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ENGINEER'S REPORT

(Drainage Act, RSO 1990, c. D.17)

PROJECT Moroun Pumping Scheme Improvements

(Geographic Township of Gosfield South) Town of Kingsville, County of Essex **Project No. D21-118**

June 21, 2024

N.J. Peralta Engineering Ltd. 45 Division Street North Kingsville, ON N9Y 1E1 519-733-6587 peraltaengineering.com This page has been intentionally left blank



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MUNICIPAL DRAINS AND THE DRAINAGE ACT

The "Drainage Act" is one of the oldest pieces of legislation in Ontario, passed in 1859. It provides a democratic procedure for the construction, improvement and maintenance of drainage works. A procedure whereby the Municipality may assist in providing a legal drainage outlet for surface and subsurface waters not attainable under common law. Accordingly, provides much-needed assistance to facilitate the problems of obtaining a legal drainage outlet, engineering and cost distribution.

The Drainage Act provides a legal procedure by which an "area requiring drainage" may receive an outlet drain constructed to dispose of excess stormwater runoff to a sufficient outlet. This drainage infrastructure is otherwise known as a "Municipal Drain". Municipal Drains are identified by Municipal By-Law that adopts an Engineer's Report. The drainage engineer has the obligation to prepare an unbiased Engineer's Report based on information presented in written form, orally, and from visual inspection; in accordance with currently accepted design criteria. These reports form the legal basis for construction and management of the Municipal Drain. As such, an Engineer's Report shall contain specific details such as plans, profiles, and specifications that define the location, size and depth of the drainage infrastructure, together with establishing how costs are shared amongst all stakeholders.

Through the democratic procedure, the Engineer's Report is presented to all Stakeholders in front of Municipal Council (or a Drainage Board appointed by Council) for consideration. The Drainage Act provides an appeal process to address various aspects of Municipal Drains. These appeal bodies are the Court of Revision, the Ontario Drainage Tribunal and the Drainage Referee.

For additional information, Fact Sheets, and reference materials regarding the Drainage Act and Municipal Drains, please visit: <u>http://www.omafra.gov.on.ca/english/landuse/drainage.htm</u>

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TABLE OF CONTENTS

I.	Introduction	2
II.	Background and Watershed Characteristics	2
III.	Drainage History	3
IV.	Project Initiation and Environmental Concerns	4
V.	Environmental Pre-Consultation/Scoping Meeting	4
VI.	Preliminary Investigations and On-Site Meeting	7
VII.	Field Survey, Investigations, and Biological Consultation	
VIII.	Design Considerations and Hydraulic Analysis	
IX.	Preliminary Design and Further Consultation	
Х.	Findings and Recommendations	14
XI.	Allowances and Compensation	
XII.	Estimate of Cost	
XIII.	Drawings and Specifications	
XIV.	Construction Schedule of Assessment Details	
XV.	Future Maintenance	23
	Construction Schedule of Assessment	
	Standard Specifications – General	SSG-1 to SSG-8
	Special Provisions	SP-1 to SP-10

APPENDICES

Appendix "A" – Environmental Considerations

Appendix A-1 – ERCA Correspondence Appendix A-2 – DFO Authorization Appenidx A-3 – Seed Mix

Appendix "B" – Design Drawings – Sheets 1 to 5

Appendix "C" – Future Maintenance Schedules of Assessment

Appendix C-1 – Pump Station and Auxilary Gravity Outlets Appendix C-2 – Flood Protection Dyke This page has been intentionally left blank



ENGINEER'S REPORT

PROJECT M

Moroun Pumping Scheme Improvements

(Geographic Township of Gosfield South) Town of Kingsville, County of Essex **Project No. D21-118**

June 21, 2024

Mayor and Municipal Council

Corporation of the Town of Kingsville 2021 Division Road North Kingsville, Ontario N9Y 2Y9

I. INTRODUCTION

In accordance with the instructions received by email of December 15, 2022, from the Town of Kingsville, we have completed the necessary survey, examinations, investigations, etc. and have prepared the following report that provides for the drainage improvements to the Moroun Pumping Scheme. The request for improvements was submitted to conduct the necessary review and implementation of drainage works to facilitate the creation of a wetland within the lands currently owned by the Essex Region Conservation Authority (280-28310) in Lots 20 through 23, Concession 1 Western Division (WD). These investigations were initiated by a resolution passed by Council for our firm to undertake the preparation of an Engineer's Report for the works within this drain, in accordance with the Drainage Act. Drawings showing the existing components and location of the Moroun Pumping Scheme, and the general details of the proposed works, are included herein as part of this report.

The initial request was submitted by Kevin Money (Director of Conservation Services), representing the Essex Region Conservation Authority (280- 28310), to provide an Engineer's Report for the required drainage improvements to facilitate the subject property.

Our appointment and the works related to the improvements to the Moroun Pumping Scheme, proposed under this report, are in accordance with Section 78 of the "Drainage Act, RSO 1990, Chapter D.17, as amended in 2021". We have performed all of the necessary surveys, investigations, etc., for the Moroun Pumping Scheme, and we report thereon as follows.

II. BACKGROUND AND WATERSHED CHARACTERISTICS

The Essex Region Conservation Authority (ERCA) has developed a Management Plan for ERCA-owned Cedar Creek properties. The purpose of the Cedar Creek Properties Management Plan is to protect an outstanding natural landscape while providing compatible visitor use opportunities. This plan has been initiated with the goals of protecting and conserving ecological values, managing biodiversity, protecting aquatic and terrestrial habitats, connecting communities, and restoring landscapes.

The subject lands associated with this project are identified by ERCA as the "Armstrong property". The Armstrong property is one of the larger areas of natural cover within the Cedar Creek Area of Natural and Scientific Interest (ANSI). The site is located north of Essex County Road 50, approximately one (1) kilometre west of the McCain Side Road. The property is bordered on the north by Cedar Creek and along the south by County Road 50. The property is adjacent to privately owned agricultural lands on its west boundary and bounded by privately owned agricultural and residential properties on its south boundary.

The southeastern corner of the subject property was formerly part of the original river delta marsh which formed in the area at the Cedar Creek mouth prior to flowing out into Lake Erie (riverine at mouth marsh wetland type). In this area, soils are classified as Marsh (Ma). This soil type is described as low-lying areas subject to flooding; covered with water most of the year. Typography and drainage associated with this soil type are very flat with very poor natural drainage. Due to its conversion to agriculture, these soils no longer exhibit marsh characteristics but are most likely similar to areas associated with Cedar Creek which have soils which are classified as Bottom Land (B.L.). These areas are described as low-lying land along stream courses; subject to occasional flooding; with variable texture, undulating topography and variable drainage.

The Moroun Pumping Scheme is an existing Municipal Drain that services approximately 300 hectares (741 acres) of primarily agricultural lands. This watershed extends through Lots 20 through 36, Concession 1 WD within the Town of Kingsville and the Town of Essex. The Moroun Pumping Scheme resides within the subject property and is further located within the Cedar Creek watershed. This Municipal Drain has a direct connection to and provides protection from, the Cedar Beach Canal that is associated with Lake Erie. This Municipal Drain serves as the primary drainage outlet for the Adams Drain and Ford Road Drain tributaries and discharges runoff via a pump station and auxiliary gravity outlets directly into the Cedar Beach Canal. The Moroun Pumping Scheme also includes a 763-metre-long drainage channel and earthen dyke along the north side of the Cedar Beach Canal, located north of the residential lots along County Road 50, in Registered Plan 1425.

With the implementation of the Moroun Pumping Scheme, the subject Armstrong property remains protected from the impacts of Cedar Creek and Lake Erie with the intention to be utilized for agricultural purposes. With the lands now under the control of ERCA, they have identified these lands as an ideal area to re-instate as a wetland through their management plan.

III. DRAINAGE HISTORY

A review of the Town of Kingsville's drainage records indicates that the Moroun Pumping Scheme is an existing Municipal Drain that has been created through the provisions of the Drainage Act. We found that the Engineer's Report prepared by W. J. Setterington, P.Eng., dated June 15, 1981, passed through Municipal By-Law No. 445, serves as the initial By-Law, as petitioned for by the affected landowners. This report provided for the initial construction and installation of a new pump station, drainage channel, and earthen flood protection dyke along the Cedar Beach Canal through the provisions of the Drainage Act. The primary purpose of this report was to reinstate and protect the affected agricultural land from high lake levels.

In addition to the original Moroun Pumping Scheme report and by-law, a report titled "Adams Drain and Extension, Ford Road Drain, and Moroun Pumping Scheme" was prepared by N.J. Peralta, P.Eng., dated August 25th, 2010 and passed through Municipal By-Law No. 151-2010. The report was prepared primarily

for the improvements and extension of the Adams Drain and Ford Road Drain. However, these improvements ultimately affected the watershed area of the Moroun Pumping Scheme and required an updated Maintenance Schedule of Assessments that formed part of this report.

We have utilized the above-mentioned reports to verify the general parameters of the Municipal Drain, together with verifying the watershed limits and the flow parameters for the proposed drain improvements as part of this report.

IV. <u>PROJECT INITIATION AND ENVIRONMENTAL CONCERNS</u>

In late 2021, the existing earthen dyke along the north side of the Cedar Beach Canal, forming part of the Moroun Pumping Scheme, had failed and ultimately flooded a large portion of the lands currently owned by the Essex Region Conservation Authority (280-28310). As a part of the Municipal Drain infrastructure, the dyke failure was repaired through the maintenance processes of the Drainage Act. However, with the lands no longer in agricultural production, the lands remained flooded long after the dyke was repaired. Near the end of 2022, Kevin Money contacted the Town of Kingsville to initiate the Drainage Act process to permanently remove the subject lands from the Moroun Pumping Scheme watershed.

In March of 2023, the Moroun Pump was inadvertently activated to lower water levels in the surrounding agricultural lands to the west. With the ERCA lands remaining flooded, the lowering of the water level of the Moroun Pumping Scheme watershed exposed various fish and mussels within the flooded area and located along the perimeter of the flooded ERCA lands. With the exposure and potential harm to the aquatic life, DFO was contacted and attended the site. The DFO Officer had requested that no further pumping be conducted and the lands re-flooded until a time when sufficient information has been reviewed by the DFO to establish an appropriate course of action to continue the use of the Moroun Pump. The Town of Kingsville immediately retained a qualified biologist to perform a fish and mussel salvage operation and proceeded to re-flood the lands.

V. ENVIRONMENTAL PRE-CONSULTATION/SCOPING MEETING

As a regulatory requirement, through the provisions of the Drainage Act, applicable Federal and Provincial legislation and policy must be considered when completing drainage works.

The Drainage Act specifically identifies the rights of the Conservation Authority, through the Conservation Authorities Act, for all Municipal Drains within their jurisdiction. Upon receiving the request for improvements to the Moroun Pumping Scheme, and prior to our appointment to this project, the Town of Kingsville had submitted a notice to the Essex Region Conservation Authority (ERCA) Regulatory Branch as required through Section 78(2) of the Drainage Act, for their comments and concerns related to the requested works.

As previously noted, prior to the scheduled On-Site Meeting, we received the initial comments from various agencies and scheduled an Environmental Scoping Meeting with representatives of the available agencies. The ERCA had confirmed that the Moroun Pumping Scheme is located within the limit of regulation through Section 28 of the Conservation Authorities Act and is subject to the necessary permitting for the proposed works.

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In addition to the comments provided by the ERCA, it would be prudent to reach out to the DFO, MECP, and MNRF, to obtain preliminary comments from the governing agencies as part of our regulatory obligations through provisions of the Drainage Act.

Prior to proceeding with the required On-Site meeting with all affected stakeholders, we felt it would be prudent to arrange a meeting and/or receive comments from all affected environmental agencies with potential interests in the project. On March 29, 2023, an email was issued to all potential environmental parties for their comments/concerns and to arrange a meeting related to the requested works. The distribution list included ERCA, the Department of Fisheries and Oceans (DFO), the Ministry of Natural Resources (MECP), the Ministry of Environment, Conservation and Parks (MECP), along with Town of Kingsville Staff. As a result, a virtual Environmental Scoping Meeting was initially scheduled for April 19, 2023. With only a select group attending the first meeting, a secondary virtual meeting was scheduled for May 3, 2023.

Environmental Scoping Meeting #1 (April 19, 2023)

Name	Affiliation
Dan Lebedyk	Essex Region Conservation Authority
Kevin Money	Essex Region Conservation Authority
Jamie Wedgewood	Ministry of Natural Resources and Forestry (MNRF)
James Groenwold	Ministry of Natural Resources and Forestry (MNRF)
Tony Peralta, P.Eng.	N.J. Peralta Engineering Ltd.

The following information was generally discussed:

- 1. Upon introductions, a brief description of the site and intended project scope, details of the Municipal Drain, and historical background were shared with all in attendance. Mr. Peralta confirmed that the project is intended to legally restore a portion of the ERCA lands back to its naturalized state by removing the protection of these lands from the Moroun Pumping Scheme. Mr. Peralta further identified the Town's obligations related to maintaining the Municipal Drain through the provision of the Drainage Act.
- 2. Mr. Peralta provided an explanation of the intended design concept. This concept included the isolation of the ERCA lands from the Moroun Pump, the creation/reinforcement of the west dyke to protect the agricultural lands to the west, and permanently removing a portion of the existing dyke along the Cedar Beach Canal to allow for lake water to freely enter the isolated ERCA lands. The isolation of the ERCA lands will allow for modifications to the Moroun Pump to better facilitate the lands within the Adams Drain. All of these works shall be completed while considering the safeguard and protection of the adjacent residential lands, while minimizing the impacts on the existing natural habitat.
- 3. The MNRF representatives identified that they did not have any comments or glaring concerns with the intended works. With the reintroduction of natural features, it would be likely that a Lakes and Rivers Improvement Act (LRIA) Authorization may be required.

- 4. Mr. Peralta added that MECP representatives could not attend this meeting. However, they provided their comments in the form of an email, as it relates to the Endangered Species Act (ESA). In summary, the MECP identified that the proposed work will likely fall under the ESA exemption through Section 23.9 for existing Municipal Drains, under the Drainage Act.
- 5. The ERCA, as a regulatory body, provided written comments. In summary, the engineering design will need to demonstrate that the proposed works will have no negative impacts on the drainage scheme and adjacent landowners. Furthermore, consideration must be given to the 1:100-year flood elevations for both Cedar Creek and Lake Erie, together with any hydraulic impacts to adjacent properties.
- 6. General timelines for the proposed works were discussed. Mr. Peralta identified that this meeting has been set ahead of the public consultation through the prescribed On-Site Meeting. As such, we are still in the early stages of the Drainage Act process. Mr. Money also confirmed that the intention is to initiate the engineering process while ERCA looks to procure funding from environmental partners.
- 7. Due to the sensitive nature of impacts on fish and mussels, DFO was invited to the meeting. However, no DFO representatives were present and no comments were provided. As such, it was determined that a second meeting was warranted to ensure that we seek guidance and comments from the DFO.

On this note, the meeting was concluded.

Environmental Scoping Meeting #2 (May 3, 2023)

Name	Affiliation
Kevin Money	Essex Region Conservation Authority
Nathan Murray	Department of Fisheries and Oceans (DFO)
William (Bill) Glass	Department of Fisheries and Oceans (DFO)
Tony Peralta, P.Eng.	N.J. Peralta Engineering Ltd.

The following information was generally discussed:

- 1. Upon introductions, a brief description of the site and intended project scope, details of the Municipal Drain, and historical background were shared with all in attendance. Mr. Peralta confirmed that the project is intended to legally restore a portion of the ERCA lands back to its naturalized state by removing the protection of these lands from the Moroun Pumping Scheme. Mr. Peralta further identified the Town's obligations related to maintaining the Municipal Drain through the provision of the Drainage Act.
- Mr. Murray emphasized that since the ERCA lands have been flooded for an extended period, these lands are now considered aquatic habitat lands and steps should be taken to maintain this status. Any further changes to these lands will require DFO's authorization.
- 3. Mr. Peralta provided an explanation of the intended design concept as outlined in the initial Environmental Scoping Meeting from April 19, 2023.

- 4. The DFO representatives were in general agreement with the long-term goals for the subject property, so long that the process in which these works are undertaken does not cause further harm to the aquatic species and their habitats. They further identified that upon isolating the Adams Drain from the floodable lands, the existing aquatic species within the Adams Drain will need to be addressed relative to the existing pump station.
- 5. Further discussion regarding the interim mitigation measures within the flooded ERCA lands conducted by the Town of Kingsville, in an effort to avoid any further issues with fish and mussels, together with their habitat. DFO representatives identified that so long as the lands were reflooded, they had no further concerns. However, recognizing that this was not a long-term solution.
- 6. To address the short-term and long-term solutions, it was recommended that a DFO "Request for Review" be submitted to outline the proposed works, together with the mitigation plan, for review by the DFO. It was further suggested that a qualified Biologist provide recommendations for mitigation to assist with the plan. As a result, a DFO Letter of Advice or Letter of Authorization is likely required to proceed with any work.

On this note, the meeting was concluded.

Further to the correspondence provided, together with details outlined in the Environmental Scoping Meetings, we felt that we had sufficient guidance and instructions to warrant the continuation of the project towards arranging the required On-Site Meeting with all affected stakeholders.

VI. <u>PRELIMINARY INVESTIGATIONS AND ON-SITE MEETING</u>

After reviewing all the available drainage information and documentation provided by the Kingsville Drainage Department, and further to our Environmental Scoping Meetings with affected agencies, we arranged the required On-Site Meeting for July 12, 2023, located at Moroun Pump entrance next to 1370 County Road 50 (Heritage Road). The following people attended this meeting:

Name	Affiliation
Chris Cullen	Landowner – 1259 Heritage Road
John Stewart	Landowner – 1231 Heritage Road
Vic Chepeka	Landowner – 1230 Heritage Road
Robert Bernath	Landowner – 1247 Heritage Road
John Sim	Landowner – 1370 Heritage Road
Chris Snip	Landowner – 1284 Heritage Road
Jin Quan	Landowner – Heritage Road
Chuck Grover	Landowner – 1500 Heritage Road
Brad Noland	Landowner – 277 Ford Road
Mary-Jo Lyman	Landowner – 1333 Heritage Road
Lois Derkach	Landowner – 1288 Heritage Road
Phil Buttery	Landowner – 1328 Heritage Road
Susan Higgins	Landowner – 1211 Canal Street
William Dubuque	Landowner – 1223 Canal Street

George Johnston	Landowner – 1215 Canal Street
Edward Arnew	Landowner – 1213 Canal Street
Pat Taylor	Landowner – 1194 Centre Avenue
Patty Nadasdi	Landowner – 1466 Heritage Road
Bev Todd	Landowner – 1468 Heritage Road
Cam Iler	Landowner – 955 Iler Road
Paul Lowes	Landowner – 1628 Heritage Road
Greg Iler	Landowner – 955 Iler Road
Robert Quick	Landowner – 1298 Heritage Road
Gord Arner	Landowner – 1830 Heritage Road
Bruce Sovran	Landowner – 1175 Arner Townline Road
Valerie Vriegen (Dunmore)	Landowner – 1357 Heritage Road
Ruth Stewart	Landowner – 1231 Heritage Road
Henry Wall Holdings	Landowner
Kevin Money	Essex Region Conservation Authority
Mark Fishleigh	County of Essex
Lindsay Dean	Town of Essex
Shaun Martinho	
	Town of Kingsville
John Norton	Town of Kingsville
John Norton Dennis Rogers	Town of Kingsville Town of Kingsville Town of Kingsville
John Norton Dennis Rogers Kiara Kirkland	Town of Kingsville Town of Kingsville N.J. Peralta Engineering Ltd.

