ENGINEER'S REPORT

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

PROJECT **Argyle Beach Drainage System Improvements**
(Geographic Township of Colchester South)
Town of Essex, County of Essex
Project No. D22-087

February 20, 2026

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Peralta Engineering

PREAMBLE

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: **https://www.ontario.ca/page/agricultural-drainage**

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Mayor and Municipal Council
Corporation of the Town of Essex
33 Talbot Street South
Essex, ON N8M 1A8

I. INTRODUCTION

In accordance with the instructions received by email on August 17, 2022, from the Town of Essex, we have completed the necessary survey, examinations, investigations, etc. and have prepared the following report that provides for the necessary improvements to ensure a sufficient outlet to facilitate the development of the lands currently owned by Castle Gate Towers Inc. (660-08301 and 660-08500) along the unopened road allowance for Wellesley Drive. These investigations were initiated following a resolution passed by Council, authorizing our firm to examine the necessary improvements to ensure adequate conveyance of runoff through the drainage system to support the development of proposed residential building lots. All of which are in accordance with the provisions of the Drainage Act. A plan showing the alignments of the Argyle Beach Drainage System, including its branch drains, the general details of the proposed improvements, together with identifying all lands affected within the watershed of the drain, is included herein as part of this report.

Castle Gate Towers Inc. (660-08301 and 660-08500) submitted a request for improvements to the existing Argyle Beach Drainage System, to initiate an Engineer's Report in support of their property development. Our appointment and the works related to the Municipal Drainage System improvements proposed under this report are being prepared 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 review, investigations, etc., for the proposed improvements to the Argyle Beach Drainage System, and we report thereon as follows.

II. PROJECT BACKGROUND AND WATERSHED CHARACTERISTICS

Project Background

As part of the initial request for drainage improvements, the Owner of Castle Gate Towers Inc. (660-08301 and 660-08500) began developing their lands for a proposed residential subdivision, which is currently in the final design and municipal approval phase. The development forms part of the Registered Plan of Subdivision 1382, and consists of Lots 22 through 57. All of which are located within Part Lot 87, Concession

1, in the Geographic Township of Colchester South. At the time of our appointment, Baird AE Inc. (Baird) had been retained by the Owners to provide engineering services, including stormwater management (SWM) design, site servicing, and grading plans. To facilitate the servicing of the future development, upgrades to the existing Municipal Drain, identified as the Argyle Beach Drainage System, were required. Accordingly, a formal request for drainage improvements was submitted on behalf of Castle Gate Towers Inc. to the Town of Essex, requesting the appointment of an Engineer under the provisions of the Drainage Act.

Watershed Characteristics

The Argyle Beach Drainage System is a Municipal Drain consisting of a covered drainage system servicing the lands along and within Gloucester Drive, Wellesley Drive, and Cumberland Way. The existing network of drainage pipes and catchbasins collects surface and subsurface runoff and ultimately discharges to Lake Erie through the private lands currently owned by Mark St. Louis (660-07501). The Argyle Beach Drainage System is designed to provide a legal drainage outlet for the lands and roads affected within the overall residential subdivision.

The Argyle Beach Drainage System encompasses an irregularly shaped watershed covering approximately 9.100 hectares (22.50 acres) of land. The watershed area lies south of County Road 50 and services the residential lands along the associated road network. The watershed terrain is relatively modest but offers good topographic relief, with an average gradient of approximately 0.20% sloping in a southerly direction.

The project area is primarily underlain by Perth Clay Loam soils. These soil types fall within Hydrologic Soil Group C, which is described as having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water with moderately fine soil structure. As a result, these soils typically require effective artificial sub-surface drainage to be productive.

III. DRAINAGE HISTORY

From our review of the Town of Essex's drainage records, we found various Engineer's Reports prepared through the provisions of the Drainage Act associated with the Argyle Beach Drainage System. Based on this information, we have utilized the following relevant Engineer's Report as a reference for carrying out this project:

Argyle Beach Drainage System

a) **July 16, 1968,** Engineer's Report for the "Cumberland Way Drainage System", prepared by C.G.R. Armstrong, P.Eng., carried out through the Township of Colchester South By-Law No. 1182. This report serves as the initial By-Law, as petitioned for by the affected landowners, which provided for the establishment of the Municipal Drain along Cumberland Way, through the provisions of the Drainage Act. The improvements completed under this report included the installation of new drainage pipe and catchbasins on both sides of Cumberland Way, together with small portions of lands along Gloucester Drive and Wellesley Drive.

b) **August 29, 1995,** Engineer's Report for the "Argyle Beach Drainage System", prepared by N.J. Peralta, P.Eng and G. Rood, P.Eng. This Report, and the improvements recommended within, was initiated through a petition to extend and improve the existing Cumberland Way Drainage System, as a Municipal Drain, to service the existing residential land along Gloucester Drive and undeveloped lands along Wellesley Drive. As part of these drainage improvements, the existing Cumberland Way Drainage System was replaced and improved to service the lands within the watershed.

Based on our detailed review of the referenced Engineer's Reports, we have determined that the Argyle Beach Drainage System is designated as a Municipal Drain under the provisions of the Drainage Act. The majority of the Cumberland Way Drainage System was modified as part of the 1995 Argyle Beach Drainage System Engineer's Report, with any remaining portions now forming part of the Argyle Beach Drainage System. The full extent of this Municipal Drain is defined and governed primarily by the 1995 Engineer's Report and associated By-law, and extends along Gloucester Drive, Wellesley Drive, and Cumberland Way.

As it relates to the area of land contributing to this drainage system, the 1995 report would encompass the entire watershed boundary limits contributing flows to the Argyle Beach Drainage System from the upstream lands. As such, these reports were utilized as a starting point in establishing the area of land contributing to the proposed improvements and establishing the distribution of all future maintenance costs. Furthermore, we have also researched and reviewed several governing reports for all abutting watersheds to confirm all changes for the completion of the necessary analysis and determinations that formed part of this project.

IV. INITIAL SCOPING MEETING AND ESTABLISHING ENGINEERING ROLES

Prior to our appointment to this project, the Town of Essex had submitted a notice to the Essex Region Conservation Authority (ERCA) for comments and concerns related to the requested works on the Argyle Beach Drainage System. Upon our appointment and based on these comments, we felt that it would be prudent to arrange an initial Scoping Meeting with pertinent stakeholders to review the initial comments and obtain a better understanding of the project scope. Subsequently, the initial Scoping Meeting was scheduled for September 6, 2022. The following people were in attendance at this meeting:

Table 1 - Scoping Meeting Attendance

Name	Affiliation
Matt Baird, P.Eng.	Baird AE Inc. (Representing the Developer)
Dave Basilious	Baird AE Inc. (Representing the Developer)
Norm Nussio	Town of Essex
Lindsay Dean	Town of Essex
Tony Peralta	N.J. Peralta Engineering Ltd.

The following information was discussed:

1. Upon introduction, Tony Peralta provided a general review of the history of the Argyle Beach Drainage System. This drainage system was improved and extended, in 1995, where the new drainage system serves as the primary drainage outlet for all lands and roads along Gloucester

Drive, Wellesley Drive, and Cumberland Way. The drainage system was designed to meet the development and drainage standards at that time. Since then, new regional standards have been established for development, and the 1995 recommendations would not meet the current requirements for the minor and major flow events established within the Windsor/Essex Region Stormwater Management Standards Manual. Based on dialogue with Town Staff, it was established that drainage improvements would be required to facilitate the development of the subject lands.

2. Tony Peralta provided context related to his appointment and his responsibilities under the Drainage Act. It was outlined that the existing drainage system currently exists as a Municipal Drain, and any drainage improvements required to facilitate the proposed development shall form part of the Municipal Drain. By incorporating the drainage system as a Municipal Drain, the Town would have the means to address future maintenance and allocate future maintenance costs to all affected lands and roads.

3. Tony Peralta further reiterated the role of the appointed Engineer. Under Section 11 of the Drainage Act, the Engineer shall "… to the best of the Engineer's skills, knowledge, judgment and ability, honestly and faithfully, and without fear of, favour to or prejudice against any person, perform the duty assigned to the engineer …". Although this project is being initiated for the purpose of development, the Owner is considered a stakeholder within this municipal drainage system, having the same rights and privileges as other stakeholders within the system. As a result, Tony confirmed that the improvements conducted under this project shall consider the best interests of the entire watershed and the land affected by the proposed works.

4. With Baird AE Inc. (Baird) engaged as the Developer's engineer, they will be required to conduct extensive analysis and design to support the development of the proposed residential subdivision. As a result, we discussed general engineering roles towards the completion of the project. All parties agreed that it would be most advantageous to have Baird continue with the hydraulic modelling and analysis to satisfy the requirements for the development and the Argyle Beach Drainage System improvements. Furthermore, with the design aspect of the improvements closely tied to the drain analysis, the Town felt that, in order to expedite and reduce overall costs on the project, it would be beneficial to all parties if Baird also carried out the design improvements. This design analysis would satisfy the Town and regulatory requirements of the development and the overall drainage system. With Tony Peralta appointed by Council as the Engineer of Record, Baird would collaborate with N.J. Peralta Engineering Ltd. (Peralta) to ensure that all matters related to the overall drainage system are addressed and the improvements satisfy the requirements of the Drainage Act. In order to clearly define Baird's role on the project, the following provisions were agreed upon, but not limited to:

    a) Peralta would be the "Engineer of Record" as it relates to works under the Drainage Act.
    b) As the appointed engineer under the Drainage Act, Peralta's role is to act on behalf of all affected landowners within the drainage scheme, ensuring a fair and equitable solution for the entire watershed, not solely for the benefit of the developer.
    c) Baird's role is to support Peralta by providing the necessary technical analysis and design, as well as assisting in obtaining the required approvals to address the needs of both the watershed and the developer.

d) Baird shall provide a "technical memo" outlining the hydraulic analysis, design details, and design rationale for the proposed improvements, together with all supporting documentation (i.e. drawings, details, construction specifications, cost estimates, etc.). These documents shall form part of the Engineer's Report prepared by Peralta.
e) Baird shall obtain all necessary design approvals related to the development and the Argyle Beach Drainage System improvements from the Town and regulatory bodies.
f) Peralta shall incorporate Baird's design and technical memo as part of the Drainage Report, through the provisions of the Drainage Act.
g) Baird shall provide technical support at all public meetings.

Based on the details above, it was further established that the Engineer's Report, through the provisions of the Drainage Act, could not proceed until all pertinent details had been approved by the Town and regulatory authorities (specifically the ERCA).

5. Through discussions, it was determined that a Pre-Consultation Meeting should be scheduled with the Essex Region Conservation Authority (ERCA) to ensure that all parties are aware of the regulatory requirements associated with this project.

6. It was further clarified that Peralta will not act as a peer reviewer for the development, but rather conduct a review of the design as it relates to the safeguarding of the watershed and requirements through the provisions of the Drainage Act.

Based on the details outlined within this meeting, all parties were in general agreement with the intended approach towards advancing the necessary improvements to the Argyle Beach Drainage System in support of the proposed residential development within the subject property. With this common understanding, it was established that there is sufficient information to proceed with the required On-Site Meeting process with all stakeholders within the drain's watershed.

V. PRELIMINARY EXAMINATION AND ON-SITE MEETING

Following our review of the drainage information provided by the Town of Essex, the initial scoping meeting, we scheduled an On-Site Meeting for September 29, 2022, located at the intersection of Gloucester Drive and Cumberland Way, near the outlet of the Argyle Beach Drainage System. The following people were in attendance at this meeting:

Table 2 - On-Site Meeting Attendance

Name	Affiliated Property
John Gignac	Landowner – 150 Gloucester Drive
Beth & Denis Wilson	Landowners – 530 Cumberland Way
John Vandereerden	Landowner – 535 Cumberland Way
Mark St. Louis	Landowner – 539 Cumberland Way
Julie Vigh	Landowner – 515 Cumberland Way
Dell White	Landowner – 529 Cumberland Way
Shannon Rowe	Landowner – 118 Gloucester Drive
Jennifer Bortolon	Landowner – 517 Cumberland Way
Janet & Kevin Neuts	Landowners – 122 Gloucester Drive
David, Diane, & Michelle Milling	Landowners – 123 Gloucester Drive

Name	Affiliated Property
Maria Madarang Cesario	Landowner – 116 Gloucester Drive
Manuel Arnaldo	Landowner – 153 Gloucester Drive
Brian & Denise Strachan	Landowners – 516 Cumberland Way
Erin Allen	Landowner – 127 Gloucester Drive
Lisa Beaulieu	Landowner – 160 Gloucester Drive
Tina Caza	Landowner – 524 Cumberland Way
Paula & Bill White	Landowners – 526 Cumberland Way
Barb & Dan DeJonge	Landowners – 522 Cumberland Way
Girard Banks	Landowner – 121 Gloucester Drive
Mike Akpata	Landowners – 527 Cumberland Way
Andrew DiPaolo	Landowner – 110 Gloucester Drive
Sue Steer	Landowners – 523 Cumberland Way
Elizabeth Daughen	Landowners – 533 Cumberland Way
Brianne & John Hood	Landowner – 114 Gloucester Drive
John Pasick	Landowner – 111 Gloucester Drive
Tom Platt	Landowner – 128 Gloucester Drive
Paul Laking	Landowners – 524 Cumberland Way
David Molnar	Landowner – 139 Gloucester Drive
Pearla Espinal	Landowner – 155 Gloucester Drive
Mark Fishleigh	County of Essex
Lindsay Dean	Town of Essex
David McBeth	Town of Essex
David Basilious	Baird AE Inc.
Halliday Pearson	Baird AE Inc.
Tony Peralta	N.J. Peralta Engineering Ltd.

The following information was discussed:

1. Upon introductions, it was generally discussed that drainage improvement requests had been submitted to the Town of Essex for improvements to the Argyle Beach Drainage System. These requests were made as a direct result of the potential impacts to the overall drainage system associated with the proposed residential subdivision along Wellesley Drive, and to ensure that a sufficient outlet is maintained for the overall drainage system.

2. Tony 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 Town with the authority to enter private lands, as the caretaker of the communal infrastructure. The Town's role is to ensure the drain is kept up and maintained on the watershed's behalf.

3. Tony 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 requests and subsequent discussions of this meeting.

4. Tony Peralta identified that this meeting was intended to address the necessary drainage improvements requested and required for development. As such, Tony Peralta reviewed the general details of the development and its potential impacts on the existing drainage system. He then proceeded to discuss the Drainage Act process, the Engineer's Report, required public meetings and appeal processes.

5. Tony Peralta elaborated on the engineering roles associated with the project. He explained that he was appointed by the Town of Essex, under the provisions of the Drainage Act, to prepare an Engineer's Report outlining the necessary improvements to facilitate the development of the proposed residential subdivision. Baird AE Inc. (Baird) has been retained by the developer to provide engineering services related to the subdivision design. Given Baird's direct involvement in the detailed design and analysis supporting the development, it was considered most advantageous for Baird to continue with the hydraulic analysis and design required to satisfy both the drainage needs of the development and the Argyle Beach Drainage System improvements. Baird's analysis and design will be reviewed and approved by the applicable regulatory agencies prior to incorporation into the Engineer's Report under the provisions of the Drainage Act. The final Engineer's Report is intended to be completed following the receipt of all applicable approvals associated with the overall project.

6. Tony Peralta provided an overview of the history of the Argyle Beach Drainage System and referenced the 1995 Engineer's Report governing the full length of the Municipal Drain. From this review, it was noted that although the Wellesley Drive drainage system was originally constructed in 1995 to support development, the design standards applied at that time do not meet current development requirements. Accordingly, improvements to the existing system are necessary to satisfy the regulatory criteria outlined in the current regional development design standards.

7. Tony Peralta advised that this project is under the jurisdiction of the Department of Fisheries and Oceans (DFO), the Essex Region Conservation Authority (ERCA), and the Ministry of Natural Resources (MNR). The ERCA had already provided their initial comments related to the project. However, further consultation with all agencies will be required.

8. Tony 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. Based on the initial scope of work focused only on the drainage system for the development and the necessary improvements to the Argyle Beach Drainage System to facilitate the development, assessments are likely to be levied against the development property. However, if additional works are requested to expand the scope of work to address matters beyond the proposed development, these costs may be appropriated and assessed to the affected landowners. Allowances may be allocated to landowners to accommodate for the lands required to establish access, maintenance corridors, and damages inflicted on the affected lands as part of the overall works. The landowners were advised that, at this early stage of the project, the scope, analysis, and design have yet to be considered. Therefore, the details and potential costs associated with the project have yet to be established. Although likely that the costs associated with the intended scope are to be assessed for the development, the report shall include provisions for future maintenance to the overall system and allocate these associated costs to all affected landowners.

9. Tony Peralta opened up discussions with the landowners and requested that they provide their comments and concerns regarding the Argyle Beach Drainage System, as it relates to this overall project. He further explained that the information shared at this meeting will help with gaining a better understanding of the system functionality and establish the overall scope and/or direction of this project. He reiterated that this meeting is specific to the necessary drainage improvements and that answers specifically related to the proposed development may not be available.

10. Some residents questioned whether the proposed development would have any impact on the existing sanitary sewer system. Tony Peralta outlined that this project is specific to storm water, and the sanitary sewer system would be outside of the Municipal Drain scope. However, David McBeth, (Town of Essex, Manager of Capital Works and Asset Management), confirmed that the sanitary sewer system would be evaluated through the development engineer to ensure that there would be no impacts caused by the development.

11. Some landowners along the east side of Gloucester Drive sought clarification on the extent of the proposed construction works and questioned whether their road would be impacted by the project. David Basilious identified that the majority of the proposed drainage improvements would reside along Wellesley Drive and Cumberland Way. Tony Peralta identified that any lawns or driveways impacted by construction should be restored to their pre-construction condition, and restoration should form part of the overall construction work.

12. Residents along the east side of Gloucester Drive expressed concerns with some back yards having extended ponding and saturation. Tony Peralta advised that the development of the lands along Wellesley Drive should include provisions for rear yard drainage, and with rear yard drainage provided for each lot, that the overall development of these lots and site grading should reduce any extended ponding.

13. Several residents expressed concerns regarding the capacity of the existing drainage system and the potential for additional development to negatively impact overall system performance. David Basilious advised that a preliminary analysis has been completed and confirmed that improvements to the existing system will be required to accommodate the proposed development along Wellesley Drive.

14. Some residents questioned how the existing agricultural lands had been approved for residential development. David McBeth confirmed that the subject lands had previously been approved as a Plan of Subdivision dating back to the early 1900s. However, the lands have never been developed.

15. Mark St. Louis (539 Cumberland Way) currently owns the property where the existing outlet is located. He noted that the works completed in the 1990s left his lands in a state of disrepair for a significant period of time, with little consideration given to restoration. He requested to be notified of any works proposed within his property and to ensure that proper restoration measures are included as part of construction. Lindsay Dean advised that once a defined plan is established, Mark St. Louis will be contacted as part of the process to ensure he is fully informed of the proposed works within his lands.

16. Some residents questioned when they would be presented with the final design details. David Basilious advised that only preliminary details have been prepared at this stage of the project. Tony Peralta advised that the final design plans will be included as part of the final engineer's report, which will be distributed to all stakeholders within the drainage system.

17. Several residents inquired about how each new residential property will be connected to the drainage system. Tony Peralta explained that each new residential lot will be provided with a service connection and cleanout at the right-of-way limit, with a direct connection to the drainage system. As each home is constructed, it will be the builder's responsibility to complete the connection to the provided service. If any existing service connections are impacted by the proposed works, provisions will be made to reinstate and reconnect such connections to the drainage system.

18. Some residents inquired about how future meetings would be conducted. Tony Peralta explained that once the final report has been prepared, all affected landowners will be invited to attend a meeting before the Town of Essex Drainage Board (an extension of Council) for consideration of the Engineer's Report. This meeting will focus on discussing and reviewing the technical aspects of the project. Approximately one month later, a second meeting will be held to address the distribution of costs (construction and future maintenance) associated with the improved drainage system.

19. At the conclusion of the discussions, we advised that we would maintain close consultation with relevant environmental stakeholders and landowners directly affected by the works to review and discuss the details of the proposed drainage improvements.

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

VI. REGULATORY REQUIREMENTS THROUGH ENVIRONMENTAL AGENCIES

Based on the information gathered at the On-Site Meeting and further discussion with affected landowners, no further formal requests for improvements to the Argyle Beach Drainage System were submitted by other landowners within the drainage system. Therefore, we established that the scope of work for this project shall focus on the requirements necessary to satisfy the Developer's needs for the residential development. Through the development process, Baird engaged in various correspondence with the Town of Essex and the County of Essex related to the Planning and Engineering processes to satisfy the requirements of development. 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. As previously noted, the Town of Essex had submitted a notice to the Essex Region Conservation Authority (ERCA) as required through Section 78(2) of the Drainage Act, for their comments and concerns related to the requested works. Prior to the scheduled On-Site Meeting, we received the initial comments from the ERCA. The ERCA had confirmed that the Argyle Beach Drainage System is located within the regulated limits through Section 28 of the Conservation Authorities Act and is subject to the necessary permitting for the proposed works. These comments identified that the ERCA will require the necessary analysis and design to demonstrate no negative impacts

to the drainage scheme and confirmed that any proposed design shall accommodate the 1:100-year storm event.

