 0 | 0 | 0.338596  | 0.001024 |
|   | SCHINKEL BRUCE VICTOR C     | 5398 SHERKSTON ROAD             | 270302001830000 | 0.369      | 0.0884   | 35 | 0.200939  | 0 | 0 | 0.200939  | 0.000608 |
|   | OSINGA MARK                 | 5409 SHERKSTON ROAD             | 270302001830100 | 2.247      | 2.2474   | 30 | 4.397828  | 0 | 0 | 4.397828  | 0.013307 |
|   | SERADA MARK                 | 5365 SHERKSTON ROAD             | 270302001830200 | 7.587      | 7.5883   | 30 | 14.851234 | 0 | 0 | 14.851234 | 0.044936 |



| Farm<br>As 'F' | Owner                     | Legal_Txt | Municipal Addres            | Roll No         | Area<br>Ha | Area in     |                   | QRF       | SWM | SWMF | QRF-SWMF  | Watershed<br>QRF Ratio | Interval 1: CofPC |           |
|----------------|---------------------------|-----------|-----------------------------|-----------------|------------|-------------|-------------------|-----------|-----|------|-----------|------------------------|-------------------|-----------|
|                |                           |           |                             |                 |            | Drain<br>Ha | Runoff Factor 'C' |           |     |      |           |                        | QRF               | QRF Ratio |
|                | VAN HOECKEL MAARTEN JOOST |           | 184 HOLLOWAY BAY ROAD NORTH | 270302001830300 | 0.934      | 0.9346      | 35                | 2.134979  | 0   | 0    | 2.134979  | 0.006460               |                   |           |
|                | ZUCCHET MICHAEL FRANK     |           | 170 HOLLOWAY BAY ROAD NORTH | 270302001830400 | 0.158      | 0.1579      | 35                | 0.360777  | 0   | 0    | 0.360777  | 0.001092               |                   |           |
|                | BENNETT LAWRENCE WILLIAM  |           | 148 HOLLOWAY BAY ROAD NORTH | 270302001830500 | 0.644      | 0.6438      | 30                | 1.260437  | 0   | 0    | 1.260437  | 0.003814               |                   |           |
|                | CULP JENNIFER ELIZABETH   |           | 124 HOLLOWAY BAY ROAD NORTH | 270302001830600 | 0.295      | 0.2951      | 30                | 0.577374  | 0   | 0    | 0.577374  | 0.001747               |                   |           |
|                | MARACLE ELIZABETH GRACE   |           | 104 HOLLOWAY BAY ROAD NORTH | 270302001830700 | 0.138      | 0.1381      | 30                | 0.270094  | 0   | 0    | 0.270094  | 0.000817               |                   |           |
|                | 1784413 ONTARIO LTD       |           | 78 HOLLOWAY BAY ROAD NORTH  | 270302001830800 | 0.672      | 0.6723      | 35                | 1.534445  | 0   | 0    | 1.534445  | 0.004643               |                   |           |
|                | WARWICK DARBY ROYCE       |           | 5414 MICHENER ROAD          | 270302001830900 | 0.510      | 0.5097      | 35                | 1.164534  | 0   | 0    | 1.164534  | 0.003524               |                   |           |
|                | HARDY DEREK DENIS         |           | 5404 MICHENER ROAD          | 270302001831000 | 0.522      | 0.5223      | 30                | 1.021658  | 0   | 0    | 1.021658  | 0.003091               |                   |           |
|                | KUCY RODNEY ALLEN         |           | 5392 MICHENER ROAD          | 270302001831100 | 0.371      | 0.3716      | 30                | 0.728078  | 0   | 0    | 0.728078  | 0.002203               |                   |           |
| F              | BERNARD JAMES DOUGLAS     |           | 5378 MICHENER ROAD          | 270302001831200 | 9.829      | 9.8312      | 30                | 19.241233 | 0   | 0    | 19.241233 | 0.058218               |                   |           |
|                | HAGGERTY TIMOTHY ROGER    |           | 5354 MICHENER ROAD          | 270302001831201 | 0.431      | 0.4311      | 30                | 0.843553  | 0   | 0    | 0.843553  | 0.002552               |                   |           |
|                | GUENTHER PETER            |           | 5274 MICHENER ROAD          | 270302001831300 | 0.479      | 0.4793      | 30                | 0.937499  | 0   | 0    | 0.937499  | 0.002837               |                   |           |
|                |                           |           |                             |                 |            |             |                   |           |     |      |           | 286.922193             | 0.868144          |           |

Roads

City of Port Colborne

|                                                        |                       |  |  |  |        | C_Factor | QRF       | SWM | SWMF | QRF-SWMF  | QRF Ratio |
|--------------------------------------------------------|-----------------------|--|--|--|--------|----------|-----------|-----|------|-----------|-----------|
| Holloway Bay Rd From Watershed To Michener Rd          | Town of Fort Erie     |  |  |  | 1.3732 | 90       | 8.062881  | 0   | 0    | 8.062881  | 0.024396  |
| Holloway Bay Road North From Michener Rd To Highway 10 | Town of Fort Erie     |  |  |  | 2.1285 | 90       | 12.497701 | 0   | 0    | 12.497701 | 0.037814  |
| Michener Rd From Pleasant Beach Rd To Holloway Bay Rd  | City of Port Colborne |  |  |  | 0.6698 | 90       | 3.932798  | 0   | 0    | 3.932798  | 0.011900  |
| Sherkston Rd From Pleasant Beach Rd To Holloway Bay Rd | City of Port Colborne |  |  |  | 0.2392 | 90       | 1.404487  | 0   | 0    | 1.404487  | 0.004250  |

Town of Fort Erie

|                                                            |                   |  |  |  |        |    |          |   |   |            |          |
|------------------------------------------------------------|-------------------|--|--|--|--------|----|----------|---|---|------------|----------|
| Mathews Road North From Michener Rd To Sherkston Rd        | Town of Fort Erie |  |  |  | 0.4867 | 40 | 1.270092 | 0 | 0 | 1.270092   | 0.003843 |
| Michener Rd From Holloway Bay Rd South To Highway 10       | Town of Fort Erie |  |  |  | 1.4477 | 90 | 8.500315 | 0 | 0 | 8.500315   | 0.025720 |
| Sherkston Rd From Mathews Rd. N To Holloway Bay Rd         | Town of Fort Erie |  |  |  | 1.2239 | 90 | 7.186251 | 0 | 0 | 7.186251   | 0.021744 |
| Unopened Road Allowance From Holloway Bay Rd To Highway 10 | Town of Fort Erie |  |  |  | 0.2774 | 40 | 0.723903 | 0 | 0 | 0.723903   | 0.002190 |
|                                                            |                   |  |  |  |        |    |          |   |   | 43.578428  | 0.131856 |
|                                                            |                   |  |  |  |        |    |          |   |   | 330.500621 | 1.0000   |



| Farm<br>As 'F' | Owner | Legal_Txt | Municipal Addres | Roll No | Area<br>Ha | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF | SWM | SWMF | QRF-SWMF | Watershed<br>QRF Ratio | Interval 1: CofPC<br>QRF | QRF Ratio |
|----------------|-------|-----------|------------------|---------|------------|------------------------|-------------------|-----|-----|------|----------|------------------------|--------------------------|-----------|
|----------------|-------|-----------|------------------|---------|------------|------------------------|-------------------|-----|-----|------|----------|------------------------|--------------------------|-----------|

East Branch Drain

| Farm<br>As 'F' | Owner | Legal_Txt |  | Roll No | Area<br>Ha | Area in<br>Drain<br>Ha | Runoff Factor 'C' | QRF | SWM | SWMF | QRF-SWMF | QRF Ratio |
|----------------|-------|-----------|--|---------|------------|------------------------|-------------------|-----|-----|------|----------|-----------|
|----------------|-------|-----------|--|---------|------------|------------------------|-------------------|-----|-----|------|----------|-----------|

Town of Fort Erie

|                          |  |                                |                 |            |            |    |           |   |   |           |          |  |
|--------------------------|--|--------------------------------|-----------------|------------|------------|----|-----------|---|---|-----------|----------|--|
| OWNER1                   |  | LOCATION                       | ARN             | Shape_Area | Catch_area |    |           |   |   |           |          |  |
| NIAGARA PENINSULA        |  | 0-9990 WILDWOOD AVENUE         | 270302001814800 | 2.069      | 0.6676     | 30 | 1.306627  | 0 | 0 | 1.306627  | 0.039702 |  |
| DRULLARD DAVID W         |  | 0-9991 POINT ABINO ROAD SOUTH  | 270302001814900 | 0.149      | 0.1476     | 30 | 0.288883  | 0 | 0 | 0.288883  | 0.008778 |  |
| WILDWOOD PROPERTIES INC  |  | 0-9992 POINT ABINO ROAD SOUTH  | 270302001815000 | 0.340      | 0.3384     | 30 | 0.662316  | 0 | 0 | 0.662316  | 0.020125 |  |
| FLYNN GREGORY JAMES      |  | 421 POINT ABINO ROAD SOUTH     | 270302001815100 | 0.135      | 0.1133     | 30 | 0.221751  | 0 | 0 | 0.221751  | 0.006738 |  |
| WARD DANIEL F            |  | 413 POINT ABINO ROAD SOUTH     | 270302001815200 | 0.274      | 0.2382     | 30 | 0.466205  | 0 | 0 | 0.466205  | 0.014166 |  |
| ASIP HOLDINGS INC        |  | 393 POINT ABINO ROAD SOUTH     | 270302001815300 | 1.160      | 1.1522     | 30 | 2.255086  | 0 | 0 | 2.255086  | 0.068521 |  |
| 1254345 ONTARIO INC      |  | 371 POINT ABINO ROAD SOUTH     | 270302001815400 | 1.495      | 1.491      | 30 | 2.918185  | 0 | 0 | 2.918185  | 0.088669 |  |
| 357 POINT ABINO ROAD INC |  | 357 POINT ABINO ROAD SOUTH     | 270302001815500 | 0.187      | 0.1838     | 30 | 0.359733  | 0 | 0 | 0.359733  | 0.010931 |  |
| STARCK COTTAGE LLC       |  | 349 POINT ABINO ROAD SOUTH     | 270302001815600 | 0.110      | 0.1084     | 30 | 0.212160  | 0 | 0 | 0.212160  | 0.006447 |  |
| PAGE DONALD STEWART      |  | 329 POINT ABINO ROAD SOUTH     | 270302001815800 | 1.479      | 5.9736     | 30 | 11.691530 | 0 | 0 | 11.691530 | 0.355248 |  |
| WILDWOOD PROPERTIES INC  |  | 4882 WILDWOOD AVENUE           | 270302001820900 | 0.123      | 0.1205     | 30 | 0.235843  | 0 | 0 | 0.235843  | 0.007166 |  |
| ROYAL ROBERT JAMES       |  | 4894 WILDWOOD AVENUE           | 270302001821000 | 0.123      | 0.1209     | 30 | 0.236625  | 0 | 0 | 0.236625  | 0.007190 |  |
| WEINERT DIANNE LOGAN     |  | 0-10060 WILDWOOD AVENUE        | 270302001821100 | 0.123      | 0.1206     | 30 | 0.236038  | 0 | 0 | 0.236038  | 0.007172 |  |
| CYR RUSSELL NORMAN       |  | 0-10061 WILDWOOD AVENUE        | 270302001821200 | 0.123      | 0.1203     | 30 | 0.235451  | 0 | 0 | 0.235451  | 0.007154 |  |
| CYR RUSSELL NORMAN       |  | 4920 WILDWOOD AVENUE           | 270302001821300 | 0.123      | 0.12       | 30 | 0.234864  | 0 | 0 | 0.234864  | 0.007136 |  |
| CYR RUSSELL NORMAN       |  | 0-10063 WILDWOOD AVENUE        | 270302001821400 | 0.123      | 0.1198     | 30 | 0.234473  | 0 | 0 | 0.234473  | 0.007124 |  |
| FIJAVZ BORIS             |  | 0-10075 POINT ABINO ROAD SOUTH | 270302001822710 | 5.287      | 5.2879     | 30 | 10.349478 | 0 | 0 | 10.349478 | 0.314470 |  |
|                          |  |                                |                 |            |            |    |           |   |   |           |          |  |