The following information was discussed:

- 1. Upon introductions, it was generally discussed that a written notice had been submitted to the Town of Kingsville by the Essex Region Conservation Authority (280-28310) to initiate improvements to the existing Municipal Drain, known as the "Moroun Pumping Scheme" within their lands.
- 2. Mr. Peralta explained the general intent of the initial request for improvements. Generally speaking, the subject property has historically been utilized as agricultural land until the time when the ERCA purchased the property. The ERCA is currently in the process of reintroducing these lands to their natural state as a marsh/wetland.
- 3. The Moroun Pumping Scheme pump is the primary drainage outlet for lands extending to the west of the pump station, and extending into the Town of Essex, as part of the Adams Drain watershed. The associated Moroun Pumping Schme dyke provides lake protection along the north side of the Cedar Beach canal. Therefore, in order to fulfill the intent to convert these lands to a marsh/wetland, modifications to the Moroun Pumping Scheme are required. In doing so, an engineering solution is required to ensure that these improvements do not create any negative impacts on the Adams Drain watershed, along with any neighbouring lands.
- 4. All in attendance were advised that the invitation to this meeting was extended to those within the Moroun Pumping Scheme watershed and those in the vicinity of the subject ERCA lands. Those landowners outside of the watershed were invited as a courtesy to keep the adjacent landowners

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informed on the intent of the project. Following this meeting, only properties directly affected by the project will continue to be informed of any further meetings.

- 5. Until 2021, the subject lands remained dry and protected by the Moroun Pumping Scheme dykes adjacent to the Cedar Beach canal. In 2021, the dyke experienced a failure and the subject lands became inadvertently flooded with lake water from the canal. The break had since been repaired. However, the ERCA lands remain flooded.
- 6. Mr. Peralta further explained that a Municipal Drain is a communally accepted and owned drainage infrastructure that has been created through the provisions of the Drainage Act of Ontario. This Act provides for a democratic procedure for the construction, improvement, and maintenance of the drainage works. A Municipal Drain is adopted, administered, and maintained through Municipal By-Law. Therefore, once adopted as a Municipal Drain, the By-Law provides the Municipality with the authority to enter private lands, as the caretaker of the communal infrastructure. The Municipality's role is to ensure the drain is kept up and maintained on the watershed's behalf.
- 7. Mr. Peralta further explained the purpose of the "On-Site Meeting". He explained that this meeting is a mandatory requirement of the Drainage Act and is intended to be the initial step in the process to provide a general introduction to the project and to help establish a general scope of work based on the submitted request and subsequent discussions of this meeting. Mr. Peralta provided those in attendance with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Factsheets and encouraged landowners to review these documents and provide their input.
- 8. Mr. Peralta further explained that through the provisions of the Drainage Act, landowners who contribute to and/or benefit from the drainage works are assessed their fair share of the project costs. However, based on the intent to improve the Municipal Drain for the sole purpose of developing a marsh/wetland, the initial cost of these improvements is likely to be borne by the ERCA, likely through outside funding. However, once improved/constructed, the cost of any future maintenance to restore the improved system will be levied to all affected owners based on the added benefits to the overall system and the contribution of runoff from each property.
- 9. Further discussion ensued regarding the current state of the flooded lands. The landowners were advised that temporary measures have been taken to keep these lands flooded. However, the water levels will be monitored to ensure that no adverse impacts are created on adjacent lands. As a result of this project, a permanent solution will be initiated to ensure a balance between the associated watersheds.
- 10. The landowners were advised that pre-consultation with all of the affected environmental government agencies has already occurred to ensure compliance with all applicable legislation. These agencies include the Department of Fisheries and Oceans (DFO), the Ministry of Natural Resources and Forestry (MNRF), the Ministry of Environment, Conservation and Parks (MECP), and the Essex Region Conservation Authority (ERCA). Through consultation with these agencies, additional measures may need to be included as part of this project to satisfy their requirements. As a result, the approvals of these agencies would be considered an integral part of the advancement of this project.

- 11. In addition to the environmental requirements, the proposed improvements shall conform to regional design requirements related to any property development and Municipal Drains. As such, Mr. Peralta further identified that the drainage improvements will ensure that the minimum requirements for minor and major flow conveyance are maintained through the system.
- 12. Mr. Peralta opened up discussions with the landowners and requested that they provide their comments and concerns regarding the Moroun Pumping Scheme, as it relates to this overall project. He further explained that the information shared at this meeting will help establish the overall scope and direction of this project.
- 13. Various landowners identified that the current state of the property is something that the neighbouring properties enjoy as it brings added value to the community. As such, they questioned whether the permanent solution would continue to allow for access by small watercraft (canoes, small boats, etc.). Mr. Money identified that it would be ideal for it to remain accessible. However, at this time it is difficult to confirm that this will happen.
- 14. Landowners on Canal Street requested confirmation that the proposed works will not affect Canal Street. Mr. Peralta confirmed that the improvements to the system are intended to ensure that no negative impacts are created by this project. As such, the improvements will not create any further hazards than currently exist.
- 15. Some landowners questioned why the ERCA lands need to be isolated from the pump. Mr. Peralta clarified that the ERCA lands currently form part of the overall watershed of the Moroun Pump watershed and are connected to the Adams Drain. The Adams Drain watershed relies on the Moroun Pump to regulate the water levels in the system and to avoid flooding on agricultural lands. With the intent to connect these lands to the lake, water levels in the system will fluctuate with the lake. Without the isolation of these lands from the Moroun Pump, the agricultural lands will continue to be impacted by the lake.
- 16. The overall drainage report future maintenance processes, and general timelines were reviewed with the landowners present. Mr. Peralta asked if there were any further requests for improvements on the drainage system that should be considered as part of this project. No requests were brought forward.
- 17. There were various questions directed to ERCA related to the maintenance of the lands once the wetland was in place (grass mowing, phragmites, species habitat, etc.). These questions were outside the scope of this project and addressed by Mr. Money.

At the conclusion of the discussions, we advised that we would remain in close consultation with the environmental stakeholders towards the preparation of our Engineer's Report, to review the details of the proposed works.

On this note, the On-Site Meeting had concluded.

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VII. FIELD SURVEY, INVESTIGATIONS, AND BIOLOGICAL CONSULTATION

Based on the information gathered at the On-Site Meeting and through consultation with the ERCA it was determined that this project shall focus on permanently returning the ERCA lands to a naturalized marsh/wetland while ensuring that no negative impacts are created to the adjacent lands and lands within the Adams Drain. With the understanding of the general scope of work for this project, we arranged for our Survey Crew to attend the site to perform a topographic survey, including taking all necessary levels and details of the existing drainage system through the subject property. We further performed a topographic survey of the outlet portion and existing dykes located adjacent to the Cedar Beach canal and the outlet portion of the Adams Drain.

Benchmarks were looped from previous work carried out on the drain and were utilized in establishing a relative site Benchmark at each end of the project site. We also surveyed the drain for a considerable distance north and east of the project site to verify existing parameters and/or establish a new design grade profile (if necessary). We also took cross-sections of the existing dykes and identified all of the necessary details along the existing and proposed alignments to complete our review, analysis, and design.

To verify the watershed area, we investigated and reviewed all of the past Engineer's Reports on the Moroun Pumping Scheme and Adams Drain. In addition, we utilized current LiDAR information to cross-check the watershed limits and to validate the general topography and elevations of all affected lands in the project area. All of the above investigations not only provided us with the correct watershed area but also provided us with accurate information to assist us with necessary review and analysis, together with the preparation of our Construction Schedule of Assessment and Future Maintenance Schedules of Assessment for this project.

Due to the ecological sensitivities of this watercourse, it was recommended that a qualified aquatic biologist be retained to assist with the DFO "Request for Review" submission to evaluate and provide recommendations for mitigation to assist with the plan. Following the breach of the Moroun Pumping Scheme dyke, the Town of Kingsville acquired the services of Todd Leadley to provide fish and mussel salvage and remediation services. Todd Leadley is part of the Great Lakes Institute for Environmental Research through the University of Windsor and a member of the Real-Time Aquatic Ecosystem Observation Network (RAEON). With Mr. Leadley's extensive knowledge of the drainage system, and the familiarity of the project he was awarded this project to assist with the Fisheries Act submission, approval, and implementation.

VIII. DESIGN CONSIDERATIONS AND HYDRAULIC ANALYSIS

Further to the regulatory requirements outlined by the ERCA's initial comments, the proposed works should not create any negative impacts on the drainage system and adjacent lands. Furthermore, with the intent to hydraulically connect these subject lands to Cedar Creek and Lake Erie, the proposed design must consider the 1:100-year flood elevations associated with Cedar Creek and Lake Erie.

"A Guide for Engineers Working Under the Drainage Act in Ontario" - OMAFRA Publication 852 (2018), is the current reference documentation used by Engineers carrying out work on Municipal Drains through provisions of the Drainage Act. Based on this document, the 2-year return period (50% chance of occurring each year) storm design is the recommended design standard applied to Municipal Drains within rural

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Ontario specific to open drain channels and low-hazard agricultural access crossings. The exception is for residential, industrial, and commercial properties where flooding could create significant damage to the surrounding properties. Therefore, a higher 5 to 10-year return period storm design could be utilized for minor storm analysis. As identified within this guide, the Municipality and Conservation Authority may have specific design standards that should be considered. Based on our consultation and review of this project, it has been identified that the ERCA regulates the 1:100 return period event. Therefore, this return period shall be considered as part of the analysis and design considerations.

Impacts of Lake Erie Water Levels

The Lake Erie water levels naturally vary and respond monthly, seasonally and annually to a variety of variables. Therefore, they are extremely difficult to predict on a yearly basis. Generally speaking, water levels are typically lower in the winter months and higher in the summer. These natural fluctuations are essential to the ecological environment, but high and low lake levels may impact local communities.

Relatively speaking, Lake Erie's historical average mean water level is at an approximate elevation of 174.170 metres. The lake levels have historically fluctuated between the all-time low elevation of 173.180 metres (set in 1936), to an all-time of 175.140 metres (set in 2019). During lake events (wind/wave), Lake Erie experiences a standing wave oscillating in a body of water (called a seiche), which creates a rise/fall in lake elevation. This fluctuation in water level is estimated to be approximately 0.600 metres for Lake Erie. At the time of the Moroun Pumping Scheme Engineer's Report in 1981, the lake levels were identified at an elevation of 174.360 metres, which is above the historical average mean water level of Lake Erie. The dyke elevations established within this report were set to an elevation of 176.000 metres. Taking into consideration the details above, together with a suitable freeboard, the elevations within the 1981 report correspond with the current safeguards and design standards set for development around Lake Erie.

The subject ERCA lands, together with the downstream portion of the Adams Drain, are relatively low compared to the historical average mean water level of Lake Erie. As a result, the Moroun Pump has been installed to provide a sufficient outlet for the watershed during periods of relatively high lake water levels. The existing pump station operates on a float system set at specific elevations to engage the pump to meet the desired water levels. With the ERCA lands no longer requiring a drainage outlet through the pump station, the floats can be modified to better suit the land elevations of which the pump will now serve. Utilizing our topographic survey and available LiDAR mapping adjustments to the float system have been analyzed to better suit the needs of the watershed.

IX. PRELIMINARY DESIGN AND FURTHER CONSULTATION

Based on our analysis, a preliminary design was prepared that outlined the required improvements to isolate the ERCA lands, while safeguarding and protecting the affected adjacent lands. In an effort to confirm our compliance with the comments provided by the ERCA, we arranged a virtual meeting with the ERCA and Town of Kingsville Staff to review the preliminary design in detail. The following people attended this meeting:

Name	Affiliation
Lu-Ann Marentette	Town of Kingsville - Drainage Superintendent
Tim Del Greco, P.Eng.	Town of Kingsville - Senior Manager, Capital Projects and Engineering
James Bryant, P.Eng.	ERCA - Director of Watershed Management Services
Hannah Waldt, P.Eng.	N.J. Peralta Engineering Ltd.
Tony Peralta, P.Eng.	N.J. Peralta Engineering Ltd.

The following information was discussed:

- 1. Following introductions Mr. Peralta provided a project history, and details of the existing drainage infrastructure that forms part of the Municipal Drain and further shared preliminary drawings and the results of their analysis.
- 2. With the potential impacts to adjacent lands, the question of "level of service" was brought forward relative to the floodproofing elevation of any associated dykes. Upon discussion, it was agreed upon that that an appropriate top of dyke elevation should be set at 176.000 metres. This elevation provides safeguards against the extreme situation during a 1:100-year storm, lake levels are at an all-time high of 175.140 metres in combination with a lake seiche. Coincidently, this elevation matches that of the original Moroun Pumping Scheme dyke elevations.
- 3. Mr. Bryant inquired about the reason for a new north-south dyke along the west side of the subject lands rather than augmenting the existing dyke. Mr. Peralta advised that the majority of the existing dyke varies in elevation and does not meet the specified flood-proofing elevation. Furthermore, this dyke is heavily vegetated with mature trees that provide habitat for various aquatic and terrestrial species. Modifying and/or augmenting the existing dyke would require significantly more work/cost and the removal and/or destruction of such habitat. The destruction of such habitat would likely trigger an ESA permit or authorization that would create significant delays to the overall project. Therefore, to avoid impacts on Species at Risk (SAR) and to reduce overall costs, it would be most advantageous to construct a new dyke to the specified flood-proofing elevation rather than augmenting the existing one.
- 4. Further discussion ensued regarding the flood-proofing of the residential lands along Canal Street. The residential properties along Canal Street are currently located immediately adjacent to and impacted by, the Cedar Beach Canal and the Cedar Creek floodplain. Some of these lands are currently lower than the desired floodproofing elevation of 176.000 metres and therefore, do not have any formal flood-proofing provisions to protect against high lake levels. Based on the current configuration and existing level of service, we discussed the potential impacts on these lands if a floodproofing dyke is installed along the north side of these properties. If lake levels were to exceed the all-time high water levels, lake water can currently move freely through the affected lands between the canal and the proposed wetland/marsh. Installing a new dyke at the north end of the residential lots will ultimately cut-off any natural conveyance of lake water and potentially trap lake water between the canal and the dyke. Although, the optics of not installing flood-proofing measures appear unfavourable, installing flood-proofing measures could potentially create adverse impacts on these lands. Therefore, it was determined that the status quo would present the least impact on these lands.
- 5. The proposed Municipal Drain improvements would significantly alter the original intent of the drainage system. As such, portions of the existing infrastructure would be abandoned as part of the Municipal

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Drain and new infrastructure would be incorporated. It was explained that, although the subject ERCA lands are intended to be removed from the Moroun Pumping Scheme watershed, the new dykes required for the protection of the Adams Drain will still need to form part of the Municipal Drain. As such, new maintenance provisions will need to be established as part of the system.

6. Mr. Bryant questioned how the lake will be introduced to the proposed wetland/marsh once the lands have been isolated and what controls will be available in the future. Mr. Peralta explained that following the dewatering process, a coffer dam could be installed along the south side of the Cedar Beach Canal. Once the coffer dam is installed, a permanent removal of a portion of the existing dyke could be initiated. Once the dyke excavation is complete, lake water can be slowly introduced into the ERCA lands. With the intent to have these lands accessible to the public through navigable means (canoes, boats, etc.), the use of a sluice gate or wier would require added monitoring and maintenance that could have negative impacts on the system. Mr. Bryant generally agreed that the coffer dam could be an appropriate option.

Based on these discussions, our proposal generally conforms with the regulatory requirements of the ERCA. As a result, they found the preliminary design to be acceptable moving forward as long as the recommendations/mitigations of the other environmental agencies were considered.

X. <u>FINDINGS AND RECOMMENDATIONS</u>

Based on our topographic survey, detailed investigations, discussions, and review with affected landowner, Municipal Staff, information derived from the On-Site Meeting, together with the review and correspondence with the ERCA and other environmental government agencies; we have proceeded to establish the required details to adequately address the specified improvements within the Moroun Pumping Scheme. Our findings and recommendations are outlined within the following subheadings.

ERCA, DFO, and MECP Considerations

During the course of our investigations, this drainage project was discussed and reviewed in detail with James Bryant, P.Eng, of the ERCA, to deal with any ERCA concerns and comments related to this Municipal Drain. The Moroun Pumping Scheme is located within the regulated area and is under the jurisdiction of the ERCA. Therefore, an ERCA Permit is required for the improvements to the Moroun Pumping Scheme. Upon their request, design proposals were submitted to the ERCA for their review and consideration. Upon discussions and their review of the design proposal, the ERCA provided us with their general acceptance and comments through email correspondence included herein as **Appendix "A**".

As part of the Biological Evaluation for this project, Todd Leadley has been retained to assist with Fisheries Act submissions, approvals, and field assessments for the proposed drainage works. With Mr. Leadley's assistance, the proposed works within this Municipal Drain were "self-assessed", through the DFO website and the utilization of the "Guidance for Maintaining and Repairing Municipal Drain in Ontario" to determine whether this project shall be reviewed by the DFO. As part of this review, we engaged in various meetings and correspondence with DFO to address their comments and concerns. As a result of these discussions, a formal "Request for Review" was submitted to DFO for their review and consideration. We further engaged in follow-up discussions and reviews towards general approval. The DFO has identified that the proposed works will require a "Fisheries Act Authorization" pursuant to paragraphs 34.4(2)(b) and 35(2)(b) of the

Fisheries Act, together with an irrevocable letter of credit to cover the cost of the offsetting plan. A copy of the DFO authorization documentation is included within **Appendix "A"**.

Through our discussion and review with DFO, First Nations engagement and consultation shall form part of their approval process. DFO outlined their commitment to achieving reconciliation with Indigenous Peoples through a renewed, nation-to-nation, government-to-government, and Inuit-Crown relationship based on recognition of rights, respect, cooperation, and partnership as the foundation for transformative change. Based on this information, an Indigenous consultation meeting was arranged with Caldwell First Nation, Walpole Island First Nation, and the Aamjiwnaang First Nation to discuss and review the details of the project.

The Ministry of Natural Resources and Forestry (MNRF) has transitioned the responsibilities of the Species at Risk Provincial Legislation to the Ministry of Environment, Conservation and Parks (MECP). Section 23.9 of the Endangered Species Act, 2007 allows the Municipality to conduct the eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08. In recognition of the impacts that these species may experience as a result of the subject works, the Town of Kingsville shall provide comprehensive mitigation measures as well as species identification guides for reference. These references shall be provided to the successful Tenderer and shall be available for viewing at the Municipal Office for those interested.