The initial comments provided by the ERCA also confirmed the need to obtain approvals and/or authorizations from the appropriate governing agencies associated with the Fisheries Act and the Endangered Species Act as part of our regulatory obligations through provisions of the Drainage Act.

With respect to the Department of Fisheries and Oceans (DFO) concerns and comments, we have performed a project-based self-assessment for the subject drainage works according to the guidelines and requirements established by the DFO and as listed on their website. Based on our review, we felt that this project would require the submission of a "Request for Review" application to DFO, to ensure that the works proposed under this project will not cause serious harm to fish and their habitat. A "Request for Review" application was submitted on November 6, 2025, for this project. Through this process, further discussions and correspondence transpired with DFO staff towards the approval of the proposed works.

The Ministry of the Environment, Conservation and Parks (MECP) currently regulates the Endangered Species Act, 2007. Provisions under Ontario Regulation 242/08, Section 23.9, allow the Municipality to conduct repairs, maintenance, and improvements within existing Municipal Drains, under the Drainage Act, and these works are exempt from Sections 9 and 10 of the Endangered Species Act, so long as the rules in the regulation are followed. If eligible, the regulatory provision allows Municipalities to give notice to the Ministry by registering their drainage activities through an online registry system.

To establish the watershed area, we investigated and reviewed all of the past Engineer's Reports on the Argyle Beach Drainage System. We also carried out cross-checks of the watershed limits utilizing the most recent reports of the various drains in the vicinity of the Argyle Beach Drainage System. In addition, we utilized current LiDAR information to cross-check the watershed limits at various locations throughout the watershed. 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 the preparation of our Construction Schedule of Assessment and Future Maintenance Schedules of Assessment for this project.

VII CHANGES IN ENGINEERING ROLES AND CONSULTATION

At the onset of our appointment to undertake the necessary drainage improvements to the Argyle Beach Drainage System, Baird AE Inc. (Baird) had been retained by Castle Gate Towers Inc. (Castle Gate) to provide engineering services for the proposed residential development. This scope included the preparation of stormwater management (SWM) design, and site servicing and grading plans to accommodate the development.

Throughout the project, our office participated in several meetings and discussions to review drainage design proposals prepared by Baird and coordinated these details with the Town and ERCA staff. In late 2024, Castle Gate requested that N.J. Peralta Engineering Ltd. (Peralta) assume development engineering responsibilities moving forward. At that time, the Owners were reminded that Peralta had been appointed as the Drainage Engineer under the Drainage Act, with a mandate to consider the best interests of the entire watershed and all lands affected by the proposed works.

It was emphasized that the role of the Drainage Engineer is independent of any single landowner or developer and is guided by transparency, fairness, and the protection of the public interest. Castle Gate acknowledged and supported this position, recognizing that Peralta's responsibilities under the Drainage Act align with the broader objectives of responsible development and the long-term sustainability of the drainage system.

With Peralta now having a dual role on this project, it was considered appropriate to have the required analysis completed by an independent third party to provide additional objectivity and technical separation. Accordingly, Landmark Engineers Inc. was retained to complete the necessary hydraulic analysis to satisfy the requirements of the regulatory agencies.

VIII. STAKEHOLDER CONSULTATION

Throughout this project and in addition to the details outlined within the On-Site Meeting, we engaged in various consultations and correspondence with the Developer (and their representatives), the Town of Essex, the County of Essex, the ERCA, and landowners directly impacted by the proposed drainage improvements. The consultation with governmental agencies (Town, County and the ERCA) was primarily related to the proposed development's drainage requirements to satisfy the Planning and Engineering approval process.

Based on the nature of this project, the vast majority of the drainage improvements shall be within municipal road allowances. However, in addition to developer and governmental agency consultation, direct consultation was undertaken with the adjacent landowner directly affected by the proposed drainage improvements, primarily in relation to the outlet works. Accordingly, the following landowner was consulted:

Parcel 660-75010 – Block 'A' (Mark St. Louis):

Mark St. Louis is the registered owner of the lands within which the existing outlet portion of the Argyle Beach Drainage System is located, identified as Parcel 660-07510, also known as Block 'A' of Registered Plan 1382. The subject property is currently undeveloped and is encumbered by the existing outlet alignment, which traverses the site diagonally across its full length.

The proposed improvements to the Argyle Beach Drainage System include the installation of an auxiliary drainage outlet to supplement overall system conveyance. This auxiliary outlet will connect to the existing outlet within the subject lands, and the downstream portion of the outlet will be improved to maintain adequate discharge capacity to Lake Erie.

The lands associated with the existing outlet alignment were previously identified and compensated through past Engineer's Reports and associated By-laws, thereby establishing the drainage system within these lands. With the introduction of the auxiliary outlet, additional encumbrance of the property will occur beyond that of the original installation. Accordingly, it is considered appropriate to provide an additional allowance for the incremental use of these lands.

Consultation was undertaken with the property owner regarding the proposed improvements and associated allowance.

IX. DESIGN CONSIDERATIONS

All analysis and design were reviewed by the Town and ERCA relative to their requirements, and the works were completed based on the following criteria.

"A Guide for Engineers Working Under the Drainage Act in Ontario" - OMAFA 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 storm design (50% chance of occurring each year) is the recommended design standard for the minor flow path applied to Municipal Drains within rural 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, a higher 5-year (20% chance of occurring each year) to 10-year (10% chance of occurring each year) return period storm design could be utilized. 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 major flow path to a 1:100 return period event (1% chance of occurring each year). Therefore, this return period shall be considered as part of the analysis and design considerations.

The Town of Essex has created a Development Manual with the intent to streamline the process for "new" development works within their jurisdiction. This Development Manual is intended to work in conjunction with the requirements of Ontario Provincial Standard Specifications and Standard Drawings. This manual specifies that storm sewers in the Town shall be designed for a minimum 5-year return period (20% chance of occurring each year) based on the Rational Design Method. Furthermore, the Windsor/Essex Region Stormwater Management Standards Manual (WERSMSM) outlines the general requirements for works proposed for "new" development within the Windsor/Essex Region. According to the guidelines established within this document, the standard for a new municipal storm sewer (minor) system design is a 5-year return period (20% chance of occurring each year). As part of new development, the major drainage system (or floodproofing measures) shall consider a minimum design of a 100-year return period (1% chance of occurring each year) that also accounts for surface ponding and floodproofing elevations.

Based on the details outlined above, we find that the analysis and design associated with the proposed drainage improvements have considered the Provincial, Municipal and Regional design requirements to establish an appropriate design criterion for the new drainage system intended to only provide a means of a drainage outlet for the proposed lot severances and future development. As a result, our office retained Landmark Engineers Inc. to provide the required analysis based on the requirements outlined above and submitted a Technical Memo titled "**Wellesley Drive Development Stormwater Modelling Report**", dated October 2, 2025. This document was reviewed and generally approved by the Town of Essex and ERCA. A copy of this document is included in **Appendix "A"** of this report.

X. FINDINGS AND RECOMMENDATIONS

Based on detailed investigations, consultations with affected landowners, municipal staff, and environmental agencies, as well as information gathered during the On-Site Meeting and other directives issued for this project, we have established the general requirements to adequately address the necessary

improvements to the Argyle Beach Drainage System Our findings and recommendations are outlined in the following paragraphs.

ERCA, DFO and MNR/MECP Considerations

During the course of our investigations, this drainage project was discussed and reviewed in detail with James Bryant, Tian Martin, and Ashley Gyori of the ERCA to address the regulatory requirements, concerns, and comments related to this Municipal Drain. The Argyle Beach Drainage System 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 Argyle Beach Drainage System and the implementation of the Wellesley Drive development. Further to the various meetings and upon their request, a detailed hydraulic analysis and a design proposal were submitted to the ERCA for their review and consideration. Based on the submissions, the ERCA provided us with their comments and concerns through email correspondence. A copy of the ERCA response is included in **Appendix "B"**.

With respect to the DFO, the proposed drainage works were "Self-Assessed" by the Engineer, through the DFO website and supporting documentation to determine whether this project shall be reviewed by the DFO. Through our research, the existing closed drainage system has not been classified by the DFO. However, the outlet portion into Lake Erie has been established as a "Class F" drain by the DFO. With its direct connection to Lake Erie, a "Request for Review" was submitted to the DFO for their evaluation. As a result, DFO provided a "Letter of Advice" on November 19, 2025 that confirms that the proposed works under this project will likely not result in impacts on fish and fish habitat, so long as standard measures for fish habitat and migration are implemented. A copy of the DFO Letter of Advice is included in **Appendix "B"**.

The responsibilities of the administration of the Endagered Species at Risk Provincial Legislation is currently the responsibility of the Ministry of the 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. In recognition of the impacts that these species may experience as a result of the subject works, the Town of Essex 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 correspondence with the ERCA, the DFO, and our review of the Endangered Species Act requirements, we have addressed all of the ERCA, DFO, and MECP concerns and comments in our design and recommend that these drainage works be constructed in total compliance with all of the above.

Proposed Drainage System and Improvements

As part of the site development, our office administered all necessary analysis, design, and planning to secure approvals. In addition to meeting development servicing requirements, N.J. Peralta Engineering Ltd. (Peralta) was appointed by Municipal Council to prepare an Engineer's Report for improvements needed to facilitate the development of Wellesley Drive. Before finalizing this report, we held detailed discussions with the Owner, the Town of Essex, and ERCA to review the proposed drainage system. These findings and

recommendations were incorporated into the Engineer's Report prepared under the provisions of the Drainage Act.

Based on our investigations, calculations, and consultations with affected parties, the following findings and recommendations regarding the improvements to the Argyle Beach Drainage System are provided:

Municipal Drain Improvements to Facilitate the Development

1. **Proponent** - Parcels 660-08301 & 660-08500 (owned by Castle Gate Towers Inc.) are designated Residential District 1.1 (R1.1) under the Town of Essex Zoning By-Law. To support the proposed development of these lands, a legal drainage outlet is required. Accordingly, a request to improve the existing Argyle Beach Drainage System has been submitted to the Town of Essex under Section 78 of the Drainage Act.

2. **Plan of Subdivision** - A Plan of Subdivision was originally created in 1929 to illustrate the intended lot layout. However, revisions to Lots 38 and 39 are proposed under the Planning Act to create a total of forty-two (42) lots along the existing Wellesley Drive right-of-way. A copy of the original Plan of Subdivision is included in this report as **Appendix 'A'**.

3. **Development** - The overall development consists of a single linear street, Wellesley Drive, with an entrance from County Road 50 and a connection to Cumberland Way at the south end. The proposed roadway will feature a semi-urban cross-section with gravel shoulders and boulevard swales.

4. **Existing Drainage System and Required Improvements** - Based on drainage history and site topography, the undeveloped areas along Wellesley Drive primarily fall within the Argyle Beach Drainage System watershed. Wellesley Drive is located south of County Road 50, between Gloucester Drive (west) and Lypps Beach Road (east). An existing drainage system along the east side of the Wellesley Drive road allowance forms part of the 1995 Argyle Beach Drainage System. However, to meet the intended land use and current design standards, improvements to the Wellesley Drive Branch and Outlet Portion of the Argyle Beach Drainage System are required.

5. **Existing Drainage System Components** - The Argyle Beach Drainage System provides a sufficient outlet for the lands and roads. For clarity, the main covered drains along each roadway are identified as the Wellesley Drive Branch, Gloucester Drive Branch, and Cumberland Way Branch, together with the Outlet Portion, which discharges through private lands to Lake Erie. Except for Wellesley Drive, all existing residential properties along these roads have the ability to connect to the drainage system through private service connections.

6. **Hydraulic Analysis** – In order to establish the appropriate improvements to the overall drainage system, a Hydraulic Analysis was prepared for this project. The analysis included evaluating the functionality of the existing system and further outlined the necessary improvements to facilitate the proposed development, to meet the required design standards. All of these were determined towards establishing a subdivision stormwater management (SWM) strategy to best facilitate the development. With its close proximity to Lake Erie, the SWM strategy focused on having an

uncontrolled discharge to Lake Erie while maintaining a 100-year level of service. Based on the findings outlined within the Stormwater Modelling Report, the following conclusion was included:

a) Given the proximity to the ultimate receiver (i.e., Lake Erie), quantity control is not required, and thus SWM requirements are limited to sufficient flow routing.

b) The proposed storm sewer system has been designed to a 5-year level of service and, when surcharged, has the capacity to convey 100-year major storm flows to the lake.

c) Under a major rainfall event, combined with high lake levels, there currently exists the potential for excess flows to spill across low-lying areas on some of the properties abutting the lake. The proposed development, which includes improvements to the storm sewers, will effectively reduce this spill potential.

The details outlined above are included within a Technical Memo titled "Wellesley Drive Development Stormwater Modelling Report", dated October 2, 2025, included in **Appendix "A"** of this report.

7. **Proposed Drainage System Improvements and Components** - To facilitate the proposed residential lots and overall development of Wellesley Drive, we recommend improving the existing drainage system by installing an auxiliary drain along the west side of Wellesley Drive, cross-connected to the existing branch on the east side and further extending along the north side of Cumberland Way and connected to the outlet portion. This proposed auxiliary outlet shall include a series of maintenance holes, offset catchbasins, and associated appurtenances. These improvements extend downstream to increase capacity and ensure a sufficient outlet to Lake Erie. The combined system will accommodate increased runoff from the proposed road and adjacent lands. All lots within the development site will connect directly to the drainage system via service connections. The components of the proposed system are as follows:

a) Wellesley Drive Branch – An existing covered drain along the east side within the road allowance, beginning at DICB-111 (Station 1+004.3) at the southeast corner of County Road 50 and continuing downstream to CBHM-106 (Station 1+404.1) at the south end of Wellesley Drive. From there, it crosses Cumberland Way and terminates into the Cumberland Way Branch at Station 1+417.8. The existing branch drain shall be cross connected with the proposed Wellesley Drive Auxiliary Branch.

b) Wellesley Drive Auxiliary Branch – The proposed covered drain runs along the west side of Wellesley Drive and within the road allowance, beginning at DICB-12 (Station 1+002.6) at the southwest corner of County Road 50 and continuing downstream to CBHM-6 (Station 1+406.0) at the south end of Wellesley Drive. From there, it extends along the north side of Cumberland Way, connects to the Gloucester Drive Branch at STMH-8 (Station 2+041.3), and cross connected with the Cumberland Way Branch.

c) Auxiliary Outlet Portion – The proposed covered drain begins at STMH-8 (Station 2+041.3), running along the north side, crosses Cumberland Way, and continues through Parcel 660-

07501 (owned by Mark St. Louis). It then extends through the subject property and intersects the existing Outlet Portion at STMH-11 (Station 3+059.0).

8. **Proposed Outlet Improvements** - In addition to the proposed Wellesley Drive Auxiliary Branch and Auxiliary Outlet Portion, we recommend improvements to the existing Outlet Portion of the drainage system. From STMH-11 (Station 3+059.0), the existing outlet pipe will be replaced with a new 1050mm diameter concrete pipe, 23.4 m in length, extending from Station 3+059.0 to Station 3+082.7, as shown in the accompanying drawings. These improvements are intended to effectively collect stormwater runoff and safely discharge flows to a sufficient outlet into Lake Erie. The work includes removal and replacement of the existing outlet pipe anchor system with new interlocking concrete blocks, uniaxial geogrids, quarried limestone erosion protection, with concrete and granular backfill to protect against wave and ice damage. The replacement outlet enclosure pipe will also incorporate an outfall protection structure. With the replacement of the existing outlet enclosure pipe and appurtenances, we recommend that the original portion be removed and abandoned in accordance with Section 19 of the Drainage Act, RSO 1990, Chapter D.17, as amended in 2021.

9. **Boulevard Swales for Surface Runoff Collection** - In association with the covered drainage system and the intended semi-urban cross-section, we recommend installing boulevard swales along both sides of the proposed Wellesley Drive. These swales will be established based on the proposed road elevations and the minimum lot grading elevations of the residential lots. They will collect surface runoff from the roadway and adjacent lands and direct it into the offset catch basins, as detailed in the accompanying drawings.

10. **Service Connections** - With the development proceeding with a semi-urban cross-section, the frontage of individual lots will be graded toward the roadway and boulevard swales, while the rear of each lot will drain to rear yard catch basins connected to the provided service connection. As a result, all surface and subsurface stormwater runoff from the entire site will be collected and discharged directly to the new Municipal Drain. Individual service connections for the proposed Lots 1 through 42 (excluding Lots 20 through 22), as well as existing properties along the north side of Cumberland Way, will serve as each lot's primary connection to the Municipal Drain. Each service connection from the road allowance to the storm sewer will form part of the Municipal Drain. Beyond the road allowance, any extension of the service connection into private lands will remain private and the full responsibility of the property owner.

    Proposed Lots 20 through 22, currently identified within Parcels 660-08450 and 660-09300, and as illustrated on the accompanying drawings, are not included in the proposed development. No service connections for these lots are to be constructed as part of the initial drainage works. However, their anticipated future locations are shown on the accompanying plans. Any future servicing required to accommodate the development of Lots 20 through 22 shall be coordinated with the Town of Essex and at the sole responsibility of the landowner at the time such development occurs.

11. **System Installation** - We recommend that the new drainage system, together with all ancillary work required to complete the proper functionality of the proposed drainage system as described above, be conducted and performed as part of this project. We further recommend that all related

appurtenances be constructed as part of this drainage project and be completed to the satisfaction of the Town's Drainage Superintendent and the Consulting Engineer.

12. **Access and Working Corridors** - As part of improving the Municipal Drain, we recommend re-establishing working corridors (drainage easements) for access and maintenance of the new and improved portions of the drainage system. Specific access routes have been identified in this Report and Specifications to minimize construction disruption along the length of the drain. All working corridors will constitute 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, and operating the drainage system. We further recommend that these areas remain free of any new buildings, structures, fences, flowerbeds, concrete or asphalt paving, or other obstructions of any kind. If any such item is placed on these lands, the Owner(s) at the time will be liable for all costs incurred by the transferee, its agents, or assigns for any damage sustained and/or removal of such items.

13. **Removal and Abandonment of Existing Drainage Works** – As part of the proposed drainage improvements, portions of the existing drainage system along Cumberland Way and the existing outlet portion will be replaced with new infrastructure, including pipe, catchbasins, maintenance holes, and outlet works. In conjunction with the replacement and upgrading of the associated appurtenances, it is recommended that the superseded infrastructure be removed and abandoned in accordance with Section 19 of the Drainage Act, RSO 1990, Chapter D.17, as amended in 2021**.**

14. **Updating Maintenance Assessment Schedules** - The original governing by-law for the Argyle Beach Drainage System includes a schedule of assessment to allocate costs for initial construction and ongoing maintenance of the entire drainage system. These assessments were based on land use and drainage patterns at the time the by-laws were enacted. With the proposed development of Wellesley Drive and changes to the lot structure along Gloucester Drive and Cumberland Way, the affected area and land use are no longer accurately represented in the existing maintenance schedule. Furthermore, future maintenance schedules for individual branches have not been distinguished or separated. As a result, if maintenance is required for one branch, there is currently no mechanism to allocate costs to the lands that benefit from or contribute flows to those works. Therefore, it is necessary to update the parcel assessments to ensure a fair distribution of future maintenance costs for each branch and the overall drainage system.

In summary, we recommend that the Argyle Beach Drainage System be improved to accommodate the proposed development of Wellesley Drive. The proposed improvements shall be constructed at the locations and alignments detailed in the accompanying drawings, and per this report and the attached specifications. Furthermore, all works associated with this project shall be carried out in accordance with Section 78 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

XI. ALLOWANCES AND COMPENSATION

As part of the improvements to the Argyle Beach Drainage System, some properties are directly affected by the proposed works. Accordingly, those properties may be entitled to allowances and/or compensation in accordance with Sections 29 to 31 of the Drainage Act.

Land Valuation

Based on the general scope and nature of the proposed works, it was recognized that the lands affected will require the establishment of allowances and compensation. In order to ensure that such allowances are fair, reasonable, and applied consistently, the compensation values used for this report are based on a recent market evaluation of waterfront residential lands undertaken for a comparable project within the geographic area.

The valuation reflects lands of similar use, location, servicing, and market conditions, and was prepared within a timeframe considered representative of current market values. As such, the unit rates derived from that evaluation are considered appropriate for establishing allowances and compensation for partial takings associated with the proposed works.

Allowances for Land Taken

Section 29 of the Drainage Act provides for an allowance to specific landowners for the right-of-way required for the construction and maintenance of a Municipal Drain. Allowances provided under this section of the Act are generally allocated only once and at the time when the land is taken for the required purpose. This allowance is typically provided for lands that are permanently and/or periodically taken out of production/use as a result of the drainage works.

In order to conduct improvements and/or maintenance along the course of a Municipal Drain, working corridors (or drainage easements) are established as a defined right-of-way for these drainage works. Providing a one-time allowance for the use of these lands establishes the legal right to utilize the lands for the purpose of the initial construction and periodic future maintenance of the Municipal Drain. Where the Argyle Beach Drainage System has previously been established as a Municipal Drain, the affected lands along the course of the open drain and outlet enclosure have already been established and compensated for the land taken under previous Engineer's Reports and By-Laws.