Roads

City of Port Colborne

No CofPC roads

Town of Fort Erie

|                    |                   |  |         |   |        |    |          |   |   |           |          |
|--------------------|-------------------|--|---------|---|--------|----|----------|---|---|-----------|----------|
| Blind Line From To | Town of Fort Erie |  | 1000001 | 0 | 0.2934 | 40 | 0.765657 | 0 | 0 | 0.765657  | 0.023265 |
|                    |                   |  |         |   |        |    |          |   |   | 32.910905 | 1.0000   |



**Appendix C:**  
**Supplementary Information &**  
**Documents**

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looking west  
End Of Drain (EOD)

05/15/06



Looking east @ STA  
4+600









451 Pleasant Beach Rd Culvert  
PAM-CS-10 CSP 1000  
Replace with 9m CSPA 1150x820





Michener Rd Culvert  
PB1-CS-03 CONCBOX 1000x600







Tennis Court Culvert  
PAM-CS-04 CSP (3) 1200



Point Abino Rd S Culvert  
PAM-CS-20 Twin Conc 1520x1370



### Calculation Record

|             |                   |              |                   |
|-------------|-------------------|--------------|-------------------|
| Project:    | Point Abino Drain | Date:        | November 18, 2024 |
| Project #:  | 19-9997           | Prepared by: | P.Marsh           |
| Phase:      |                   | PM:          |                   |
| Task:       |                   |              |                   |
| WBS item #: |                   |              |                   |

|               |                                                                                                                                                                                                                                                         |  |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Calculation:  | <b>Water pressure to open the old and new gates at Point Abino Outlet</b>                                                                                                                                                                               |  |
| Purpose:      | <p>The new gate is twice the size of the old gate and was designed to weight less. Changing back to a steel plate makes it heavier and harder for fluid flow to push it open.</p> <p>This compares old to new pressure to open.</p>                     |  |
| Deliverables: | Description of Deliverables <ol style="list-style-type: none"> <li>1. Fluid pressures to push old gate open</li> <li>2. Fluid pressure to push new gate open (plate steel)</li> <li>3. Fluid pressure to push new gate open (PE)</li> <li>4.</li> </ol> |  |
| Requirements  | Depth and velocity are used from the modelling performed.                                                                                                                                                                                               |  |

## 1 Background



Figure 1 Existing gate after being rehung

The culvert is from 1927. The northern gate, shown in the photo, was rehung on the old concrete face in 2021. Each gate consists of a frame that is bolted to the concrete with a pillow block and rod that acts as a hinge for the hung gate that swings open or closed against the frame.



## Existing gate

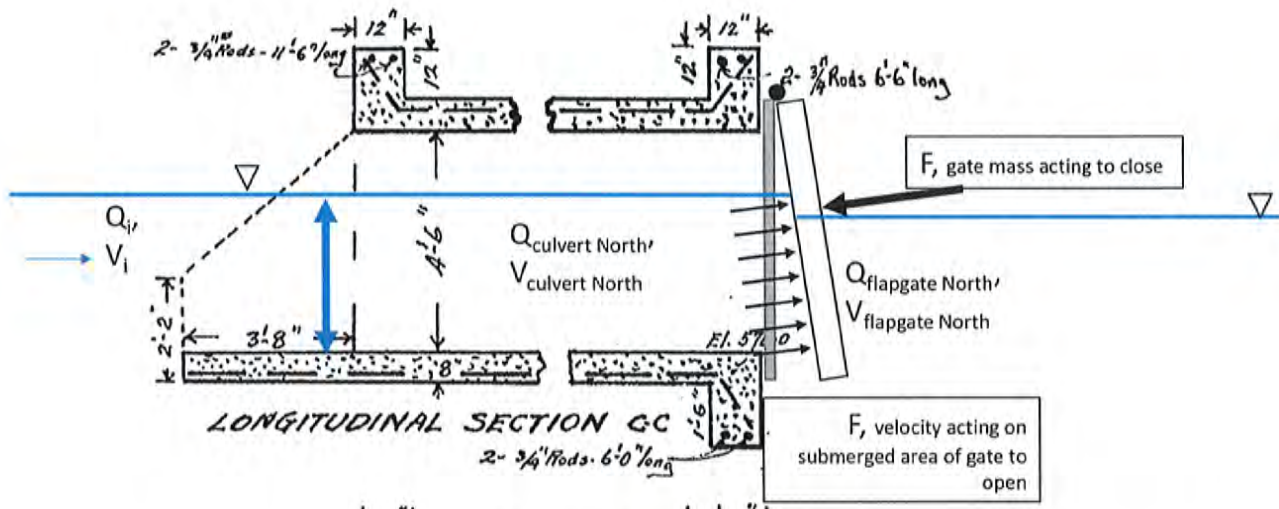


Figure 2 Diagram of forces acting on the gate

There's more than one drawing of the existing dual chamber culvert but the accepted dimension is 4ft 6 inches tall by 5 ft wide. The same dimensions are assumed for the gate as we do not have direct measurements.

## Proposed gate

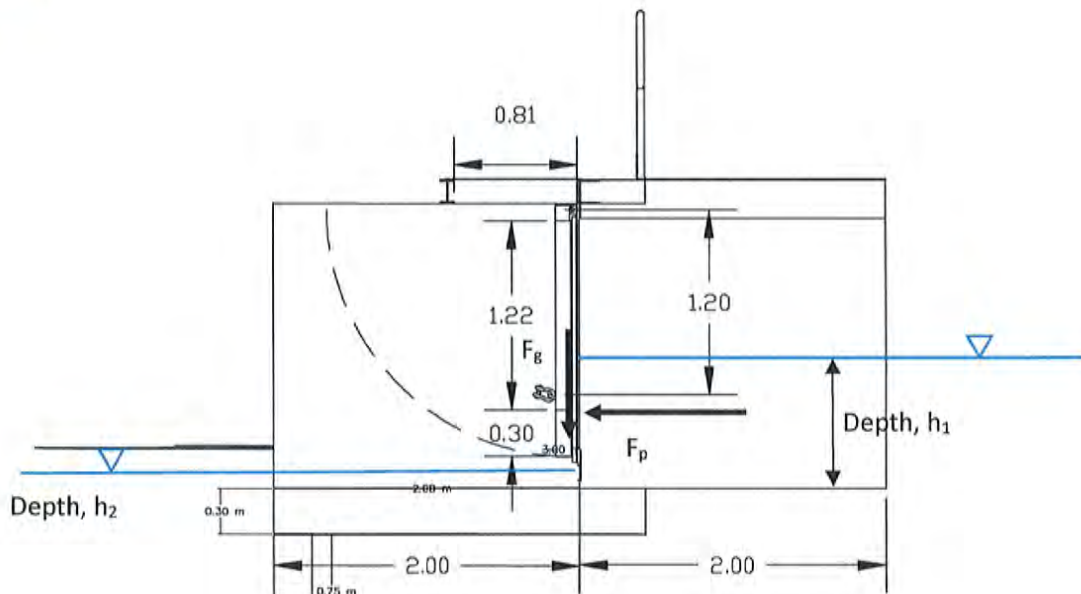


Figure 3 Proposed Gate Geometry

The proposed culvert is a pre-cast culvert with a proposed dimension of 1.5m high and 3.0m wide.



## 2 Methodology

There are two cases to investigate; #1 is the existing 4 ft by 5 ft gate and #2 is the proposed 1.5m x 3m gate.

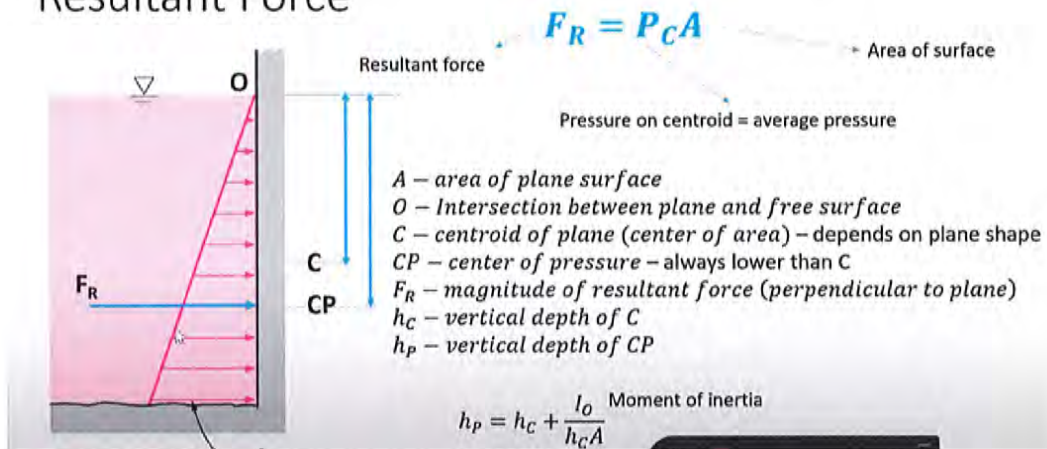
### Step 1: Calculate gate centroid weight

Steel mass based on the volume of gate composed of grid and sheet. This force is acting from the mass on the centroid of the rectangular gate about a hinge point on the top of the gate. Solving for the required momentum to open the gate.

### Step 2: Calculate the height of water to open the gate

With the gate closed, there is no flow moving outwards and hence there is no velocity impact on the gate. The gate is opened by the hydrostatic pressure pushing against the gate. The hydrostatic pressure acts against the gate around the hinge point,  $R_2$  at the centre of pressure, CP.

### Resultant Force



There are many cases or scenarios that could be analyzed. Three are identified as key to the gate operation.

- Case #1: Lakeside water surface level is below the bottom of the gate.
- Case #2: Lakeside water surface level is 1/3 to 1/2 of the gate.
- Case #3: Lakeside water surface level is at or near the top of the gate, as shown in the picture above.

## 3 Validation

There is not a date set of existing performance variables suitable to validate the results. Without some on-site measurements to record flow out and  $h_1$  and  $h_2$ , there isn't a method for validating the calculations.



### Calculation limitations

The determination of CP is based on a vertical gate rotating about a hinge located at the top of the gate. Once the gate does move, then the point at which the same pressure is acting will change as the hydrostatic pressure is acting on has a different shape once the gate is not vertical. There is a dynamic quality to the gate movement that is not sufficiently represented by the calculation of hydrostatic pressure.