Through discussions with representatives of the MNRF, the MNRF is the legislative authority for the Lakes and Rivers Improvement Act (LRIA) which governs the design, construction, operation, maintenance and safety of dams in Ontario. With the modifications to the existing and proposed dykes of the Moroun Pumping System potentially influencing Cedar Creek and Lake Erie, they have identified that the proposed improvements would likely require a submission related to the LRIA. As a result, an application will be submitted to the MNRF for review and consideration.

Through correspondence with the ERCA, the Self-Assessment through DFO, and the application to the MNRF, we have provided for all of the ERCA, DFO, MNRF, and MECP concerns and comments in our design and recommend that these drainage works be constructed in total compliance with all of the above.

Moroun Pumping Scheme Improvements

Prior to the preparation of our report, we had various discussions and meetings with environmental stakeholders, the representatives of the Owner, and the Town of Kingsville. We reviewed the particulars of the proposed improvements to ensure that they coincide with the needs of the affected property Owner and the watershed. From our investigations, examinations, calculations, discussions, and determinations with the affected parties, the following findings were noted and recommendations regarding the necessary improvements are provided as follows:

Parcel 280-28310, currently owned by the ERCA and located within Lots 19 through 26, Concession 1
Western Division, is an existing agricultural parcel of land. The southeast portion of these lands was
formerly part of the original river delta marsh connected to the mouth of Cedar Creek, into Lake Erie.
With the implementation of the Moroun Pumping Scheme, the subject lands were converted to
agricultural use. With the subject lands having considerable environmental significance, the ERCA has

acquired the parcel and intends to reintroduce these lands to their natural state as a marsh/wetland. In order to do so, modifications to the Moroun Pumping System are required to ensure the protection and safeguarding of the surrounding lands impacted by the pumping system.

- 2. The Moroun Pumping System is comprised of a pump station, drainage channel, and earthen flood protection dyke along the Cedar Beach Canal. This drainage system provides the necessary conveyance of runoff, together with the necessary protection from high lake levels. This Municipal Drain serves as the primary drainage outlet for the Adams Drain and Ford Road Drain tributaries where modifications to the drainage system will alter the functionality of the overall drainage system.
- 3. In order to ensure that no adverse effects are created by the improvements to the subject property, a hydraulic analysis was conducted for this project to analyze the existing parameters and proposed requirements. Through this analysis, it was confirmed that the existing dyke system provides protection and safeguards against the extreme situation during a 1:100-year storm, lake levels and in combination with a lake seiche. As such, we recommend that any new flood protection dykes be set to the same level of service while having a minimum floodproofing elevation of 176.000 metres. In order to facilitate the creation of the proposed wetland, a new flood protection dyke is required along the west portion of the project site. This flood protection dyke is intended to protect the lands within the Adams Drain watershed that utilize the Moroun Pumping Scheme as their primary drainage outlet. The proposed flood protection dyke along the west limit of the project site shall be continuous and constructed having a 3.70-metre top width with a minimum of 2.0 horizontal to 1.0 vertical side slopes. This flood protection dyke shall extend from the existing south dyke, located east of the auxiliary gravity outlets along the Cedar Beach Canal, at approximately Station 0+055.0 and extend northerly to approximately Station 1+200.0. This new flood protection dyke and open drain along the Cedar Beach Canal.
- 4. We further recommend the excavation and grading of a constructed wetland area with the centre of the area excavated deeper and graded towards the existing Cedar Beach Canal. The excavated area shall also include a sediment/refuge pool connected to the Cedar Beach Canal having a minimum depth of 1.50 metres and an irregular shape of approximately 800 square metres (roughly 40.0 metres x 20.0 metres). The sediment/refuge pools shall include rock erosion protection at the inlet end of the pool to help minimize erosion and act as an indication of where the pool is located.
- 5. As part of the creation of the proposed wetland, the subject lands shall have a direct connection to Lake Erie. Therefore, we recommend that a portion of the existing flood protection dyke alongside the Cedar Beach Canal be excavated at the lowest point, having a bottom width of a minimum of 20.0 metres. This break in the existing dyke shall hydraulically connect the proposed wetland to Lake Erie and allow for lake water to freely move through the system. At this location, this break in the existing dyke shall be constructed in association with the sediment/refuge pool and we further recommend that sloped quarried limestone erosion protection be installed on both sides of the dyke excavation, connected to the Cedar Beach Canal.
- 6. Based on the details of the project, we recommend the following sequence of operations toward the isolation of the subject project area and the implementation of the proposed wetland:

- a. Initiate a dewatering process utilizing the existing Moroun Pump and/or other pumping equipment.
- b. During the dewatering process, have a team of biologists perform a fish and mussel salvage operation, which includes fish protection measures at the pump.
- c. Once the site is dewatered, disconnect the subject lands from the Moroun Pumping Scheme by installing an earthen plug at the southwest corner of the property, located immediately east of the existing pump station and auxiliary gravity outlets.
- d. Once isolated, excavate and grade the subject lands to create a centrally deeper area with a sediment/refuge pool(s). All excess material extracted from the area shall be utilized to construct a new flood protection dyke along the west side of the project area to protect the lands to the west.
- e. Following the full construction of the west dyke and the completion of the necessary grading, the existing flood protection dyke at the south limit of the property (adjacent to the Cedar Beach Canal) shall be opened up to allow lake water to flood the subject lands.
- 7. Based on our evaluation of the residential properties along Canal Street are currently located immediately adjacent to and impacted by, the Cedar Beach Canal and the Cedar Creek floodplain. Some of these lands are currently lower than the desired floodproofing elevation of 176.000 metres and therefore, do not have any formal flood-proofing provisions to protect against high lake levels. Through our evaluation, it was determined that if lake levels were to exceed the all-time high water levels, lake water could currently move freely through the affected lands between the canal and the proposed wetland/marsh. Therefore, installing a berm/dyke at the north end of the residential lots will ultimately cut off any natural conveyance of lake water and potentially trap lake water between the canal and the dyke. Although, the optics of not installing flood-proofing measures appear unfavourable, installing flood-proofing measures could potentially create adverse impacts on these lands. Therefore, it was determined that no additional flood-proofing measures shall be implemented along the north side of the existing residential lands located along Canal St. and the status quo would present the least impact on these lands.
- 8. Access routes and working corridors have previously been established within the governing Moroun Pumping Scheme Report. However, with the works being proposed under this report specific to a particular area, we recommend establishing a new access route and working corridors for the initial construction and future maintenance of these specified works. Updated working corridors for future maintenance have been re-established herein. All working corridors (new and old) for the Moroun Pumping Scheme shall be a free unencumbered and uninterrupted easement in perpetuity on, in, over, under, across, alongside and through the lands described herein, for the purpose of installing, maintaining, replacing, altering, cleaning, repairing, providing, and operating the open channel and existing enclosure. We further recommend that this area shall remain free and clear of any new buildings, structures, fences, concrete or asphalt paving, or other structures or obstructions of any kind. In the event, that any such item is placed on any of the lands referred to herein, the Owner or Owners of the said lands at the time shall be liable for the cost incurred by the transferee, its servants, agents, and assigns, in the removal of such items.

- 9. We further recommend that all ancillary work required to complete the proper functionality of the proposed wetland also be conducted and performed as part of this project and that all of the work associated with this project be provided to the full satisfaction of both the Municipality's Drainage Superintendent and the Consulting Engineer.
- 10. With the lands within the project area being removed from the watershed, the level of protection related to the pump operations shall be adjusted to better suit the affected agricultural lands and the remaining floodable lands within the ERCA lands. As such, we recommend that the existing ON/OFF floats associated with the Moroun Pump be adjusted to operate between elevation 174.500 meters (ON) and elevation 174.200 (OFF). Operating the pump between these elevations will allow for the necessary relief to the associated agricultural lands and maintain the portion of the floodable marshlands (west of the Adams Drain) currently owned by the ERCA, that will continue to remain within the Moroun Pumping Scheme watershed.
- 11. The proposed works as part of this project intended to remove a portion of the ERCA lands from the Moroun Pumping Scheme, it is necessary to prepare an updated Maintenance Schedule of Assessment to properly allocate future maintenance costs to all lands and roads that will continue to contribute to the Moroun Pumping Scheme.
- 12. With the necessary modifications to the existing Moroun Pumping Scheme, portions of the existing system will no longer be required as part of the Municipal Drain. As such, we recommend that the existing flood protection dyke along the Cedar Beach Canal located east of the existing pump and auxiliary gravity outlets, together with the associated open drain shall be abandoned, and replaced with the newly constructed continuous flood protection dyke extending north along the west side of the project site. The abandonment of the existing dyke and associated open drain is in accordance with Section 19 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

In summary, a new wetland is being constructed within the subject property and connected to the existing Cedar Beach Canal. In order to facilitate this wetland, we recommend the installation of the proposed flood protection dyke along the west limit of the project site in order to remove the subject lands from Moroun Pumping Scheme. We further recommend that all works be completed in accordance with this Report, the attached Specifications, and the accompanying Drawings and that all of the works associated with same be carried out in accordance with Section 78 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

XI. ALLOWANCES AND COMPENSATION

Allowances For Land Taken

The improvements required to modify the Moroun Pumping Scheme are being conducted primarily within the subject property currently owned by ERCA. These lands have already been compensated for the land taken under previous Engineer's Reports and By-Laws. Therefore, further compensation for the use of these lands to construct the improved drainage system shall not be required and only a nominal value of \$1.00 per property be paid to re-establish the legal right for the improved Municipal Drain through these lands and to establish the right to access along the drain for future maintenance.

We find that the following Owners are entitled to and should receive the following amounts as compensation for the Value of Land Taken, in order to conduct the necessary improvements to the Moroun Pumping Scheme:

1)	Essex Region Conservation Authority	Owner	Lots 19-26, Concession 1 W.D	\$ 1.00
	TOTAL FOR LAND TAKEN			\$ 1.00

This compensation shall allow for the use of the land necessary to construct and maintain the proposed flood protection dyke required to facilitate the new wetland. We have used nominal values for compensation in consideration of the fact that the existing features are located primarily within the subject property and the impact on these lands is required to facilitate the development of their lands.

We have provided for this land taken compensation in our estimate, as is provided for under Section 29 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

Compensation For Damages

All areas disturbed by this work are specified for full restoration. Therefore, the works will not have any direct or indirect damage to the affected lands. Accordingly, no allowances or compensation for damages will be provided under Section 30 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

XII. ESTIMATE OF COST

Our estimate of the total cost of this work, including all incidental expenses, is the sum of <u>Six Hundred</u> <u>Eighty Six Thousand Two Hundred Fifty Seven Dollars</u> (\$ 686,257.00) made up as follows:

CONS	TRUCTION ITEMS				
Item	Description	Est Qty	Unit	Unit Price	Total
1.	Water, Sediment, and Erosion Control Plans; Provide a Water, Sediment, and Erosion Control Plan required to obtain necessary permits and approval; Provide all labour, equipment and materials to implement the Water, Sediment, and Erosion Control Plan, as outlined within the specifications, complete.	1.0	Lump Sum	\$ 10,000.00	\$ 10,000.00
2.	Earthen Isolation Plug; Provide all labour, material and equipment to install a native fill earthen plug within the existing open channel located east of the existing gravity outlets towards isolating the project area from the Moroun Pump, including grubbing and brushing, excavation, fill placement, grading, compaction and topsoil, seed, and mulch, complete:	1.0	Lump Sum	\$ 10,000.00	\$ 10,000.00
3.	Stripping Topsoil; Provide all labour and equipment to excavate and strip all topsoil within the project site, including the excavation and disposal of all rocks, timber features, and deleterious materials; All scavenged topsoil shall be windrowed along the project site to be used for restoration works, complete.	28,000	m²	\$ 2.36	\$ 66,000.00
4.	Creation of Depressed Wetland Area; Provide all labour and equipment to excavate and shape the depressed wetland area utilizing the grades and elevations specified in the accompanying design drawings; All excavated materials excavated from the wetland area are intended to be stockpiled and utilized for the creation of the proposed West Dyke, including excavation, stockpiling, grading, complete.	12,900	m ³	\$ 15.00	\$ 193,500.00

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Item	Description	Est Qty	Unit	Unit Price	Total
5.	Construction of the West Dyke (Extending North-South) - Station 0+055.0 to Station 1+051.4; Provide all labour and equipment to construct a new dyke along the west limit of the project site from Station 0+055.0 to Station 1+051.4 having a top width of 3.70 metres with 2.0 horizontal to 1.0 vertical side slopes, utilizing existing native materials excavated from the Wetland area, including placement, grading, compaction, and readied for placement of topsoil and seed, complete;	996.4	LM	\$ 126.00	\$ 125,500.00
6.	Topsoil and Seeding; Place and spread 100mm thick scavenged topsoil over newly created West Dyke and carry out seeding and mulching over the new dyke, complete.	12,000	m²	\$ 3.12	\$ 37,400.00
7.	Sediment/Refuge Pool; Provide all labour, equipment and materials to construct an irregularly shaped refuge pool (approximately 40.0 metres by 20.0 metres) having an approximate depth of 1.50 metres below grade (approximately 1,200 m ³) at the downstream portion of the wetland area and adjacent to the opening to the Cedar Beach Canal, including 1.5 horizontal to 1.0 vertical side slopes, excavation, placement of a 5.0- metre by 5.0-metre quarried limestone erosion protection on filter cloth at its upstream end, including, excavation, compaction, grading and restoration, complete.	1.0	Lump Sum	\$ 25,800.00	\$ 25,800.00
8.	Remove Portion of South Dyke (Extending East- West); Provide all labour, equipment to remove approximately 20.0 metres of the existing South Dyke along the Cedar Beach Canal including the installation of a coffer dam, excavation, grading, complete.	1.0	Lump Sum	\$ 43,400.00	\$ 43,400.00
a)	Provide 300mm thick quarried limestone at each end including placement, compactions, and restoration, complete.	80.0	Tonne	\$ 100.00	\$ 8,000.00
b)	Provide and place synthetic filter cloth underlay, complete.	120	m ²	\$ 5.00	\$ 600.00

Item	Description	Est Qty	st Qty Unit Unit Pri		Total	
9.	Clean up and Restoration;					
	the project site on completion of the work.	1.0	Lump Sum	\$ 5,000.00	\$ 5,000.00	
10.	10. Net HST for the above construction items (1.76%)					
	\$ 534,444.00					

INCIDENTALS	
Report, Estimates and Specifications	\$ 42,800.00
Survey, Assistance, Expenses and Drawings	\$ 53,500.00
Additional Hydraulic Analysis	\$ 5,300.00
Updated Maintenance Schedules	\$ 5,300.00
Duplicating Report and Drawings	\$ 1,200.00
Estimated Cost for Letting Contract including the preparation of Tender Documents and Tender Review	\$ 1,700.00
Estimated Cost for Part-Time Inspection, Supervision and Project Management during Construction (approx. 2-week duration)	\$ 13,600.00
Cost for Biological Consultation and Construction Monitoring	\$ 15,000.00
Cost for First Nations Consultation and Construction Monitoring	\$ 10,000.00
Net HST on the above items (1.76%)	\$ 2,612.00
Estimate Cost for ERCA Permit	\$ 800.00
TOTAL FOR INCIDENTALS =	\$ 151,812.00
TOTAL FOR ALLOWANCES (brought forward) =	\$ 1.00
TOTAL FOR CONSTRUCTION (brought forward) =	\$ 534,444.00
TOTAL ESTIMATE =	\$ 686,257.00

XIII. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached design drawings for the Moroun Pumping Scheme Improvements, consisting of Sheets 1 through 5. The design drawings illustrate the existing details and recommended improvements to the Municipal Drain, together with a general watershed plan and affected landowners.

Furthermore, Benchmarks were established therein for the work required for this project. The drawings attached within **Appendix "C"** have been reduced in size and the scale therefore varies. However, full-scale drawings can be viewed at the Town of Kingsville Municipal Office, if required.

Also attached, we have prepared Standard Specifications and Special Provisions that set out the required construction details for the various aspects of the works to be conducted under this report.

XIV. CONSTRUCTION SCHEDULE OF ASSESSMENT DETAILS

We would recommend that all of the costs associated with the improvements to the Moroun Pumping Scheme Improvements, as identified and detailed herein, be assessed in accordance with the attached **Construction Schedule of Assessment**.

In summary, all construction works, together with the associated incidental and engineering costs under this project, are required to facilitate the subject property owned by Essex Region Conservation Authority (280-28310) in Lots 20 through 23, Concession 1 Western Division (WD), in the Geographic Township of Gosfield South.

It shall be noted that the attached Construction Schedule of Assessment is to be utilized for the distribution of costs related to the construction works being provided for under this report and this Construction Schedule of Assessment shall not be utilized for the sharing of any future maintenance works conducted to same.

XV. <u>FUTURE MAINTENANCE</u>

With the proposed changes that form part of this report, the Municipal Drain now includes the existing pump and auxiliary gravity outlets, together with the newly installed dyke located along the west side of the new wetland, east of the Adams Drain. Prior to these improvements, the Moroun Pumping Scheme also included the existing dyke and associated open drain along the north side of the Cedar Beach Canal, located east of the existing pump and auxiliary gravity outlets. Based on the new configuration of the drainage system, the modified dyke and open drain are now considered private features associated with the wetland and no longer form part of the Municipal Drain. With the removal of the wetland area from the Moroun Pumping Scheme watershed, an updated maintenance schedule of assessment is required to reflect these changes.

After the completion of all of the works associated with this Engineer's Report, we recommend that the Moroun Pumping Scheme, as outlined below, be kept up and maintained in the future by the Town of Kingsville.

Moroun Pump and Auxiliary Gravity Outlets

The existing pump station and all associated appurtenances, together with the auxiliary gravity outlets form part of the drainage outlet for the Moroun Pumping Scheme. We recommend that these drainage features be kept up and maintained through the Town of Kingsville and at the expense of the lands and roads included within the **Future Maintenance Schedule of Assessment - Pump Station and Auxiliary Gravity Outlets** attached herein and included within **Appendix "C"**.

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When future maintenance works are performed to the pump station and auxiliary gravity outlets, we recommend that the cost for these works of future maintenance shall be shared by the abutting landowners and upstream affected lands and roads, following the same proportions established within the **Future Maintenance Schedule of Assessment - Pump Station and Auxiliary Gravity Outlets** included within **Appendix "C"**. This Schedule of Assessment has been developed based on an assumed cost of **\$10,000.00** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that contribute runoff to the drainage outlet for which future maintenance works have been carried out. Therefore, when **\$10,000.00** worth of future maintenance work is expended on these features, the assessment to each individual affected property owner and road shall be levied per the noted Maintenance Schedule of Assessment. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work.

New Flood Protection Dyke

The new dyke located at the west limit of the project site, and east of the Adams Drain, shall replace the former flood protection dyke and open drain along the Cedar Beach Canal. This new dyke serves as protection to the lands contributing to the Adams Drain and the Moroun Pumping Scheme. This new dyke extends from Station 0+055.0 to Station 1+200.0. We recommend that this new dyke be kept up and maintained through the Town of Kingsville and at the expense of the lands and roads included within the **Future Maintenance Schedule of Assessment - Flood Protection Dyke** attached herein and included within **Appendix "C"**.