Municipal Road Allowances (Wellesley Drive, Gloucester Drive, and Cumberland Way):

The majority of the Argyle Beach Drainage System resides within the municipal road allowances. Through our research of past reports and By-Laws, the working corridors for the drainage system were previously established and an allowance has previously been allocated to these lands. With the improvements to the drainage system that remains within these lands, a nominal value of $1.00 shall be paid to each road allowance to re-establish the legal right of the lands required to complete the work.

Parcel 660-75010 – Block 'A' (Mark St. Louis):

The existing outlet portion of the Argyle Beach Drainage System is located within Parcel 660-07510 (Block 'A'), owned by Mark St. Louis. A review of previous Engineer's Reports and associated By-laws confirms that a working corridor for this outlet was established under prior works on the drainage system. Lands associated with this outlet within Block 'A' were previously compensated through allowances provided in those By-laws. Although the working corridor was not explicitly dimensioned, it was defined as "the full area of lands, as necessary, to carry out the works required on the drainage system." For the purposes of this report, the existing working corridor is therefore assumed to consist of a 6.0-metre-wide strip of land centred over the alignment of the original outlet.

Based on the proposed alignment of the Auxiliary Outlet, additional lands within Block 'A' will be encumbered by the installation of the Auxiliary Outlet pipe. Construction of the new pipe will require a 6.0-metre (20.0 ft) working corridor. However, a portion of this corridor overlaps the previously established working corridor for the original outlet. Accordingly, the required allowance for the Auxiliary Outlet installation has been established based on the incremental area beyond the existing corridor. The residual area associated with the new working corridor is approximately **232 square metres (2,500 square feet)** within these lands.

With respect to compensation value, the lands within Block 'A' that contain the existing outlet are already encumbered by drainage infrastructure and are constrained from development. As such, these lands do not reflect the market value of fully developable waterfront property. Based on these limitations, the unit land value has been established at **$45.00 per square metre ($4.09 per square foot)**. It is further noted that upon completion of all construction, the property owner will continue to maintain full access to the lands, as was available prior to these drainage improvements.

Based on the foregoing, provision has been made for the required compensation for land taken in accordance with Section 29 of the *Drainage Act*, R.S.O. 1990, Chapter D.17, as amended. A summary of all Section 29 allowances for affected properties is provided in **Table 3**.

Allowances For Damages

Section 30 of the Drainage Act provides for an allowance to specific landowners for damages caused by the construction and future maintenance of a Municipal Drain. Allowances provided under this section of the Act are generally allocated to properties that endure damages caused by the proposed works. Furthermore, areas or features disturbed by the drainage works that can be fully restored to pre-construction condition are typically specified for full restoration and are not compensated. As such, the works will not have any indirect damage to the adjacent lands. Accordingly, no allowances or compensation for damages will be provided for under Section 30 of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021".

TABLE 3 - SCHEDULE OF ALLOWANCES

					Land and Right-of-Way (Section 29)	
Parcel ID	Conc. Or Plan Number	Lot	Owner/s	Roll No.	Access & Maintenance Corridor	**TOTAL**
	Plan 1382	-	Wellesley Drive		$1.00	**$1.00**
	Plan 1382	-	Cumberland Way		$1.00	**$1.00**
1	Plan 1382	Block 'A'	Mark St. Louis	660-07510	$10,207.00	**$10,207.00**
			TOTALS		**$10,209.00**	**$10,209.00**

XII. ESTIMATE OF COST

Our estimate of the total cost of this work, including all incidental expenses, is the sum of **SEVEN HUNDRED SIXTY FIVE THOUSAND FIFTY ONE DOLLARS ($765,051.00)** made up as follows:

CONSTRUCTION ITEMS					
Item	Description	Est Qty	Unit	Unit Price	Total
1.	**Exploratory Excavations;** Provide all labour and equipment to coordinate and perform exploratory vacuum excavations at key locations prior to commencing any construction works, to ensure that the proposed drainage system will not conflict with existing utilities.	8.0	Hourly	$ 500.00	$ 4,000.00
2.	**Traffic Control;** Supply, install, and maintain traffic control measures, including signs, flashers, flaggers, and other traffic control devices to Ontario Traffic Manuals and MTO Roadside Safety Manual requirements. Remove all components upon the completion of the project.	1.0	Lump Sum	$ 5,000.00	$ 5,000.00
3.	**Water, Sediment, and Erosion Control Plan;** Provide a Water Control, Sediment, and Erosion Control Plan required to obtain the necessary permits and approval; Provide all labour, equipment, and materials to implement the Water Control, Sediment, and Erosion Control Plans, including worksite isolation at the outlet, and as outlined within the specifications, complete.	1.0	Lump Sum	$ 30,000.00	$ 30,000.00
4.	**DICB-12 to STMH-1;** Supply and install approximately 13.1 lineal metres of 200mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	13.1	Lineal Metre	$ 99.24	$ 1,300.00
5.	**STMH-1 to STMH-2;** Supply and install approximately 84.1 lineal metres of 300mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	84.1	Lineal Metre	$ 130.80	$ 11,000.00

Item	Description	Est Qty	Unit	Unit Price	Total
6.	**STMH-2 to STMH-3;** Supply and install approximately 110.0 lineal metres of 375mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	110.0	Lineal Metre	$ 160.00	$ 17,600.00
7.	**STMH-3 to STMH-4;** Supply and install approximately 105.9 lineal metres of 450mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	105.9	Lineal Metre	$ 230.41	$ 24,400.00
8.	**STMH-4 to STMH-5;** Supply and install approximately 83.3 lineal metres of 525mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	105.9	Lineal Metre	$ 260.50	$ 21,700.00
9.	**STMH-5 to CBMH-6;** Supply and install approximately 10.8 lineal metres of 525mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	10.8	Lineal Metre	$ 268.52	$ 2,900.00
10.	**Ex. CBMH-106 to CBMH-6;** Supply and install approximately 25.8 lineal metres of 375mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	25.8	Lineal Metre	$ 271.32	$ 7,000.00
11.	**CBMH-6 to CBMH-7;** Supply and install approximately 78.4 lineal metres of 600mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	78.4	Lineal Metre	$ 390.31	$ 30,600.00
12.	**CBMH-7 to CBMH-8;** Supply and install approximately 30.6 lineal metres of 600mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	30.6	Lineal Metre	$ 392.16	$ 12,000.00

Item	Description	Est Qty	Unit	Unit Price	Total
13.	**CBMH-8 to STMH-9;** Supply and install approximately 18.2 lineal metres of 750mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	18.2	Lineal Metre	$ 423.08	$ 7,700.00
14.	**STMH-9 to CBMH-10;** Supply and install approximately 20.7 lineal metres of 750mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	20.7	Lineal Metre	$ 420.29	$ 8,700.00
15.	**CBMH-10 to STMH-11;** Supply and install approximately 48.9 lineal metres of 750mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	48.9	Lineal Metre	$ 161.55	$ 7,900.00
16.	**STMH-11 to Outlet;** Supply and install approximately 23.4 lineal metres of 1050mm diameter Class 65-D concrete pipe with bell and gasket joining system, new interlocking concrete block anchor system, outfall protection structure, quarried limestone erosion protection, including excavation, compaction, topsoil, seeding and mulching, cleanup and restoration, complete	23.4	Lineal Metre	$ 6,645.30	$ 155,500.00
17.	**Ex. CBMH-109 to STMH-2;** Supply and install approximately 13.5 lineal metres of 300mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	13.5	Lineal Metre	$ 525.93	$ 7,100.00
18.	**Ex. CBMH-108 to STMH-3;** Supply and install approximately 13.5 lineal metres of 300mm diameter solid heavy duty, 320kPa, smoothwall plastic pipe with bell and gasket joining system, including excavation, granular bedding, backfill, compaction and restoration, complete.	13.5	Lineal Metre	$ 525.93	$ 7,100.00

Item	Description	Est Qty	Unit	Unit Price	Total
19.	**Offset CB-13 through CB-38;** Supply and install 600x600mm precast offset concrete catch basin maintenance hole approximately 2.0m deep with 600mm square cast iron frame and grate, including adjustment units, excavation, bedding, connections, 450mm sump, backfill, compaction and restoration, complete.	24.0	Each	$ 3,100.00	$ 74,400.00
20.	**Structure DICB-12;** Supply and install 600x600mm precast concrete catch basin maintenance hole approximately 2.0m deep with flat honeycomb grate, including adjustment units, excavation, bedding, connections, 450mm sump, backfill, compaction and restoration, complete.	1.0	Each	$ 3,300.00	$ 3,300.00
21.	**Precast Concrete Maintenance Hole 1 through 4, and 7;** Supply and install a 1200mm diameter precast concrete maintenance hole (per OPSD 701.010) 1.70 metres deep with a 600mm diameter cast iron frame and lid, including adjustment units, excavation, disposal, bedding, connection, 600mm sump, backfill, compaction and restoration, complete.	5.0	Each	$ 4,500.00	$ 22,500.00
22.	**Precast Concrete Maintenance Hole OGS STMH-5;** Supply and install a 1500mm diameter oil grit separator unit model ADS FD-5HC, including all piping, materials, connections, excavations, backfill, compaction and restoration, complete.	1.0	Each	$ 32,200.00	$ 32,200.00
23.	**Precast Concrete Maintenance Hole OGS STMH-39;** Supply and install a 1200mm diameter oil grit separator unit model ADS FD-4HC, including all piping, materials, connections, excavations, backfill, compaction and restoration, complete.	1.0	Each	$ 25,200.00	$ 25,200.00
24.	**Precast Concrete Maintenance Hole 6, 9, and 10;** Supply and install a 1500mm diameter precast concrete maintenance hole (per OPSD 701.010) 1.70 metres deep with a 600mm diameter cast iron frame and lid, including adjustment units, excavation, disposal, bedding, connection, 600mm sump, backfill, compaction and restoration, complete.	3.0	Each	$ 5,900.00	$ 17,700.00

Item	Description	Est Qty	Unit	Unit Price	Total
25.	**Precast Concrete Maintenance Hole 8;** Supply and install a 1800mm diameter precast concrete maintenance hole (per OPSD 701.010) 1.70 metres deep with a 600mm diameter cast iron frame and lid, including adjustment units, excavation, disposal, bedding, connection, 600mm sump, backfill, compaction and restoration, complete.	1.0	Each	$ 19,600.00	$ 19,600.00
26.	**Precast Concrete Maintenance Chamber 11;** Supply and install a 3000x1800mm diameter precast concrete box chamber 1.70 metres deep with a 600mm diameter cast iron frame and lid, including adjustment units, excavation, disposal, bedding, connection, 600mm sump, backfill, compaction and restoration, complete.	1.0	Each	$ 24,200.00	$ 24,200.00
27.	**New Service Connections and Cleanouts;** Supply and install 150mm insert-a-tee, PVC pipe, tee, riser pipe, metal cap, plastic end cap, marker posts, connections to main, excavation, backfill, compaction and restoration, complete.	39.0	Each	$ 700.00	$ 27,300.00
28.	**Existing Service Connections and Cleanouts;** Reconnect existing service connections by supplying and installing 150mm insert-a-tee, PVC pipe, tee, riser pipe, metal cap, plastic end cap, marker posts, connections to main, excavation, backfill, compaction and restoration, complete.	4.0	Each	$ 1,200.00	$ 4,800.00
29.	**Temporary Catch Basins;** Supply and install a temporary catch basin and connection as detailed in the plans, including 150mm diameter PVC pipe connected to the specified service connection, and provide positive drainage from adjacent lands.	2.0	Each	$ 1,100.00	$ 2,200.00
30.	**Backfill and Boulevard Grading (Station 1+002.6 to 1+393.9)** Provide all labour, equipment, and material to strip the existing boulevard area of all vegetation, scavenging topsoil and windrowing along the limits of the project site, fill in the existing ditch and boulevard area (approximately 130.0 cubic metres) with imported clay material, including placement, compaction, swale grading, spreading of topsoil, seeding and mulching, and cleanup and restoration, complete.	441.1	Lineal Metre	$ 28.12	$ 12,400.00

Item	Description	Est Qty	Unit	Unit Price	Total
31.	**Provisional Item - Watermain Lowering;** Supply and install 150mm diameter PVC DR 18 watermain to lower existing watermain under new storm sewer, including bends, fittings, disinfection, testing, tie-ins, bedding, cover, backfill and restoration.	3.0	Each	$ 6,800.00	$ 20,400.00
32.	**Final Cleanup and Restoration;** Provide all labour, and materials to clean up the project site on completion of the work, complete.	1.0	Lump Sum	$ 5,000.00	$ 5,000.00
	TOTAL FOR CONSTRUCTION				**$ 652,700.00**
	Net HST (1.76%)				**$ 11,488.00**
				TOTAL FOR CONSTRUCTION = $ 664,188.00	

	INCIDENTALS	
Item	Description	Total
1.	Report, Estimates and Specifications	$ 44,800.00
2.	Survey, Assistants, Expenses and Drawings	$ 15,900.00
3.	Duplication Costs of Report and Drawings	$ 200.00
4.	Estimated Cost of Leting Contract	$ 2,000.00
5.	Estimated Cost for Full-Time Inspection, Supervision and Project Management during Construction (approx. 4 weeks duration)	$ 25,400.00
6.	Net HST on the above items (1.76%)	$ 1,554.00
7.	Estimate Cost for ERCA Permit	$ 800.00
	TOTAL FOR INCIDENTALS =	**$ 90,654.00**
	TOTAL FOR LAND TAKEN (brought forward) =	**$ 10,209.00**
	TOTAL FOR CONSTRUCTION (brought forward) =	**$ 664,188.00**
	TOTAL ESTIMATE =	**$ 765,051.00**

XIII. DRAWINGS AND SPECIFICATIONS

As part of this report, we have included drawings related to the associated Municipal Drainage System. The drawing set features a watershed plan illustrating the general alignment, watershed boundaries, and all lands and roads within the drainage area. It also includes the design drawings for the proposed drainage improvements. These drawings further detail the required improvements and ancillary works associated with the Municipal Drain. The design drawings are appended to the back of this report and are referenced herein as **Appendix 'C'**.

Furthermore, General Specifications and Special Provisions set out the required construction and future maintenance details for the various aspects of the works to be conducted under this report.

XIV. CONSTRUCTION SCHEDULE OF ASSESSMENT

In general terms, all works associated with this project are required and intended to facilitate the creation of a new residential subdivision within the lands currently owned by Castle Gate Towers Inc. (660-08301 and 660-08500). As such, we would recommend that all of the costs associated with the improvements to the Argyle Beach Drainage System, including all related incidental expenses, be charged entirely against the lands to be developed and per the attached **Construction Schedule of Assessment**.

It should be noted that the attached Construction Schedule of Assessment shall be utilized only for the sharing of all of the costs associated with the work being provided for under this report, and said Construction Schedule of Assessment should not be utilized, under any circumstance, for the sharing of any future maintenance works conducted to any portion of the Municipal Drainage Systems established herein.

XV. FUTURE MAINTENANCE – ARGYLE BEACH DRAINAGE SYSTEM

After the completion of all of the work associated with this Engineer's Report, we recommend that the Argyle Beach Drainage System be administered and maintained by the Town of Essex in the future. All of which shall remain in the cost apportionments established herein until otherwise varied and/or determined under the provisions of the "Drainage Act, RSO 1990, Chapter D.17, as amended 2021" or per subsequent amendments made thereto.

Based on the configuration of the new Argyle Beach Drainage System, the Municipal Drain comprises four (4) primary sections:

1. Drainage along Wellesley Drive
2. Drainage along Cumberland Way
3. Drainage along Gloucester Drive
4. Outlet Portions (Existing and Auxiliary)

Accordingly, separate Maintenance Schedules of Assessment have been prepared for each primary section. The distribution of future maintenance costs shall be based on the principles outlined herein and as further detailed in the Maintenance Schedules of Assessment attached herein as **Appendix "D"**. It should be clearly

understood that **the amounts shown within these Schedules are only for prorating future maintenance costs for the drain and do not form part of the current cost for the work**.

Wellesley Drive

The drainage system along Wellesley Drive consists of both the original Wellesley Drive Branch (Ex. DICB-111 to Ex. CBMH-106) and the new Wellesley Drive Auxiliary Branch (DICB-12 to CMBH-6). When future maintenance is performed on either branch, between Station 1+002.6 and Station 1+406.0, as identified within the accompanying drawings and under this report, we recommend that it be kept up and maintained in the future at the expense of the lands and road outlined in the "Argyle Beach Drainage System - Maintenance Schedule of Assessment: Wellesley Drive (Station 1+002.6 and Station 1+406.0)" attached herein. This Schedule of Assessment has been developed based on an assumed cost of **$5,000.00,** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are situated adjacent to and upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$5,000.00** worth of future maintenance work is expended on this section of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment.

The maintenance work would include the drainage pipe, drainage, offset catchbasins, together with the select imported clay backfill, topsoil topping, granular driveways and swale construction. The proposed swale grading within the boulevard has been established based on the proposed roadway and building envelope elevations, established in conjunction with the ERCA. As new accesses are required for each new residential building lot, minor changes to the proposed swales will likely be required. However, the Developer must maintain positive drainage between the roadway and the developed lot, together with maintaining a suitable grade to the new catch basins.

Cumberland Way

The drainage system along Cumberland Way consists of the original Cumberland Way Branch, located along the south side of the roadway and along both sides of the roadway east of Wellesley Drive (Ex. STMH-119 to Ex. CBMH-114), together with the new Wellesley Drive Auxiliary Branch, located along the north side of Cumberland Way (CBMH-8 to Ex. CBMH-106). When future maintenance is performed on either branch, between Station 2+041.3 and Station 2+220.5, as identified within the accompanying drawings and under this report, we recommend that it be kept up and maintained in the future at the expense of the lands and road outlined in the "Argyle Beach Drainage System - Maintenance Schedule of Assessment: Cumberland Way (Station 2+041.3 and Station 2+220.5)" attached herein. This Schedule of Assessment has been developed based on an assumed cost of **$5,000.00,** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are situated adjacent to and upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$5,000.00** worth of future maintenance work is expended on this section of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment.

The maintenance work would include all of the components of the original drainage system along the south side of the road and east of Wellesley Drive, the new Auxiliary Branch drainage pipe, drainage structures, together with all other ancillary work such as granular bedding and native fill backfill. Any drainage infrastructure not identified above or on the accompanying plans, or specifically identified in the "Special Drainage Features" section, will be considered a private feature and not form part of the Municipal Drain.

Responsibility for the maintenance of any such private features shall rest entirely with the property on which the feature is located and/or the property that benefits from it.

Gloucester Drive

The drainage system along Gloucester Drive consists of the original Cumberland Way Branch identified within the 1995 Argyle Beach Drainage System report (Ex. CWB-MH#11 through CB#24). When future maintenance is performed on the branch, between Station 0+021.4 and Station 0+410.6, as identified within the 1995 drawings and report, we recommend that it be kept up and maintained in the future at the expense of the lands and road outlined in the "Argyle Beach Drainage System - Maintenance Schedule of Assessment: Gloucester Drive (Station 0+021.4 and Station 0+410.6)" attached herein. This Schedule of Assessment has been developed based on an assumed cost of **$5,000.00,** and the future maintenance costs shall be levied pro-rata to the affected lands and roads that are situated adjacent to and upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$5,000.00** worth of future maintenance work is expended on this section of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment.

The maintenance work would include all of the components of the original drainage system along both sides of Gloucester Drive, including the drainage pipe, all drainage structures, and all associated boulevard swales, together with all other ancillary work such as granular bedding and native fill backfill. Any drainage infrastructure not identified within the original 1995 report, or specifically identified in the "Special Drainage Features" section, will be considered a private feature and not form part of the Municipal Drain. Responsibility for the maintenance of any such private features shall rest entirely with the property on which the feature is located and/or the property that benefits from it.

Outlet Portion

The Outlet Portion consists of both the Existing Outlet (Ex. STMH-119 to its outlet into Lake Erie) and the proposed Auxiliary Outlet portions (STMH-8 to STMH-11). Future maintenance of either portion of the Argyle Beach Drainage System, located within the Cumberland Way road allowance (between Station 2+011.6 and Station 2+041.3) and within Block 'A' (between Station 3+002.0 and Station 3+082.7), as shown on the accompanying drawings and described in this report, shall be carried out at the expense of the lands and road allowances identified in the "Argyle Beach Drainage System - Maintenance Schedule of Assessment: Outlet Portion (Stations 2+011.6 – 2+041.3 and 3+002.0 – 3+082.7)" attached herein. 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 are situated adjacent to and upstream of this section of drain for which future maintenance works have been carried out. Therefore, when **$10,000.00** worth of future maintenance work is expended on this section of the drain, the assessment to each of the individual affected property owners and roads shall be levied per the noted Maintenance Schedule of Assessment.

The maintenance work would include all components of the original outlet portion along the east side of Block 'A', the new Auxiliary Outlet drainage pipe, drainage structures, outlet pipe anchors system, and outfall protection structure, together with all other ancillary work such as granular bedding and native fill backfill. Any drainage infrastructure not identified above or on the accompanying plans, or specifically identified in the "Special Drainage Features" section, will be considered a private feature and not form part of the

Municipal Drain. Responsibility for the maintenance of any such private features shall rest entirely with the property on which the feature is located and/or the property that benefits from it.