The following are forces that are not directly accounted for in the analysis.

- Lakeside wave action on the gate. Waves represent a significant force on the gates, and the wave's oscillation from peak to trough creates a consistent variation in possible gate movements.
- With the gate open, there is a velocity fluid momentum delivered to the inside face of the gate. The fluid momentum on the gate is not calculated. The grades through the culvert are relatively small, and the predicted velocities are also small. This is more true as the water surface in the lake rises relative to the position of the gate.
- The gate hinges are assumed to be without friction.
- Buoyancy of a change to plastic face plate is not considered, only the weight.

The moment to open the gate is calculated with the net result of the two hydrostatic pressure forces on either side of the gate.

## 4. Results

Describe model outputs and production and analysis of results.

### Gate Weights

The existing gate weight was calculated based on all plain steel construction consisting of ribs that are 10cm deep (4 inches) with a frame consisting of a 4 vertical panels and 5 horizontal panels (6 vertical ribs and 5 horizontal ribs. Added to this is the plate steel panel that faces the ribs.

#### Existing Gate

The existing gate dimensions are not measured directly but are based on drawing dimensions showing the existing two chamber culvert to be 4 ft 6 inches high by 5 ft wide.

Table 1 Weight Calculation for Existing Gate

|            | cm     |       |       | cm <sup>3</sup> | # | total<br>cm <sup>3</sup> | plain steel density   |         | convert kg to lbs |
|------------|--------|-------|-------|-----------------|---|--------------------------|-----------------------|---------|-------------------|
|            | Length | Width | Depth |                 |   |                          | 8.05 g/m <sup>3</sup> | 2.20462 |                   |
| vertical   | 138    | 1.2   | 10    | 1656            | 6 | 9936                     | 79.98 kg              |         |                   |
| horizontal | 142    | 1.2   | 10    | 1704            | 5 | 8520                     | 68.59 kg              |         |                   |
| plate      | 145    | 190   | 1.27  | 34988.5         | 1 | 34988.5                  | 281.66 kg             |         |                   |
|            |        |       |       |                 |   | 53444.5                  | <b>438.3 kg</b>       |         | <b>966.2 lbs</b>  |



## Proposed Gate

The proposed gate is 1.5m tall by 3.0m wide. This is built using the existing two gates, combining them into one gate and adding the necessary 0.3m to the bottom of the gate to reach the 1.5m.

Table 2 Weight Calculation of Proposed Steel Gate

|            | cm     |       |       | cm3      | #  | total cm3 | plain steel density |      | convert kg to lbs |
|------------|--------|-------|-------|----------|----|-----------|---------------------|------|-------------------|
|            | Length | Width | Depth |          |    |           | 8.05                | g/m3 |                   |
| vertical   | 150    | 1.2   | 10    | 1800     | 12 | 21600     | 173.88              | kg   |                   |
| horizontal | 300    | 1.2   | 10    | 3600     | 6  | 21600     | 173.88              | kg   |                   |
| plate      | 305    | 155   | 1.27  | 60039.25 | 1  | 60039.25  | 483.32              | kg   |                   |
|            |        |       |       |          |    | 103239.3  | 839.1               | kg   | 1850.0 lbs        |

Table 3 Weight Calculation of Proposed Hybrid Gate

|                | cm     |       |       | cm3      | #   | total cm3  | plain steel density |      | convert kg to lbs |
|----------------|--------|-------|-------|----------|-----|------------|---------------------|------|-------------------|
|                | Length | Width | Depth |          |     |            | 8.05                | g/m3 |                   |
| vertical       | 150    | 1.2   | 10    | 1800     | 12  | 21600      | 173.88              |      |                   |
| horizontal     | 300    | 1.2   | 10    | 3600     | 6   | 21600      | 173.88              |      |                   |
| plate          | 305    | 155   | 1.27  | 60039.25 | 1   | 60039.25   | 57.94               |      |                   |
| Nuts and bolts |        |       |       |          | 100 | 90.9       | 9.09                |      |                   |
|                |        |       |       |          |     | grams/each |                     |      |                   |
|                |        |       |       |          |     | 103239.3   | 422.8               | kg   | 932.2 lbs         |



## Resultant Force to Open the Gate

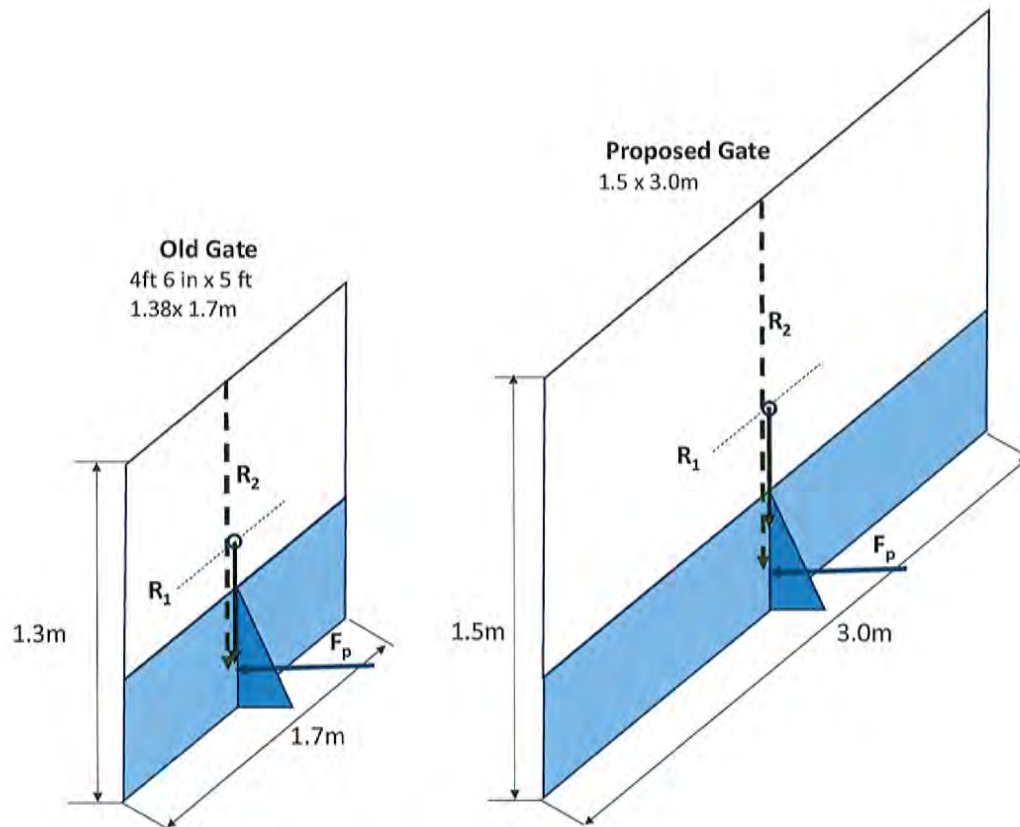


Figure 4 Hydrostatic pressure force

## Existing Gate

The first number shown, top left of the calculation, is the force of gate weight acting at the centroid of the gate. The number following is the momentum about the hinge to move the gate. The bottom left number is the momentum generated by hydrostatic pressure acting about the centre of pressure, CP.

|                     |                             |                |          |     |
|---------------------|-----------------------------|----------------|----------|-----|
| 4299.509 N          | runoff depth                | h1             | 0.35     |     |
| 2579.706 N m        | Pressure acting on the gate | p              | 3433.5   | kPa |
|                     | Force acting on the gate    | Fp             | 2042.9   | N   |
|                     | Moment of Inertia           | I <sub>0</sub> | 0.004288 |     |
|                     | Pressure acting centre      | CP             | 0.233333 |     |
| <b>2580.905 N m</b> | Force acting from the hinge | R <sub>2</sub> | 1.26     |     |

$h1$  is the water surface elevation behind the gate, the upstream side of the gate.

$h2$  is the water surface elevation in front of the gate, the downstream side or lakeside of the gate.

$p$  is the hydrostatic pressure

$I_0$  is the moment of Inertia for the gate

$R_2$  is the distance from the hinge for the centre of pressure.



Proposed Gate  
Steel

A calculation to open for an all steel gate 1.5m high by 3m wide consisting of the two old gates joined together with an additional bottom frame added.

|              |                             |                |          |     |
|--------------|-----------------------------|----------------|----------|-----|
| 8231.826 N   | runoff depth                | h1             | 0.42     |     |
| 6585.461 N m | Pressure acting on the gate | p              | 4120.2   | kPa |
|              | Force acting on the gate    | Fp             | 5191.5   | N   |
|              | Moment of Inertia           | I <sub>0</sub> | 0.018522 |     |
|              | Pressure acting centre      | CP             | 0.2800   |     |
| 6800.802 N m | Force acting from the hinge | R <sub>2</sub> | 1.31     |     |

## Study Cases

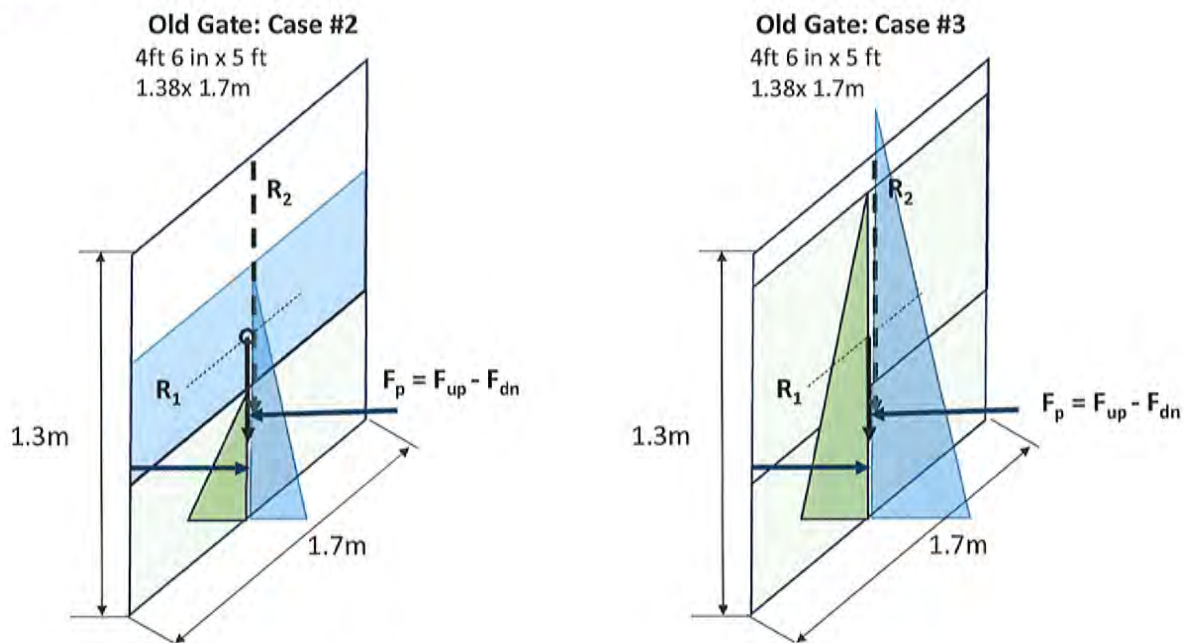


Figure 5 Gate submerged and head to open

## Ex. Gate Case #2: Lake surface @ 173.55

|              |                |          |                 |
|--------------|----------------|----------|-----------------|
| 4299.509 N   | h1             | 0.85     |                 |
| 3439.608 N m | h2             | 0.754    | 0.096           |
|              | p1             | 8338.5   |                 |
|              | P2             | 7396.74  |                 |
|              | Fp             | 4531.7   | 21263.2 16731.4 |
|              | I <sub>0</sub> | 0.153531 |                 |
|              | CP             | 0.5667   |                 |
| 5287.041 N m | R <sub>2</sub> | 1.17     |                 |