When future maintenance works are performed to the flood protection dyke, we recommend that the cost for these works of future maintenance shall be shared by the abutting landowners and upstream affected lands and roads, following the same proportions established within the **Future Maintenance Schedule of Assessment - Flood Protection Dyke** included within **Appendix "C"**. This Schedule of Assessment has been developed based on an assumed cost of **\$10,000.00** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that contribute runoff to the drainage outlet for which future maintenance works have been carried out. Therefore, when **\$10,000.00** worth of future maintenance work is expended, the assessment to each individual affected property owner and road shall be levied per the noted Maintenance Schedule of Assessment. It should be clearly understood that the amounts shown within this Schedule are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work.

Existing Cedar Beach Canal Dyke and Open Drain

As previously noted, the existing dyke and open drain east of the auxiliary gravity outlets located along the Cedar Beach Canal has been modified to allow lake water to enter freely between the Canal and the new wetland. As a result, these drainage features no longer serve as protection and conveyance of flows for the Moroun Pumping Scheme and have subsequently been abandoned as part of this report. Therefore, any maintenance and upkeep of these features (or any alterations made thereto) shall no longer be the responsibility of the Town of Kingsville. The current Owner/Occupant, Essex Region Conservation Authority (280-28310) shall be solely responsible for all future maintenance to these features, together with any associated future costs.

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Future Maintenance Schedules

The attached Future Maintenance Schedules of Assessment are to be utilized only for the maintenance of the associated portions of the identified Municipal Drain. If spot maintenance is performed within the specified reach of the drain, it is recommended that only those lands adjacent and upstream of the maintenance site be assessed for any future costs. It shall be noted that these schedules shall not be utilized for any other maintenance and repair works being conducted to any feature outside of what has been identified herein.

Working Corridors for Future Maintenance

Once all construction has been completed for this project, the Contractor shall be expected to keep all future equipment and forces within the following working corridors for any future maintenance performed on the improved Moroun Pumping Scheme:

<u>New Flood Protection Dyke</u>: The Contractor shall be permitted to access the new dyke from the previously established access route from County Road 50 as identified and further illustrated within the 1981 Moroun Pumping Scheme report. Once access is obtained onto the private lands the Contractor shall be expected to keep the construction equipment and forces along the top width of the new dyke located east of the auxiliary gravity outlets and extending from Station 0+055.0 to Station 1+200.0. The working corridor shall follow the alignment of the dyke and consist of the full width of the dyke necessary to complete the maintenance works and outlined within the accompanying cross-sections.

<u>Moroun Pump Station and Auxiliary Gravity Outlets</u>: When future maintenance is performed on the Moroun Pump and/or the auxiliary gravity outlets, all working corridors and future maintenance provisions shall be addressed per the plans and specifications within the Engineer's Reports for the "Moroun Pumping Scheme" prepared by W. J. Setterington, P.Eng., dated June 15, 1981.

All of the above provisions for future maintenance under this report shall remain as aforesaid until otherwise determined under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021".

All of which is respectfully submitted,

N.J. PERALTA ENGINEERING LTD.

Antonio B. Peralta, P.Eng. ABP/kk



CONSTRUCTION SCHEDULE OF ASSESSMENT

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
7	280-28310	1 WD	20 to 26	357.36	126.00	50.992	Essex Region Conservation Authority	\$ 686,257.00	\$ -	\$ 686,257.00
– Total on Privately Owned - Agricultural Lands (grantable)						\$ 686,257.00	\$ -	\$ 686,257.00		
TOTAL ASSESSMENT 126.00 50.992						\$ 686,257.00	\$ -	\$ 686,257.00		

1 Hectare = 2.471 Acres

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SPECIFICATIONS

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STANDARD SPECIFICATIONS

General (Revised January 2024)

TABLE OF CONTENTS

I.	General Conditions for Specifications2
II.	Review of Site, Plans, and Specifications
III.	Maintenance Period
IV.	Liability of The Contractor
V.	General Coordination
VI.	Legal Survey Bars and Monuments3
VII.	Maintaining Conveyance
VIII.	Approvals, Permitting, and Inspection4
IX.	Traffic Control4
Х.	Fencing and/or Structures5
XI.	Benchmarks5
XII.	Environmental Considerations
XIII.	Final Cleanup and Restoration
XIV.	General Conditions

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STANDARD SPECIFICATIONS

General (Revised January 2024)

I. GENERAL CONDITIONS FOR SPECIFICATIONS

The specifications, together with the accompanying drawings and appendices, delineate the furnishing of all labour, equipment, materials, and supplies required for the performance of all operations relating to the construction and/or improvements of a Municipal Drain under the most recent revision of the Drainage Act and/or amendments made thereto. These specifications serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. "Special Provisions" are included as part of the overall document and shall be read in conjunction with these standard specifications. Where a discrepancy occurs between the requirements of the Standard Specifications and the Special Provisions, the Special Provisions shall govern. In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section or sections from the Canadian Construction Documents Committee (CCDC) shall govern and be used to establish the requirements of the work.

Any reference to "Drainage Superintendent" and/or "Consulting Engineer" within this document shall refer to the person (or persons) appointed by the Council of the Municipality having jurisdiction over the drainage works.

All work shall be done in a first-class and workmanlike manner, complete in all respects and including all items specified herein, or as necessary for the accomplishment of a complete, satisfactory, and approved installation.

II. <u>REVIEW OF SITE, PLANS, AND SPECIFICATIONS</u>

As part of the Tender process, each tenderer shall visit the site(s) and review all documentation associated with the project prior to their tender submission and satisfy themselves with the full extent of the scope of work and conditions to complete the project. The Contractor may request, at any time prior to the closing of the tender, to examine any associated information available from the Drainage Superintendent and/or Consulting Engineer. Claims that there are any misunderstandings of the terms and conditions of the Contract related to site conditions will not be permitted.

The quantities identified within the Construction Items, Drawings and/or Specifications are estimates only and are intended for the sole purpose of identifying the general extent of the proposed work. The tenderer shall be responsible to verify the quantities for accuracy prior to submitting their tender.

III. MAINTENANCE PERIOD

The successful tenderer shall guarantee and warrant the work for a period of twelve (12) months from the time that substantial completion is issued. Upon the expiry of the maintenance period, with ordinary wear and tear, the work shall remain in such condition as will meet with the approval of the Consulting Engineer, and it will be responsible for rectification in a manner satisfactory to the Consulting Engineer. The cost thereof, of any imperfect work due to or arising from materials, equipment or plant incorporated into or used in the construction thereof, or due to or arising from workmanship or methods of construction, that is discovered by any means at any time prior to the issuance of the Final Certificate. The Consulting Engineer shall decide as to the nature, extent, cause of, and responsibility for imperfect work and the necessity for and the method of rectification thereof. In the event that the Contractor fails to comply with the above and address any deficiencies, the Municipality may complete these deficiencies, with the guidance of the Consulting Engineer, to make such repairs or complete such works, and the whole costs, charges and/or expenses so incurred may be deducted from any amount due or collected from the Contractor.

IV. LIABILITY OF THE CONTRACTOR

The Contractor, its agents, workforce and/or sub-contractors, shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other objects that it may encounter during the course of the work. The Contractor will be responsible for any damage caused by it to any person, property, public utilities, and/or municipal infrastructure. The Contractor shall indemnify and save harmless, the Municipality and the Consulting Engineer for any damages which it may cause or sustain during the progress of the work. The Contractor shall not hold the Municipality or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

V. <u>GENERAL COORDINATION</u>

The Contractor shall be responsible for the coordination with other organizations, agencies, and utility companies in connection with the works. The Contractor shall not take action against the Municipality or the Engineer for delays caused by the site being unavailable to them by the Municipality or Consulting Engineer because of the acts, omissions, conduct or misconduct of other organizations or utility companies engaged in other work.

VI. LEGAL SURVEY BARS AND MONUMENTS

The Contractor is to note that legal survey bars may exist within the work site, and it shall take whatever steps necessary to protect these features. If any iron bar or monument is damaged or removed by the Contractor, it shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to restore same, all at the Contractor's expense.

VII. MAINTAINING CONVEYANCE

The drainage works shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be completed during times when the drain is dry or frozen.

When performing excavation work, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. The Contractor shall be responsible to maintain permanent flow at all times. Temporary damming of flow is permitted to conduct the necessary works. However, the Contractor is responsible to monitor and ensure no damage occurs as a result of its actions. Under no circumstances shall temporary damming be permitted for an extended period (ie. overnight, etc.) without a suitable water control plan approved by the Drainage Superintendent, Consulting Engineer and/or the Conservation Authority.

VIII. APPROVALS, PERMITTING, AND INSPECTION

The works proposed under this project is subject to the approval, inspection, regulations, and by-laws of all Municipal, Provincial, and Federal entity, or any other agency having jurisdiction associated with the drainage works established herein. The Contractor shall ensure that all applicable permits and approvals are procured from all affected authorities prior to carrying out any of the prescribed works identified within the Contract, or in the vicinity of any public utility, railway and/or road authority.

The drainage works forming part of this project, including all appurtenances, shall be completely inspected by the Town Drainage Superintendent and/or the Consulting Engineer's Inspector prior to its completion. Under no circumstance shall the Contractor commence the construction or backfill of any underground feature without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation. The Contractor shall provide a minimum of forty-eight (48) hours' notice to the Drainage Superintendent and/or the Consulting Engineer prior to the commencement of the work. All works shall be performed during normal working hours of the Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend these working hours.

Upon completion of the works and prior to the demobilization and removal of all equipment and materials from the site, the Contractor shall notify the Drainage Superintendent and/or Consulting Engineer to arrange a final inspection of the works. The final inspection is intended to ensure that all aspects of the drainage work are satisfactorily completed and/or identify any outstanding deficiencies. Any outstanding deficiencies shall be addressed expeditiously as weather permits.

IX. TRAFFIC CONTROL

The Contractor shall ensure that the travelling public is always protected while utilizing the roadway for its access. The Contractor shall be required to carry out all the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close any roads for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality, County, or Provincial Roads Departments (if applicable) and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access

at least 48 hours in advance of same. All detour routes shall be established in consultation with the Municipality and County Roads Department (if applicable).

Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including the provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused.

The Contractor shall note that any deviation from the specified access for the construction of the culvert without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price. Where applicable, the Contractor shall be responsible for any damage caused by them to any portion of the road right-of-way. They shall take whatever precautions are necessary to avoid damage to the roadway. Any damage to the roadway must be restored to its' original condition upon completion of the works.

X. FENCING AND/OR STRUCTURES

Where it is necessary to take down any fence and/or structure to proceed with the work, same shall be done by the Contractor across or along that portion of the work where such fence and/or structure is located. The Contractor shall be required to exercise extreme care in the removal of any fencing and/or structure, to ensure minimum damage to same. The Contractor shall be required to replace any fence and/or structure that is taken down in order to proceed with the work, and the fence and/or structure shall be replaced in a neat and workmanlike manner. The Contractor shall not be required to procure any new materials for rebuilding the fence and/or structure provided that it has used reasonable care in the removal and replacement of same. When any fence and/or structure is removed by the Contractor, and the Owner thereof deems it advisable and procures new material for replacing the fence and/or structure so removed, the Contractor shall replace the fence and/or structure using new materials and the materials from the present fence and/or structure shall remain the property of the Owner.

XI. <u>BENCHMARKS</u>

For use by the Contractor, Benchmarks have been established along the course of the work. The plans include details illustrating the available Benchmarks and the work to be carried out. Benchmarks have been indicated and the Elevations have been shown and shall be utilized by the Contractor in carrying out its work. The Contractor shall note that specific design elevations and grades have been provided for the proposed works. The plans also set out side slopes, bottom width, and other requirements relative to its installation. In all cases, the Contractor is to utilize the specified Benchmarks to establish the identified elevations and grades. The Contractor shall ensure that it takes note of the direction of flow and sets all grades to match the direction of flow within the drain.

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XII. <u>ENVIRONMENTAL CONSIDERATIONS</u>

Prior to commencing work, the Contractor must familiarize themselves with all associated environmental approvals and mitigations. The Contractor shall review the results of any environmental reviews performed for the project, including documents for the purpose of identification of known Species at Risk within the project area and mitigation measures for species and habitat protection. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all Species at Risk and their habitats throughout the course of construction. The Contractor will be responsible for providing the necessary equipment and materials required by any mitigation plans and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

XIII. FINAL CLEANUP AND RESTORATION

The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no portion shall be left in any untidy or incomplete state before subsequent portions are undertaken. Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition. The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no work shall be left in any untidy or incomplete state before subsequent portions are undertaken.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include, but not be limited to, all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense. All roadways, driveways and access bridges, or any other means of access onto the job site shall be fully restored to their former condition at the Contractor's expense. In the event that the Contractor fails to satisfactorily clean up any portion of these accesses, the Consulting Engineer shall order such cleanup to be carried out by others and the cost of same to be deducted from any monies owing to the Contractor.

XIV. GENERAL CONDITIONS

- a) The Drainage Superintendent or Consulting Engineer shall have the authority to carry out minor changes to the work where such changes do not lessen the efficiency of the work.
- b) The Contractor shall provide a sufficient number of layout stakes and grade points so that the Drainage Superintendent and Consulting Engineer can review same and check that the work will generally conform with the design and project intent.
- c) The Contractor will be responsible for any damage caused by it to any portion of the Municipal Road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of the road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If

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any part of the travelled portion of the road is damaged by the Contractor, the Municipality shall have the right to have the necessary repair work done by its employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's contract and credited to the Municipality. The Contractor, upon completing the works, shall clean all debris and junk, etc., from the roadside of the drain, and leave the site in a neat and workmanlike manner. The Contractor shall be responsible for keeping all public roadways utilized for hauling materials free and clear of mud and debris.

- d) The Contractor will be required to submit to the Municipality, a Certificate of Good Standing from the Workplace Safety and Insurance Board prior to the commencement of the work and the Contractor will be required to submit to the Municipality, a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before Final Payment is made to the Contractor.
- e) The Contractor shall furnish a Performance and Maintenance Bond along with a separate Labour and Material Payment Bond within ten (10) days after notification of the execution of the Agreement by the Owner unless otherwise established within the Tender Documents. One copy of said bonds shall be bound into each of the executed sets of the Contract. Each Performance and Maintenance Bond and Labour and Material Payment Bond shall be in the amount of 100% of the total Tender Price. All Bonds shall be executed under corporate seal by the Contractor and a surety company, authorized by law to carry out business in the Province of Ontario. The Bonds shall be acceptable to the Owner in every way and shall guarantee faithful performance of the contract during the period of the contract, including the period of guaranteed maintenance which will be in effect for twelve (12) months after substantial completion of the works.

The Tenderer shall include the cost of bonds in the unit price of the Tender items as no additional payment will be made in this regard.

- f) The Contractor shall be required, as part of this Contract, to provide Comprehensive Liability Insurance coverage for not less than \$5,000,000.00 on this project unless otherwise established in the Tender Documents, and shall name the Municipality and its' officials, and the Consulting Engineer and its staff as additional insured under the policy. The Contractor must submit a copy of this policy to both the Municipal Clerk and the Consulting Engineer prior to the commencement of work.
- g) Monthly progress orders for payment shall be furnished the Contractor by the Drainage Superintendent. Said orders shall be for not more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% will be paid 60 days after the final acceptance and completion of the work and payment shall not be authorized until the Contractor provides the following:
 - i) a Certificate of Clearance for the project from the Workplace Safety and Insurance Board
 - ii) proof of advertising
 - iii) a Statutory Declaration, in a form satisfactory to the Consulting Engineer and the Municipality, that all liabilities incurred by the Contractor and its Sub-Contractors in carrying out the Contract have been discharged and that all liens in respect of the Contract and Sub-Contracts thereunder have expired or have been satisfied, discharged or provided for by payment into Court.

The Contractor shall satisfy the Consulting Engineer or Municipality that there are no liens or claims against the work and that all of the requirements as per the Construction Act, 2018 and its' subsequent amendments have been adhered to by the Contractor.

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SPECIAL PROVISIONS

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SPECIAL PROVISIONS

TABLE OF CONTENTS

I.	General Scope of Work	2
II.	Conservation Authority and DFO Considerations	2
III.	MECP Considerations	3
IV.	Environmental Considerations	4
V.	Access to Work	5
VI.	Working Corridors	5
VII.	Removal of Brush, Trees and Rubbish	6
VIII.	Wetland Excavation	7
IX.	Refuge Pools	8
Х.	Earthen Plug, Earthen Dyke Construction, and Spreading of Excavated Material	8
XI.	Connecting the Wetland to the Cedar Beach Canal	9
XII.	General Erosion Protection	9
XIII.	Topsoil, Seeding and Mulching	9

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SPECIAL PROVISIONS

PROJECT

Moroun Pumping Scheme Improvements

(Geographic Township of Gosfield South) Town of Kingsville, County of Essex Project No. D21-118

I. **GENERAL SCOPE OF WORK**

These Special Provisions, along with the Report, Appendices, Standard Specifications and the accompanying drawings, consider the furnishings of all labour, equipment and materials required for the performance of all operations related to the improvements to a Municipal Drain known as the "Moroun Pumping Scheme" under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021". These improvements to the drainage system shall consist of the creation of a wetland, the installation of a new flood protection dyke along the west side of the project site, and the modification to the existing dyke system located along the north side of the Cedar Beach Canal. These works shall include all excavation, grading, spreading of excavated material, installation of general erosion protection, seeding and mulching, restoration, and other ancillary work to provide a complete and satisfactory job.

All work shall be carried out in accordance with these Special Provisions and Standard Specifications that serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. The Contractor shall review the information outlined within Appendix "A" The works shall be further carried out in accordance with the accompanying drawings labeled herein as Appendix "B." Where there are differences between the Special Provisions and the Standard Specifications included herein, the Special Provisions shall govern. The features included as part of this project shall be of the size, type, depth, etc., as is shown in the accompanying drawings, as determined from the **Benchmark**, and as may be further laid out at the site at the time of construction. All work carried out under this project shall be completed to the satisfaction of the Drainage Superintendent or the Consulting Engineer.

Π. CONSERVATION AUTHORITY AND DFO CONSIDERATIONS

The Contractor shall be required to implement stringent erosion and sedimentation controls during the course of the work to minimize the amount of silt and sediment being carried downstream. It is intended that work on this project be carried out during relatively dry weather to ensure the proper site and drain conditions and to avoid conflicts with sediment being deposited into the outlet drainage systems. All disturbed areas shall be restored as quickly as possible with grass seeding and mulching installed to ensure a protective cover and to minimize any erosion from the work site subsequent to construction. The Contractor may be required to provide temporary silt fencing and straw bales as outlined further in these specifications.

All of the work shall be carried out in accordance with any permits or authorizations issued by the Conservation Authority or the Department of Fisheries and Oceans (DFO), copies of which shall be provided, if available. The Contractor is advised that no work shall be carried out in the existing drain from March 15 to July 15, of any given year.