Special Drainage Features

We wish to establish that when future maintenance is performed on the Argyle Beach Drainage System, we recommend that all costs associated with drainage features that are specific to the roadway of each road allowance be kept up and maintained in the future, with the following provisions with respect to cost-sharing:

1. **Oil Grit Separators** - Should any works to the Oil Grit Separator (O.G.S.) system within and including STMH-5 and STMH-39 require replacement, repair or improvements, this structure shall form part of the works and the cost of this feature shall be assessed entirely to the Town of Essex Public Works Department.

2. **Roadway Surface and Backfill Restoration** - Should concrete or asphalt roadway and/or roadway bedding/backfill require removal as part of any future maintenance work on the drainage system, these features should be repaired or replaced as part of the work, and the cost of such works shall be assessed entirely to the Town of Essex Public Works Department.

3. **Driveway Restoration and Private Features** - Should concrete, asphalt, or other special driveway surfaces over the new drainage system require removal as part of the maintenance work, these surfaces shall be repaired or replaced as part of the work. Likewise, if any fencing, gate, decorative landscaping, or other special features exist that will be impacted by the maintenance work, they are also to be removed and restored or replaced as part of the maintenance work. However, the cost of the supply and installation of any special surface material other than select imported clay, topsoil topping and granular driveways, along with any special feature, where applicable, shall be assessed entirely to the benefiting owner.

4. **Road Crossing Culverts** - Should the cross-connecting road crossing culverts along Wellesley Drive (Station 1+092.8 and Station 1+202.8) and Cumberland Way (Station 2+041.3 and Station 2+175.8) require replacement or repair, these crossings shall form part of the works, and the entire cost of these crossings shall be assessed entirely to the Town of Essex Public Works Department.

5. **Service Connections** - Service connections extending from the main trunk to the cleanout located at the right-of-way limit shall be considered part of the Municipal Drain. If repairs or replacement of the Municipal Drain portion of a service connection are required, the associated costs shall be shared equally, **50%** assessed to the Town of Essex Public Works Department and **50%** to the property served by the connection. These shared costs shall be limited to the service connection itself, including granular bedding and native backfill. Any costs related to the removal and replacement of asphalt roadway pavement, roadway base, and/or concrete curb shall be fully assessed to the Town of Essex Public Works Department. It is important to note that the service connection from the cleanout at the right-of-way limit to the dwelling (located on private property) is considered a private feature and does not form part of the Municipal Drain. Any maintenance or replacement costs associated with this private portion shall be the responsibility of the property owner.

6. **Protection of Service Connections** - As noted within the accompanying drawings, each service connection along Wellesley Drive has been strategically located to avoid conflicts with future driveways and private features. If a driveway or private feature is later installed and interferes with a service connection, any affected features must be repaired or replaced as part of the work. Similarly, if these maintenance works impact fencing, landscaping, sprinklers, or other special features, these must also be removed and restored or replaced. However, all costs related to the supply and installation of any surface material other than native soils, as well as the removal, restoration, or replacement of special features, shall be fully assessed to the adjoining Owner benefiting from the service connection.

Temporary Drainage Features

Temporary drainage features, including temporary grading and catchbasins located on private lands, as well as the original Wellesley Drive Auxiliary Drainage Works constructed pursuant to the 1995 Engineer's Report, have been incorporated into the Argyle Beach Drainage System solely for the purpose of providing interim positive drainage while the subject lands remain undeveloped. These temporary features shall continue to form part of the Municipal Drain until such time as the individual residential building lots are developed.

Upon the development of any individual residential building lot, the temporary drainage features serving the associated building lot shall be deemed to be superseded and shall no longer form part of the Municipal Drain. From that time forward, all responsibility and liability for the operation, maintenance, repair, replacement, modification, and/or removal of such temporary drainage features shall rest solely and entirely with the owner of the respective building lot, and no further responsibility or liability shall attach to the Municipality under the provisions of the Drainage Act.

Future Maintenance Working Corridors

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 overall drainage system:

1. Wellesley Drive (From Station 1+002.6 and Station 1+406.0): The Contractor may utilize the full road allowance of Wellesley Drive.

2. Gloucester Drive (From Station 0+021.4 and Station 0+410.6): The Contractor may utilize the full road allowance of Gloucester Drive.

3. Cumberland Way (From Station 2+041.3 and Station 2+220.5): The Contractor may utilize the full road allowance of Cumberland Way.

4. Outlet Portion (From 3+002.0 and Station 3+082.7): The Contractor shall have access to the full width and length of the private lands currently owned by Mark St. Louis (660-07510), and extending into Lake Erie.

Future Maintenance Summary

All of the above provisions for the future maintenance of the Argyle Beach Drainage System shall remain as aforesaid until otherwise varied and/or determined under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021", or subsequent amendments made thereto.

XVI. SCHEDULES OF ASSESSMENT RATIONALE

We have prepared Schedules of Assessment to be used for allocating costs to the affected lands and roads for any future maintenance work carried out on the associated Municipal Drains, as previously identified in this report. These schedules have been developed based on established precedents and industry standards to ensure a fair and consistent approach. As previously noted, the assessment proportions outlined in the Maintenance Schedules of Assessment have been established based on an assumed future maintenance cost for each portion of the Municipal Drainage System. It should be understood that the charges indicated in the schedules are not to be levied until maintenance work has actually been performed and costs incurred. The actual maintenance costs shall be assessed to the applicable lands and roads in the same relative proportions as indicated in the schedules, subject to any future revisions permitted under the authority of the Drainage Act.

Assessment Components

All individual assessments within the Maintenance Schedules of Assessment consist of two (2) primary and distinct components, as defined under the Drainage Act:

i. Benefit *is defined as advantages to any lands, roads, buildings or other structures from the construction, improvement, repair or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures, as it relates to Section 22 of the Drainage Act*.

ii. Outlet Liability *is defined as part of the cost of the construction, improvement or maintenance of a drainage works that is required to provide such outlet or improved outlet, as it relates to Section 23 of the Drainage Act*.

Assessment Rationale

Benefit Assessment - The cleaning and repairs of the drainage systems will improve water flow through the system. These improvements will enhance the drain's hydraulic capacity and ensure a sufficient outlet. As a result, properties located adjacent to these Municipal Drains will benefit from the improved drainage, reducing the risk of flooding and potential property damage. Accordingly, the Benefit Assessments listed in the Maintenance Schedules of Assessment are levied against properties in close proximity to the drain and/or those receiving additional protection from the system's flood mitigation features, based on the definition provided above.

Outlet Assessment – According to the parameters set within Section 23 of the Drainage Act, all lands which utilize the Municipal Drain as a drainage outlet may be assessed for Outlet Liability. As further outlined within Section 23(3) of the Drainage Act, the Outlet Assessment is "***...based on the volume and rate of flow of the water artificially caused to flow***...". Based on the characteristics of the lands that contribute flow to these Municipal Drains, runoff factors have been applied based on the land use of each property to reflect the actual amount of water that is artificially collected and discharged into these Municipal Drains.

These schedules provide a clear and equitable framework for allocating future maintenance costs, reflecting both the benefits received by properties and their contribution to the drainage system, in accordance with the provisions of the Drainage Act.

XVII. CONCLUSION

In conclusion, we find that the proposed drainage works outlined in this report are both necessary and feasible to address the identified drainage needs and to support the development of the lands currently owned by Castle Gate Towers Inc. (660-08301 and 660-08500). The details presented herein demonstrate that the proposed system will effectively manage excess water, mitigate potential damage, and provide a legal outlet for the affected areas. The project is expected to yield significant benefits, including improved drainage, increased property value, and a sustainable long-term solution. All works identified within this report shall be carried out through 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.

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CONSTRUCTION SCHEDULE OF ASSESSMENT

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
660-08301	Plan 1382	Lots 22 to 38	14.22	2.90	1.174	Castle Gate Towers Inc.	$ 368,640.00	$ -	$ 368,640.00
660-08500	Plan 1382	Lots 39 to 57	3.12	3.12	1.263	Castle Gate Towers Inc.	$ 396,411.00	$ -	$ 396,411.00
Total on Privately Owned - Non-Agricultural Lands.....							**$ 765,051.00**	**$ -**	**$ 765,051.00**
TOTAL ASSESSMENT				**6.02**	**2.436**		**$ 765,051.00**	**$ -**	**$ 765,051.00**

1 Hectare = 2.471 Acres

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SPECIFICATIONS

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Peralta Engineering

STANDARD SPECIFICATIONS

General

(Revised January 2024)

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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. REVIEW OF SITE, PLANS, AND SPECIFICATIONS

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. GENERAL COORDINATION

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. BENCHMARKS

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.

XII. ENVIRONMENTAL CONSIDERATIONS

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

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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Peralta Engineering

STANDARD SPECIFICATIONS

FOR ENCLOSURE/COVERED DRAIN INSTALLATIONS

(Revised January 2024)

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I. GENERAL INFORMATION FOR SPECIFICATIONS

These 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. 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 the 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 the road for the proposed works, it shall arrange to obtain the necessary authorizations from the Municipality and County 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.

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 enclosure/covered drain 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.

III. REMOVAL OF BRUSH, TREES AND DEBRIS

Where there is any brush, trees or debris along the course of the drainage works, including the full width of the access, all such brush, trees or debris shall be close-cut and grubbed out, and the whole shall be chipped up for recycling, burned, hauled away or satisfactorily disposed of by the Contractor 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 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 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.

The Contractor shall protect all other trees, bushes, and shrubs located along the length of the drainage works except for those trees that are established within the accompanying drawings or in consultation with the Drainage Superintendent, the Consulting Engineer, and the affected Owner(s). The Contractor shall note that protecting and saving the trees may require the Contractor to carry out handwork around the trees, bushes, and shrubs to complete the necessary final site grading and restoration.

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.

The Contractor shall remove all deleterious materials and debris along the course of the open drain and any such materials located in the bridge culverts while carrying out its cleaning of same. All such deleterious

materials and debris shall be loaded up and hauled away by the Contractor to a site to be obtained by it at their expense.

If applicable, where identified on the drawings, and to ensure a safe separation distance is maintained, the Contractor shall install tree protection fencing at the projected limit of the excavation and beneath the drip line of the identified tree(s). The fencing shall be comprised of orange vinyl snow fencing secured at 3.00-metre intervals with iron T-posts driven 600mm into the ground and should be in place until construction work is completed. During construction, no equipment, materials or tools shall be stored beyond the tree protection fencing.

IV. 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 replacing 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.

V. UTILITIES

The Contractor will be responsible at all times for complete investigation to determine the location of all such utilities or structures known or unknown, and it shall indemnify and save harmless the Engineer and the Municipality for any responsibility, injury, or liability arising from any damage to such utilities or structures by the Contractor.

The Contractor shall protect all other services located in the vicinity of the proposed drainage works including any sanitary sewers and connections, watermains and connections, telephone and gas services, along with any private systems and services. Any damaged components shall be replaced by the Contractor, totally at its own expense and it shall fully restore the functionality of same.

The Contractor shall further contact or notify such Utility Company or Commission of its intention to carry out work in the area and cooperate with such Utility Company or Commission in the location, maintenance and preservation of all such utilities. The location of the pipes and appurtenances as shown on the drawings is approximate and may be changed by the Engineer if deemed advantageous for the progress of the work.

VI. NOTICE OF PROJECT COMMENCEMENT AND HOURS OF OPERATION

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. The installation of the culvert structure is to 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 such working hours.

VII. EXCAVATIONS, REMOVALS AND DISPOSALS

All excavation shall be made in compliance with the drawings and in such a manner and at such depths and widths as will give ample room for installing the pipe, the bracing, sheeting, or otherwise supporting the sides of the excavation and for the pumping of groundwater if encountered. The Contractor is fully responsible for the safety of all its men and equipment and must conform completely with the provisions of the "Construction Safety Act" and "Regulations for Construction Projects".

Where an existing culvert is being replaced, the Contractor shall be required to excavate and completely remove the existing culvert and headwalls in their entirety, as well as any other deleterious materials that may be encountered in removing such materials, unless otherwise noted. All unsuitable or deleterious materials from the excavation and removal of existing culverts and the drain shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense. In all cases, the disposal of any trucked material will be the responsibility of the Contractor and it shall ensure that any permits required for fill disposal are obtained from the appropriate authority. The Contractor will 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.

The Contractor is to note that when replacing the existing structures, it shall be required to excavate a trench having a width not less than the new pipe outside diameter plus a 600mm working width on both sides of the new pipe.

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out any topsoil placement along all specified or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works.

The bottom of the trenches must be carefully excavated and trimmed to the elevation and shape of the bottom of the pipe. The bottom of the trenches shall be recessed to receive the pipe in order to allow the pipe to be uniformly supported for its entire length. Corrections in the depth of excavation caused by the Contractor excavating to an extent greater than that required for the elevation of the pipe shall be made by bedding the pipe with 20mm (3/4") clear stone granular material is placed at the time that the pipes are being installed, at the Contractors expense.

No extras will be allowed for excavating any hardpan, boulders, rocks, ice or other obstacles found in the excavation or in the line of the trench or for any pumping or baling of water required in the excavation of the work. The trench must be drained or pumped in order to avoid the necessity of making joints under water. The trench must also be drained to avoid any possibility of groundwater entering the pipe in the trench until the installation has been successfully completed.

VIII. PIPE INSTALLATION

The new pipe shall be set in the alignment and to the grade elevations established in the accompanying drawings. The same shall not be altered unless otherwise directed by the Drainage Superintendent or Consulting Engineer prior to construction of same. Any changes relative to the enclosure/covered drain must be approved by the Consulting Engineer prior to proceeding with construction.

The Contractor shall lay the enclosure/covered drain pipe to the lines, levels, and grades as shown in the accompanying drawings or as may be laid out and established by the Engineer prior to the time of construction. The Contractor shall be held responsible for said lines, levels and grades of the drain pipe and should the Engineer determine that the Contractor has not satisfactorily adhered to such lines, levels and grades, it may direct the Contractor to take up and re-lay any portion of the drain which does not conform to such lines, levels and grades. In the event that the required pipe length is less than 6.10 metres (20.00 ft.), the smaller length must be installed near the centre of the culvert.

Laser control must be provided to maintain drain lines 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 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 or paid for entirely by the Contractor.

The Contractor should note that, because the pipe is being installed with an excavator, it is expected that they will provide a minimum of 150mm (6") of either compacted MTO Granular "A", Granular "B" (Type II) or 20mm (3/4") clear stone bedding material, as outlined within OPSS Form 1010 The Contractor shall ensure that a good firm base is provided under the drain pipe, and they shall provide for this item as part of their tender price.

HDPE Pipe Installation

When HDPE plastic pipes are specified, they shall be joined together with the use of a water-tight bell and gasket joining system, secured in accordance with the Manufacturer's recommendations. The minimum length of a continuous pipe section shall be no less than 6.10 metres (20.00 ft.). The HDPE plastic pipe for this installation must be of the length, size, and strength identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and the Consulting Engineer prior to its placement in the drain.

For new smoothwall HDPE culvert pipes that are shown on the Drawings to have sloped quarried limestone erosion protection at their ends, both ends of the pipe shall be securely anchored against floatation utilizing two (2) steel T-bar fence posts having a minimum length of 1.80 metres (6.00 ft.) or approved equal, on each side of the pipe, together with heavy steel galvanized wire secured between them across the top of the pipe. The top of each post shall be set no higher than the top of the proposed culvert. Pipe anchors shall be installed in accordance with the "Floatation Anchor Details" outlined within the accompanying drawings.

Aluminized Steel Pipe Installation

When Aluminized Steel Corrugated Hel-Cor pipe and/or Aluminized Steel Type II UltraFlo pipe is specified, the culvert shall be installed with a minimum number of couplers and longer pipe sections are to be utilized whenever possible. Under no circumstances shall the culvert sections be less than 4.00 metres in length. All pipe lengths shall be of the size and gauge noted in the drawings and shall be coupled together with Aluminized Steel Type II 10C having a thickness consistent with the culvert pipe material. The overall pipe for this installation

must be of the length, size, and thickness as identified in the Drawings, Special Provisions, and approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement in the drain.

General Pipe Installation

The Contractor shall be required to provide all labour, equipment and materials to set the pipe to the required design grades. Where couplers are required, the Contractor shall utilize the appropriate coupler provided by and per the specifications of the Manufacturer. The Contractor shall supply all material and labour to provide a non-woven filter cloth wrap around the full circumference of the coupler joint connection, as part of their tender price. The filter cloth wrap connection shall be a minimum of 250mm (10") wider than the width of the proposed coupler and shall overlap a minimum of 200mm (8"), as available from Underground Specialties Inc., of Windsor, Ontario, or equal. The specific type to be utilized shall be approved by the Drainage Superintendent and/or the Consulting Engineer prior to its placement. The installation of all joints must be inspected and approved by the Drainage Superintendent or Consulting Engineer prior to any backfilling of same.

The Contractor shall also note that the placement of the enclosure/covered drain is to be performed totally in the dry, and it shall be prepared to take whatever steps are necessary to ensure same, all to the satisfaction of the Drainage Superintendent and/or Consulting Engineer. The installation of the complete length of pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation.

All pipe materials shall be stored and handled by the Contractor at its own expense. It shall be responsible for the safe storage of all materials, for obtaining storage areas, for the safe transportation and distribution of all the materials at the job site, and for inspection in order to determine defects and breakage. No additional recompense will be allowed to the Contractor for any loss incurred by it in the storage and handling of the materials.

Pipe, fittings, and all accessory appurtenances must be loaded and unloaded by lifting with means of a hoist or a skid to avoid shock or damage. Under no circumstances shall any drain material or materials for drain appurtenances be dropped.

If the drain pipe is laid in freezing weather, the Contractor shall take all the necessary precautions to prevent damage to the pipe or to any of the materials used in the construction of the work. In addition, the Contractor shall take care that no frozen ground or backfill is placed in the trench backfilling adjacent to the drain pipe. All pipe and the various other materials used in the placing of said pipe shall be installed in strict compliance with the Manufacturer's recommendations.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the culvert pipe without the site presence of the Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve the said installation.

IX. DRAINAGE STRUCTURE INSTALLATION

Where required, all materials for the catchbasins shall comply with Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) with respect to materials, qualities, and installation details. The catchbasins and maintenance holes shall be founded on a good, dry, firm, undisturbed earth base for its entire bottom surface area, or 20mm (3/4") clear stone bedding, if necessary. Corrections in depth of excavation caused by the Contractor excavating to an extent greater than that required for the structures shall be backfilled to the proper grade elevation by embedding the catchbasin maintenance holes floor area with 20mm (3/4") clear stone granular bedding. A sump is to be provided in each structure which shall be a minimum of 450mm deep measured from the proposed invert of the covered drain or connection to the proposed concrete floor elevation of the structure. The structure shall be set to allow for connection of all of the inlet and outlet pipes and shall be installed as shown and detailed on the Drawings. The top elevation of the structure shall be installed to the elevations noted on the Drawings or as further directed by the Drainage Superintendent or the Consulting Engineer. All structure sections and adjustment units shall be joined together with standard gasket material, caulking, or grout as required by the Manufacturer, or as set out in the applicable OPSS and OPSD.

All structures, where applicable, shall include a minimum of three (3) adjustment units in accordance with OPSD 704.011. All work shall be completed as shown and detailed on the Drawings.

The Contractor shall connect all covered drains and connections in the catchbasin maintenance holes with the use of a mortar joint or standard rubber boot cast into the units by the Manufacturer. Said mortar joint shall be provided at the internal and exterior of the catchbasin maintenance holes wall for the full circumference of the covered drain and be of a sufficient mass to produce a sealed joint, all to be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. Where possible, the Contractor shall employ a standard factory fitting or adapter to connect between the various pipes, tiles, and catchbasin maintenance holes, otherwise a mortar joint connection can be utilized.

X. ENCLOSURE/COVERED DRAIN BACKFILL

Where the new enclosure/covered drain pipe is located under the driveway, the Contractor shall backfill the entire trench for the width of the driveway with Granular Type II "B" or Granular "A", or locally approved equivalent compacted in place to a minimum 98% of Standard Proctor Density with the exception of the top 300mm which should be backfilled with Granular "A" material also compacted in place to a Standard Proctor Density of 100%. Where the new enclosure/covered drain pipe is located along the lawn area, the Contractor shall be required to backfill the entire trench with good clean native backfill material with the exception of the top 100mm which shall be good clean black loamy topsoil readied for seeding and mulching. It should be noted that if there is a shortage of native backfill material available, the Contractor shall supply same all at its own expense. The Contractor should also note that prior to commencing its excavation that all existing topsoil should be scavenged for reuse on the project; if there is a shortage, the Contractor shall be required to supply the balance of the topsoil needed, all at its own expense. All of the native backfill material shall be compacted in place to a minimum Standard Proctor Density of 96%.