Existing invert is 172.796

**Proposed Gate Case #2: Lake surface @ 173.85**

|                 |            |                |          |         |         |
|-----------------|------------|----------------|----------|---------|---------|
| 8231.826        | N          | h1             | 0.83     |         |         |
| 6585.461        | N m        | h2             | 0.7      | 0.13    |         |
|                 |            | p1             | 8142.3   |         |         |
|                 |            | P2             | 6867     |         |         |
|                 |            | Fp             | 5853.6   | 20274.3 | 14420.7 |
|                 |            | I <sub>0</sub> | 0.142947 |         |         |
|                 |            | CP             | 0.5533   | 0.7     |         |
| <b>6868.256</b> | <b>N m</b> | R <sub>2</sub> | 1.17     |         |         |

\* proposed invert is 173.15

**Proposed Gate Case #3: Lake surface @ 174.16**

|               |            |                |          |      |  |
|---------------|------------|----------------|----------|------|--|
| 8231.826      | N          | h1             | 1.12     |      |  |
| 6585.461      | N m        | h2             | 1.01     | 0.11 |  |
|               |            | p1             | 10987.2  |      |  |
|               |            | P2             | 9908.1   |      |  |
|               |            | Fp             | 6895.4   |      |  |
|               |            | I <sub>0</sub> | 0.351232 |      |  |
|               |            | CP             | 0.7467   | 0.7  |  |
| <b>7424.1</b> | <b>N m</b> | R <sub>2</sub> | 1.08     |      |  |

Option for a PE face with steel ribs

|                 |            |                             |                |          |     |
|-----------------|------------|-----------------------------|----------------|----------|-----|
| 4148.048        | N          | runoff depth                | h1             | 0.29     |     |
| 3318.439        | N m        | Pressure acting on the gate | p              | 2844.9   | N   |
|                 |            | Force acting on the gate    | Fp             | 2475.1   | kPa |
|                 |            | Moment of Inertia           | I <sub>0</sub> | 0.006097 |     |
|                 |            | Pressure acting centre      | CP             | 0.1933   |     |
| <b>3349.585</b> | <b>N m</b> | Force acting from the hinge | R <sub>2</sub> | 1.35     |     |

**Case #2: Lake surface @ 174.16**



|                     |                |          |      |
|---------------------|----------------|----------|------|
| 4148.048 N          | h1             | 0.77     | 0.07 |
| 3318.439 N m        | h2             | 0.7      |      |
|                     | p1             | 7553.7   |      |
|                     | P2             | 6867     | 0.7  |
|                     | Fp             | 3028.3   |      |
|                     | I <sub>0</sub> | 0.114133 |      |
|                     | CP             | 0.5133   |      |
| <b>3613.827 N m</b> | R <sub>2</sub> | 1.19     |      |

\* proposed invert is 173.15

**Case #3: Lake surface @ 174.16**

|                     |                |          |      |
|---------------------|----------------|----------|------|
| 4148.048 N          | h1             | 1.06     | 0.05 |
| 3318.439 N m        | h2             | 1.01     |      |
|                     | p1             | 10398.6  |      |
|                     | P2             | 9908.1   | 0.7  |
|                     | Fp             | 3046.0   |      |
|                     | I <sub>0</sub> | 0.297754 |      |
|                     | CP             | 0.7067   |      |
| <b>3340.452 N m</b> | R <sub>2</sub> | 1.10     |      |

\* proposed invert is 173.15



## 5 Summary:

The following table presents the head,  $h_1 - h_2$ , to open the gate. There are three options considered;

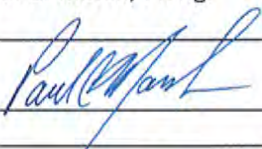
- The existing old gate, 4 ft 6 inches high x 5 ft wide.
- The proposed gate, 1.5m high x 3.0m wide.
- The proposed gate with a plastic face instead of steel.

Table 4 Summary of the head to open the gate

|                             | H x W      | Weight,<br>kg | Weight,<br>lbs | Case 1      | Case 2       | Case 3       |
|-----------------------------|------------|---------------|----------------|-------------|--------------|--------------|
| <b>Existing Gate</b>        | 4' 6" x 5' | 438.3         | 966.2          | <b>0.35</b> | <b>0.096</b> | <b>0.056</b> |
| <b>Proposed (all Steel)</b> | 1.5 x 3m   | 839.1         | 1850.0         | <b>0.42</b> | <b>0.13</b>  | <b>0.11</b>  |
| <b>Proposed (PE plate)</b>  | 1.5 x 3m   | 422.8         | 932.2          | <b>0.29</b> | <b>0.07</b>  | <b>0.05</b>  |

The new larger single gate is twice the weight of the existing single gates and requires more head to open. The lake surface elevation has less of an impact on the hydrostatic pressure to open than expected.

I have reviewed the calculation procedure and verified the results.

|             |                                                                                     |                            |
|-------------|-------------------------------------------------------------------------------------|----------------------------|
| Print Name: | Paul C. Marsh, P.Eng.                                                               |                            |
| Signature:  |  | Date: Thu, January 9, 2025 |
|             |                                                                                     |                            |

|                                                                                                            |                          |
|------------------------------------------------------------------------------------------------------------|--------------------------|
|  <b>Document Review</b> |                          |
| Submission Title:                                                                                          | Gate weight calc - DRAFT |
| Submission Date:                                                                                           | November 28, 2024        |
| Submitted By:                                                                                              | P.Marsh, P.Eng.          |
| Review By:                                                                                                 |                          |
| Review Date:                                                                                               |                          |
| Action:                                                                                                    |                          |



## **Appendix D: Specifications**

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POINT ABINO MUNICIPAL DRAIN  
PROJECT SPECIFICATIONS – SPECIAL PROVISIONS

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## A1. ROLES

The Contractor is responsible for the construction site including all approvals required for compliance with applicable legislation not already completed by the City of Port Colborne.

The City of Port Colborne, further recognized as The Owner, shall be the responsible party for allocating resources in support of construction where required, such as road occupancy permits during construction.

The Drainage Engineer or the Drainage Superintendent shall supervise construction and the Drainage Engineer, Drainage Superintendent or their representative shall respond to any requests by the Contractor and identify any deficiencies between the Contractor's work and the Design documents.

The Drainage Engineer is the responsible designer and will provide technical direction to the Contractor on an as needed and as requested basis from the Drainage Superintendent or their representative.

## A2 ENVIRONMENTAL CONDITIONS AND COMPLIANCE

The Contractor is wholly responsible for the site environmental conditions, compliance with applicable approvals and existing legislation. The Owner will facilitate environmental approvals, but the Contractor shall control the site and be the responsible party for all construction activities.

General requirements to be fulfilled by Contractor:

- a) Department of Fisheries and Oceans, DFO.  
Requirements to protect Fish and Fish habitat.
- b) Endangered Species Act, 2007 ONTARIO REGULATION 230/08  
<https://www.ontario.ca/page/species-risk>
- c) Ontario Water Resources Act, R.S.O. 1990, c. O.40
- d) On-Site and Excess Soil Management, 2019 ONTARIO REGULATION 406/19 Environmental Protection Act
- e) O. Reg. 675/98: Classification and Exemption of Spills and Reporting of Discharges, Environmental Protection Act, R.S.O. 1990

Any other legislation applicable to the jurisdiction of the works.

## A3 CONSTRUCTION LAYOUT

Conditions stipulated in the Niagara Peninsula Standard Contract Document also apply. Failure to comply with these conditions will result in a reduction in payment for this item.

### a) Stakes

Contractor is responsible for setting any layout, alignment or grade control stakes required for construction. A Stake shall be placed to mark every cross-section grade and a second stake shall be placed to mark the limits of the Working Zone. Work Zone Stake shall be 4' wooden stake painted red at the top of the stake. Grade stake shall be placed at the Work Zone Top of Bank. X-Section stakes shall be placed at a maximum spacing of 25m. A recommended spacing shall coincide with the Profile drawings.



Prior to the start of Construction, the Contractor will stake and identify the difference between the existing grade and the design grade. The Drainage Engineer shall review the stakes and the measurement of the soil to be removed. Post Construction, the Contractor shall remove all stakes.

#### **b) Project Signage**

The Contractor is responsible for the installation and removal of all construction signage and is responsible for daily maintenance of all signage throughout the contract.

### **A4 INSTALL AND MAINTAIN SEDIMENT CONTROL DEVICES**

In addition to the conditions stipulated in the Niagara Peninsula Standard Contract Document and OPSS 577, the following shall also apply:

#### **a) SILT FENCE**

Silt fence is to be placed prior to disturbing soil adjacent to the drain that could be carried by runoff into the drain. This excludes the area of the drain where The Contractor is working to re-establish Drain grade and cross-section. It includes areas adjacent to the drain impacted by clearing and grubbing for work access.

Silt fence shall be installed in accordance with OPSD 219.190, except that the minimum height above the invert of the drain shall be 500 mm. Silt fence materials shall be in accordance with OPSS 577.05.02.02 for geotextile and OPSS 577.05.03 for stakes. Stakes shall be 1.5 m minimum height.

The silt fence shall remain in place for the duration of the section that the Contractor is working and the Contractor shall make every effort to maintain it throughout the project. The Contractor shall request Approval from the Engineer or the Drainage Superintendent for the removal of the silt fence once each section of the drain is complete. Prior to the removal of the silt fence, the accumulated silt shall be removed and levelled adjacent to the drain in accordance with the disposal of excavated material section.

#### **b) SEDIMENT BASINS**

Sediment basins have been provided along the length of the drain in an effort to minimize the transport of sediment. The Contractor shall construct the sediment basins in accordance with the construction drawings in the locations indicated. Relocation of sediment basins can only be undertaken upon approval of the Engineer.

The Sediment basin is to be constructed prior to the upstream work and shall be monitored during construction for sediment accumulation and sediment removed if the basin has more than 50% of the 0.5m depth occupied with sediment. Once the upstream work is complete, the Sediment basin shall be converted from Construction to Final as per the Design Detail Drawings. Sediment accumulated during construction shall be removed and disposed of in the manner directed by the Contract.

### **A5 ACCESS & NOTICE**

The City of Port Colborne's Drainage Superintendent or designate shall provide affected landowners with notice of the commencement of construction.

It will be the Contractor's responsibility to inform the various businesses and residences of daily construction impacts in order to reduce/eliminate any problems with parked vehicles that may



interfere with their operations. Ingress & egress to the abutting businesses and residences must be maintained at all times.