As part of its work, the Contractor shall implement the following measures that shall ensure that any potential adverse effects on fish and fish habitat shall be mitigated:

- a. As per standard requirements, work shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be done in the dry.
- b. All disturbed soils on the drain banks and within the channel, including spoil, must be stabilized immediately upon completion of work. The restoration of the site must be completed to a like or better condition than what existed prior to the works. The spoil material must be hauled away and disposed of at a suitable site or spread an appropriate distance from the top of the drain bank to ensure that it is not washed back into the drain.
- c. To prevent sediment entry into the drain, in the event of an unexpected rainfall, silt barriers and/or traps must be placed in the channel during the works and until the site has been stabilized. All sediment and erosion control measures are to be in accordance with related Ontario Provincial Standards. It is incumbent on the proponent and its contractors to ensure that sediment and erosion control measures are functioning properly and are maintained/upgraded as required.
- d. Silt or sand accumulated in the barrier traps must be removed and stabilized on land once the site is stabilized.
- e. All activities including maintenance procedures should be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicular refuelling and maintenance should be conducted away from the water.

Not only shall the Contractor comply with all of the above, but it shall also be required to further comply with notes included within the correspondence with the ERCA and the Letter of Advice provided by the DFO. Both of these documents are included in **Appendix "A"**.

III. MECP CONSIDERATIONS

Under the Species at Risk Provincial Legislation, set in place with the Ministry of Environment, Conservation and Parks (MECP), Section 23.9 of the Endangered Species Act, 2007, allows the Municipality to conduct eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08.

Prior to commencing work, the Municipality will complete an "Endangered Species Act Review" for the subject drain and will provide the Contractor with the results of said review, including documents for the purpose of identification of known Species at Risk within the project area and mitigation measures for species and habitat protection. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all Species at Risk and their habitats throughout the course of construction.

The Contractor will be responsible for providing the necessary equipment and materials required by the mitigation plans and shall contact the Drainage Superintendent immediately if any Endangered Species are encountered during construction.

IV. ENVIRONMENTAL CONSIDERATIONS

Due to the sensitive nature of this project, Biological investigations were performed to identify natural heritage features (aquatic and terrestrial) along the course of the drainage works. This evaluation was conducted to satisfy the requirements of the Conservation Authorities Act through the Essex Region Conservation Authority (ERCA), the Fisheries Act through the Department of Fisheries and Oceans (DFO), and the Endangered Species Act through the Ministry of Environment, Conservation, and Parks (MECP). As such, specific approvals and authorizations have been issued for this project and these details have been included in **Appendix "A"**. The Contractor shall familiarize themselves with these documents and be responsible to make certain that necessary provisions are undertaken to ensure the protection of all Species at Risk and their habitats throughout the course of construction. The Contractor will be responsible for providing the necessary equipment and materials required by the mitigation plans and shall contact the Tonw of Kingsville Drainage Superintendent immediately if any Endangered Species are encountered during construction.

Prior to any work conducted on the project, the Contractor shall submit a suitable Water, Sediment and Erosion Control Plan. All of these plans shall be submitted for review and approval from all applicable environmental approval agencies. Due to the direct connection to the Cedar Beach Canal and Lake Erie, a Team of Biologist has been retained to conduct a fish salavage operation during the detwatering process. The Contractor shall provide all labour and equipment to assist the biologists when conducting the fish salavage operation to ensure that no fish, mussels, or turtles are harmed by the proposed works. Any species found within the project site shall be removed and relocated downstream of the project site. The fish salavage operations shall be completed to the full satisfaction of the Drainage Superintendent, ERCA, DFO, MECP and/or the MNRF.

In addition to the fish salvage operations, the Contractor shall be responsible to provide Fish Exclusion Measures within the length of the existing open drain where work is being performed. The Fish Exclusion Measures shall be initiated prior to the start of the drain filling process by use of a standard fish seine net. During the dewatering process, a fish seine exclusion net shall be installed at the pump intake to protect from any species being harmed by the pump. The fish seine shall be installed a sufficient distance from the pump intake to ensure that there will be no impacts to the seine or fish. A seine net shall also be installed in the water upstream of the existing pump and shall be dragged through the water along the entire length of the Adams Drain. The fish seine net shall not be a permanent fixture during the course of the construction works and shall be removed once passed through the water.

The above-noted works shall be completed by the Contractor, at its own expense, and such labour, equipment and materials, and the cost for same shall form part of the Schedule of Items and Prices. Furthermore, all of the above shall be completed to the full satisfaction and compliance of the Drainage Superintendent, ERCA, DFO and/or the MNRF.

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V. ACCESS TO WORK

The Contractor is advised that all the work carried out on this project extends within the private lands of Essex Region Conservation Authority (280-28310), located east of the existing Moroun Pump and auxiliary gravity outlets and west of the residential properties along Canal Street. The Contractor may utilize the entire width of the existing Moroun Pump driveway access, from County Road 50 and located immedidately west of 1370 County Road 50, to permit the completion of all the work required for this project.

Under no circumstances shall the Contractor utilize other private lands, nor shall they utilize Canal Street to access the subject lands. The Contractor shall note that any deviation from the above-mentioned access without the explicit approval of the adjacent landowners and the Drainage Superintendent could result in the Contractor being liable for damages sustained. The value for such damage shall be determined by the Drainage Superintendent and the Consulting Engineer and be subsequently deducted from the Contract Price.

VI. WORKING CORRIDORS

Initial Construction

Once access is obtained onto private lands, the Contractor may also utilize the full project site area, bounded by the existing dyke north of the Cedar Beach Canal, the existing vegetated berm east of the Adams Drain, and extend north along the west limit of the site to the Cedar Creek.

Future Maintenance

Upon the completion of the wetland construction, the subject lands shall be deemed private and shall not form part of the Municipal Drain. The former flood protection dyke and open drain that previously formed part of the Moroun Pumping Scheme no longer forms part of the Municipal Drain and will no longer be maintained by the Town of Kingsville. As such, these features are deemed private and shall be the sole responsibility of the Owner/Occupant of the lands currently owned by the Essex Region Conservation Authority (280-28310), for all future maintenance, together with any associated future costs.

When future maintenance is required to the existing pump station, auxiliary gravity outlets, and the newly constructed flood protection dyke, the Contractor shall be permitted to access from the previously established access route from County Road 50 to the pump station and auxiliary gravity outlets. Once access is obtained onto the private lands the Contractor shall be expected to keep the construction equipment and forces along the top width of the new dyke located east of the auxiliary gravity outlets and extending from Station 0+055.0 to Station 1+200.0. The working corridor shall follow the alignment of the dyke and consist of the full width of the dyke necessary to complete the maintenance works and as outlined within the accompanying cross-sections.

<u>General</u>

The Contractor shall refrain from using any other lands within the subject work site unless otherwise permitted by the Owner and Drainage Superintendent during construction. Confirmation of other permitted working areas must be obtained from the Owner and Drainage Superintendent in writing.

The Owner may permit access to the Contractor to stockpile any excess excavated materials for future use by the Owner.

Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Drainage Superintendent and/or the Consulting Engineer. Restoration shall include, but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused. Any damages caused, resulting from non-compliance with the above-noted provisions, shall be restored by the Contractor to its original condition, at the Contractor's expense.

The Contractor is advised that all excavated material from the work along the residential and lawn area shall be hauled away and disposed of by the Contractor at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor and any work at the disposal site shall be established between the Contractor and the Site Owner. The Contractor shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor shall be responsible for keeping all private and public roadways free and clear of mud and debris resulting from its use of same for access and hauling purposes.

VII. REMOVAL OF BRUSH, TREES AND RUBBISH

Prior to the construction of the wetland within the subject property, the Contractor is to prepare the site for this operation.

Initial Construction

Due to the sensitive nature of the project, it is anticipated that any brushing or tree removal shall only be required within the existing flood protection dyke along the north side of the Cedar Beach Canal, from the existing Moroun Pump Station easterly to the proposed connection between the new wetland and the canal.

Any such brush and/or trees removed shall be utilized as environmental habitat for the various species intended to occupy the proposed wetlands. Thefore, all vegetation salvaged from the brushing operations (ie. logs, branches, root balls, etc.) shall be strategically placed within the proposed wetland/refuge pool under the supervision of the Owner, Consulting Engineer, and/or the Drainage Superintendent. All logs and branches shall be secured in place utilizing a large footer rock/boulder or T-bars and cables supports. Under no circumstances shall any of the usable vegetation be burnt or removed from the site.

It shall be noted that the existing brush line along the west limit of the project site shall remain and be protected throughout the course of construction. Under no circumstances shall any healthy trees be removed without the written consent of the affected Property Owners.

Future Maintenance

Due to the sensitive nature of this project, the Contractor must protect as much vegetation as possible when traversing onto the flood protection dykes. The preservation of trees, bushes, and herbaceous vegetation shall be the Contractor's being a primary concern. However, due to the nature of any future repair, the

top width of the dyke is the only means of access. Therefore, the Contractor shall be allowed to remove any vegetation necessary to provide access to the repair location.

All such brush, trees or rubbish shall be close cut and the whole shall be burned or otherwise satisfactorily disposed of by the Contractor. The brush and trees removed along the course of the work are to be put into piles by the Contractor in locations where they can be safely burned by it, or hauled away and disposed of, by the Contractor to a site to be obtained by it at its expense. Prior to and during the course of the burning operations, the Contractor shall comply with the guidelines prepared by the Air Quality Branch of the Ontario Ministry of the Environment, Conservation and Parks and shall ensure that the Environmental Protection Act is not violated. The Contractor will be required to notify the local fire authorities and cooperate with them in the carrying out of any work. The removal of brush and trees shall be carried out in close consultation with the Municipal Drainage Superintendent or Consulting Engineer to ensure that no decorative trees or shrubs are disturbed by the operations of the Contractor that can be saved. It is the intent of this project to save as many trees and bushes as practical within the roadway allowances and on private lands.

Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain to stand, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

VIII. WETLAND EXCAVATION

The Contractor is to note that the excavation of the new wetland shall be done in a very meticulous manner, to the general lines, levels, grades and cross-sections as shown on the accompanying drawings, or as may be further established by the Drainage Superintendent or the Consulting Engineer at the time of the work. The widths of the wetland and any side slopes of the excavation shall generally conform to the dimensions given on the drawings. The overall wetland shape and side slopes are not intended to be rigid and exact with clean lines and slopes, but rather consist of irregular edges with varying side slopes and depths. However, in no case shall the wetland bottom project above the grade line as shown on the accompanying drawings and as determined from the Benchmark.

Prior to any wetland excavation, the Contractor is expected to stip all of the topsoil from the full width of the new wetland site. This topsoil shall be windrowed and stockpiled within the project site area while maintaining a minimum distance of 4.0 metres from the limit of the wetland excavation. Once all topsoil is satisfactorily stripped from the wetland area, the Contractor shall commence with any excavation works. The stripped topsoil shall be re-used for spreading over all newly constructed earthen dykes and side slopes. Any surplus topsoil shall remain on-site and stockpiled and/or spread for the use of the Owner.

Laser Control must be provided to maintain the minimum channel line and grades, and the Contractor shall have a qualified Operator to set up and operate the equipment. In some instances, but only at the discretion of the Consulting Engineer, an approved system of batter boards may be utilized for this purpose. However, the cost of placing grade stakes and determining the cut information, shall be provided by and/or paid for entirely by the Contractor.

IX. <u>REFUGE POOLS</u>

At the location noted on the accompanying drawings, the Contractor shall construct a refuge pool at the upstream end of the connection to the Cedar Beach Canal. Said pools shall have an irregular shape, having an approximate dimension of 40.0 metres by 20.0 metres. The refuge pool shall have a minimum depth of approximately 1.50 metres and have 1.5 horizontal to 1.0 vertical side slopes, all as shown and detailed on the plans. The Contractor will also be required to provide general erosion protection at the upstream end of each refuge pool that is constructed. The erosion protection shall be centred at the entrance to the refuge pool and shall extend across the pool bottom, and up the side slopes to provide a 5.0 metre by 5.0 metre protection mat against erosion of the entranceway to the refuge pool. The refuge pools shall further be installed in accordance with the details illustrated on Sheet 5 of the accompanying drawings. The refuge pools shall be constructed to the full satisfaction of the Municipal Drainage Superintendent and Consulting Engineer.

X. <u>EARTHEN PLUG, EARTHEN DYKE CONSTRUCTION, AND SPREADING OF EXCAVATED</u> <u>MATERIAL</u>

The Contractor shall provide all labour and equipment, to spread all excavated material to the north and construct the new earthen berm/plug along the west limit of the project area, to the lines, levels, and grades as shown and detailed in the accompanying drawings. Overall, the spread material and earthen berm/plug shall be constructed with a top width of 3.70 metres set to a minimum elevation of 176.000 metres, as noted on the plans. The berm shall also be constructed no steeper than 2.00 horizontal to 1.00 vertical finished side slopes.

The Contractor is advised that the berm/plug shall be constructed utilizing material excavated from the excavation of the wetland area. Any excess fill material may be utilized to supplement the dyke construction or placed elsewhere on site per the Owner's direction. It is expected that the excavation work from the wetland construction will provide sufficient material for the construction of the entire dyke. Should adequate fill not be available onsite for the proposed berm construction, the Contractor may borrow additional fill from the wetland and/or refuge pool site.

All material used for the installation of the flood protection dyke shall be satisfactorily compacted in place to a minimum Standard Proctor Dry Density of 95% by means of mechanical compaction equipment capable of remoulding the select native fill in place in minimum lifts of 150mm thickness. Material shall be compacted conforming to OPSS Form 501 and should be keyed into the native soils to ensure a good bond. The Contractor shall provide at least 48 hours advance notice of proceeding with any placement of compacted fill within the existing drain. This will allow the Drainage Superintendent and/or Engineer to arrange for the necessary inspection and testing by a Geotechnical Consultant, as required. The Contractor shall co-operate with the Drainage Superintendent and/or the Engineer and the Geotechnical Consultant in establishing a procedure for backfilling that achieves the necessary results. The Contractor shall provide the Geotechnical Consultant with any co-operation and assistance necessary for the consultant to carry out his testing and inspections so that a report may be provided to the Engineer upon completion of the works indicating that the necessary compaction levels have been achieved.

Any rocks, stones, boulders, or cobbles larger than the fully compacted layer depth shall be removed and utilized as potential habitat within the wetland and/or refuge pool.

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Once the earth works are complete, the entirety of the constructed dyke shall be covered with top soil and seed as described in section **XIII. TOPSOIL, SEEDING AND MULCHING** outlined below.

XI. CONNECTING THE WETLAND TO THE CEDAR BEACH CANAL

As part of the creation of the proposed wetland, the subject lands shall have a direct connection to the Cedar Beach Canal. Currently, the existing dyke along the north side of the canal serves as flood protection for the subject lands. With the creation of the wetland a hydraulic connection between the new wetland and canal will require the excavation of a portion of the existing dyke. As such, the Contractor will be required to install a temporary sheet pile coffer dam of sufficient size and depth to adequately prevent canal water to enter the site during these operations. Once an appropriate coffer dam has been implemented, the Contractor shall excavate approximately 20.0 metres (bottom width) of the existing dyke to the elevation specified and located approximately 280.0 metres east of the existing auxiliary gravity outlets, having a 2.0 horizontal to 1.0 vertical slope to the top elevation of the existing dyke. The excavations shall be constructed to the general shape and dimensions as indicated on Sheet 5 of the accompanying drawings. At each end of the excavated dyke, the Contractor shall install sloped quarried limestone erosion protection. The quarried limestone erosion protection shall be installed per the details outlined within the subsequent heading "General Erosion Protection".

XII. GENERAL EROSION PROTECTION

Where specified, or as directed by the Drainage Superintendent or Consulting Engineer, the Contractor shall install sloped quarried limestone erosion protection, on a slope no steeper than 2.00 horizontal to 1.00 vertical. It shall have a depth of 300mm and shall extend from the top bank to the toe of the bank, all in accordance with the **"Standard Erosion Protection Detail"** shown within the accompanying drawings. Where sloped quarried limestone is to be placed, it shall be underlain with a synthetic non-woven geotextile filter fabric. All work shall be completed to the full satisfaction of the Drainage Superintendent and/or the Consulting Engineer.

The quarried limestone shall be provided as shown and detailed and shall vary in size from a minimum of 100mm (4") to a maximum of 250mm (10"). The quarried limestone pieces shall be carefully tamped into place with the use of a shovel bucket so that, when complete, the quarried limestone erosion protection shall be consistent, uniform, and tightly laid in place. Prior to placing the quarried limestone, the Contractor shall place non-woven geotextile filter fabric "MacTex MX140" conforming to OPSS 1860 Class 1 or approved equal, as an underlay underneath all areas to be covered in quarried limestone erosion protection. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone. The placement of the geotextile filter fabric and the quarried limestone, and the completion of the quarried limestone erosion protection shall be conducted to the full satisfaction of the Drainage Superintendent and/or Consulting Engineer.

XIII. TOPSOIL, SEEDING AND MULCHING

Once the new flood protection dyke has been constructed, the Contractor is to cover all newly constructed side slopes with a minimum thickness of 50mm (2") of the stripped topsoil, and all of these areas are to be seeded and mulched. The Contractor is also required to place stripped topsoil, with a minimum thickness

of 100mm (4") over the top width of the new dyke. The Contractor shall also provide stripped topsoil with a minimum thickness of 100mm (4") on all other disturbed areas as a result of its operations so that all areas are fully restored to their original conditions. All of the above-mentioned topsoiled surfaces shall be seeded and mulched with the recommended seed mixes.

Upon the completion of the project, the Contractor shall note that if any surplus topsoil remains from the site, it shall be neatly stockpiled by the Contractor at a location on-site designated by the Owner and Drainage Superintendent for future use by the Owner. Under no circumstances shall the surplus topsoil be removed from the site without the expressed written permission from the Owner and/or Drainage Superintendent.

The placing and grading of all topsoil shall be carefully and meticulously carried out according to Ontario Provincial Standard Specifications, Form 802, dated November 2019, or as subsequently amended or as amended by these Specifications.

Once all topsoil has been properly placed and fine-graded, the Contractor shall seed and mulch the area. Seeding and mulching operations shall be carried out according to Ontario Provincial Standard Specifications, Form 804, dated November 2014, or as subsequently amended or as amended by these Specifications. The seeding mixture for all areas surrounding the wetland (uplands) shall be a Base Restoration Seed mix, applied at a rate of 10kg/hectare. For all areas within the wetland (riparian lands), the seeding mixture shall be a Water's Edge Seed mix, applied at a rate of 10kg/hectare. Details of these seed mixtures are included within **Appendix "A**" and are available from St. Williams Nursery & Ecology Centre, Norfolk County, Ontario, or equal. If the species listed above are unavailable, other native prairie plant species indigenous to Essex County may be included in the seed mix. However, no native plant species listed on the Ontario Noxious Weed list can be included. As part of the seeding and mulching operation, the Contractor shall be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with OPSS 804 dated November 2014, or as subsequently amended, to ensure that the grass seed shall be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All areas hand seeded by the Contractor, if deemed necessary by the Drainage Superintendent, shall be covered with a straw mulch to reduce the extent of erosion and facilitate germination of the grass seed.