All backfill material shall be placed in compacted in maximum lifts of approximately 300mm thick. The Contractor is required to provide whatever mechanical equipment necessary, such as jumping jack and/or plate tamper, in order to achieve the necessary compaction levels, especially along the haunches of the new

pipe. All areas shall be graded in accordance with the profile and cross-sections shown in the accompanying drawings, including provision of cross-fall on boulevard areas as shown therein.

XI. CONSTRUCTING NEW SWALES

The Contractor shall provide all labour, equipment, and materials in order to construct the swales, to the lines, levels, and grades as is shown and detailed in the accompanying drawings. The centreline of the finished swale grade elevation and swale cross-section, at various locations along the length of the drain, are to be provided as shown and detailed in the design drawings. The Contractor shall be required to strictly adhere to this swale design unless otherwise directed and approved by the Consulting Engineer.

The swale shall generally be constructed with a V-section centered over the proposed lawn piping, or as the alignment shows in the drawings, to ensure positive flow of the surface drainage into the sloped quarried limestone end treatments which act as outlets for the swale sections or other surface inlet structures, if applicable. All materials excavated from the swale including all deleterious materials shall be hauled away and disposed of by the Contractor to a site to be obtained by it at its own expense.

The alignment of the swales throughout shall be to the satisfaction of the Drainage Superintendent and the Consulting Engineer. All of the work shall be done in a neat, thorough, and workmanlike manner also to their full satisfaction.

XII. SLOPED QUARRIED LIMESTONE EROSION PROTECTION

When specified, the Contractor shall install sloped quarried limestone end protection at both ends of the pipe, or where shown, on a slope no steeper than 1.50 horizontal to 1.00 vertical and shall extend from the end of the new pipe to the top elevation shown. The top 305mm (12") of backfill material over the ends of the pipe, from the invert of said pipe to the top of the driveway elevation of the enclosure/covered drain, shall be quarried limestone. The quarried limestone to be placed on the sloped ends of the enclosure/covered drain shall be underlain with a synthetic non-woven geotextile filter fabric. The sloped quarried limestone protection is to be rounded as shown on the plan details and shall also extend along the drain side slopes to a point directly in line with the ends of the culvert pipe. All work shall be completed to the 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 satisfaction of the Drainage Superintendent and/or Consulting Engineer.

XIII. PRECAST INTERLOCKING CONCRETE BLOCK HEADWALLS

When precast interlocking concrete block headwalls are specified, the concrete blocks shall be rectangular in shape with square corners and be a minimum size of 600mm x 600mm x 1200mm (2' x 2' x 4'), as available from Underground Specialties Inc./Wolseley Inc. (Canada) or approved equal. Blocks with modified lengths may be utilized to fill in staggered sections of the block wall. All blocks shall be cast in one pour with no cold joints and shall have a minimum compression strength of 20MPa at 28 days. All precast concrete blocks shall be formed with interlocking pockets and tenons and each block shall be assembled in a staggered formation to prevent sliding at the interface between blocks. All precast concrete blocks shall be uniform in size with relatively smooth and consistent joints and shall have a stone exterior finish. Each block shall be fitted with a lifting ring that will not interfere with the assembly of the block wall once they are set in place. Cap blocks shall be utilized on the top course of the wall with the top of the cap blocks having a stone exterior finish. The precast interlocking concrete block headwalls are available from Underground Specialties Inc./Wolseley Inc. (Canada), or approved equal.

Precast interlocking blocks that abut the pipe shall be cast as one solid piece and shall be cut and shaped to fit closely around the perimeter of the pipe. The face of the wall shall not extend beyond the end of the pipe. All minor gaps between the blocks and the pipe shall be sealed with no shrink grout for the full depth of the blocks. At the base of the wall, a base block shall be used at the bottom of the interlocking block wall. The base block shall be founded on a firm solid base. When necessary, the Contractor shall provide a minimum of 200mm thickness of level compacted granular bedding, or a lean concrete footing, as a firm foundation for the blocks. The base block shall be set level and shall convey a vertical projection throughout its full height and shall include filter cloth behind the wall for the full height of the blocks to prevent soil migration through any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum "MacTex MX 140" meeting OPSS Class I. Both headwalls shall be assembled concurrently with a continuous uni-axial geogrid SG350, or equal, installed across the entire structure at every second course of blocks, to tie each headwall to the other. In the event that the distance between headwalls exceeds 10.00 metres (32.81 ft.), the Contractor shall install the uni-axial geogrid for a distance of 3.00 metres (9.84 ft.) inward from each headwall and at every second course. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtec Construction Products or approved equal.

The blocks shall extend up from the pipe invert and cross the full width of the drain and be embedded a minimum of 500mm into the drain banks. Where required for the top of the block wall to match the height of the completed driveway, the Contractor shall embed the bottom course of blocks into the drain bottom at the appropriate depth to achieve the required top elevation of the wall.

The Contractor shall arrange for the Supplier to provide interlocking block layout drawings outlining block assembly of the proposed headwall to the Consulting Engineer for approval prior to proceeding with fabrication and assembly of same. The Contractor shall arrange with the Supplier for technical assistance with the assembly of the structure on-site in full accordance with the requirements of the Supplier. All assembly installation shall be carried out to avoid any damage to the pipe and shall follow the Supplier's recommendation in every respect to ensure a proper and safe installation.

The precast interlocking concrete block headwalls shall be installed vertically and shall extend from the end of the new pipe to the top elevation of the driveway. Under no circumstances shall the interlocking block wall be installed with an outward projection. When complete, the outside face of the headwall shall be installed flush with the end of the proposed culvert. The precast interlocking concrete block headwall shall be installed

perpendicular to the drain banks. Headwalls are to be installed so that daylighting is provided off the travelled roadway, if required. The daylighting is to be designed to deflect outwardly from approximately the extreme roadside face of the new culvert to a point just beyond the top bank of the drain. The outward projection of the new headwalls shall be deflected at approximately a 45-degree angle, and the maximum outward deflection shall not be greater than shown on the accompanying Drawings, parallel to the projection of the straight portion of the finished wall. The straight portion of the precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. The Contractor shall also be required to backfill the area behind the new headwall with granular fill.

The Contractor shall also be required to satisfactorily backfill the area in behind the new headwall with granular fill as already specified in the preceding paragraphs for backfilling of the bridge culvert. The top elevation of the headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation, unless shown on the drawings. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or the Consulting Engineer. The installation of the precast interlocking concrete block headwalls shall also comply with the "Block Headwall Installation Instructions for Culverts" provided by Underground Specialties Inc./Wolseley Inc., or equal.

Upon completion of the headwall installation, the Contractor shall also provide sloped quarried limestone erosion protection adjacent and along all of the new concrete headwalls, at the general locations and to the widths shown within the details included therein. Furthermore, the installation of the quarried limestone shall adhere to the parameters outlined in Section XV. Sloped Quarried Limestone Erosion Protection – Concrete Block Headwalls.

XIV. CONCRETE-FILLED JUTEBAG HEADWALLS

When specified, the Contractor shall install new concrete jutebag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jutebag headwalls, the Contractor shall place the bags so that the completed headwall will have an inward batter from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one (1) unit horizontal to five (5) units vertical. The Contractor shall satisfactorily backfill behind the jutebag headwalls with granular material similar to the rest of the structure, and the same compaction levels specified herein for backfilling the adjacent culvert. The placing of the jutebag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

The concrete jutebag headwalls shall be constructed by filling jutebags with concrete. All concrete used to fill the jutebags shall have a minimum compressive strength of 21MPa in 28 days and shall be provided and placed only as a wet mix. Under no circumstance shall the concrete to be used for filling the jutebags be placed as a dry mix. The jutebags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jutebags shall be filled with concrete so that when they are laid flat, they will be approximately 100mm (4") thick, 305mm (12") to 380mm (15") wide and 460mm (18") long. The completed jutebag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the side slopes of the drain.

If indicated on the Drawings, daylighting may be installed off the travelled roadway, and the same are designed to deflect outwardly. The outward deflection shall be deflected at the specified angle to the straight portion of the finished headwall. The top elevations of the daylighted headwalls are to be set no less than 75mm (3")

below the existing ground elevation, unless otherwise designed. The alignment of these headwalls shall be performed to the satisfaction of the Drainage Superintendent or Consulting Engineer.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete-filled bags with a layer of plain concrete, minimum 150mm (6") thick, and hand trowelled to obtain a brushed finish appearance. If the cap is made more than 150mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars (or equivalent mesh) set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete-filled jutebags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids. All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21MPa in 28 days and include 6% ± 1% air entrainment.

XV. SLOPED QUARRIED LIMESTONE EROSION PROTECTION – CONCRETE BLOCK HEADWALLS

The sloped quarried limestone erosion protection shall be embedded into the side slopes of the drain at a minimum thickness of 305mm and shall be underlain in all cases with a synthetic filter mat. The filter mat shall not only be laid along the flat portion of the erosion protection but also contoured to the exterior limits of the quarried limestone and the unprotected slope. The width and slope of the general erosion protection shall be as established in the accompanying drawing or as otherwise directed by the Drainage Superintendent and/or the Consulting Engineer during construction. In placing the erosion protection, the Contractor shall carefully tamp the quarried limestone pieces into place with the use of a shovel bucket so that the erosion protection when completed will be consistent, uniform and tightly laid. In no instance shall the quarried limestone protrude beyond the exterior contour of the unprotected drain side slopes along either side of said protection. The synthetic filter mat to be used shall be **non-woven** geotextile MacTex MX 140 conforming to OPSS 1860 Class I, as available from Armtec Construction Products, or approved equal. The quarried limestone to be used shall be graded in size from a minimum of 100mm (4") to a maximum of 250mm (10"), and is available from Walker Aggregates, in Amherstburg, Ontario, or approved equal.

XVI. BENCHMARKS

For use by the Contractor, we have established a Benchmark at the location where the structures are being replaced. The Drawings include details illustrating 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 a specific design elevation grade has been provided for the invert at each end of the pipe in the accompanying Drawings. The Drawings also sets out the pipe size, materials, and other requirements relative to the installation of the enclosure/covered drain structure. In all cases, the Contractor is to utilize the specified drain grade to set any new pipe installation. The Contractor shall ensure that it takes note of the direction of flow and sets all pipes to assure that all grades flow from upstream to downstream to match the direction of flow within the drain.

XVII. ANCILLARY WORK

During the course of any repair or improvements, the Contractor will be required to protect or extend any existing tile ends or swales to maintain the drainage from the adjacent lands. All existing tiles shall be extended utilizing Boss 1000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the **"Standard Lateral Tile Detail"** unless otherwise noted. Connections shall be made using a Manufacturer's coupling wherever possible. Openings into new pipes shall be neatly saw-cut to the satisfaction of the Drainage Superintendent and/or the Consulting Engineer. For other connections, the Contractor shall utilize a grouted connection. Grouted mortar joints shall be composed of three (3) parts of clean, sharp sand to one (1) part of Portland Cement with just sufficient water added to provide a stiff plastic mix. The mortar joint shall be of sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal. The Contractor is to note that any intercepted pipes along the length of the existing pipes are to be extended and diverted to the downstream end of the new pipe unless otherwise noted in the accompanying drawings.

Where the enclosure/covered drain installation interferes with the discharge of an existing swale, the Contractor shall re-grade the existing swales to allow for the surface flows to freely enter the drain. Any disturbed grass areas shall be fully restored with topsoil, seed and mulch. The Contractor shall also be required as part of the enclosure/covered drain replacement to excavate and widen the drain bottom where required to fit the new pipes in order to provide a smooth transition between the new culvert installation and the existing drain.

The Contractor, when doing their excavation or any other portion of the work, shall be very careful not to interfere with, plug up or damage, any existing surface drains, swales and lateral or main tile ends. If it is found that said existing drains are interfered with in any way, the Contractor will be required to unplug or repair said drains immediately, at no extra cost to the project. If it is found that any existing lateral tiles or main tile drains or tile ends have been cut off or damaged in any way during the course of the work, the Contractor will be required to either repair or replace same, to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

The Contractor shall take steps to protect all legal survey bars during the course of its work. If any bars are removed or damaged, the Contractor shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to replace same, all at its cost.

All of the work required towards the installation and improvements to all structures shall be performed in a neat and workmanlike manner and the general site shall be restored to its' original condition, and all of same is to be performed to the satisfaction of the Drainage Superintendent and the Consulting Engineer.

XVIII. TOPSOIL, SEED AND MULCH

During the course of its excavation operations, the Contractor will be required to salvage all available topsoil. Where necessary, this material shall be stockpiled by the Contractor in order to avoid contamination and shall be utilized in carrying out the topsoil placement along all specified newly excavated and filled or disturbed areas, in preparation for the seeding and mulching operation to be carried out as part of the restoration works. The Contractor shall be required to use the scavenged topsoil stripped from the drain banks. The balance of the topsoil required shall be obtained by the Contractor at its own expense.

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged or disturbed by the structure installation and/or removal, and place topsoil and seed and mulch over said areas including any specific areas noted on the Drawings. The Contractor shall be required to provide all the material and to cover the above-mentioned surface areas with approximately 50mm of good, clean, dry topsoil on slopes and 100mm of good, clean, dry topsoil on horizontal surfaces, fine graded and spread in place ready for seeding and mulching. The Contractor is to note that prior to fine grading the topsoil over the backfilled areas, positive drainage is to be provided off of these areas and into the swales, and the Contractor shall also be required to make minor changes where necessary to ensure same. The Contractor shall be required to restore all existing grassed areas and roadway boulevard areas damaged by the enclosure/covered drain work, and shall provide topsoil and seed and mulch over all of these areas. The placing and grading of all topsoil shall be carefully carried out according to Ontario Provincial Standard Specifications, Form 802, dated November 2010, or as subsequently amended or as amended by these Specifications. Once the 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 572, dated November 2003, or as subsequently amended or as amended by these Specifications. The seeding mixture shall be OSECO Seed Mixture Canada No. 1, as available from Morse Growers Supply in Leamington, or equal. As part of the seeding and mulching operation, the Contractor will be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with OPSS 1103.05.03 dated November 2016, or as subsequently amended, to ensure that the grass seed will be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All work shall be completed to the satisfaction of the Drainage Superintendent or the Consulting Engineer.

All of the work relative to the placement of topsoil and the seeding and mulching operation shall be meticulously done and completed in a good and workmanlike manner all to the satisfaction of the Drainage Superintendent or Consulting Engineer.

XIX. 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.
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. Before authorizing Final Payment, the Drainage Superintendent or the Consulting Engineer shall inspect the work in order to be sure that the proper restoration has been performed. 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.

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SPECIAL PROVISIONS

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Peralta Engineering

SPECIAL PROVISIONS

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I. GENERAL SCOPE OF WORK

These specifications, 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 the Municipal Drain known as the "Argyle Beach Drainage System" under the provisions of the "Drainage Act, RSO 1990, Chapter, D.17, as amended 2021". This new drainage system shall consist of the installation of new smoothwall HDPE and concrete pipe with bell and gasket joining system connections, granular bedding, new drainage inlet structures, together with the removal and replacement of various components, including the outlet portion to Lake Erie. These works shall include all excavation, removals, swale construction, topsoil, seeding and mulching, restoration, temporary coffer dams, and all other ancillary work which provides 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"** and **Appendix "B"**. The works shall be further carried out in accordance with the accompanying drawings labelled herein as **Appendix "C"**. Where there are differences between the Special Provisions and the Standard Specifications included herein, the Special Provisions shall govern. The drainage system 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.

II. 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 into Lake Erie. 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. This restriction may be waived for work on the storm sewer if the system has no flow at the time of construction, subject to the requirements from the DFO and/or the Ministry of Natural Resources (MNR).

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.

In recognition of the potential impacts that Species at Risk may experience as a result of the subject works, the Town of Essex has provided comprehensive mitigation measures as well as species identification guides for reference. These documents, entitled "*Species at Risk Mitigation Plan for Drainage Works*" will be provided to 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 AND OUTLET ISOLATION

Due to the sensitive nature of this project, specific approvals and authorizations have been issued, and these details have been included in **Appendix "A"**. The Contractor shall familiarize themselves with these documents and be responsible for making 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 Town of Essex 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 Lake Erie, the Contractor shall provide all labour and equipment to isolate the outlet works to ensure that the works are completed in the dry. As such, the Contractor will be required to install a **temporary sheetpile coffer dam (or approved equal)** of sufficient size and depth to adequately prevent lake water from entering the work site during these operations. Once the work zone is isolated, the Contractor shall conduct a fish salvage 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 salvage operations shall be completed to the full satisfaction of the Drainage Superintendent, ERCA, DFO, MECP and/or the MNR.

In addition to the fish salvage operations, the Contractor shall be responsible for providing Fish Exclusion Measures within the area where work is being performed. The Fish Exclusion Measures shall be initiated prior to the start of the outlet replacement 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 any species from harm caused by the pump, at a minimum. The fish seine shall be installed at a sufficient distance from the pump intake to ensure that it will not impact the seine or the potential 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 work area. 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, and such labour, equipment and materials, and the cost for these works 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 MNR.

V. ACCESS TO WORK

The Contractor is advised that the majority of the work to be carried out on this project extends within the Wellesley Drive and Cumberland Way road allowances. The Contractor may use the entire length and width of the associated road allowances, as necessary, to permit the completion of the work required to be carried out for this project. Furthermore, in order to perform the necessary outlet work identified within this project, the Contractor shall have full access to the private lands identified as Parcel 1, currently owned by Mark St. Louis (660-07501), gaining access from the Cumberland Way road allowance.

Under no circumstances shall the Contractor utilize other private lands. The Contractor shall note that any deviation from the above-mentioned accesses 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

Once access is obtained to the project site, the Contractor shall be expected to keep construction equipment and personnel within the designated working areas, both for the initial construction of the project and for any future maintenance of the Argyle Beach Drainage System, as follows:

1. Wellesley Drive (From Station 1+002.6 and Station 1+406.0): The Contractor may utilize the full road allowance of Wellesley Drive.

2. Gloucester Drive (From Station 0+021.4 and Station 0+410.6): The Contractor may utilize the full road allowance of Gloucester Drive.

3. Cumberland Way (From Station 2+041.3 and Station 2+220.5): The Contractor may utilize the full road allowance of Cumberland Way.

4. Outlet Portion (From 3+002.0 and Station 3+082.7): The Contractor shall have access to the full width and length of the private lands currently owned by Mark St. Louis (660-07510), and extending into Lake Erie.

General

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 Contractor may also be provided access by the Owner in order 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 for access and hauling purposes.

VII. DETAILS OF DRAINAGE SYSTEM WORK

The Contractor shall carry out the necessary excavation, together with all required labour and material, to construct a new auxiliary drainage system along the west side of Wellesley Drive, along the north side of Cumberland Way, and through the private lands associated with the Outlet portion of the drainage system. The alignment of this drainage system is as specified at the location shown on the accompanying drawings. The auxiliary system shall be cross-connected to the existing drainage system at various locations along the system. The majority of the drainage system shall consist of 320kPa, smoothwall HDPE plastic pipe assembled together with the use of a bell and gasket joining system, connected to a series of pre-cast concrete inlet structures and maintenance holes with cast iron frames and grates/lids, or ditch inlet catch basins. A portion of the outlet pipe through private lands shall be replaced and improved with Class 65D concrete pipe, together with a precast concrete maintenance chamber and a concrete block outlet support system. At the outlet end of the system, an outfall protection structure shall be installed comprising a combination of welded steel H-Piles and reinforced concrete panels, as specified in the accompanying drawings.

VIII. EXCAVATION, REMOVALS AND DISPOSAL

As part of the overall drainage works, the Contractor shall remove all existing drainage pipes, inlet structures, and any offset catch basins being replaced as part of the proposed drainage system. The Contractor should take care not over-excavate the trench or granular driveway, as it is to be restored once the drainage pipe has been removed. The removed material, if not suitable for reuse, shall be trucked away and disposed of by the Contractor and shall form part of the Tender price.

IX. PRIVATE STORM CONNECTIONS

All private service connections (private drain connection/PDC) shall be 150mm in diameter and tied into the covered drain and shall be constructed where directed by the Engineer or as shown on the drawings. The Contractor shall supply and install at the street line, a piece of 5cm x 10cm lumber, painted green, which will be of sufficient length to go from the invert of the private service connection to 30cm above finished ground elevation.

The pipe materials for the private service connections shall be of PVC plastic pipe or approved equivalent. All connections shall be made utilizing factory tees, saddles, and fittings installed in accordance with the Manufacturer's recommendations.

Where shown on the plans, the Contractor shall supply and install a cleanout at the end of the new storm connection located along Wellesley Drive and Cumberland Way, per the **"Typical Service Connection and Cleanout Detail"** on Sheet 9 of the accompanying drawings. The cleanout cap shall be installed with a metal insert for future identification with the use of a metal detector.

Where the depth of the main sewer permits, all private service connections shall be laid on a grade of 1cm per metre, or as shown on the plans.

X. TEMPORARY DRAINAGE WORK

The Contractor shall note that temporary drainage provisions have been included as part of these works until the time when the residential building lots are developed. If necessary, native fill shall be placed within the adjoining lands along Wellesley Drive and shall be graded to provide positive drainage towards the temporary catch basins. The Contractor shall refer to the accompanying drawings for additional details. Once positive grading has been achieved, the Contractor shall provide topsoil, seed, and mulch.