The Contractor shall advise the Police Department, Fire Department and Niagara Emergency Medical Service on a daily basis, with current status of the construction as it pertains to the passage of traffic within the contract limits.

The Contractor will co-ordinate with local transit to ensure minimum interruption to bus schedules. Transit, school buses and garbage and recycling service vehicles will be given priority to maintain their schedule.

The Contractor shall also maintain/provide existing pedestrian access at all times to the businesses and residents during all phases of construction in an acceptable manner.

## **A6 AS-CONSTRUCTED DOCUMENTATION**

For the 'as-constructed' works, the Contractor must provide the City of Port Colborne with an electronic version of the final drainage works as surveyed post construction, to be imported into AutoCAD or GIS. This copy must confirm that the design grade and cross-section details for all drainage work and the invert elevations and lengths for all culverts complies with the Engineer's Report. Survey spacing shall be to a minimum of 25m.

All work must be in an acceptable electronic format that the City of Port Colborne can use and all work must be completed using the verified geodetic benchmarks. The submission of the As-Constructed works will be in a common delimited format having the form as follows:

- Numeric key, Northing, Easting, Elevation, Coded identifier & optional description

For the coded identifiers, the City of Port Colborne will provide a table for reference. The City will certify the as-constructed files with respect to their completeness.

Failure to provide a certified as-built file will result in the delay of substantial completion and/or contract completion. In the event that the contractor asks the City to perform the AS CONSTRUCTED SURVEY, then payment for the lump sum item is negated.



## B1 EARTH EXCAVATION

Work under this item shall include the supply of all labour, equipment and materials required for ditch excavation or any other type of excavation or earth work as outlined on the Contract Drawings. Ditch work involves clearing, excavation, leveling, and seeding as required.

Specifications and information on the Contract Drawings shall take precedence over the standard specifications outlined below. The specifications below shall take precedence over the Niagara Peninsula Standard Contract Document Special Provisions B2.

## B2 CONSTRUCTION

### a) Vegetation Removal

All trees, brush, fallen timber and debris shall be moved from the ditch cross-section and to such a distance on each side to eliminate any interference with the spreading of the spoil. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. In wooded or heavily overgrown areas all cleared material may be pushed into piles or rows along the edge of the cleared path and away from leveled spoil. All dead trees along either side of the drain that may impede the performance of the drain if allowed to remain and fall into the ditch, shall be removed prior to excavation and put in piles, unless directed otherwise by the Engineer.

Any tree removed will be offered as wood to the property owner in the form of logs from the trunk where they lay and to be moved from the site by the owner at their expense. Tree tops shall be cut and limbs stacked as piles adjacent to the drain and within the work zone.

### b) Excavation

The bottom width and the side slopes of the ditch shall be as shown on the profile(s) and/or cross-sections on the Contract Drawings. Side slopes are normally one and one-half metre horizontal to one metre vertical (1.5:1) unless otherwise noted on the Contract Drawings. If a bottom width is not specified then any excavation required shall be from the bottom of the ditch without disturbing the bank slopes subject to the clearing of brush required as described in a).

### c) Profile

The profile(s) on the Contract Drawings show the depth and grade for the drain improvements. The description and elevation of benchmarks that were established during the survey are shown on the profile(s) in the location for each benchmark.

### d) Line

The drain shall follow the course of the existing channel and/or shall be constructed in a straight line as outlined on the Contract Drawings. A uniform grade shall be maintained in accordance with the profile(s). A variation of one hundred millimeters (100mm) above the required grade will require the Contractor to remedy the grade to that given on the profile. The Contractor may be required to backfill any portion of the ditch that is excavated more than two hundred millimeters (200mm) below the required grade. All curves shall be made with a minimum radius of fifteen metres (15m).

### e) Excavated Material

Excavated material (spoil) shall be deposited on either or both sides of the drain as directed on the Contract Drawings. Spoil upon excavation shall be placed a minimum one (1) metre back from the top of the bank, either existing or new. No excavated material shall be placed in tributary drains, depressions, or low areas, which direct or channel water into the ditch so that



no water will be trapped behind the spoil bank. The excavated material shall be placed and leveled to a maximum depth of three hundred millimeters (300mm); unless otherwise instructed. The edge of the spoil bank away from the ditch shall be feathered down to existing ground. The edge of the spoil bank nearest the ditch shall have a maximum slope of 2:1. The material shall be leveled such that it may be cultivated with ordinary equipment without causing undue hardship on farm machinery and farm personnel. Wherever clearing is necessary prior to leveling, the Contractor shall remove all stumps unless the Contract Drawings specify that stumps can be covered with the leveled spoil. No excavated material shall cover any logs, brush or rubbish of any kind. Large stones or boulders in the leveled spoil that are heavier than fifteen kilograms (15kg or approximately 300mm in size roughly referred to as man stone or the size of a stone that a single person can carry.) shall be moved to the edge of the leveled spoil nearest to the ditch but in general no closer than one metre (1) to the top of bank.

Where it is necessary to straighten any unnecessary bends or irregularities in the alignment of the ditch or to relocate any portion of an existing ditch, the excavation from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and old ditch, no extra compensation will be allowed for this work.

If the Contractor obtains written permission from an affected landowner stating that the owner does not wish the spoil to be leveled and such is approved by the Engineer, the Engineer may release the Contractor from the obligation to level the spoil. If spoil is not leveled that was to be leveled as part of the Contract, the Engineer shall determine the credit to be applied to the Contractor's payment. No additional compensation is provided to the owner if the spoil is not leveled.

If the affected landowner requests that the spoil be removed from the site instead of being spread adjacent to the drain within the work zone or that the grading requirement is to a higher standard than suitable for agricultural cultivation, then the Contractor shall provide trucking of the spoil including disposal at a suitable site or additional grading and shall provide the Drainage Superintendent with the specific costs for each landowner who requests such work. The Engineer shall assess the cost of the trucking of spoil to the landowner making such request.

The Engineer may require the Contractor to obtain written statements from any or all of the landowners affected by the leveling of the spoil. A written statement from the owners indicating their complete satisfaction with the leveling of the spoil is sufficient to comply with this specification. The final decision, with respect to leveling of the spoil, shall be made by the Engineer.

**f) Excavation Through Woodlots**

The Contractor shall minimize disturbance through woodlots by reducing the limit of excavation to the bottom width of the drain and a minimum side slopes. The drain shall be routed around existing trees at the direction of the Drainage Superintendent or where requested by the Engineer.

Prior to performing work through a woodlot, the Contractor in coordination with the Drainage Superintendent shall mark all trees for preservation or removal within the Drain or Workzone. This mark will consist of a physical identification that will be easily understood by the landowner and consist of either colour ribbons or specific paint markings (green to keep, red mark of an 'X' for removal).



**g) Excavation at Bridge and Culvert Sites**

The Contractor shall excavate or clean through all bridges and culverts to match the grade line and the downstream channel cross-section. Bridges that span from bank to bank may be carefully removed to permit excavation below the bridge and then replaced to original condition. Permanent bridges must be left intact. All necessary care and precautions shall be taken to protect the structure. The Contractor shall notify the Engineer before completing excavation in the area of a bridge or culvert if the excavation will expose the footings or otherwise cause bridge instability.

Where the invert of any pipe culvert is above the grade line, the Contractor will be required to remove the culvert, clean and relay it, so that the invert of the culvert is one hundred and fifty millimetres (150mm) below the grade for the ditch bottom at this location.

**h) Obstructions**

In all cases, the Contractor shall ensure that the finished drain is clear of obstructions to flow. The contractor will ensure that trunks are cut flush and that any debris or snags are removed as part of the bid price.

**i) Fences and private furniture or equipment**

The contractor will use the identified work zone for access and shall restore any fences to an equivalent or better condition than before construction. Where possible the Contractor shall preserve existing fences, private equipment and furniture in place but where it must be moved, the Contractor shall in all cases restore to a like or better condition than existed before construction.

**j) Tile Outlets**

The location of all existing tile outlets may not be shown on the profile for the drain. The Contractor shall contact each owner and ensure that all tile outlets are marked prior to commencing excavation on the owner's property. If a marked tile outlet is damaged during, or altered due to construction, the Contractor shall repair or replace the damaged or altered outlet as part of the Contract. If an existing outlet pipe does require replacement the Contractor shall confirm the replacement outlet pipe with the Engineer. All tile outlets identified are considered part of the bid work.

Additional payment will be allowed for the repair or replacement of any unmarked tile outlets encountered during excavation. Where stone or concrete riprap protection exists at any existing tile outlet such protection shall be removed and replaced as necessary to protect the outlet after reconstruction of the channel.

If any outlet becomes plugged as a result of construction, the Contractor shall be obligated to free such outlet of any impediments. Where any damage results to tile leading to and upstream of the outlet, as a consequence of such construction, the Engineer may direct the Contractor to repair such tile and shall determine a fair compensation to be paid to the Contractor for performing the work.



### B3 INSTALLATION OF NEW CULVERT

Work under this item shall include the supply of all labour, equipment and materials required for supply and installation of culverts as outlined on the Contract Drawings. The Niagara Peninsula Standard Contract Document Special Provision B7 shall apply but the specifications and information on the Contract Drawings shall take precedence over Special Provision B7.

The size and material for any new ditch crossings shall be as specified on the Contract Drawings. Any crossings assembled on-site shall be assembled in accordance with the manufacturer's specifications for on-site assembly.

Where a new crossing replaces an existing crossing the following shall apply:

If directed on the drawings that the existing crossing is to be salvaged for the owner the Contractor shall carefully remove the existing crossing and leave along the ditch or haul to a location as specified on the Drawings.

If the existing crossing is not to be saved then the Contractor shall remove and dispose of the existing crossing. Disposal by burying on-site is not permitted.

All new pipe crossings shall be installed a minimum of 100mm below design grade (not as-constructed grade) or at the invert elevations as specified on the Drawings. If the ditch is over excavated greater than 200mm the Contractor shall confirm with the Engineer the elevations for installation of the new pipe crossing.

When an existing crossing is being replaced the contractor shall save all granular and riprap. New crossings can be backfilled with compacted on-site native material that is free of large rocks or stones. Contractor responsible for any damage to a culvert pipe as a result of rocks or stones in the backfill.

All new crossings shall have a minimum 6m laneway width and end slopes shall be at 1:1 slope or flatter. Finished crossing elevation shall provide a minimum of 300mm cover. Finished crossing surface shall be a minimum 150mm depth of Granular A for the minimum 6m width and extending from top of bank to top of bank using salvaged granular or imported granular as required.

Installation of private crossings during construction must be approved by the Engineer before the culvert is installed.

Where riprap protection is called for at either or both ends of a new culvert, such riprap shall be in accordance with Special Provision B4.

Payment will be based on plan quantity.

Riprap to be adequately keyed in along the bottom of the slope. Riprap to extend to top of pipe or as directed on the Drawings. No riprap is required in the ditch bottom on the upstream side of a crossing. If riprap is required in the ditch bottom on the downstream side of a crossing it shall be specified on the Drawings. Any new end face slope not protected by riprap shall be seeded as per specifications for ditch bank seeding.