In order to promote good germination, if the seeding and mulching operation is carried out in the spring, the seeding mixture shall contain oats, and if the seeding and mulching operation is carried out in the fall, the mixture shall contain rye. The seeding and mulching operations within the newly excavated side slopes shall be carried out as soon as practical. All other areas shall only be carried out as weather conditions permit in either the months of May or June in the Spring or during the months of September and October in the Fall unless written permission is obtained from either the Drainage Superintendent or the Consulting Engineer

All of the work related to the placements of topsoil and the seeding and mulching operation shall be meticulously done and shall be carried out to the full satisfaction of the Drainage Superintendent and the Consulting Engineer. In addition, all work shall satisfy the Essex Region Conservation Authority (ERCA) and the Department of Fisheries and Oceans (DFO) and comply with all Permits and Authorizations issued by said Authorities. Substantial Completion shall not be provided for this work until the completed plantings have been inspected and approved by ERCA and DFO.

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APPENDIX "A"

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APPENDIX A-1

Essex Region Conservation Authority Correspondence

Peralta Engineering

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Kiara Kirkland

From:	Tony Peralta
Sent:	June 21, 2024 2:43 PM
То:	James Bryant; Summer Locknick
Cc:	Lu-Ann Marentette; Hannah Waldt; Kevin Money
Subject:	Moroun Pumping Scheme Improvements - Town of Kingsville - D21-118
Attachments:	20240621 PLANS Moroun Pumping Scheme Improvements - A.Peralta.pdf

Good afternoon James and Summer;

Further to our ongoing correspondence regarding the necessary improvements to the Moroun Pumping Scheme to facilitate the construction of a wetland, below and attached, you will find the design proposal intended to be implemented for this project.

Currently, a flood protection dyke and open drain forms part of the Municipal Drain along the Cedar Beach Canal that serves as protection against the lake levels. In order to implement the wetland, this flood protection dyke shall be partially excavated to allow for lake water to enter the site and a new flood protection dyke shall be installed along the west limit of the project site. The following are the details of the proposed work:

- 1. The wetland area shall include a deeper area near the proposed connection to the Cedar Beach Canal. The excavated materials shall be utilized to create an isolation plug and flood protection dyke along the west limit of the project site.
- 2. Once the project site is isolated, the existing dyke along the Cedar Beach Canal will be excavated to hydraulically connect the lake to the wetland.
- 3. As part of the wetland construction, a minimum 1.50m deep refuge shall be constructed having an irregular shape (with approximate dimensions of 20m by 40m). The depth of the refuge pool has been established to provide sufficient water storage during times of low lake levels.
- 4. In order to ensure that no adverse effects are created by the improvements to the subject and surrounding properties, a hydraulic analysis was conducted for this project to analyze the existing parameters and proposed requirements.
 - a. The analysis concluded that any new flood protection dyke shall be set to a minimum floodproofing elevation of 176.000m.
 - b. The proposed dyke shall be constructed with a top width of 3.70m (similar to the existing dyke) to the specified top elevation while having a 2.0 horizontal to 1.0 vertical slope. This top width will also serve as the working corridor for any future repairs or improvements required.
 - c. As it relates to the land associated with Canal Street, the analysis further concluded that should the lake levels exceed the all-time high, lake water could currently move freely through the affected lands between the canal and the proposed wetland/marsh. Therefore, installing a flood protection berm/dyke adjacent to the residential lots will ultimately cut off any natural conveyance of lake water and potentially trap lake water between the canal and the berm/dyke. Although, the optics of not installing flood-proofing measures appear unfavourable, installing flood-proofing measures could potentially create adverse impacts on these lands. Therefore, it was determined that no additional flood-proofing measures shall be implemented adjacent to the existing residential lands located along Canal St. and the status quo would present the least impact on these lands.

- 5. The existing flood protection dyke and open drain shall be abandoned as part of the Municipal Drain and shall be replaced with the new flood protection dyke along the west side of the project site.
- 6. With the subject lands removed from the Moroun Pumping Scheme watershed, the level of protection related to the pump operations shall be adjusted to better suit the affected agricultural properties and the remaining floodable area within the ERCA lands.

As it relates to the environmental regulations, our office conducted an "Environmental Scoping Meeting" with all applicable agencies and further addressed all regulatory requirements set out for this project.

We trust that this information is satisfactory. However, if you have any questions, or concerns, or require additional information regarding the details outlined above, please contact us at your earliest opportunity as we intend on moving towards the final design stage and finalizing this report shortly.

Regards,



Tony Peralta, P.Eng.

tony@peraltaengineering.com | 519-733-6587 x 122 N.J. Peralta Engineering Ltd. - Consulting Engineers 45 Division St. N., Kingsville ON N9Y 1E1 peraltaengineering.com

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From: Tony Peralta <tony@peraltaengineering.com>
Sent: Thursday, February 29, 2024 8:23 AM
To: James Bryant <JBryant@erca.org>; Kevin Money <KMoney@erca.org>
Cc: Lu-Ann Marentette <Imarentette@kingsville.ca>; Hannah Waldt <h.waldt@peraltaengineering.com>; Nolan Harris
<n.harris@peraltaengineering.com>
Subject: RE: Maroon Drain/Cedar Creek Wetland

Good morning James;

Thank you for the comments.

I have also reached out to Kevin to discuss the maintainability of the N-S berm/dyke once constructed. Seeing that it will be the only access to provide future repairs, we will need to ensure it is wide enough to support construction equipment. Furthermore, this berm/dyke will form part of the Maroun Pumping Scheme, where maintenance provisions will be included in the report.

This information helps solidify our design approach and we will continue moving forward towards completing the Drainage Report.

If you have any further questions, comments, or concerns, please feel free to contact us.

Regards,



Tony Peralta, P.Eng.

tony@peraltaengineering.com | 519-733-6587 x 122 N.J. Peralta Engineering Ltd. - Consulting Engineers 45 Division St. N., Kingsville ON N9Y 1E1 peraltaengineering.com **IMPORTANT:** We have temporarily relocated to Unit 1-38 Erie Street North, Learnington ON N8H 2Z3 during the construction of the new office building at our Kingsville location.

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From: James Bryant <<u>JBryant@erca.org</u>> Sent: Wednesday, February 28, 2024 8:28 AM To: Tony Peralta <<u>tony@peraltaengineering.com</u>>; Kevin Money <<u>KMoney@erca.org</u>> Cc: Lu-Ann Marentette <<u>Imarentette@kingsville.ca</u>> Subject: RE: Maroon Drain/Cedar Creek Wetland Importance: High

Hi Tony,

Kevin and I had a conversation yesterday and here's the highlights that should help you:

- Kevin is not looking to install any special infrastructure to facilitate maintenance. If something needs to be done, coffer dams will likely be the method of choice. Therefore, no gates required which should simplify the opening design.
- I believe we established the Berm height for the N-S berm to be 176.00m CVGD28:78
- Kevin and I did not discuss future maintenance etc. or management plans related to the Berm. I suggest you talk
 directly with Kevin if there is more detail needed for this. Kevin will have a management plan for the property,
 although it's necessary to determine who will maintain the berm in good working order (ERCA, or the
 Municipality through the Act).
- The E-W berm has been a topic amongst us all over the past month or so. I still believe that demonstrating that the homes on Canal Street a susceptible to flooding regardless of a berm will simplify the design for this project (essentially negating the need for the flood protection berm north of these properties).

I will call you as a follow up to this to make sure that I didn't miss anything.

Cheers,

James



JAMES BRYANT, P.Eng. Director of Watershed Management Services Essex Region Conservation Authority 360 Fairview Avenue West, Suite 311 | Essex, Ontario | N8M 1Y6 P. 519-776-5209 x 246 | F. 519-776-8688

jbryant@erca.org www.essexregionconservation.ca

While this email is sent when it is convenience for me, I do not expect a response or action outside of your own regular working hours.

The ERCA Office is open to the public **Tuesdays, Wednesdays and Thursdays** to provide "counter service"; however, services continue to be delivered online and through email. Please consult ERCA's website for more information and direction regarding online services (i.e. permitting, cottage bookings, seasonal passes etc.)

From: Tony Peralta <<u>tony@peraltaengineering.com</u>>
Sent: Tuesday, February 27, 2024 9:00 AM
To: Kevin Money <<u>KMoney@erca.org</u>>
Cc: Lu-Ann Marentette <<u>Imarentette@kingsville.ca</u>>; James Bryant <<u>JBryant@erca.org</u>>
Subject: RE: Maroon Drain/Cedar Creek Wetland

Good morning Kevin;

We understand that you will be meeting with James this morning. Attached, you will find our "internal" document outlining our last meeting notes. This should help you with your discussions with James.

Once you have reviewed the details of the project, we suggest another virtual meeting to discuss your findings.

Regards,



Tony Peralta, P.Eng. tony@peraltaengineering.com | 519-733-6587 x 122 N.J. Peralta Engineering Ltd. - Consulting Engineers 45 Division St. N., Kingsville ON N9Y 1E1 peraltaengineering.com

IMPORTANT: We have temporarily relocated to Unit 1-38 Erie Street North, Learnington ON N8H 2Z3 during the construction of the new office building at our Kingsville location.

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From: Kevin Money <<u>KMoney@erca.org</u>> Sent: Tuesday, February 27, 2024 8:36 AM To: Tony Peralta <<u>tony@peraltaengineering.com</u>>; Lu-Ann Marentette <<u>Imarentette@kingsville.ca</u>> Subject: Maroon Drain/Cedar Creek Wetland

Hi Tony,

Just wondering how the engineering and design are coming along for this and when you would be ready to submit to DFO for permits.

Thanks,



KEVIN MONEY Director of Conservation Services Essex Region Conservation Authority 360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6 P. 519-776-5209 x 351 • <u>kmoney@erca.org</u> • <u>essexregionconservation.ca</u> At ERCA we continue to work flexibly, so while I am emailing you when it suits me, you do not need to respond outside of your business hours

APPENDIX A-2

Department of Fisheries and Oceans Authorization

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Fisheries and Oceans Canada Pêches et Océans Canada

Ontario and Prairies Region Fish and Fish Habitat Protection Program 867 Lakeshore Road Burlington, ON L7S 1A1

June 4, 2024

Région de l'Ontario et des Prairies Programme de la protection du poisson et de son habitat 867 Lakeshore Road Burlington, ON L7S 1A1

Our file Notre référence 24-HCAA-00134

The Corporation of the Town of Kingsville ATTENTION: Lu-Ann Marentette 2021 Division Road North Kingsville, ON, N9Y 2Y9

Subject: Dyke Repairs and Water Drawdown, Adams Drain/Armstrong Wetland, Kingsville – Application for Authorization under the *Fisheries Act* Required, but Prohibited Effects on Listed Aquatic Species at Risk Are Not Likely.

Dear Lu-Anne Marentette:

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on January 19, 2024. We understand that you propose to:

- Drawdown the entire Armstrong property wetland are as well as part of Adams Drain and the flooded areas adjacent to Adams Drain for a maximum total footprint of 222,000m²;
- Salvage fish and mussels during the drawdown for up to four days;
- Install a new dyke adjacent and parallel to the existing North/South dyke on the western side of the Armstrong property for a maximum fill footprint of 11,000m²;
- Connect the newly installed North/South dyke to the existing East/West dyke; and
- Intentionally breach the East/West dyke to allow permanent connect of the Armstrong property wetland to Cedar Creek.

We understand the following aquatic species listed under the *Species at Risk Act* may use the area in the vicinity of where your proposal is to be located:

• Northern Sunfish listed as Special Concern.

Our review considered the following information:

- Request for review form and associated documents submitted to DFO on January 19, 2024;
- Teams meeting between Colby Nolan (DFO), Tony Peralta (Peralta Engineering), Kevin Money (ERCA), and Lu-Ann Marentette on April 26, 2024;
- Email correspondence between Colby Nolan, Tony Peralta, and Todd Leadly (University of Windsor) from April 22 May 7, 2024.

Your proposal has been reviewed to determine whether it is likely to result in:



.../2

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*; and
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*.

The aforementioned outcomes are prohibited unless authorized under their respective legislation and regulations.

Based on the review of the above information, the Program has concluded that the following work, undertaking or activity is likely to result in the death of fish by means other than fishing, and/or the harmful alteration, disruption or destruction of fish habitat:

- Water drawdown resulting in a disruption footprint up to a maximum of 222,000m²; and
- Dyke installation resulting in $\sim 11,000$ m² of destruction via infill.

Your proposal requires authorization pursuant to paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act* in order to proceed. As your proposal is not likely to result in prohibited effects on listed aquatic species at risk, no permit will be required under the *Species at Risk Act*.

Please submit the following information and documents to apply for a *Fisheries Act* authorization:

- a completed Application Form for the Issuance of an Authorization under Paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act* (Non-Emergency Situations) (<u>http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-005-eng.html</u>);
- the required information and documentation set out in the Authorizations Concerning Fish and Fish Habitat Protection Regulations (the Regulations) (<u>http://www.gazette.gc.ca/rp-pr/p2/2019/2019-08-21/html/sor-dors286-eng.html</u>); and
- an irrevocable letter of credit or another equivalent financial guarantee, including a Performance Bond (for requirements see: <u>http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/applicants-guide-candidats-eng.html#131</u>) to cover the cost of offsetting plan, if you are not exempted from providing one as set out in subsection 2(2) of the Regulations.

Should you choose to relocate or redesign your proposal, this could reduce the potential impacts of your proposal to a level where the aforementioned prohibited effects to fish and fish habitat can be avoided and authorization under the *Fisheries Act* would no longer be required. If you choose to modify your proposal to avoid a need for authorization, please submit your revised Request for Review form.

Before an authorization can be issued, DFO may be required to address section 35 of the Constitution Act, 1982 the duty to consult and possibly accommodate with respect to

potential adverse impacts on Aboriginal or Treaty rights. This may require DFO to consult with potentially affected groups to discuss potential impacts and means to address (accommodate) them.

As you are aware, Bill C-68 included new provisions (sections 42.2 to 42.5) in the *Fisheries Act* that require the Minister of Fisheries and Oceans to establish a public registry to facilitate public access to certain records, including amongst other items, authorizations issued pursuant to paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act*. While the public registry provisions of the *Fisheries Act* are not yet in force, the Department has begun to post a list of authorizations issued since August 28, 2019, when amendments to the fish and fish habitat protection provisions of the Act came into force.

If DFO issues such an authorization at the end of its review of your proposed works, undertakings or activities taking place in or near water, information pertaining to this authorization will be posted to the *Fisheries Act* Registry and accessible from the Department's website at <u>https://www.dfo-mpo.gc.ca/pnw-ppe/registry-registre-eng.html</u> as well as from the Open Government Portal at: <u>https://open.canada.ca/data/en/dataset/2c09d2fd-9a8e-4d8c-b5af-95747e36eaac</u> and the Common Project Search at <u>https://common-project-search.canada.ca/</u>. Information and data will be updated as the Department continues to develop the *Fisheries Act* Registry.

Any disclosure of information will be conducted in accordance with the *Access to Information Act* and the *Privacy Act*. Should you have any documents that contain sensitive or proprietary information that you believe should be protected from public disclosure, please contact us prior to providing them to DFO to discuss whether and how the information may be protected.

Please be advised that any unauthorized work, undertaking or activity that violates sections 34.4 and 35 of the *Fisheries Act*, sections 32, 33 and/or subsection 58(1) of the *Species at Risk Act* could lead to corrective action such as enforcement.

If you have any questions with the content of this letter, please contact Colby Nolan at our Burlington office by phone at (416) 919-4615 or by email at <u>Colby.Nolan@dfo-mpo.gc.ca</u>. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

William Alass

William Glass Team Leader, Coastal and Marine Fish and Fish Habitat Protection Program Copy: Kevin Money – ERCA Tony Peralta – Peralta Engineering Todd Leadly – University of Windsor


Application Form for the Issuance of an Authorization under Paragraphs 34.4(2) (b) and 35(2)(b) of the *Fisheries Act* (Non-Emergency Situations)

I, the undersigned, hereby request an authorization for the purpose of paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act*. I understand that this authorization, if granted, is only from the standpoint of the Minister of Fisheries and Oceans in regards to the above named provisions and does not release me from my obligation to obtain permission from other concerned regulatory agencies or from other act or regulations such as *Species at Risk Act* or the *Aquatic Invasive Species Regulations*.

Texts in brackets refer to the provisions of the Authorizations Concerning Fish and Fish Habitat Protection Regulations (hereafter "the Regulations") or of their Schedules.

1. Applicant Contact Information

Applicant's Name:	If applicable:
1.) The Corporation of the Town of Kingsville	Authorized Representative's Name:
Lu-Ann Marentette (Drainage Superintendent)	Taux, Davalta (N. I. Davalta Englis aguing I tal.)
2.) Essex Region Conservation Authority	Tony Peralta (N.J. Peralta Engineering Ltd.)
Kevin Money (Director of Conservation Services)	
Address:	Address:
1.) 2021 Division Road North, Kingsville, Ontario, N9Y 2Y9	45 Division Street North, Kingsville, Ontario, N9Y 1E1
2.) 360 Fairview Avenue West, Suite 311, Essex, Ontario, N8M 1Y6	
Talankana Na .	Telephone No.:
	519-733-6587 Ext. 122
1.) 519-733-2305 Ext. 267	
2.) 519-776-5209 EXT. 351	Fax No.:
Fax No.:	
	E-mail:
F-mail [.]	tonv@peraltaengineering.com
1) Imarentette@kingsville.ca	, , , , , , , , , , , , , , , , , , ,
2) kmoney@erca.org	
2.) Knoncy@crea.org	
DFO File Referral No. (if known):	

24-HCAA-00134

2. Checklist for Prescribed Information [schedule 1]

An applicant does not need to re-submit documents that have already been submitted to DFO for review. An applicant may reference documents such as Environmental Impact Statements, technical supplements, etc. in their application but must provide the appropriate reference to any document cited, including the chapter, section, page reference and date of submission.