The Contractor shall note that temporary catch basins are to be installed as illustrated within the accompanying drawings. The Contractor shall provide all labour and materials to assemble the temporary catch basins per the **"Typical Temporary Catch Basin Connection Detail"** as illustrated in the accompanying drawings, or approved equivalent. These temporary catch basins shall be connected to the proposed service connections as illustrated in the accompanying drawings.

XI. DETAILS OF CROSS-CONNECTION ROAD CROSSINGS

At various locations along Wellesley Drive and Cumberland Way, the Contractor shall provide all material, labour and equipment to install cross-connection road crossings from the new Wellesley Drive Auxiliary Branch to the existing drainage system (Wellesley Drive Branch and Cumberland Way Branch), as outlined on the plans, the schedule of items, and in these specifications. When future works are required on these crossings, the Contractor shall backfill the new road crossing with Granular "B" Type II compacted in place to a minimum of 98% Standard Proctor Density topped with a minimum 450mm thickness of Granular "A" compacted in place to a minimum of 100% Standard Proctor Density and same shall be provided and placed as shown and detailed in the **"Standard Trench Backfill Detail"** on the accompanying drawings.

XII. ASPHALT RESTORATION

Where the work encroaches on the existing (and future) granular shoulder and asphalt roadway, across the identified intersections and cross-connections, the Contractor shall neatly saw cut the asphalt and same shall be restored with fully compacted Granular "A" backfill and a minimum of 200mm thick hot mix asphalt, to be placed in a minimum two (2) equal lifts, or to the existing asphalt thickness if greater, to match the existing roadway elevation.

All road asphalt shall be saw cut to a point 300mm beyond the trench limits. Furthermore, prior to the asphalt restoration, the Contractor shall provide a 600mm wide milled header to facilitate the asphalt repair. All of which shall be restored as shown in the **"Standard Trench Backfill Details", "Typical Roadway Crossing Repair Detail",** and as outlined within the **"Typical Street Cross Section"** within the accompanying drawings. The Contractor shall be required to dispose of all removed asphalt material and shall compact the Granular "A" as well as the hot mix asphalt to 100% of Standard proctor Density, and complete all of the roadway restorations to the full satisfaction of the Road Authority. If deemed necessary by the Road Authority, the Consulting Engineer shall arrange geotechnical consultation for the proper compaction of the road restoration. Any works associated with the facilitation of the geotechnical consultation shall be included within the Contractors' tender price.

The Contractor shall supply and place hot-mix asphaltic concrete pavement, conforming to OPSS Form 310, base course Type Superpave 19 and Superpave 12.5 surface course. The Contractor shall supply asphaltic mix designs to the Engineer for approval prior to any asphalt being laid.

All equipment used for placing and compacting the asphalt shall be approved by the Engineer. A paver shall be used for spreading and initial compaction of the asphalt. It shall be equipped with a distributing screw in front, adjustable screeds and be capable of spreading the mixture without segregation, in thickness from 12.5mm to 75mm and in width from a minimum of 1.80 metres to a maximum width of 4.00 metres, in increments of 0.15 metres. It shall also be equipped with a 3.00 metres straight edge for detecting variations from a horizontal of 3.8mm in 3.00 metres.

The Contractor shall spread and compact the course of asphaltic concrete on a dry and solid base. The asphaltic concrete pavement delivered shall have a minimum temperature of 118 degrees Celsius (245 degrees F) and a maximum temperature of 150 degrees Celsius (300 degrees F) after spreading and prior to initial rolling. The Engineer shall reject any material which does not meet temperature requirements.

The Contractor shall hand-spread asphaltic concrete at base widening, deep or irregular sections, intersections, turnouts, etc. The asphaltic concrete shall be rolled in accordance with OPSS Form 310. The Contractor shall compact the asphaltic concrete until 97% of the density achieved in the laboratory has been reached. Hand tampers shall be used to compact asphaltic concrete in areas where machines have no access.

All joints, curbs, gutters, manholes, catch water basins and other structures at the point of contact with the asphaltic concrete shall be painted with SS-1 Emulsion, OPSS Form 1102 or approved equal. The Contractor shall repair any faulty work under the Engineer's supervision.

XIII. OUTLET SUPPORT AND OUTFALL PROTECTION STRUCTURE

As part of the replacement of the outlet portion of the drainage system, the Contractor shall carefully remove and dispose of the existing HDPE plastic pipe and concrete anchor in accordance with applicable regulations. All existing armour stone shall be carefully removed, salvaged, and reused as part of the construction of the replacement outlet works.

The new concrete outlet pipe shall be protected with precast concrete interlocking blocks installed on both sides of the pipe and secured using uniaxial geogrid mechanically connected to each side of the pipe. The terminal two (2) blocks at the outlet end shall be installed on concrete footings and secured with concrete backfill. The blocks shall be tied together using reinforcing steel dowels. All components shall be installed in strict accordance with the details and specifications shown on the accompanying drawings.

An outfall protection structure shall be installed at the downstream end of the outlet structure to provide protection against sand accumulation, ice buildup, and wave action. The protection structure shall consist of a steel H-pile frame supporting reinforced concrete slab panels with a removable C-channel cap. All materials and installation shall conform to the details and specifications provided on the accompanying drawings.

XIV. GENERAL CONSTRUCTION PROVISIONS

The Contractor is to note that several legal survey bars exist within the work area, and it is to take whatever steps are necessary to protect all from damage. If any iron bars are damaged or removed by the Contractor, it shall arrange for an Ontario Land Surveyor licensed in the Province of Ontario to restore them all at its cost.

The alignment of the covered drain throughout shall be to the full satisfaction of the Drainage Superintendent. The whole of the work shall be done in a neat, thorough and workmanlike manner to the full satisfaction of the Drainage Superintendent.

The Contractor shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other object that it may encounter during the course of the work. The Contractor shall indemnify and save harmless the Municipality and the Engineer for any damages which it may cause or sustain during the progress of the work. The Contractor shall not hold the Town of Essex, County of Essex or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

APPENDIX "A"

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APPENDIX A-1

Landmark Engineers Inc. Technical Memo

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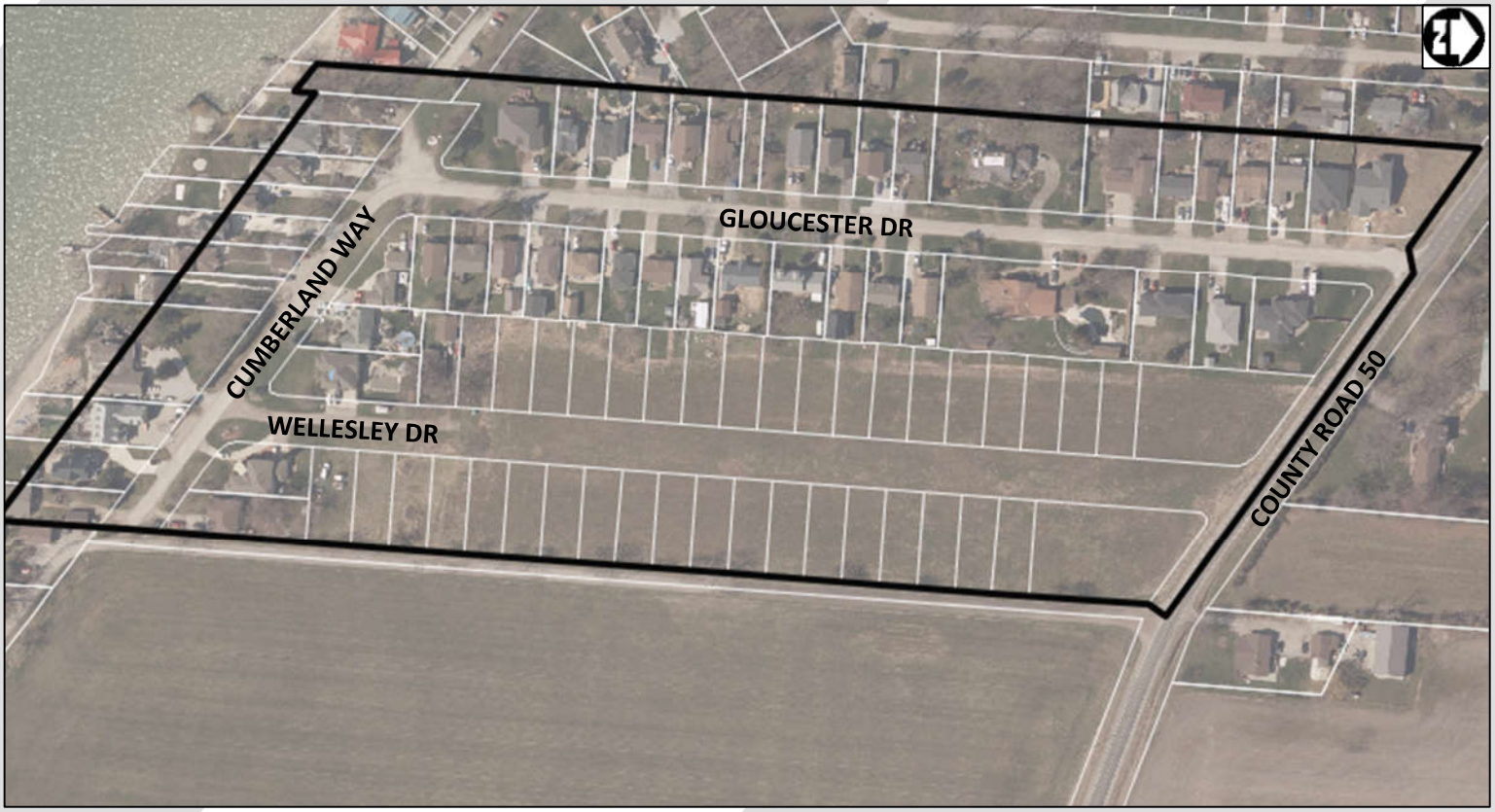
Landmark Engineers Inc.

Wellesley Drive Development Stormwater Modelling Report



Project Number: 24-028

Date: 2 October 2025

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

It is our understanding that the Wellesley Drive development requires an evaluation of the existing storm sewer capacity relative to current stormwater standards for minor and major design storm events. Landmark Engineers Inc. (*hereafter Landmark*) has been engaged to perform necessary modelling to evaluate the existing stormwater system and recommend proposed improvements, as required, to meet current standards. This report will outline the stormwater strategy, modelling methodology and modelling results.

2.0 STORMWATER STRATEGY

Given the proximity to the ultimate receiver (i.e., Lake Erie), quantity control is not required and thus SWM requirements are limited to sufficient flow routing. The following section will discuss the model analysis undertaken to evaluate the flow routing capacity under existing and proposed conditions.

3.0 MODEL ANALYSIS

3.1 MODEL APPROACH

A PCSWMM dual drainage hydrologic and hydraulic model analysis was performed using the PCSWMM 2020 Professional 2D software version 7.6.3665. The model was used to assess the routing (conveyance) capacity of the existing and proposed drainage systems under 5-year (minor) and 100-year (major) design storm events.

With regard to hydraulics, sewer inputs were based on as-built drawing information. The model included the semi-urban cross-section and proposed grading along Wellesley Drive as the major storm system to account for surface ponding and overland flow. It should be acknowledged that both Wellesley Drive and Gloucester Drive have natural fall towards the south (i.e., Cumberland Way).

With respect to hydrology (flow generation), subcatchments were delineated and assigned to the hydraulic network as depicted in **Figure 1** of Appendix A. Model input parameters generally followed the guidance of the Windsor / Essex Region Stormwater Manual dated June 2024 (*hereafter WERSM*). Specific deviations and clarifications of model inputs are discussed in the following section.

3.2 MODEL INPUTS

3.2.1 Impervious Levels

The existing conditions assume a 60% imperviousness for current buildout areas and 0% imperviousness for undeveloped areas. The proposed conditions assume that Wellesley Drive will develop at 60% imperviousness (i.e., typical single-family homes).

3.2.2 Design Storms

Given the proposed new SWM strategy, only the Chicago storm distribution with 4-hour duration is deemed critical for flow routing analysis. The design storms followed the guidance of the *WERSM*, with the following timesteps and design rationale:

- 5-Year 4-Hour with 20 min. timestep: Used to evaluate storm sewer (minor system) conveyance capacity;
- 100-Year 4-Hour with 20 min. timestep: Used to evaluate storm sewer and roadway (major system) conveyance capacity; and,
- Urban Stress Test (UST): Used to evaluate storm sewer and roadway (major system) conveyance capacity and identify potential flood risks under extreme rainfall conditions.

3.2.3 Depression Storage

As aforementioned, the model inputs followed the guidance of the *WERSM*, except as specified below:

- The suburban cross-section with front yard swales promotes additional infiltration as well as peak flow attenuation which we accounted for by increasing pervious depression storage to 10mm.

3.2.4 Infiltration Parameters

As aforementioned, the model inputs followed the guidance of the *WERSM*. The model used the Green-Ampt infiltration method based on Perth Clay Loam (Hydrological Soil Group C) – as determined based on Soils Map of Essex County, Soil Survey Report No. 11.

3.2.5 Lot Level Flow Routing

It is expected that runoff from roadways will drain towards the boulevard swales and that approximately half of roof drainage will be directed to rear roof downspouts that discharge onto the rear yard. Thus, the model has assigned 50% subarea routing to 'pervious' (i.e., 50% of impervious area is routed to pervious areas).

3.2.6 System Storage

The model includes a storage node to capture the surface storage that could occur to the west of the intersection at Cumberland Way and Gloucester Drive. This storage was approximated based on LiDAR data, which was also used to prepare a topographic plan as shown in **Figure 2** of Appendix A.

3.2.7 Outfall Conditions

The model outfall is located at the storm sewer outfall into Lake Erie. Tailwater conditions for the outfall were assigned as a fixed water level based on the 5-year annual maximum monthly mean lake level of 174.68 metres (m). As an extreme condition, the sewer outfall was also evaluated with a fixed high-water level (i.e., HWL) equal to the maximum monthly mean lake level of 175.14m. The foregoing lake levels are based on historical data from 1918 to 2022.

3.3 FLOW ROUTING

3.3.1 Minor System

Based on our model analysis, the existing storm sewer system does not meet a 5-year design level of service. This is evidenced the hydraulic grade line (HGL) profiles in **Figure 3**, which depict the existing conditions HGL to be notably steeper than the sewer slope as well as reaching the ground elevations.

As such, we recommend additional storm sewers to accommodate proposed development and improve conveyance capacity of the Wellesley Drive storm sewer and its outlet to the lake.

Figure 4 depicts the proposed conditions model plan, which shows the existing and proposed storm sewer network and sizes. The proposed sewer improvements include:

- the addition of a second storm sewer main line along the west side of Wellesley Drive;
- the addition of a second storm sewer main line along the north side of Cumberland Way;
- the addition of a second storm sewer outlet from Gloucester Drive to a new manhole structure at the top of the shoreline where the new and existing storm sewer would converge – approximately 24 metres (m) north of the new storm sewer outfall; and,
- Removal of the existing 750mm dia. storm sewer outfall pipe and replacement with a new 24m long, 1050mm dia. storm sewer outfall from the new manhole structure at the top of the shoreline into the lake.

As shown in **Figure 5**, the hydraulic grade line (HGL) profiles indicate that the Wellesley Drive and Cumberland Way storm sewers are no longer surcharged under the 5-year design storm (i.e., the proposed sewers increase the level of service to a standard 5-year return period).

3.3.2 Major System

With regards to the 100-year major design storm, the model confirms that surcharged storm sewers can convey the majority of flows with a relatively small amount of natural overland flow routing and surface storage. A few points of interest are summarized below:

- As depicted in major storm HGL profiles on **Figures 6 and 6.1**, roadway surface ponding is generally limited to Wellesley Drive Low Points at Stations 1+342 and 1+394, where ponding depths are less than the standard maximum 0.3m roadway ponding depth.
- Some excess flow has the potential to spill from the existing catchbasins at the south side of Cumberland Way. These are model junctions ‘MH06’ and ‘MH07’ as identified in **Figure 2** as points of interest. This excess flow would spill southerly across private property to reach the lake. Note that these junctions are capped at 0.1m depth above the rim elevation and the model measures the volume that floods out of the junction (i.e., spill volume that would exit the storm drainage system and flow southerly overland towards the lake).

- The model estimates surface storage within the low-lying area west of the intersection at Cumberland Way and Gloucester Drive. This is captured in the model via storage node 'SU01' as identified in **Figure 2** as a point of interest. **Figure 2.1** provides additional details regarding this modelled storage area. For purposes of comparing existing conditions versus proposed conditions, the model assumes that excess runoff is contained within the storm sewer easement property and does not spill onto the adjacent property to the west (i.e., Mun. No. 541 Lakeview Avenue).

Table 1 below summarizes maximum storage elevations and volumes as well as spill volumes under existing and proposed conditions for 100-year major storm with a 5-year lake level as the design tailwater condition.

Table 1: 100-Year with Design Tailwater

Model Node	Max. Elev. (m)		Max. Volume (m^3)		Spill Volume (m^3)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
SU01	175.68	175.48	169	28	-	-
MH06	176.06	176.06	-	-	180	-
MH07	176.00	175.93	-	-	1	-

As shown above, the proposed conditions would have a notable positive impact of reducing existing surface storage at 'SU01' and eliminating spill volume under the 100-year major design storm.

Beyond typical design standards, we also evaluated extreme scenarios that consider the combined low probability of a major rainfall event occurring concurrently with a historical high lake level. **Tables 2 and 3** below summarize maximum storage elevations and volumes as well as spill volumes under these conditions.

Table 2: 100-Year with Maximum Tailwater

Model Node	Max. Elev. (m)		Max. Volume (m^3)		Spill Volume (m^3)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
SU01	175.87	175.70	396	189	-	-
MH06	176.06	176.06	-	-	282	139
MH07	176.00	175.97	-	-	95	-

Table 3: Urban Stress Test with Maximum Tailwater

Model Node	Max. Elev. (m)		Max. Volume (m^3)		Spill Volume (m^3)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
SU01	175.88	175.71	409	195	-	-
MH06	176.06	176.06	-	-	251	170
MH07	176.00	175.98	-	-	106	-

Both **Tables 2 and 3** clearly demonstrate that the proposed conditions would be a notable improvement to the existing conditions under major rainfall events combined with historical high lake levels.

3.3.3 Freeboard Depth

We note that the existing lowest opening elevation (i.e., LOE) at Mun. No. 522 Cumberland Way does not meet current recommended guidelines and has less than desired freeboard depth under existing conditions. The proposed development with storm sewer twinning improves upon the existing condition but cannot practically meet the desired freeboard depth for this existing home.

It was also discussed with the Town of Essex that a few homes along the lake may have lowest openings that do not meet current floodproofing standards. With that said, the consensus was reached that the development is not required to address potential pre-existing flood risks beyond the development property, with the acknowledgment that the development is required to:

- provide 100-year design storm conveyance capacity to the sufficient outlet (i.e., Lake Erie). This is being achieved via the twinning of the existing storm sewer (i.e., the installation of a second storm sewer mainline along Wellesley Drive, Cumberland Way and the easement through to the lake); and,

- ensure that the development does not adversely impact the existing conditions. The development will improve upon the existing conditions, as demonstrated in Tables 1 to 3 herein.

4.0 CONCLUSION

In conclusion, we briefly summarize our report as follows:

1. Given the proximity to the ultimate receiver (i.e., Lake Erie), quantity control is not required and thus SWM requirements are limited to sufficient flow routing.

2. The proposed storm sewer system has been designed to a 5-year level of service and, when surcharged, has the capacity to convey 100-year major storm flows to the lake.

3. Under a major rainfall event combined with high lake levels, there currently exists the potential for excess flows to spill across low lying areas on some of the properties abutting the lake. The proposed development, which includes twinning of the storm sewers, will effectively reduce this spill potential.

Respectfully,

Landmark Engineers Inc.

Alain Michaud, P.Eng.