### B4 HAND LAND RIP RAP WITH FILTER CLOTH

Rip rap complete with filter fabric underlay (geotextile) shall be placed by the Contractor at the locations shown on the drawing or as requested by the Drainage Superintendent. Rip rap shall consist of 200 – 250 mm dia. stones (min.) and shall be placed at 300 mm minimum thickness.



## Point Abino Drain

## Special Provisions

Along upstream edges, where surface water will enter the drain, the underlay shall extend a minimum of 300 mm upstream from the rip rap and be keyed into the soil a minimum of 300 mm. The finished elevation of the rip rap shall be at design elevation or flush with the ground.

Work under this item shall include the supply of all labour, equipment and materials required for placing riprap as outlined on the Contract Drawings. The Niagara Peninsula Standard Contract Document Special Provision B20 shall apply but the specifications and information on the Contract Drawings shall take precedence over Special Provision B20.

## B5 TREE PLANTING

All trees supplied are to be Carolinian Forest or understory native species consistent with Niagara Region.

<https://www.ontario.ca/page/tree-atlas/ontario-southwest>

There will be a 1 year warranty on tree survivability.



## B6 BANK RESTORATION

Bank restoration extent is to the identified location indicated on plans and by the Drain Superintendent. Offset stakes are required prior to the commencement of construction. Inspection of the offset stakes is required prior to any work commencing along with the submittal of required environmental approvals.

### B6.1 'IN WATER WORK'

All in-water and near water works will be conducted in the dry with appropriate erosion and sediment controls.

The erosion and sediment control strategies outlined on the plans are not static and may need to be upgraded/amended as site conditions change to minimize sediment laden runoff from leaving the work areas. If the prescribed measures on the plans are not effective in preventing the release of deleterious substance, including sediment, then alternative measures must be implemented immediately to minimize potential ecological impacts. NPCA enforcement officer should be immediately contacted, additional ESC measures such as a tarp to be kept on site and used as necessary.

An environmental monitor will attend the site to inspect all new controls, as well as on a regular basis, or following rain/snowmelt event, to monitor site conditions.

All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicular refueling and maintenance will be conducted a minimum of 30 metres from the water.

All grades within the Regulatory Flood Plain will be maintained, matched or as specified.

The Proponent/Contractor shall monitor the weather several days in advance of the onset of the project to ensure that the works will be conducted during favourable weather conditions. Should an unexpected storm arise, The Contractor will remove all unfixed items from the 100 year storm flood plain that would have the potential to cause a spill or an obstruction to flow; e.g. fuel tanks, porta-potties, machinery, equipment, construction materials, etc.

All dewatering/unwatering shall be treated and released to the environment at least 30 metres from a watercourse or wetland and allowed to drain through a well vegetated area. No dewatering effluent shall be sent directly to any watercourse, wetland or forest or allowed to drain onto disturbed soils within the work area. These control measures shall be monitored for effectiveness and maintained or revised to meet the objectives of preventing the release of sediment laden water.

All access to the work site shall be from either side of the watercourse. No equipment or vehicles are permitted to cross through the watercourse unless approved by the NPCA.

Fish and wildlife stranded within the work area shall be captured and released in a live suitable habitat upstream of the work area under the supervision of a qualified aquatic biologist. A permit from the Ministry of Environment (MOECP) may be required. The contractor is responsible for organizing any wildlife removal, if required.

Please notify NPCA enforcement officer and an NPCA project Manager 48 hours prior to commencing construction.

An environmental monitor will be on site, and provide advice, to ensure that activities that could have a negative impact to the natural environment are effectively mitigated as construction proceeds. The



environmental monitor shall notify the NPCA enforcement officer and the project manager if an issue arises.

Additional ESC measures or devices may be deemed necessary as site conditions change and shall be installed as directed by the Site Engineer, Contract Administrator or NPCA.

## **B6.2 LIVE STAKES AND NATIVE PLANT MATERIALS**

Contractor to make good any and all damages outside of the work area that may occur as a result of construction at no extra cost.

Tree removals are to occur outside of the active period for bats (April 1<sup>st</sup> to August 31<sup>st</sup>) to avoid impacts to species at risk, including bats, birds, and Fowlers Toad. Contractor shall ensure the site complies with The Endangered Species Act.

Construction to occur during the warm water construction timing window of July 15 – March 15. No in water works to occur between March 15 and July 15. Construction timing windows are subject to DFO conditions for approval.

Quantity to be determined based on area of disturbance to be restored.

Live stakes should be from a minimum 2-year-old stock. Live stakes are to be installed at a density of 3 stakes per metre. Live stakes should be pre-soaked (submerged in water) for at least 24 hours after harvesting and immediately before installation.

Live stakes should not be stored for a period longer than 2 days, unless they are being soaked. The contractor shall protect plant materials from drying from the time of harvest until installed.

Live stakes are to be a minimum of 25mm in diameter and cut to a length of 1000mm. Cut angle at the bottom of the stake and flat on top. Trim all side branches while taking care not to damage the bark.

Install live stakes with the buds pointing upwards and thicker stem in the ground.

Live stakes should be installed using a large rubber mallet. 80% of the stake is to be below the surface. Tamp the live stake into the ground at right angle to the surface.

In compact soil a pilot hole should be used to limit damage to the stakes. If using a pilot hole, repack the soil around the live stake. Live stakes should stand firm in the soil following installation.

All stakes not planted to the specifications above will be replaced at the contractor's expense.

## **B6.3 EROSION CONTROL BLANKET**

A Biodegradable erosion control blanket (ECB) shall be installed on all disturbed natural surface following the placement of topsoil and application of the native seed mix.

The ECB must be constructed of 100% woven coconut fibre (eg coir) or straw mat within a geo jute netting (top and bottom) with biodegradable thread. Non - biodegradable material including polypropylene or plastic with a biodegradable rating are not acceptable. The minimum weight of the ECB must be 400g/m<sup>2</sup> (12 oz/yd<sup>2</sup>).



To install, the ECB must be unrolled downslope or in the direction of the water flow. Adjacent ECBs should overlap a minimum of 150mm along the edges. at the end of each roll, fold back 100mm to 200mm of the ECB. Overlap this 100mm to 200mm over the start of the next roll. Secure the two layers to the ground securely.

Biodegradable or tapered wooden stakes shall be used to secure the blanket. Stakes shall be installed at the spacing recommended by the ECB manufacturer to prevent surface runoff from eroding the underlying soil.

## **B.7 POINT ABINO DRAIN MECHANICAL ADDITIONS**

The following are items of equipment to be added to the POINT ABINO Outlet Structure.

In all cases, the Contractor must confirm all dimensions and fit for all equipment prior to commencing work or ordering parts and equipment to be supplied on the project.

All welds shall be continuous unless shown otherwise.

All welding shall conform to CSA Standard W47.1 and W59.

The Contractor shall submit shop drawings for the fabrication of the beams, railings, inlet grates, outlet flap gate, and all other steel members for the engineer's review prior to ordering the materials.

All steel components (not galvanized) shall have one coat marine primer and two finish coats of selected final paint. Selected paint colour to be as directed by the Drainage Superintendent.

Hot dip galvanized after fabrication to CSA standard G164M.

### **B7.1 POINT ABINO RD CULVERT RECTANGULAR FLEX FACE FLAP GATE**

The contractor is to remove the existing steel flap gates. The two flap gates are to be reconfigured into a single flap gate with a 300mm extension welded to the bottom of the steel frame. The existing steel plate is to be removed from the two gates and a single vulcanized rubber face 12 to 18mm thick sheet is to be fastened to the new 3000x1500 steel frame using stainless steel fasteners.

Stainless steel fasteners to use refuse pull out from the vulcanized rubber face with bolt diameter 9mm (3/8) on a spacing to match the midpoint of each structural steel frame member. Contractor to supply shop drawing detailing the stainless steel bolt plan.

### **B7.2 POINT ABINO RD CULVERT RECTANGULAR TRASH RACK**

The Contractor is to install a vertically mounted steel grate on the face of the entrance to the Pre-Cast Concrete culvert crossing Point Abino Rd. Steel flat bars are to be vertical with structural supports such that no opening in the grate is greater than 100mm.

The installed grate shall be removable for the purposes of maintenance and/or inspections of the culvert. The Contractor is to provide lifting lugs as appropriate for removing the trash rack.

The trash rack shall be 150mm wider on each side and 100mm taller than the concrete culvert opening (obvert), 3000x1500, and match the bottom opening.



**B7.3 TENNIS LANE TRIPLE CULVERT RECTANGULAR TRASH RACK**

Steel flat bars are to be vertical with structural supports such that no opening in the grate is greater than 100mm.

The installed grate shall be removable for the purposes of maintenance and/or inspections of the culvert. The contractor is to provide lifting lugs as appropriate for removing the trash rack.

The trash rack shall be 150mm wider on each side and 100mm taller than the concrete culvert opening (obvert), 3000x1500, and match the bottom opening.

The Contractor to supply shop drawing detailing the trash rack fixed points to the proposed concrete headwall, and how the trash rack can be removed (lifting lugs placement).

**B8 INSTALLATION OF PRE-CAST CULVERTS**

All work on the proposed Pre-Cast Concrete culvert at the Point Abino Drain outlet is to follow Precast Reinforced Concrete Box Culverts and Box Sewers in Open Cut, OPSS.MUNI 422.

**B8.1 Installation of New Precast Culvert, PAM-CS-20 3000x1500**

The Culvert end facing the lake will be a special configuration in order to support mounting hardware for the modified steel flap gate.

Culvert end facing the lake to include wing walls with bottom slab as precast concrete structure or Cast in place (CIP) as per shop drawing submittal.

**B8.2 Installation of New Precast Culvert PAM-CS-05**

The precast culvert is to have the same segments as the Point Abino Rd crossing culvert. The culvert will achieve a top crossing width suitable for a single lane vehicle crossing. The crossing will provide railings, guardrails to prevent a vehicle travelling 20km/hr from driving off of the lane.



## C1 COMPLETION

At the time of final inspection, all work in the contract shall have the full dimensions and cross-sections specified.

Payment is for all work complete on the basis of a measured linear distance inclusion of all items identified above. Where a culvert is removed and reinstalled, compensation shall be in the form of a per each payment. Where a tile is discovered and constructed as an outlet, compensation will be in the form of a per each payment for tile outlets repaired.

## C2 AS-CONSTRUCTED DOCUMENTATION

For the 'as-constructed' works, the Contractor must provide the City of Port Colborne with an electronic version of the final drainage works as surveyed post construction, to be imported into AutoCAD or GIS. This copy must confirm that the design grade and cross-section details for all drainage work and the invert elevations and lengths for all culverts complies with the Engineer's Report. Survey spacing shall be to a minimum of 25m.

All work must be in an acceptable electronic format that the City of Port Colborne can use and all work must be completed using the verified geodetic benchmarks. The submission of the As-Constructed works will be in a common delimited format having the form as follows:

Numeric key, Northing, Easting, Elevation, Coded identifier & optional description

For the coded identifiers, the City of Port Colborne will provide a table for reference along with an example file from a past project for comparison. The City will certify the as-constructed files with respect to their completeness.

Failure to provide a certified as-built file will result in the delay of substantial completion and/or contract completion. In the event that the contractor asks the City to perform the AS CONSTRUCTED SURVEY, then payment for the lump sum item is negated.