Type of Information/ Documentation	Have you submitted the following? (Yes/No)	Identify the appropriate reference document: Title, Chapter, Section, Page Number and Date of Submission	DFO Comments (For official use only)
Financial Guarantee [paragraph 2(1)(b)]	No	See attachment	
Description of Proposed work, undertaking or activity [schedule 1, section 2]	Yes	DFO Request for Review, Section B "Description of Project," page 2-3, submitted on January 19th, 2024	



Project engineering specifications, scale drawings and dimensional drawings (for physical works) [schedule 1, section 3]	No	See attachment	
Phases and schedule information [schedule 1, section 4]	No	See attachment	
Location information [schedule 1, sections 5& 6]	Yes	DFO Request for Review, Section C and D, page 3-4, and "Appendix B - Field Report from Biologist" page 1-3, submitted on January 19th, 2024	
Descriptions of any consultations undertaken prior to application (if any) [schedule 1, section 7]	No	See attachment	
Description of Fish and Fish Habitat (Aquatic Environment) [schedule 1, section 8]	Yes	"Appendix B - Field Report from Biologist", submitted as part of DFO Request for Review on January 19th, 2024	
Description of Effects on Fish and Fish Habitat [schedule 1, section 9]	Yes	DFO Request for Review, Section E "Potential Effects of the Proposed Project," page 4-5, submitted on January 19th, 2024	
Description of Measures and Standards to Avoid or Mitigate death of fish or harmful alteration, disruption or destruction of fish habitat [schedule 1, section 10]	Yes	DFO Request for Review, Section E "Potential Effects of the Proposed Project," page 6, submitted on January 19th, 2024	
Description of monitoring measures to assess effectiveness of measures anc standards described in section 10 [schedule 1, section 11]	No	See attachment	
Description of contingency measures that will be implemented if measures and standards (section 10) do not meet their objectives [schedule 1, section 12]	No	See attachment	
Description of the death of fish after measures and standards are implemented [schedule 1, section 13]	No	See attachment	
Description of the Residual harmful alternation, disruption or destruction of fish habitat after measures and standards are implemented [schedule 1, section 14]	No	See attachment	
Habitat Credits [schedule 1, section 15]	No	See attachment	
Offsetting Plan (including geographic coordinates and small scale site plan) [schedule 1, section 16]	No	See attachment	



Canada

3. Fisheries Management Objectives

Did you consider local Fisheries Management Objectives in your planning process?

🔾 Yes 💿 No

If yes, please identify the Fisheries Management Objective(s)/Plan considered and, if applicable, reference the relevant sections.

Please identify any effects that the proposed work, undertaking or activity may have on achieving these objectives.

Applicant Declaration

I solemnly declare the that information provided for this application are true, complete and correct, and I make this declaration conscientiously believing it to be true knowing that it is of the same force and effect as if made under oath. This declaration applies to all material submitted as part of this application for paragraphs 34.4(2)(b) and 35(2)(b) *Fisheries Act* Authorization.

Tony Peralta	21/06/2024
Applicant's signature (and corporate seal):	Date

Information about the above-noted proposed work, undertaking or activity is collected by DFO under the authority of the *Fisheries Act* for the purpose of administering the Fish and Fish Habitat Protection Provisions of the *Fisheries Act*. Personal information will be protected under the provisions of the *Privacy Act* and will be stored in the Personal Information Bank number DFO PPU 680. Under the provisions of the *Privacy Act*, individuals have a right to, and on request shall be given access to, any personal information about them contained in a personal information bank. Instructions for obtaining personal information are contained in the Government of Canada's Info Source publications available at www.infosource.gc.ca or in Government of Canada offices. Information other than "personal" information may be accessible or protected as required by the provision of the *Access to Information Act*.

If you require additional space to provide relevant information, please attach that information and indicate the title of the form being used and the section to which you are responding.

Moroun Pumping Scheme Dyke Enhancements (D21-118) - Town of Kingsville

Schedule 1, Section 1 – Offsetting Cost Estimate

The cost estimate to complete the construction monitoring and post-construction performance monitoring specified in the offset plan is provided in the table below. The costing includes all labour and materials required to complete the offset. The value of the proposed letter of credit has been calculated using criteria described in "An Applicant's Guide to Submitting an Application for Authorization under Paragraph 35(2)(b) of the Fisheries Act, November 2013" Annex A and as per project-specific discussion with the DFO.

Item	Cost Estimate
Construction	
Construction of a passive connecting channel between the wetland and the Cedar	\$5000
Creek Channel that connect with Lake Erie	
Structural Performance Monitoring – confirming water depth in passive	
connection	
Year 1	\$1000
Year 2	\$1000
Year 3	\$1000
Biological Performance Monitoring – presence of new native fish in wetland	
Year 1	\$5000
Total	\$13,000

<u>Schedule 1, Section 3</u> - Project Engineering Specifications, Scale Drawings and Dimensional Drawings (for Physical Works)

Preliminary design drawings are attached as a part of this submission.

<u>Schedule 1, Section 4</u> – Phases and Schedule Information

Construction will begin approximately on July 15, 2024 and end on December 31, 2024.

Based on the details of the project, we recommend the following sequence of operations toward the isolation of the subject project area and implementation of the proposed wetland.

- a. Initiate a dewatering process utilizing the existing Moroun Pump and/or other pumping equipment.
- b. During the dewatering process, have a team of biologists, proponent staff and volunteers perform a fish and mussel salvage operation, which includes fish protection measures at the pump.

Moroun Pumping Scheme Dyke Enhancements (D21-118) – Town of Kingsville

- c. Once the site is dewatered, disconnect the subject lands from the Moroun Pumping Scheme by installing an earthen plug at the southwest corner of the property, located immediately east of the existing pump station and auxiliary gravity outlets.
- d. Once isolated, excavate and grade the subject lands to create a centrally deeper area with a sediment/refuge pool(s). All excess material extracted from the area shall be utilized to construct a new dyke/berm along the west side of the project area to protect the lands to the west.
- e. Following the full construction of the west dyke and the completion of the necessary grading, the existing dyke/berm at the south limit of the property (adjacent to the Cedar Beach Canal) shall be opened up to allow lake water to flood the subject lands.

<u>Schedule 1, Section 7</u> – Descriptions of Any Consultations Undertaken Prior to Application

Environmental Scoping Meetings

 Held on April 19, 2023, and May 3, 2023 with ERCA, the Department of Fisheries and Oceans (DFO), the Ministry of Natural Resources (MNR), the Ministry of Environment, Conservation and Parks (MECP), along with Town of Kingsville Staff.

On-Site Meeting

• Held on July 12, 2023 with landowners in the watershed, representatives from ERCA, the County of Essex, and the Town of Kingsville.

Indigenous Consultation

- Held on May 22, 2024 with Caldwell First Nation and Aamjiwnaang First Nation.
- Held on June 18, 2024 with Aamjiwnaang First Nation Environmental Committee, to present the project. There were no objections or questions from the committee. DFO representative was present for this meeting.
- Plans and presentations were emailed to Walpole First Nation and many attempts for engagement via phone and email were made without any response.

<u>Schedule 1, Section 11</u> - Description of Monitoring Measures to Assess Effectiveness of Measures and Standards

- In water works timing window
 - Observe timing windows in Southern Ontario (March 15th to July 15th).
- Dewatering (DFO Interim Code of Practice) End of pipe fish protection screen and discharge.
 - Daily inspection of intake screen to confirm securely in place.
 - Daily inspection to ensure pump water discharge remains over rip rap slope.
- Fish and mussel salvage during the dewatering of the project site (duration of four days)
 - Onsite biologists to continuously monitor receding water edge for any potential strandings and communication with pump operator.
 - Close monitoring of dissolved oxygen (DO) concentrations and temperature of fish transport tanks. Tank aerators will be used to ensure dissolved oxygen concentrations do not fall below 5 mg/L. Temperature difference between holding tank and receiving water not to exceed 1°C. A handheld YSI meter ill be used to monitor the DO and temperature.

Moroun Pumping Scheme Dyke Enhancements (D21-118) - Town of Kingsville

- Biologists will monitor safe (acclimated) release of all fish and mussels into Cedar Creek.
- A fish salvage report will be completed and provided to the DFO following project completion.
- Construction of a passive connection to Cedar Creek Canal to allow lake water to enter wetland.
 - Silt and fish exclusion screens installed south of the dyke on the canal side. Daily monitoring of screens to ensure they remain secure through out construction period.
 - Monitor and ensure all machinery and industrial equipment arrives onsite clean. All excavators and equipment will be monitored throughout construction period to ensure no fluid leaks and all refuelling occurs offsite.
 - All fill material will be monitored to ensure no runoff during precipitation events occurs and enters the adjacent Cedar Creek canal. Rock used should be clean and free of particulates. Onsite monitoring will include daily inspections.
- Fish Monitoring Plan
 - Passive Fish Survey
 - A fish survey of the wetland and constructed refuge pool is proposed one year post construction. The goal of the fish survey is to demonstrate that the restored wetland habitat and refuge pool is being successfully used by the Cedar Creek fish community.
 - A total of 25 baited minnow traps will be distributed throughout the wetland which includes the deeper refuge pool adjacent to the newly constructed entrance at the Cedar Creek canal (as described above). The proposed survey will occur either early spring or late fall to avoid excessive temperatures. Traps will be baited with sharp cheddar, secured in place and allowed to soak no longer than a 24-hour interval before checking. All fish will be removed, identified, counted and photographed. Fish handling and rapid release will be carried out by a qualified fish biologist. No voucher specimens are to be collected.
 - Success criteria (as suggested by DFO) will be two or more species over a 2-day sampling period. A monitoring report with all survey results will be issued to ERCA and DFO upon completion.
- Structural Performance Monitoring
 - Monitoring of the constructed passive entrance between the wetland and the Cedar Creek canal. A site visit to assess structural integrity and the depth of the connecting channel. This monitoring is proposed to occur once a year for three years post construction.
 - Monitoring will include a photo survey of the structure, and depth measurements of the connecting channel.
 - Success criteria will be no change in the structural integrity or changes in bank slope and channel depth from original construction.
 - A monitoring report will be issued upon completion each year and submitted to ERCA and DFO.

<u>Schedule 1, Section 12</u> – Description of Contingency Measures

- In water works timing window.
 - If the in-water works will exceed timing windows, consultation and a request for a timing exemption from DFO will occur.

Moroun Pumping Scheme Dyke Enhancements (D21-118) - Town of Kingsville

- Dewatering site
 - End of pipe screen failure will result in work stoppage until repaired and inspected. Salvage will continue during this time until the receding water has stopped, and all fish and mussel have been successfully removed and relocated.
- Monitor and ensure all machinery and industrial equipment arrives onsite clean
 - Issue notice and or work stoppage if best practice standards are not followed.
 - Require a designated refuelling, lubrication cleaning area offsite.
 - Access to emergency spill kit
- Silt/fish exclusion screens and amour stone
 - All screens will be reinstalled and resecured immediately prior to any work continuing. Notice will be issued to the construction company of failed screen conditions.
 - If amour stone and other fill material as well as site garbage not stored according to best practices noticed will be issued to construction company and FA permit holder.
- Fish and mussel salvage
 - No fish or mussel deaths are anticipated. Any observed fish or mussel death or strandings will result in direct communication with the pump operator to cease pumping. The dewatering rate will be adjusted accordingly.
 - In case of low DO levels (either background concentrations or holding tanks) extra aeration will be provided. Holding tanks will be covered. Release and transport time will be decreased in case of any observed stressors to fish and mussels.
 - Any dead fish and mussels will be recorded and disposed of according to CCAC standards. All records will be included in the fish salvage report issued to FA permit holder and DFO.

Schedule 1, Section 13 – Description of the Death of Fish After Measures and Standards are Implemented

Following the mitigation measures proposed, no fish or mussel death is anticipated. A recent fish and mussel salvage in the project area in response to dyke breach (2023) showed very few fish and mussels had entered the area before the breach was repaired.

<u>Schedule 1, Section 14</u> – Description of the Residual Harmful Alternation, Disruption or Destruction of Fish Habitat After Standards and Measures are Implemented

The dyke repair will result in the total loss of 151,786 m² of potential fish habitat. This property was once agricultural, and this restoration project will ultimately result in a net gain of 177,000 m² of fish and mussel habitat.

Schedule 1, Section 15 – Habitat Credits

Not applicable.

Schedule 1, Section 16 – Offsetting Plan

No offsetting is currently planned. The project footprint is approximately 12,000 m². Completion of the project will result in a 177,000 m² net gain of fish and mussel habitat to the Cedar Creek watershed.

APPENDIX A-3

Seed Mixes

Reperate Engineering

Water's Edge Seed Mix @ \$150/kg - Species subject to availability

#	Code	Species Image	Item Name	Plant Form	Bloom Month	Bloom Colour
1	1SMWATEDGE		Water's Edge Seed Mix (kg)			
2	1SMWATEDGE- ELYRIPA		Riverbank Wild Rye - Elymus riparius	Grass	07-Jul, 08-Aug	Green
3	1SMWATEDGE- ELYVIRG		Virginia Wild Rye - Elymus virginicus	Grass	04-Apr, 05-May	Green
4	1SMWATEDGE- PANVIRG		Switch Grass - Panicum virgatum	Grass	07-Jul	Green
5	1SMWATEDGE- CARBEBB		Bebb's Sedge - Carex bebbii	Sedge	06-Jun	Green
6	1SMWATEDGE- CARVULP		Fox Sedge - Carex vulpinoidea	Sedge	06-Jun	Green
7	1SMWATEDGE- CARHYST		Porcupine Sedge - Carex hystericina	Sedge	06-Jun	Green
8	1SMWATEDGE- OENBIEN		Common Evening Primrose - Oenothera biennis	Forb	08-Aug	Yellow
9	1SMWATEDGE- HELHELI		Sweet Ox-Eye - Heliopsis helianthoides	Forb	08-Aug	Yellow
10	1SMWATEDGE- VERHAST		Blue Vervain - Verbena hastata	Forb	08-Aug	Violet
11	1SMWATEDGE- VERMISS		Missouri Ironweed - Vernonia missurica	Forb	09-Sep	Violet
12	1SMWATEDGE- EUPPERF		Common Boneset - Eupatorium perfoliatum	Forb	08-Aug, 09-Sep	White
13	1SMWATEDGE- PENDIGI		Foxglove Beard-Tongue - Penstemon digitalis	Forb	06-Jun	White
14	1SMWATEDGE- EUPMACU		Spotted Joe-Pye Weed - Eupatorium maculatum	Forb	08-Aug, 09-Sep	Pink
15	1SMWATEDGE- DOEUMBE		Flat-Topped Aster - Doellingeria umbellata	Forb	08-Aug, 09-Sep	White

#	Code	Species Image	Item Name	Plant Form		Bloom Colour
16	1SMWATEDGE- ASCINCA		Swamp Milkweed - Asclepias incarnata	Forb	07-Jul	Pink
17	1SMWATEDGE- PHYVIRG		Obedient Plant;False Dragonhead - Physostegia	Forb	08-Aug, 09-Sep	Pink
18	1SMWATEDGE- RUDLACI		Greenheaded Coneflower;Cut- Leaved Coneflower - Rudbecki	Forb	07-Jul, 08-Aug	Yellow
19	1SMWATEDGE- MONFIST		Wild Bergamot - Monarda fistulosa	Forb	07-Jul	Violet
20	1SMWATEDGE- CARSTIP		Awl-Fruited Sedge - Carex stipata	Sedge	06-Jun	Green
21	1SMWATEDGE- CARCRIN		Fringed Sedge - Carex crinita	Sedge	06-Jun	Green

A note on this seed mix:

The species included in this mix may differ slightly with each order. Seed availability changes year-to-year and season-to-season based on the species, harvest results, weather conditions, and more. We may update our mixes at any time in order to best support ecological restoration and biodiversity conservation.



If you need help or more information, please let us know at sales@stwilliamsnursery.com.

Base Restoration Seed Mix @ \$120/kg - Species subject to availability

Code	Species Image	Item Name	Plant Form	Bloom Month	Bloom Colour
1SMBASREST		Base Restoration Seed Mix (kg)			
1SMBASREST- SORNUTA		Indian Grass - Sorghastrum nutans	Grass	09-Sep	Green
1SMBASREST- ELYRIPA		Riverbank Wild Rye - Elymus riparius	Grass	07-Jul, 08-Aug	Green
1SMBASREST- ELYVIRG		Virginia Wild Rye - Elymus virginicus	Grass	04-Apr, 05-May	Green
1SMBASREST- ELYTRAC		Slender Wheat Grass - Elymus trachycaulus	Grass	07-Jul	Green
1SMBASREST- PANVIRG		Switch Grass - Panicum virgatum	Grass	07-Jul	Green
1SMBASREST- SPOASPE		Tall Dropseed;Rough Dropseed - Sporobolus asper	Grass	09-Sep	Green
1SMBASREST- OENBIEN		Common Evening Primrose - Oenothera biennis	Forb	08-Aug	Yellow
1SMBASREST- RUDHIRT		Brown-Eyed Susan;Black-Eyed Susan - Rudbeckia hirta	Forb	07-Jul, 08-Aug, 09- Sep	Yellow
1SMBASREST- PYCVIRG		Virginia Mountain Mint - Pycnanthemum virginianum	Forb	07-Jul	White
1SMBASREST- SOLPTAR		Upland White Aster;Upland White Goldenrod - Solidago	Forb	08-Aug, 09-Sep	White
1SMBASREST- PENHIRS		Hairy Beard-Tongue - Penstemon hirsutus	Forb	06-Jun	Violet
1SMBASREST- PENDIGI		Foxglove Beard-Tongue - Penstemon digitalis	Forb	06-Jun	White
1SMBASREST- SYMLAEV		Smooth Aster - Symphyotrichum laeve	Forb	09-Sep	Violet
1SMBASREST- DOEUMBE		Flat-Topped Aster - Doellingeria umbellata	Forb	08-Aug, 09-Sep	White

Code	Species Image	Item Name	Plant Form	Bloom Month	Bloom Colour
1SMBASREST- CORTRIP		Tall Coreopsis - Coreopsis tripteris	Forb	07-Jul, 08-Aug, 09- Sep	Yellow
1SMBASREST- POTARGU		Tall Cinquefoil;Prairie Cinquefoil - Potentilla arguta	Forb		White
1SMBASREST- SOLNEMO		Gray Goldenrod - Solidago nemoralis	Forb	08-Aug	Yellow
1SMBASREST- ASCSYRI		Common Milkweed - Asclepias syriaca	Forb	07-Jul	Pink
1SMBASREST- SPOCRYP		Sand Dropseed - Sporobolus cryptandrus	Grass	08-Aug	Green

A note on this seed mix:

The species included in this mix may differ slightly with each order. Seed availability changes year-to-year and season-to-season based on the species, harvest results, weather conditions, and more. We may update our mixes at any time in order to best support ecological restoration and biodiversity conservation.



If you need help or more information, please let us know at sales@stwilliamsnursery.com.