APPENDIX A

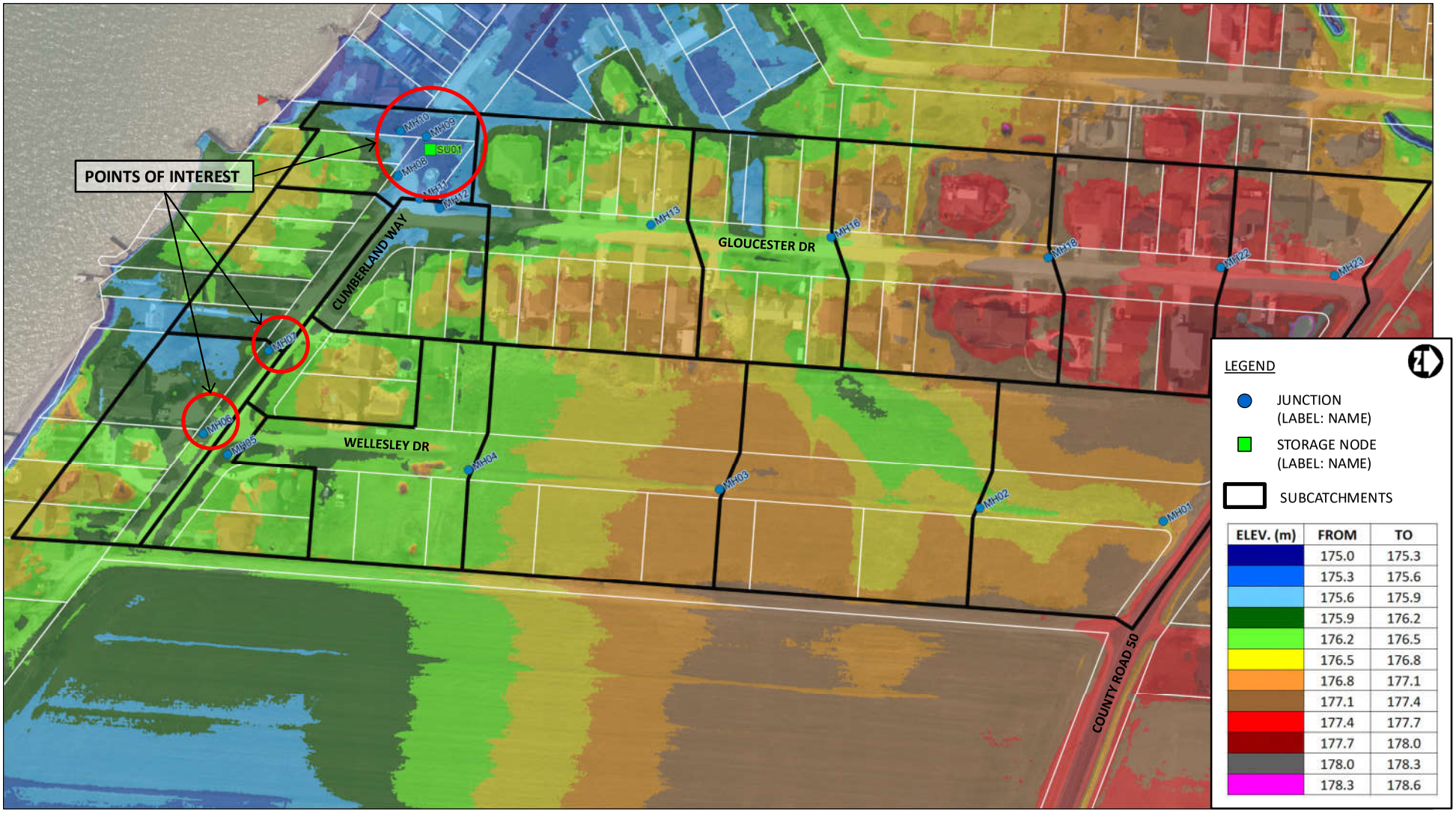
FIGURES

Landmark Engineers Inc.

NOTE: 2024 AERIAL IMAGE

Title	EXISTING MODEL PLAN
Project	WELLESLEY DRIVE DEVELOPMENT
Date	FEB 2025
Scale	NTS
Project No.	24-028

FIGURE 1

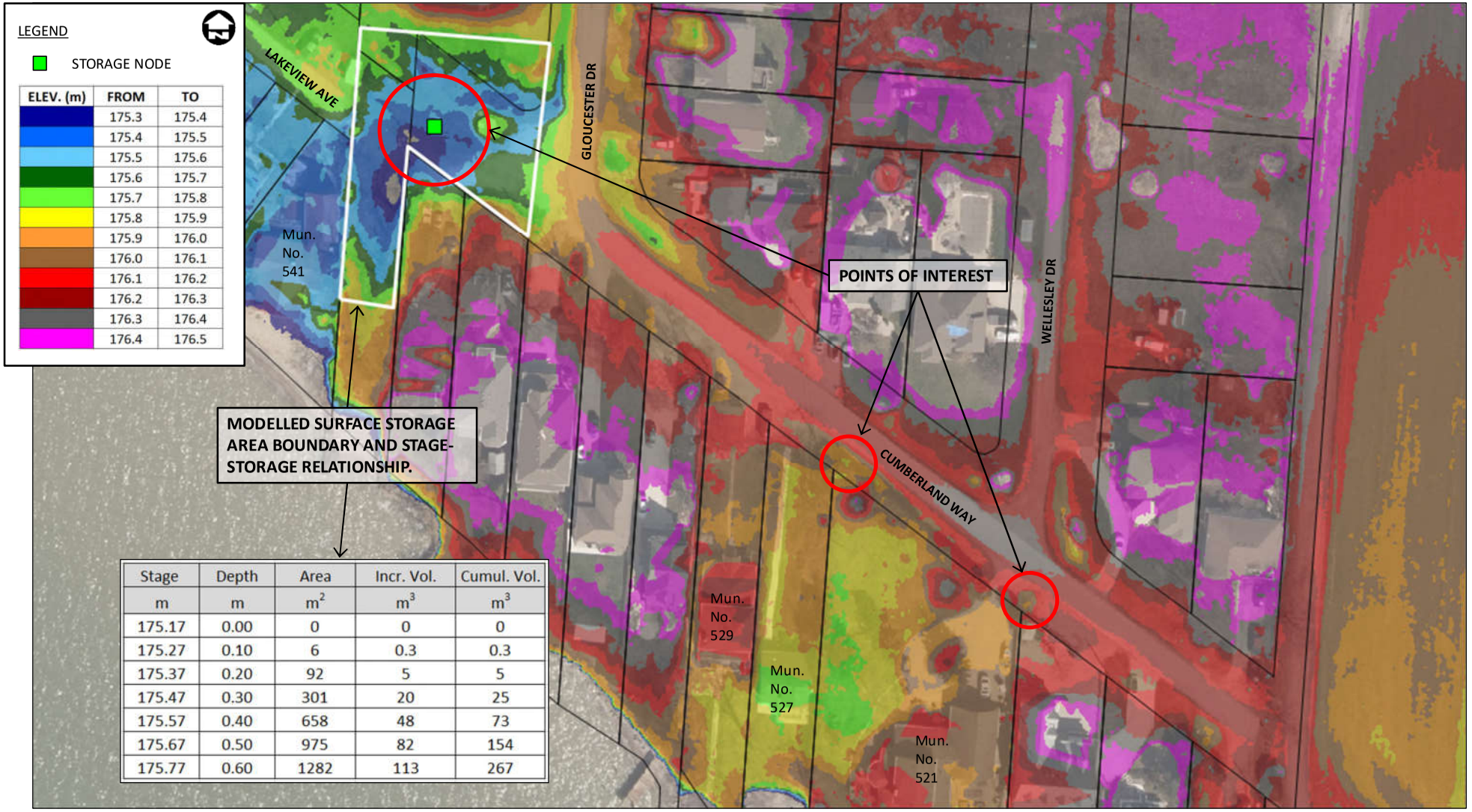


Landmark Engineers Inc.

NOTE: ELEVATIONS BASED ON 2017 OMAFRA LIDAR DTM, ADJUSTED FROM CGVD2013 TO CGVD1928 (+0.47m).

Title	TOPOGRAPHIC PLAN
Project	WELLESLEY DRIVE DEVELOPMENT
Date	FEB 2025
Scale	NTS
Project No.	24-028

FIGURE 2



Stage	Depth	Area	Incr. Vol.	Cumul. Vol.
m	m	m^2	m^3	m^3
175.17	0.00	0	0	0
175.27	0.10	6	0.3	0.3
175.37	0.20	92	5	5
175.47	0.30	301	20	25
175.57	0.40	658	48	73
175.67	0.50	975	82	154
175.77	0.60	1282	113	267

Landmark Engineers Inc.

NOTE: ELEVATIONS BASED ON 2017 OMAFRA LIDAR DTM, ADJUSTED FROM CGVD2013 TO CGVD1928 (+0.47m).

Title: TOPOGRAPHIC PLAN – CUMBERLAND WAY

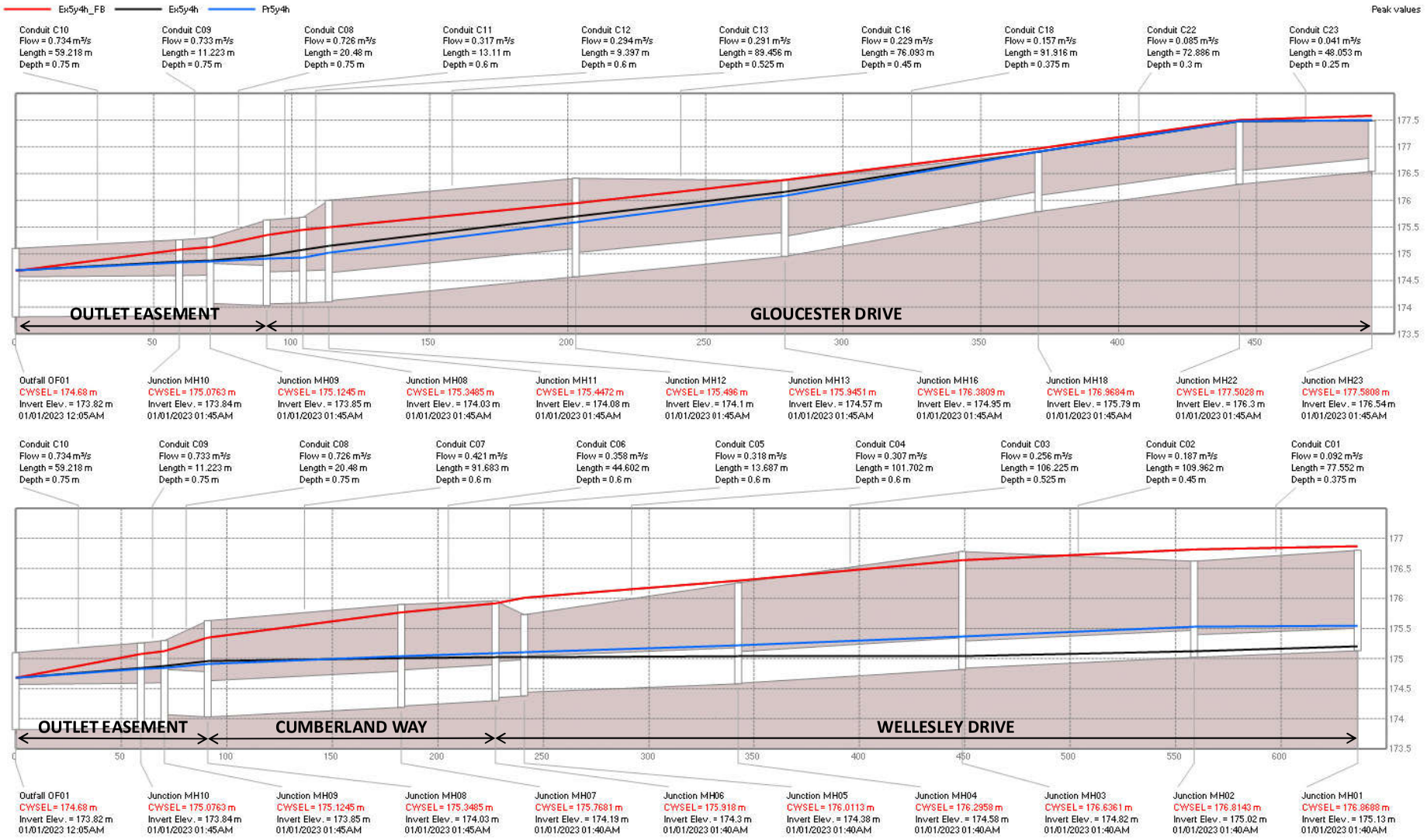
Project: WELLESLEY DRIVE DEVELOPMENT

Date: JUN 2025

Scale: NTS

Project No.: 24-028

FIGURE 2.1



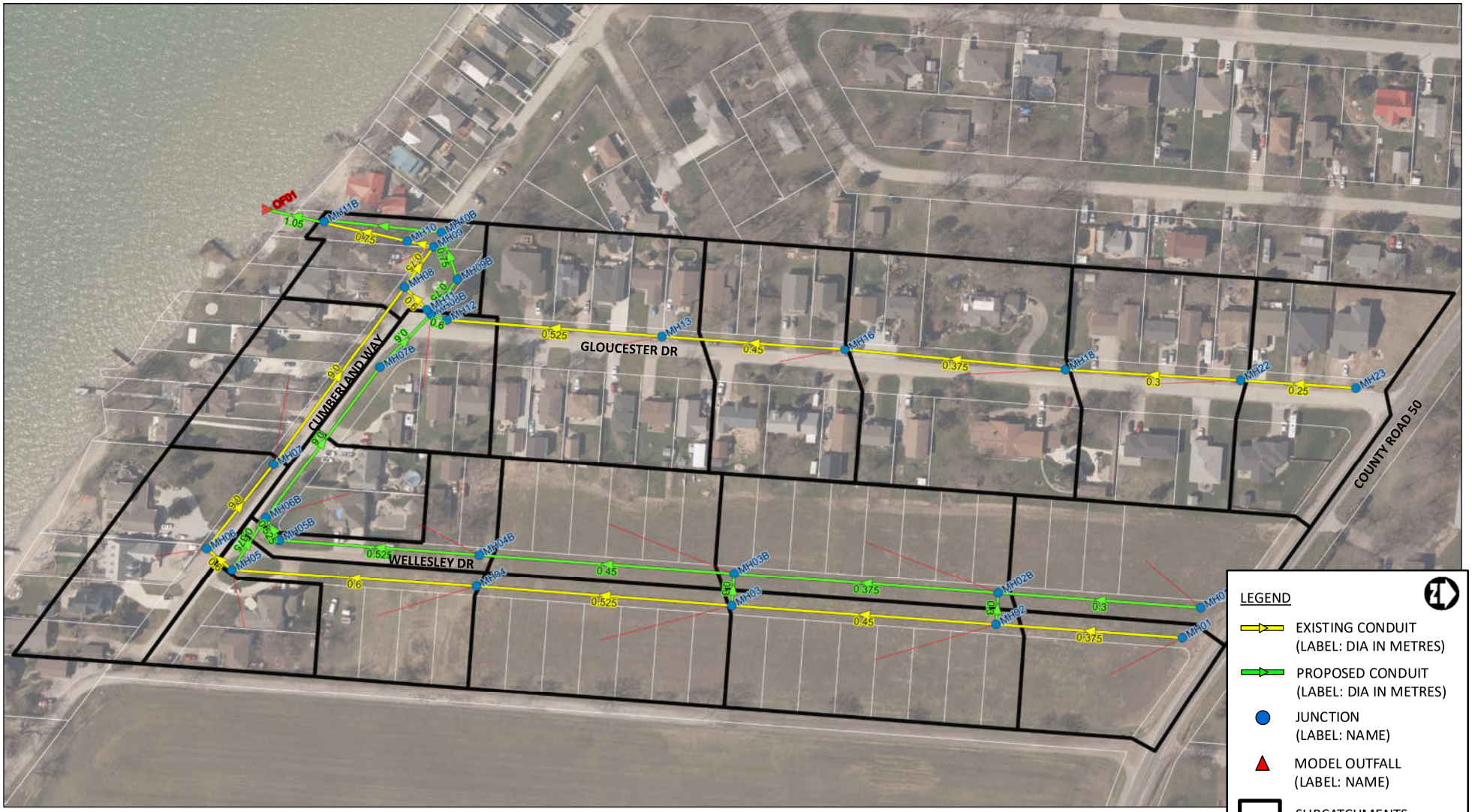
Landmark Engineers Inc.

Ex5y4h = Existing Conditions with Current Buildout

Ex5y4h_FB = Existing Conditions with Full Buildout of Wellesley Drive

Pr5y4h = Proposed Conditions

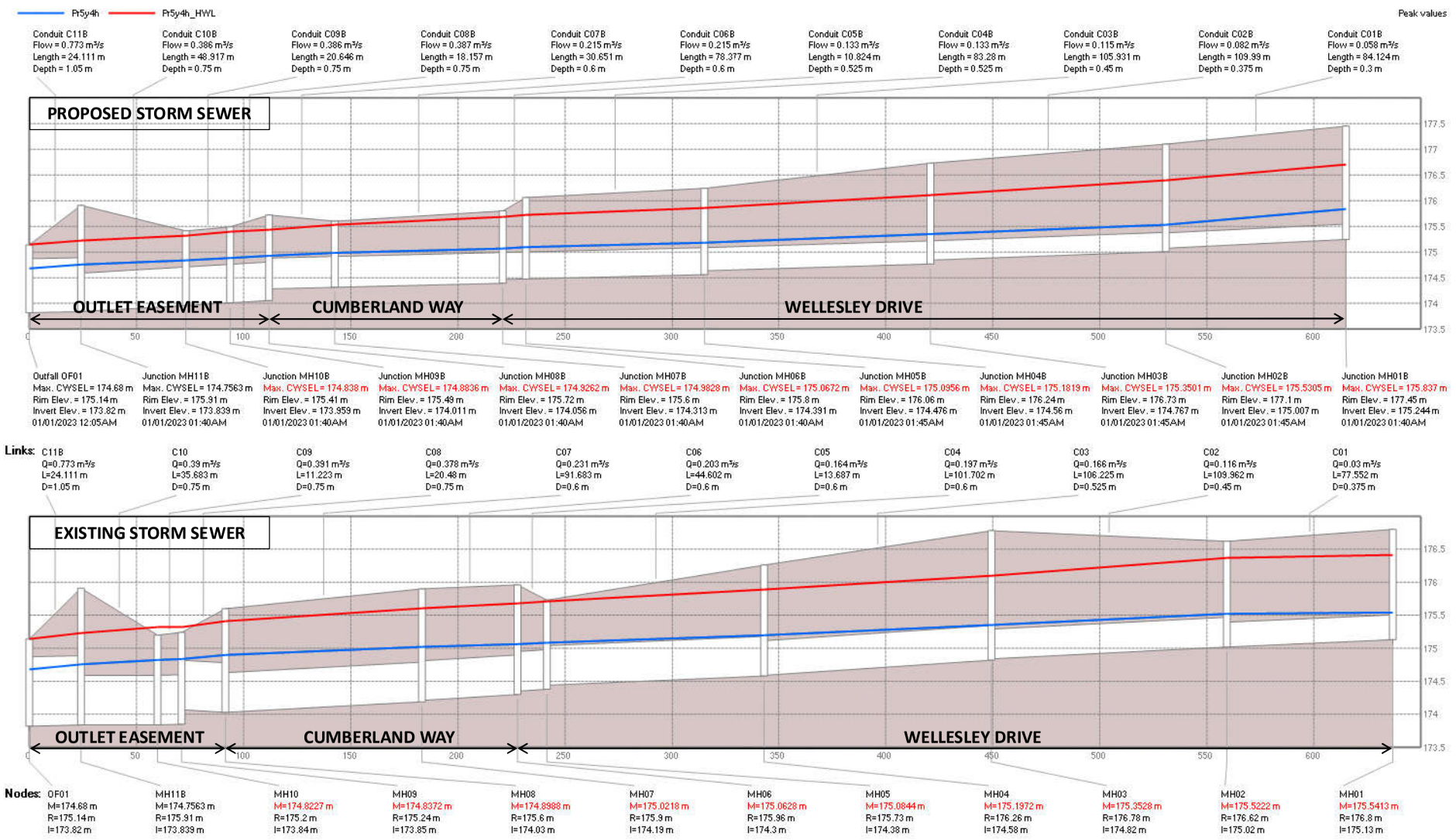
Title: EXISTING STORM SEWER 5-YEAR HGL PROFILES	Date: FEB 2025	FIGURE 3
	Scale: NTS	
Project: WELLESLEY DRIVE DEVELOPMENT	Project No.: 24-028	



Landmark Engineers Inc.