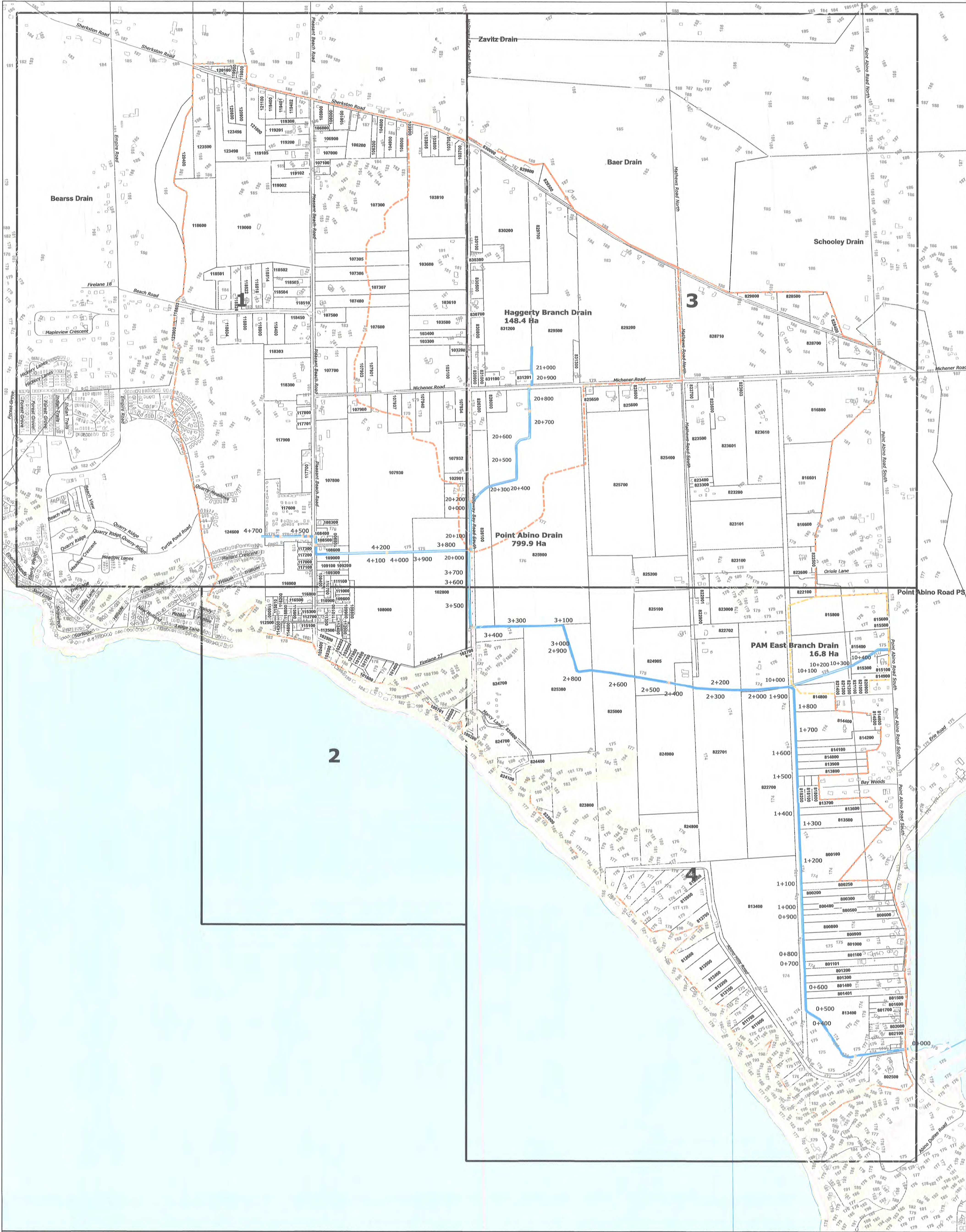
A4 PAYMENT; Payment in full at the lump sum bid price for this item shall be made only upon completion and approval by the Contract Administrator.



**Appendix E:**  
**Assessment Atlas**

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Scale: 1:7,500

# Point Abino Drain

**LEGEND**

- Contours\_2020DTM\_NPC
- Assess\_map\_A1\_3500\_2
- PtAbino\_catch
- Haggerty Branch Drain
- PAM East Branch Drain
- Point Abino Drain
- crossings

East Branch and Haggerty CL DXF

entities

— C-ROAD-CNTR

DRAIN CL Riparian Chainage DXF

entities

— C-ROAD-CNTR

Municipal\_Boundary\_-\_Lower\_and\_Single\_Tier

— Roads

2025\_updated Parcel

CoPC\_PAM\_watershed

ToFFE\_PAM\_watershed

ROW\_PA

40

70

90

80

BuildingFootprints

Regulated\_Shoreline\_Extent

Lake\_Canal

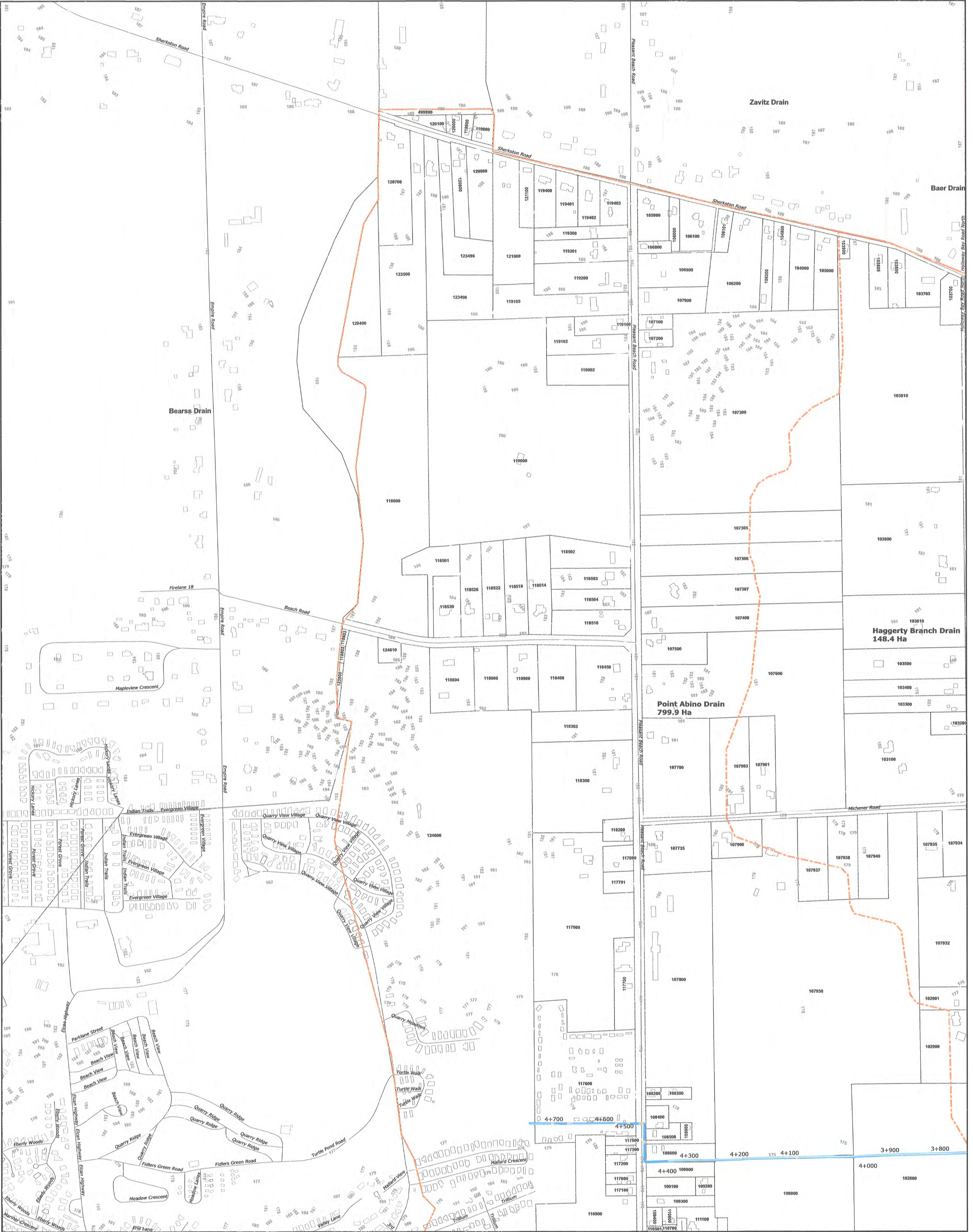
adj\_catch

**Watershed Assessment Map**

## Overview Page

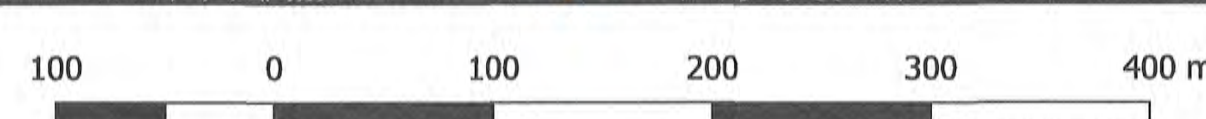
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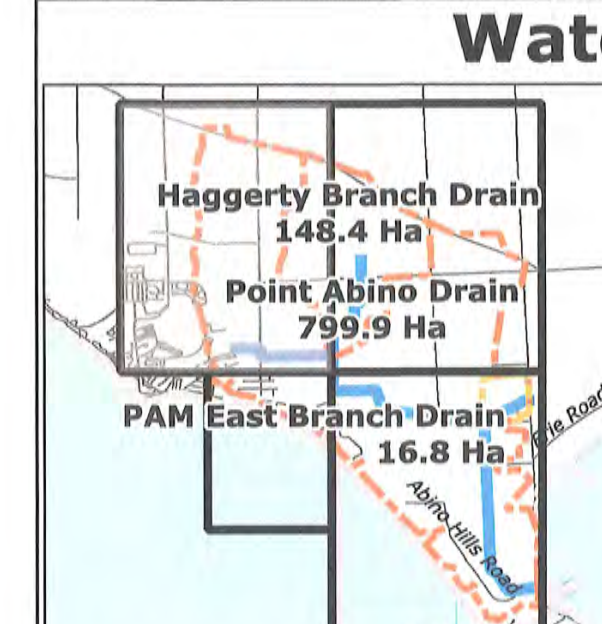
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### LEGEND

|                       |                                              |                     |                            |
|-----------------------|----------------------------------------------|---------------------|----------------------------|
| Contours_2020DTM_NPCA | DRAIN CL Riparian Chainage DXF               | 2025_updated Parcel | BuildingFootprints         |
| Assess_map_A1_3500_2  | entities                                     | CofPC_PAM_watershed | Regulated_Shoreline_Extent |
| PtAbino_catch         | — C-ROAD-CNTR                                | ROW_PA              | adj_catch                  |
| Haggerty Branch Drain | — Municipal_Boundary_-_Lower_and_Single_Tier | 40                  |                            |
| Point Abino Drain     | — Roads                                      | 70                  |                            |
| crossings             |                                              | 90                  |                            |