APPENDIX "B"

R Peralta Engineering











APPENDIX "C"

Reperate Engineering

APPENDIX C-1

Future Maintenance Schedule Pump Station and Auxiliary Gravity Outlets

Peralta Engineering

FUTURE MAINTENANCE SCHEDULE OF ASSESSMENT

Pump Station and Auxilary Gravity Outlets

TOWN OF KINGSVILLE

3. MUNICIPAL LANDS:

Total on Municipal Lands							\$ _	\$ 163 00	\$ 163 00	
	Ford Road				1.12	0.453	Town of Kingsville	\$ -	\$ 46.00	\$ 46.00
	County Road 50)			1.54	0.623	County of Essex	\$ -	\$ 64.00	\$ 64.00
	County Road 23	3			1.27	0.514	County of Essex	\$ -	\$ 53.00	\$ 53.00
Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
1	280-27900	1 WD	Pt. 24	0.26	0.26	0.106	Patricia & Thomas Nadasdi	\$ -	\$ 9.00	\$ 9.00
2	280-28000	1 WD	Pt. 24	8.83	8.83	3.573	Beverley Todd	\$ -	\$ 110.00	\$ 110.00
3	280-28002	1 WD	Pt. 24	0.66	0.66	0.268	Dale & Diana Blain	\$ -	\$ 16.00	\$ 16.00
4	280-28100	1 WD	Pt. 24	0.38	0.38	0.154	Linda Martschenko	\$ -	\$ 12.00	\$ 12.00
5	280-28200	1 WD	Pt. 24	0.25	0.25	0.101	Justyn & Sydney Fenos	\$ -	\$ 9.00	\$ 9.00
8	280-28315	1 WD	Pt. 24	1.21	1.21	0.490	Charles & Rachel Grover	\$ -	\$ 25.00	\$ 25.00
9	280-28320	1 WD	Pt. 24	0.90	0.90	0.364	Jefferson Preston	\$ -	\$ 20.00	\$ 20.00
10	280-28400	1408	77 to 78	0.23	0.23	0.093	Michael & Amy Abbruzzese	\$ -	\$ 8.00	\$ 8.00
11	280-28500	1408	79	0.09	0.09	0.037	Michael Sultana	\$ -	\$ 4.00	\$ 4.00
12	280-28600	1408	80 to 81	0.18	0.18	0.074	David Liebrock	\$ -	\$ 7.00	\$ 7.00
13	280-28700	1408	82	0.11	0.11	0.046	David Liebrock	\$ -	\$ 5.00	\$ 5.00
14	280-28801	1408	83 Pt. 84	0.14	0.14	0.056	Allan & Laura Gagne	\$ -	\$ 5.00	\$ 5.00
15	280-28802	1408	85 Pt. 84	0.14	0.14	0.056	Matthew Renaud & Victoria Martin	\$ -	\$ 5.00	\$ 5.00
16	280-28900	1408	86	0.09	0.09	0.037	Jason & Amanda Dixon	\$ -	\$ 4.00	\$ 4.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: Continued

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
17	280-29000	1408	87	0.09	0.09	0.037	Nicholas Friesen & Helen Unger	\$ -	\$ 4.00	\$ 4.00
18	280-29100	1408	88	0.09	0.09	0.037	Kevin Houf	\$ -	\$ 4.00	\$ 4.00
19	280-29200	1408	89 to 93	0.46	0.46	0.186	Pauline Collins	\$ -	\$ 14.00	\$ 14.00
20	280-29300	1408	76 & Pt. 75	0.10	0.10	0.042	Coleen Will	\$ -	\$ 5.00	\$ 5.00
21	280-29400	1408	74 & Pt. 75	0.17	0.17	0.070	Misty Collard	\$ -	\$ 7.00	\$ 7.00
22	280-29500	1408	71 to 73	0.28	0.28	0.111	Bradley & Amanda Noland	\$ -	\$ 9.00	\$ 9.00
23	280-29600	1408	69 to 70	0.18	0.18	0.074	Frederick Fuller	\$ -	\$ 7.00	\$ 7.00
24	280-29700	1408	66 to 68	0.28	0.28	0.111	Randal & Barbara Gritke	\$ -	\$ 9.00	\$ 9.00
25	280-29800	1408	65	0.09	0.09	0.037	Dennis Gagnon	\$ -	\$ 4.00	\$ 4.00
26	280-29900	1408	Pt. 62 to 64	0.25	0.25	0.102	Warren Walls & Patricia Willms	\$ -	\$ 9.00	\$ 9.00
27	280-30000	1408	61 & Pt. 62	0.11	0.11	0.046	Romona Halstead	\$ -	\$ 5.00	\$ 5.00
28	280-30100	1408	60	0.09	0.09	0.037	Albert & Barbara Ricard	\$ -	\$ 4.00	\$ 4.00
29	280-30200	1408	58 to 59	0.25	0.25	0.101	Marta Bueno & Christopher Clarricoates	\$ -	\$ 9.00	\$ 9.00
30	280-30300	1 WD	Pt. 25	0.87	0.87	0.352	Gonja Venus	\$ -	\$ 23.00	\$ 23.00
31	280-30301	1 WD	Pt. 25	0.41	0.41	0.166	Gary Lougheed	\$ -	\$ 13.00	\$ 13.00
32	280-30400	1 WD	Pt. 25	0.55	0.55	0.223	Denise Stevenson	\$ -	\$ 15.00	\$ 15.00
33	280-30500	1 WD	Pt. 25	0.15	0.15	0.061	Paul Trombley	\$ -	\$ 6.00	\$ 6.00
		Total on Priva	tely Owned - I	Non-Agricul	tural Lands.	••••••		\$ -	\$ 386.00	\$ 386.00

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
6	280-28300	1 WD	23 to 26	151.74	126.72	51.283	Jeo Family Holdings Ulc	\$ 364.00	\$ 1,049.00	\$ 1,413.00
7	280-28310	1 WD	20 to 26	357.36	126.00	50.992	Essex Region Conservation Authority	\$ 3,636.00	\$ 1,048.00	\$ 4,684.00
34	280-31000	1 WD	Pt. 27	88.00	51.00	20.639	Paul & Cheryl Lowes	\$ -	\$ 422.00	\$ 422.00
35	280-31100	1 WD	28 & Pt. 29	193.80	84.00	33.994	Cheryl Lowes	\$ -	\$ 696.00	\$ 696.00
36	280-31400	1 WD	Pt. 29 & 30	217.43	120.00	48.563	Gordon Arner	\$ -	\$ 994.00	\$ 994.00
37	280-31500	1 WD	Pt. 31	119.14	50.00	20.235	Henry Wall Holdings Inc.	\$ -	\$ 414.00	\$ 414.00
38	280-31701	1 WD	Pt. 32	65.08	10.00	4.047	Thomas Meleg	\$ -	\$ 83.00	\$ 83.00

Realta Engineering

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable): Continued

Parcel ID <u>Number</u> 39	Tax Roll <u>Numbe</u> r 280-31800	Con. or Plan <u>Number</u> 1 WD	Lot or Part <u>of Lot</u> Pt. 32	Acres <u>Owned</u> 51.50	Acres <u>Affected</u> 18.00	Hectares <u>Affected</u> 7.285	<u>Owner's Name</u> Joseph Porto	\$ Value of <u>Benefit</u> -	\$ Value of <u>Outlet</u> 149.00	\$ TOTAL <u>VALUE</u> 149.00
		Total on Privat	tely Owned - <i>I</i>	Agricultural	Lands (gran	table)		\$ 4,000.00	\$ 4,855.00	\$ 8,855.00
	TOTAL ASSESS	SMENT - Town o	of Kingsville					\$ 4,000.00	\$ 5,404.00	\$ 9,404.00
TOWN OF	<u>ESSEX</u>									
3. MUNICIE	PAL LANDS:									
Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
(County Road 23	3			1.07	0.433	County of Essex	\$ -	\$ 44.00	\$ 44.00
		Total on Muni	cipal Lands		•••••	•••••		\$ -	\$ 44.00	\$ 44.00
4. PRIVATE	LY OWNED - N	NON-AGRICULT	URAL LANDS:							
Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
43	610-11750	1	Pt Lot 33	0.60	0.23	0.093	Michael & Stacey Mogyorody	\$ -	\$ 8.00	\$ 8.00
45	610-11802	1	Pt Lot 33	0.30	0.30	0.122	Barbara & Bruce Sovran	\$ -	\$ 10.00	\$ 10.00

610-11805	1	Pt Lot 33	1.52	1.52	0.616	Barbara Sovran	\$	-	\$ 33.00 \$	
	Total on Priva	. \$	-	\$ 51.00 \$						

46

33.00

51.00

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>		Value of <u>Benefit</u>		Value of <u>Outlet</u>		TOTAL <u>VALUE</u>
40	610-11401	1	Pt Lot 36	45.69	1.24	0.502	Gregory Iler & Elizabeth Kinnaird-Iler	\$	-	\$	10.00	\$	10.00
41	610-11500	1	Pt Lot 35	102.34	11.37	4.601	Elizabeth Kinnaird-Iler	\$	-	\$	94.00	\$	94.00
42	610-11600	1	Pt Lot 34	109.48	25.00	10.117	Iler Farms Incorporated	\$	-	\$	207.00	\$	207.00
44	610-11800	1	Pt Lot 33	48.33	22.96	9.292	Arpad & Janet Szabo	\$	-	\$	190.00	\$	190.00
		Total on Privat	tely Owned - /	Agricultural	Lands (gran	table)		\$	-	\$	501.00	\$	501.00
	TOTAL ASSESS TOTAL ASSESS	SMENT - Town o SMENT - Town o	of Essex of Kingsville (l	brought for		\$ \$	- 4,000.00	\$ \$	596.00 5,404.00	\$ \$	596.00 9,404.00		
	TOTAL ASSESS	SMENT			671.26	271.66		\$	4,000.00	\$	6,000.00	\$	10,000.00

APPENDIX C-2

Future Maintenance Schedule Flood Protection Dyke

Peralta Engineering

FUTURE MAINTENANCE SCHEDULE OF ASSESSMENT

Flood Protection Dyke

TOWN OF KINGSVILLE

3. MUNICIPAL LANDS:

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>		Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
	County Road 2	.3			1.27	0.514	County of Essex	\$	-	\$ 18.00	\$ 18.00
1	County Road 5	0			1.54	0.623	County of Essex	\$	-	\$ 21.00	\$ 21.00
	Ford Road				1.12	0.453	Town of Kingsville	\$	-	\$ 15.00	\$ 15.00
		Total on Muni	cipal Lands		•••••			. \$	-	\$ 54.00	\$ 54.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
1	280-27900	1 WD	Pt. 24	0.26	0.26	0.106	Patricia & Thomas Nadasdi	\$ -	\$ 3.00	\$ 3.00
2	280-28000	1 WD	Pt. 24	8.83	8.83	3.573	Beverley Todd	\$ -	\$ 37.00	\$ 37.00
3	280-28002	1 WD	Pt. 24	0.66	0.66	0.268	Dale & Diana Blain	\$ -	\$ 5.00	\$ 5.00
4	280-28100	1 WD	Pt. 24	0.38	0.38	0.154	Linda Martschenko	\$ -	\$ 4.00	\$ 4.00
5	280-28200	1 WD	Pt. 24	0.25	0.25	0.101	Justyn & Sydney Fenos	\$ -	\$ 3.00	\$ 3.00
8	280-28315	1 WD	Pt. 24	1.21	1.21	0.490	Charles & Rachel Grover	\$ -	\$ 8.00	\$ 8.00
9	280-28320	1 WD	Pt. 24	0.90	0.90	0.364	Jefferson Preston	\$ -	\$ 7.00	\$ 7.00
10	280-28400	1408	77 to 78	0.23	0.23	0.093	Michael & Amy Abbruzzese	\$ -	\$ 3.00	\$ 3.00
11	280-28500	1408	79	0.09	0.09	0.037	Michael Sultana	\$ -	\$ 1.00	\$ 1.00
12	280-28600	1408	80 to 81	0.18	0.18	0.074	David Liebrock	\$ -	\$ 2.00	\$ 2.00
13	280-28700	1408	82	0.11	0.11	0.046	David Liebrock	\$ -	\$ 2.00	\$ 2.00
14	280-28801	1408	83 Pt. 84	0.14	0.14	0.056	Allan & Laura Gagne	\$ -	\$ 2.00	\$ 2.00
15	280-28802	1408	85 Pt. 84	0.14	0.14	0.056	Matthew Renaud & Victoria Martin	\$ -	\$ 2.00	\$ 2.00
16	280-28900	1408	86	0.09	0.09	0.037	Jason & Amanda Dixon	\$ -	\$ 1.00	\$ 1.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: Continued

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
17	280-29000	1408	87	0.09	0.09	0.037	Nicholas Friesen & Helen Unger	\$ -	\$ 1.00	\$ 1.00
18	280-29100	1408	88	0.09	0.09	0.037	Kevin Houf	\$ -	\$ 1.00	\$ 1.00
19	280-29200	1408	89 to 93	0.46	0.46	0.186	Pauline Collins	\$ -	\$ 5.00	\$ 5.00
20	280-29300	1408	76 & Pt. 75	0.10	0.10	0.042	Coleen Will	\$ -	\$ 2.00	\$ 2.00
21	280-29400	1408	74 & Pt. 75	0.17	0.17	0.070	Misty Collard	\$ -	\$ 2.00	\$ 2.00
22	280-29500	1408	71 to 73	0.28	0.28	0.111	Bradley & Amanda Noland	\$ -	\$ 3.00	\$ 3.00
23	280-29600	1408	69 to 70	0.18	0.18	0.074	Frederick Fuller	\$ -	\$ 2.00	\$ 2.00
24	280-29700	1408	66 to 68	0.28	0.28	0.111	Randal & Barbara Gritke	\$ -	\$ 3.00	\$ 3.00
25	280-29800	1408	65	0.09	0.09	0.037	Dennis Gagnon	\$ -	\$ 1.00	\$ 1.00
26	280-29900	1408	Pt. 62 to 64	0.25	0.25	0.102	Warren Walls & Patricia Willms	\$ -	\$ 3.00	\$ 3.00
27	280-30000	1408	61 & Pt. 62	0.11	0.11	0.046	Romona Halstead	\$ -	\$ 2.00	\$ 2.00
28	280-30100	1408	60	0.09	0.09	0.037	Albert & Barbara Ricard	\$ -	\$ 1.00	\$ 1.00
29	280-30200	1408	58 to 59	0.25	0.25	0.101	Marta Bueno & Christopher Clarricoates	\$ -	\$ 3.00	\$ 3.00
30	280-30300	1 WD	Pt. 25	0.87	0.87	0.352	Gonja Venus	\$ -	\$ 8.00	\$ 8.00
31	280-30301	1 WD	Pt. 25	0.41	0.41	0.166	Gary Lougheed	\$ -	\$ 4.00	\$ 4.00
32	280-30400	1 WD	Pt. 25	0.55	0.55	0.223	Denise Stevenson	\$ -	\$ 5.00	\$ 5.00
33	280-30500	1 WD	Pt. 25	0.15	0.15	0.061	Paul Trombley	\$ -	\$ 2.00	\$ 2.00
		Total on Priva	tely Owned - N	Ion-Agricu	tural Lands.	•••••		\$ -	\$ 128.00	\$ 128.00

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>	Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
6	280-28300	1 WD	23 to 26	151.74	126.72	51.283	Jeo Family Holdings Ulc	\$ 727.00	\$ 350.00	\$ 1,077.00
7	280-28310	1 WD	20 to 26	357.36	126.00	50.992	Essex Region Conservation Authority	\$ 7,273.00	\$ 350.00	\$ 7,623.00
34	280-31000	1 WD	Pt. 27	88.00	51.00	20.639	Paul & Cheryl Lowes	\$ -	\$ 141.00	\$ 141.00
35	280-31100	1 WD	28 & Pt. 29	193.80	84.00	33.994	Cheryl Lowes	\$ -	\$ 232.00	\$ 232.00
36	280-31400	1 WD	Pt. 29 & 30	217.43	120.00	48.563	Gordon Arner	\$ -	\$ 331.00	\$ 331.00
37	280-31500	1 WD	Pt. 31	119.14	50.00	20.235	Henry Wall Holdings Inc.	\$ -	\$ 138.00	\$ 138.00
38	280-31701	1 WD	Pt. 32	65.08	10.00	4.047	Thomas Meleg	\$ -	\$ 28.00	\$ 28.00

Reference Peralta Engineering

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable): Continued

Parcel ID <u>Number</u> 39	Tax Roll <u>Numbe</u> r 280-31800	Con. or Plan <u>Number</u> 1 WD	Lot or Part <u>of Lot</u> Pt. 32	Acres <u>Owned</u> 51.50	Acres <u>Affected</u> 18.00	Hectares <u>Affected</u> 7.285	<u>Owner's Name</u> Joseph Porto	\$	Value of <u>Benefit</u> -	\$ Value of <u>Outlet</u> 50.00	\$ TOTAL <u>VALUE</u> 50.00
		Total on Privat	tely Owned - A	Agricultural	Lands (gran	table)		. \$	8,000.00	\$ 1,620.00	\$ 9,620.00
ſ	FOTAL ASSESS	MENT - Town o	of Kingsville					\$	8,000.00	\$ 1,802.00	\$ 9,802.00
<u>TOWN OF E</u>	<u>ESSEX</u>										
3. MUNICIP	PAL LANDS:										
Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>		Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>
C	County Road 23	3			1.07	0.433	County of Essex	\$	-	\$ 15.00	\$ 15.00
		Total on Muni	cipal Lands					\$	-	\$ 15.00	\$ 15.00
4. PRIVATE	LY OWNED - N	NON-AGRICULT		:							
Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>		Value of <u>Benefit</u>	Value of <u>Outlet</u>	TOTAL <u>VALUE</u>

Number	Numbe	Number		owned	<u>/meeted</u>	<u>/meeted</u>	<u>owner s Name</u>	<u>D</u>	chene		ounce	VALUE
43	610-11750	1	Pt Lot 33	0.60	0.23	0.093	Michael & Stacey Mogyorody	\$	-	\$	3.00	\$ 3.00
45	610-11802	1	Pt Lot 33	0.30	0.30	0.122	Barbara & Bruce Sovran	\$	-	\$	3.00	\$ 3.00
46	610-11805	1	Pt Lot 33	1.52	1.52	0.616	Barbara Sovran	\$	-	\$	11.00	\$ 11.00
	Total on Privately Owned - Non-Agricultural Lands										17.00	\$ 17.00

5. PRIVATELY OWNED - AGRICULTURAL LANDS (grantable):

Parcel ID <u>Number</u>	Tax Roll <u>Numbe</u> r	Con. or Plan <u>Number</u>	Lot or Part <u>of Lot</u>	Acres <u>Owned</u>	Acres <u>Affected</u>	Hectares <u>Affected</u>	<u>Owner's Name</u>		Value of <u>Benefit</u>		Value of <u>Outlet</u>		TOTAL <u>VALUE</u>
40	610-11401	1	Pt Lot 36	45.69	1.24	0.502	Gregory Iler & Elizabeth Kinnaird-Iler	\$	-	\$	3.00	\$	3.00
41	610-11500	1	Pt Lot 35	102.34	11.37	4.601	Elizabeth Kinnaird-Iler	\$	-	\$	31.00	\$	31.00
42	610-11600	1	Pt Lot 34	109.48	25.00	10.117	Iler Farms Incorporated	\$	-	\$	69.00	\$	69.00
44	610-11800	1	Pt Lot 33	48.33	22.96	9.292	Arpad & Janet Szabo	\$	-	\$	63.00	\$	63.00
		Total on Privat	tely Owned - <i>I</i>	Agricultural	Lands (gran	table)			-	\$	166.00	\$	166.00
-	TOTAL ASSESS TOTAL ASSESS	SMENT - Town o SMENT - Town o	of Essex of Kingsville (l	brought for	ward)			\$ \$	- 8,000.00	\$ \$	198.00 1,802.00	\$ \$	198.00 9,802.00
TOTAL ASSESSMENT				671.26	271.66		\$	8,000.00	\$	2,000.00	\$	10,000.00	