### Watershed Assessment Map



# Page 1

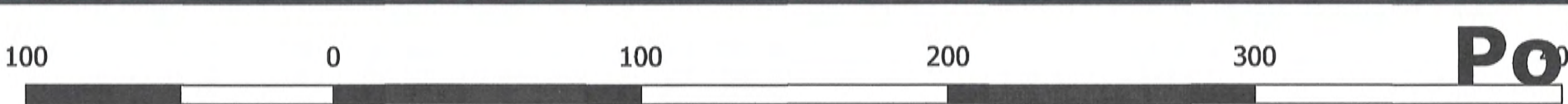
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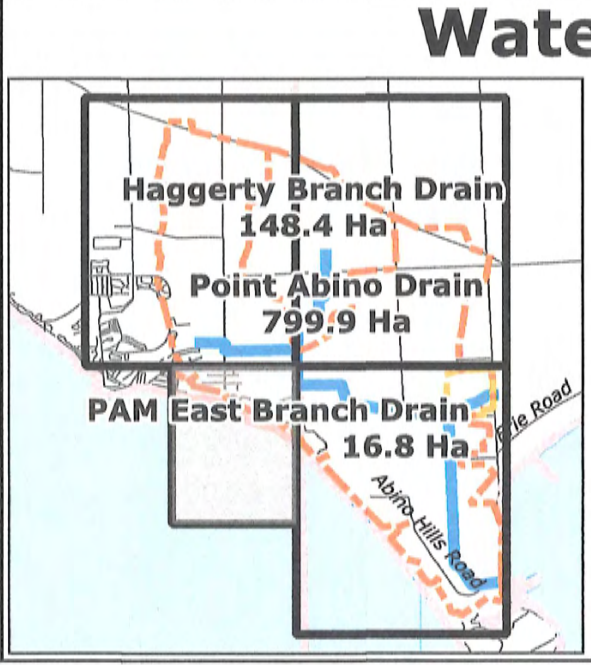


# Point Abino Drain

**LEGEND**

|                       |                                                   |                               |
|-----------------------|---------------------------------------------------|-------------------------------|
| Contours_2020DTM_NPCA | Municipal_Boundary_-_Lower_and_Single_Tier_ROW_PA | BuildingFootprints            |
| Assess_map_A1_3500_2  | Roads                                             | 40 Regulated_Shoreline_Extent |
| PtAbino_catch         | 2025_updated Parcel                               | 70 Lake_& Canal               |
| Point Abino Drain     | CofPC_PAM_watershed                               | 90                            |

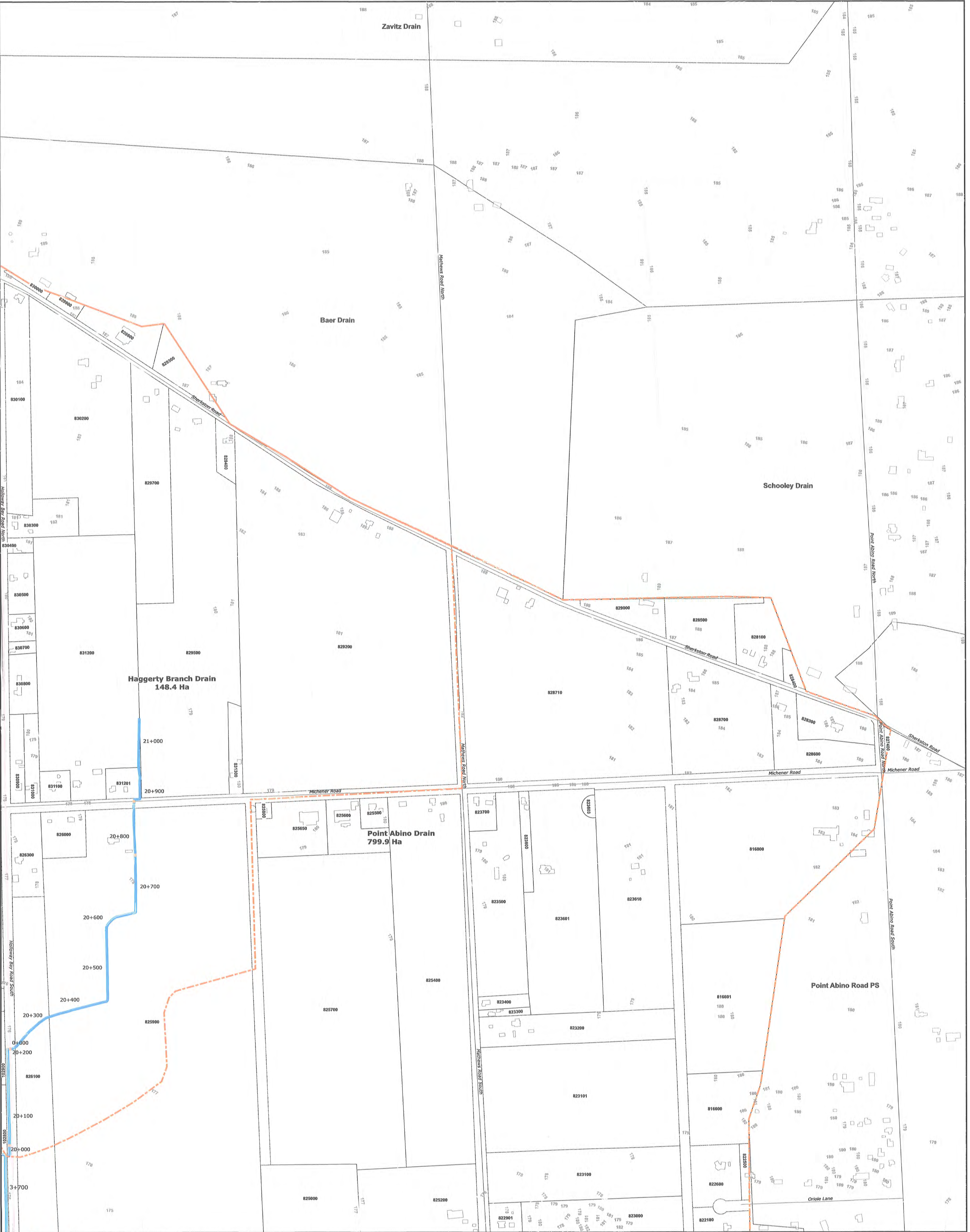
## Watershed Assessment Map



# Page 2

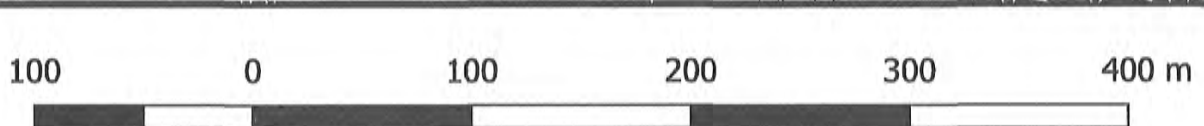
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Scale: 1:3,500



### Point Abino Drain

**LEGEND**

Contours\_2020DTM\_NPCA

Assess\_map\_A1\_3500\_2

Ptalbino\_catch

Haggerty Branch Drain

Point Abino Drain

crossings

East Branch and Haggerty CL DXF

entities

C-ROAD-CNTR

DRAIN CL Riparian Chainage DXF

entities

C-ROAD-CNTR

Municipal\_Boundary\_-\_Lower\_and\_Single\_Tier

Roads

2025\_updated Parcel

CoPC\_PAM\_watershed

ToFFE\_PAM\_watershed

BuildingFootprints

adj\_catch

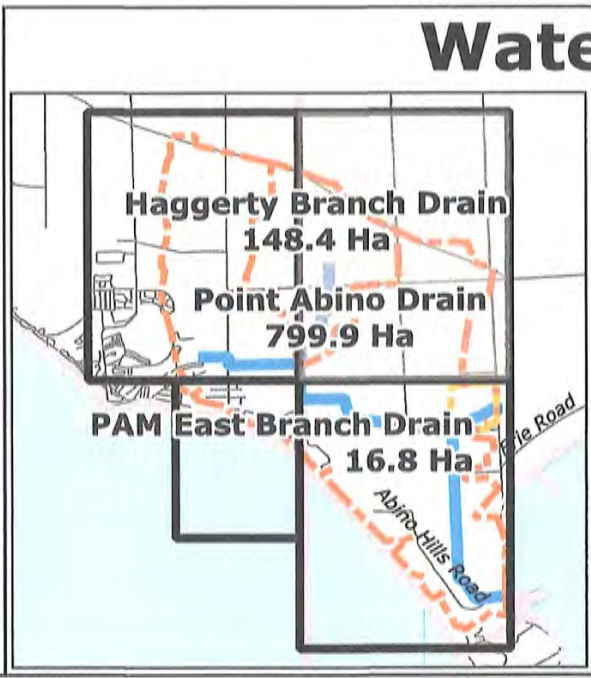
ROW\_PA

40

70

90

80



**Watershed Assessment Map**

Haggerty Branch Drain  
148.4 Ha

Point Abino Drain  
799.9 Ha

PAM East Branch Drain  
16.8 Ha

# Page 3

Printed on: 2025-04-08







Scale: 1:3,500



### LEGEND

Contours\_2020DTM\_NPCA

Assess\_map\_A1\_3500\_2

PtAbino\_catch

PAM East Branch Drain

Point Abino Drain

crossings

East Branch and Haggerty CL DXF entities

C-ROAD-CNTR

DRAIN CL Riparian Chainage DXF entities

C-ROAD-CNTR

Municipal\_Boundary\_-\_Lower\_and\_Single\_Tier

Roads

2025\_updated Parcel

CofPC\_PAM\_watershed

ToFFE\_PAM\_watershed

ROW\_PA

40

70

90

80

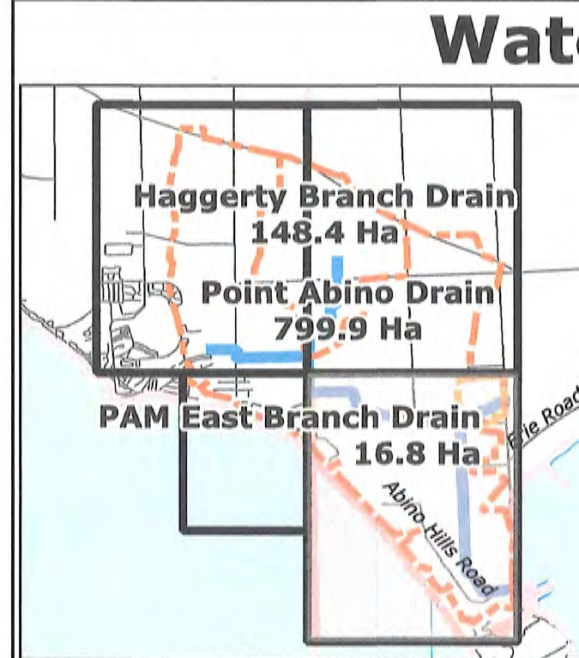
BuildingFootprints

Regulated\_Shoreline\_Extent

Lake & Canal

adj\_catch

### Watershed Assessment Map



Haggerty Branch Drain 148.4 Ha

Point Abino Drain 799.9 Ha

PAM East Branch Drain 16.8 Ha

# Page 4

Printed on: 2025-04-08