NOTE: 2024 AERIAL IMAGE

Title: PROPOSED MODEL PLAN	Date: SEPT 2025	FIGURE 4
Project: WELLESLEY DRIVE DEVELOPMENT	Scale: NTS	
	Project No.: 24-028	

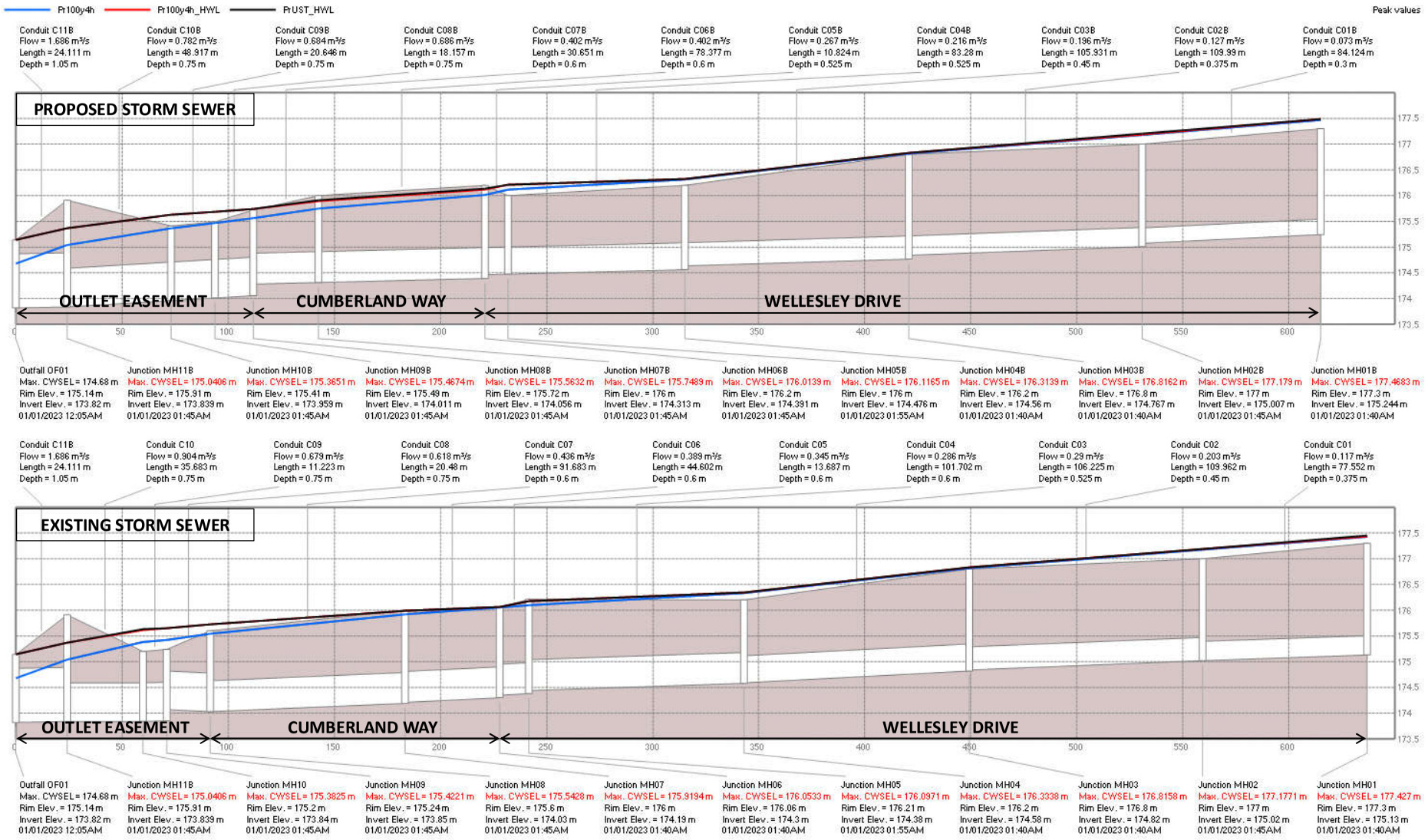


Landmark Engineers Inc.

Pr5y4h = Proposed Conditions

Pr5y4h_HWL = Proposed Conditions with High Lake Level

Title: PROPOSED CONDITION 5-YEAR HGL PROFILES		Date: SEPT 2025	FIGURE 5
		Scale: NTS	
Project: WELLESLEY DRIVE DEVELOPMENT		Project No.: 24-028	



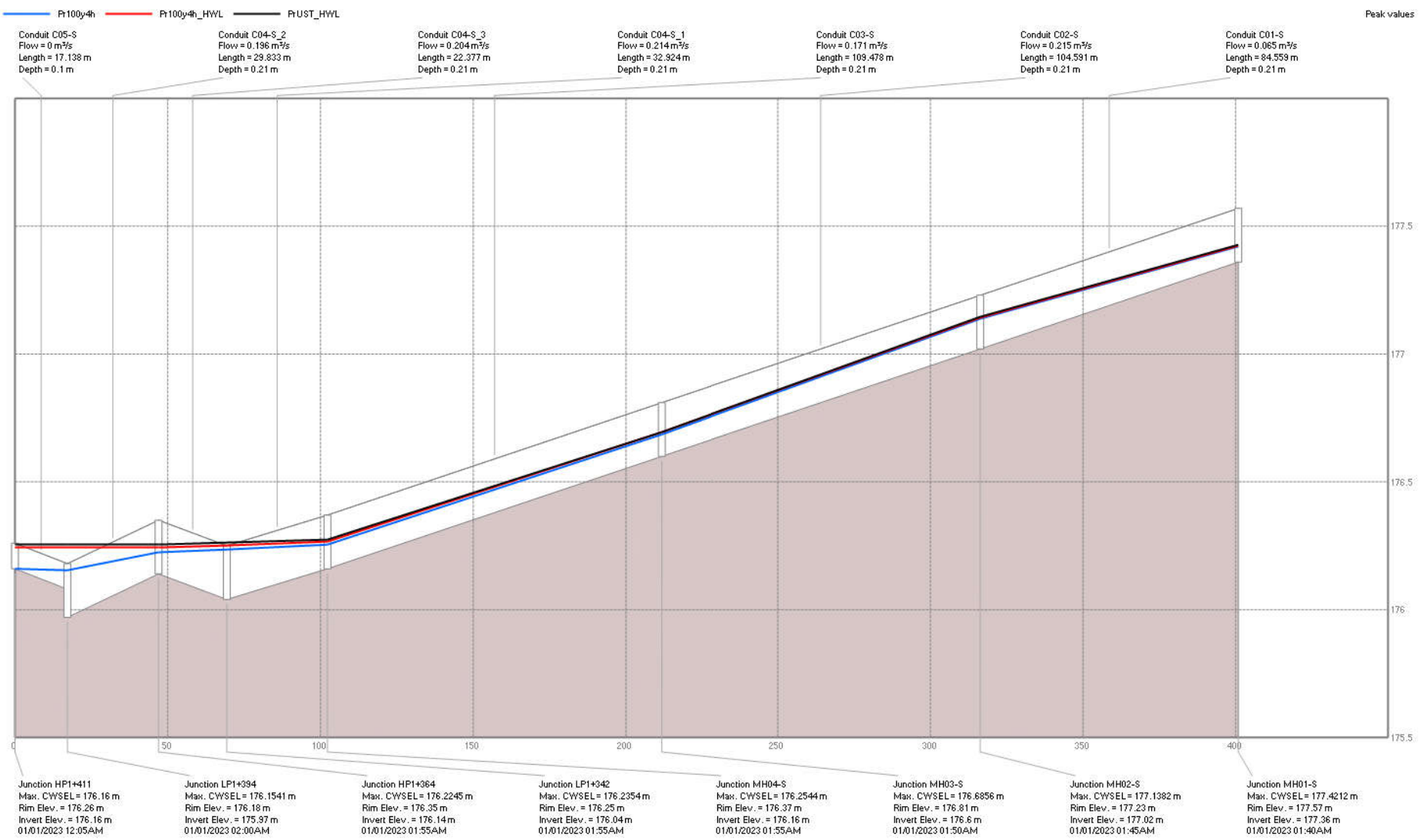
Landmark Engineers Inc.

Pr100y4h = Proposed Conditions 100-Year Storm with Design 5-Year Lake Level

Pr100y4h_HWL = Proposed Conditions 100-Year Storm with High Lake Level

PrUST_HWL = Proposed Conditions Urban Stress Test with High Lake Level

Title: PROP. CONDITION MAJOR STORM HGL PROFILES	Date: OCT 2025	FIGURE 6
Project: WELLESLEY DRIVE DEVELOPMENT	Scale: NTS	
	Project No.: 24-028	



Landmark Engineers Inc.

Pr100y4h = Proposed Conditions 100-Year Storm with Design 5-Year Lake Level
Pr100y4h_HWL = Proposed Conditions 100-Year Storm with High Lake Level
PrUST_HWL = Proposed Conditions Urban Stress Test with High Lake Level

Title	WELLESLEY DRIVE SURFACE HGL PROFILES
Project	WELLESLEY DRIVE DEVELOPMENT
Date	OCT 2025
Scale	NTS
Project No.	24-028

FIGURE 6.1

APPENDIX A-2

Draft Plan of Subdivision

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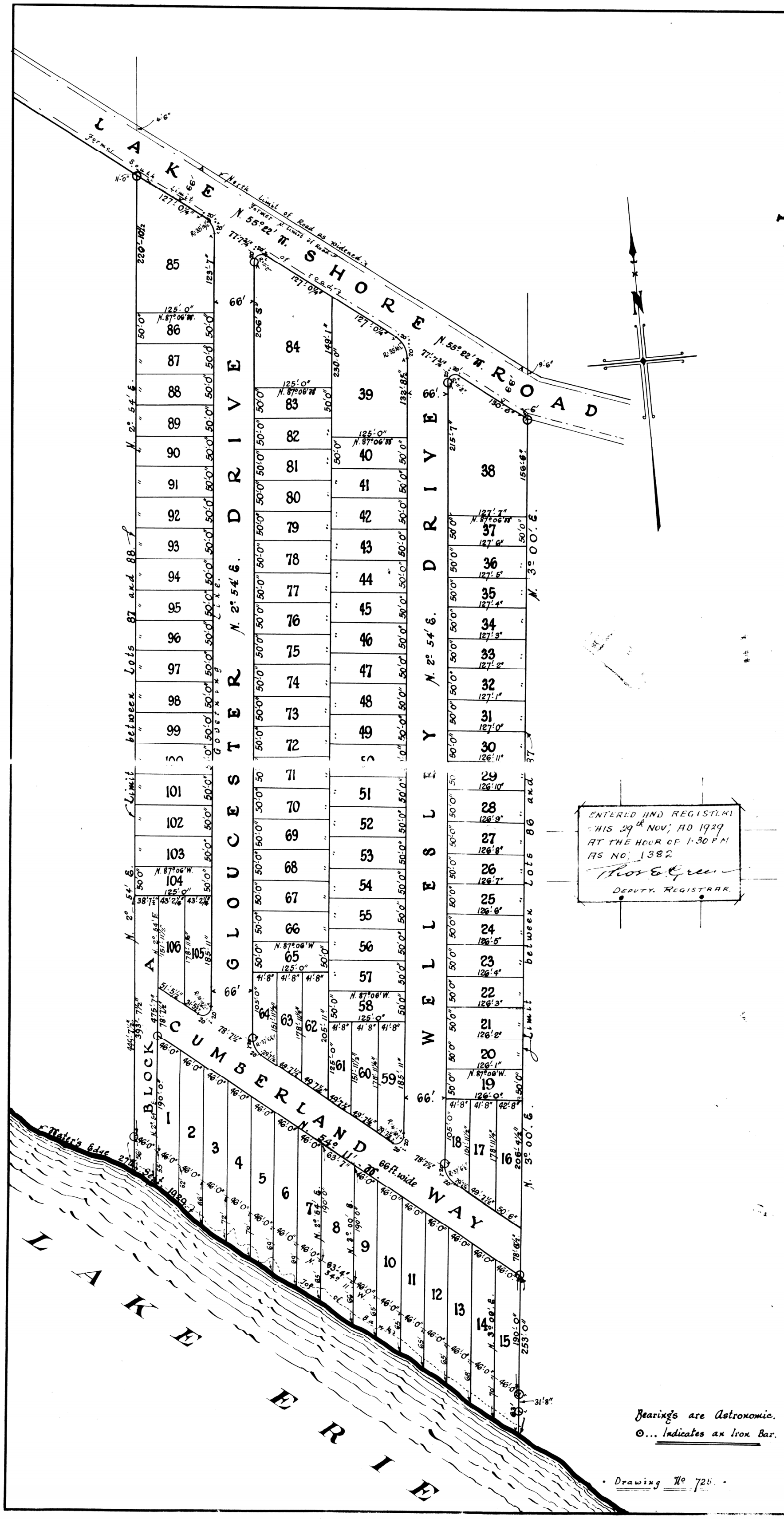
1382

Plan of a Subdivision of • Part Lot 87 - Con. 1 • Township of Colchester South - County of Essex

• ONTARIO •

Scale: 1" = 100'.



I hereby certify that this plan accurately shows the manner in which the land included therein has been surveyed and subdivided by me and that the said plan is prepared in accordance with the provisions of the Registry Act & Surveys Act.

Orville Rolfson
Ontario Land Surveyor
Windsor Oct 21 1929

I hereby certify that this plan represents a true copy of the field notes taken in connection with the survey thereof.

Orville Rolfson
Ontario Land Surveyor
Windsor Oct 21 1929

We hereby certify that this land was laid out and the plan prepared according to my instructions.

Dated at [illegible] This [illegible] day of [illegible] 1929

Witness.	Raymond [illegible] St. John Owner.
Witness.	Owner.
Witness.	Owner.
Witness.	Owner.

__ hereby consent to the fyling of this plan.

Dated at ______ This __ day of ______ 192__

Witness.	Mortgagee.
Witness.	Mortgagee.

The Municipal Council of the Township of Colchester South hereby approves of this plan and consents to its registration in the Registry Office for the County of Essex.

Dated this 28 day of Oct 1929

W. A. Ferris
Reeve

J. H. Madill
Clerk.

County of [illegible] } I, [illegible] of the [illegible] in the County of [illegible]
To Wit: } make oath & say.

1. That I was personally present and did see the within plan and duplicate thereof duly signed and executed by [illegible] the part [illegible] thereto
2. That the said plan and duplicate were executed at the [illegible] of [illegible]
3. That I know the said part [illegible]
4. That I am a subscribing witness to the said plan and duplicate.

Sworn before me at the [illegible] in the County of [illegible] This [illegible] day of [illegible] 1929 } [illegible]

CERTIFIED TO BE A TRUE COPY OF PLAN REGISTERED IN THE REGISTRY OFFICE FOR THE REGISTRY DIVISION OF

DATE REGISTRAR

Orville Rolfson
Civil Engineer • & • Ontario Land Surveyor
• Bartlet Building •
Windsor • Ontario

M.O. 5169
J.B.W.

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APPENDIX "B"

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APPENDIX B-1

Essex Region Conservation Authority Correspondence

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Kiara Kirkland

From: Tian Martin <TMartin@erca.org>
Sent: February 5, 2026 2:34 PM
To: Chad Sinkevitch; rjabbour@essex.ca
Cc: McBeth, David; Heide Mikkelsen; Tony Peralta; abdul karim habib; Dean, Lindsay; Ashley Gyori
Subject: RE: Wellesley Drive Development - Review and Approval Submission Round 3 - E24-090

Good afternoon Chad,

It is our understanding that the proposed storm sewers and outlet improvements will be going through the Drainage Act. Our office has reviewed this file and is in agreement in principle with the overall design. I have cc'd Lindsay Dean to this email to provide reassurance regarding our review of the design in order to support the drainage act works.

This file will remain on hold pending further progression through the Drainage Act process. It is anticipated that works in relation to the outlet of the subdivision will be required to be completed prior to full approval of the development.

Our office will await circulation through the drainage act process.

Thanks,

Essex Region Conservation Authority
sustaining the place for life

TIAN MARTIN, P.Eng.
Water Resources Engineer, Watershed Management Services
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6
P. 519-776-5209 x 304 • F. 519-776-8688
tmartin@erca.org www.essexregionconservation.ca

From: Chad Sinkevitch <chad@peraltaengineering.com>
Sent: January 29, 2026 2:27 PM
To: rjabbour@essex.ca
Cc: McBeth, David <dmcbeth@essex.ca>; Tian Martin <TMartin@erca.org>; Heide Mikkelsen <heide@peraltaengineering.com>; Tony Peralta <tony@peraltaengineering.com>; abdul karim habib <abdulhabib@msn.com>
Subject: Wellesley Drive Development - Review and Approval Submission Round 3 - E24-090

Good afternoon,

Please see the link below to the latest submission for the Wellesley Drive Development. This included the updated stamped drawing set, updated SWM report and supporting documents. Similar to the previous submission, we

have included a comment/response matrix to support each comment for this 3rd round of comments. Please distribute this submission to the appropriate departments for review and approval.

We are currently working on the ECA-CLI submission and will release once all forms and documents are ready. Thanks.

20260129 Wellesley Drive Development - Review and Approval Submission - Round 3

Regards,

Chad Sinkevitch, E.I.T.
chad@peraltaengineering.com | 519-733-6587 x 134
N.J. Peralta Engineering Ltd. - Consulting Engineers
45 Division St. N., Kingsville ON N9Y 1E1
peraltaengineering.com

APPENDIX B-2

Department of Fisheries & Oceans
Letter of Advice

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Fisheries and Oceans Canada
Pêches et Océans Canada

Ontario and Prairie Region
Fish and Fish Habitat Protection Program
867 Lakeshore Rd.
Burlington, ON
L7S 1A1

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

November 19, 2025

Our file *Notre référence*
25-HCAA-02262

Lindsay Dean
Town of Essex
33 Talbot Street South
Essex, ON, N8M 1A8

Subject: Drain Improvements, Argyle Beach Drainage System, Class F, Essex (25-HCAA-02262) – Implementation of Measures to Avoid and Mitigate the Potential for Prohibited Effects to Fish and Fish Habitat

Dear Lindsay Dean:

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on November 6, 2025. We understand that you propose to:

- Remove the existing 750mm HDPE outlet pipe on Argyle Beach Drainage System (Class F) and replace with a 1050mm concrete pipe;
- Work in isolation of flow or open water to avoid sedimentation of the watercourse; and,
- Exclude fish from the work zone using a fish seine dragged outwards.

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:

- Silver Chub listed as Endangered;
- Spotted Sucker listed Special Concern; and,
- Silver Lamprey listed as Special Concern.

Our review considered the following information:

- Request for Review form and associated documents submitted on November 6, 2025; and,
- Email correspondence with Tony Peralta from November 14 – 17, 2025 confirming additional project details.

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

- 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 impacts are prohibited unless authorized under their respective legislation and regulations.

To avoid and mitigate the potential for prohibited effects to fish and fish habitat (as listed above), we recommend implementing the measures listed below:

- Carry out the project in accordance with timing windows;
- Capture fish trapped within an isolated or enclosed area and relocate them to the same watercourse or water body;
    - Dewater gradually to reduce the potential for stranding fish;
    - Capture and relocate any fish as per applicable permits;
- Screen intake pipes during all phases of the project;
    - Use interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater;
- Maintain a functioning vegetated riparian zone between the project site and the ordinary high water mark;
    - Re-vegetate the affected riparian zone with native species suitable for the project site;
- Develop and implement an erosion and sediment control plan for all phases of the project;
    - Conduct all operations in isolation of open or flowing water;
        - Install a cofferdam;
    - Regularly observe the watercourse or water body for signs of suspended sediment during all phases of the project and take corrective action when and where required;
    - Inspect the erosion and sediment controls regularly during all phases of the project;
    - Repair the sediment controls during all phases of the project;
    - Use biodegradable materials for erosion and sediment controls whenever possible;
    - Remove all non-biodegradable erosion and sediment controls once the site has been stabilized;
    - Keep the erosion and sediment controls in place until all disturbed ground has been stabilized and suspended sediments have settled;
    - Operate machinery on land during all phases of the project;
- Develop a plan to prevent deleterious substances from entering a watercourse or water body;

- Aquatic invasive species are introduced and spread through transporting water, sands and sediments and using contaminated construction equipment. To prevent the spread of aquatic invasive species during construction in aquatic environments:
    - Ensure all equipment arrives on site clean and free of invasive species;
    - Clean, drain and dry any equipment used in the water; and,
    - Never move organisms or water from one body of water to another.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal is not likely to result in the contravention of the above mentioned prohibitions and requirements.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (Projects near water (dfo-mpo.gc.ca)) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to remain in compliance with the *Fisheries Act* and the *Species at Risk Act*.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of fish habitat. Such notifications should be directed to DFO.OPHabitat.MPO@dfo-mpo.gc.ca or 1-855-852-8320.

We recommend that you notify this office at least 10 days before starting your project and that a copy of this letter be kept on site while the work is in progress. Send your notification to the DFO 10 day notification mailbox: DFO.OP.10DayNotification-Notification10Jours.OP.MPO@dfo-mpo.gc.ca. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Samantha Arevalo at Samantha.Arevalo@dfo-mpo.gc.ca or by phone at 416-209-0169. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

Samantha Arevalo
Biologist, Triage and Planning
Fish and Fish Habitat Protection Program

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APPENDIX "C"

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PLANS, PROFILES, SECTIONS, AND DETAILS

OF THE

ARGYLE BEACH DRAINAGE SYSTEM IMPROVEMENTS

IN THE

TOWN OF ESSEX
(Geographic Townships of Colchester South)

IN THE

COUNTY OF ESSEX

TOWN OF ESSEX

MAYOR: SHERRY BONDY
CLERK: JOSEPH MALANDRUCCOLO
DRAINAGE SUPERINTENDENT: LINDSAY DEAN

BENCHMARKS

1. CUT–CROSS IN TOP OF PRECAST CONCRETE LID OF SANITARY PUMP STATION (SOUTHERN EDGE), APPROXIMATELY 19m WEST OF THE CENTRELINE OF GLOUCESTER DRIVE, APPROXIMATELY 0.63m ABOVE GROUND LEVEL.

   ELEV. = 176.235m

2. TOP OF OPERATING NUT OF EXISTING FIRE HYDRANT (#783) ON THE SOUTH SIDE OF COUNTY ROAD 50, EAST OF GLOUCESTER DRIVE, AT PROPERTY M.N. 160.

   ELEV. = 178.619m

3. TOP OF OPERATING NUT OF FIRE HYDRANT (#765) LOCATED ON THE NORTH SIDE OF CUMBERLAND WAY, WEST OF THE INTERSECTION WITH WELLESLEY DRIVE, IN FRONT OF M.N. 524 CUMBERLAND WAY.

   ELEV. = 177.216m

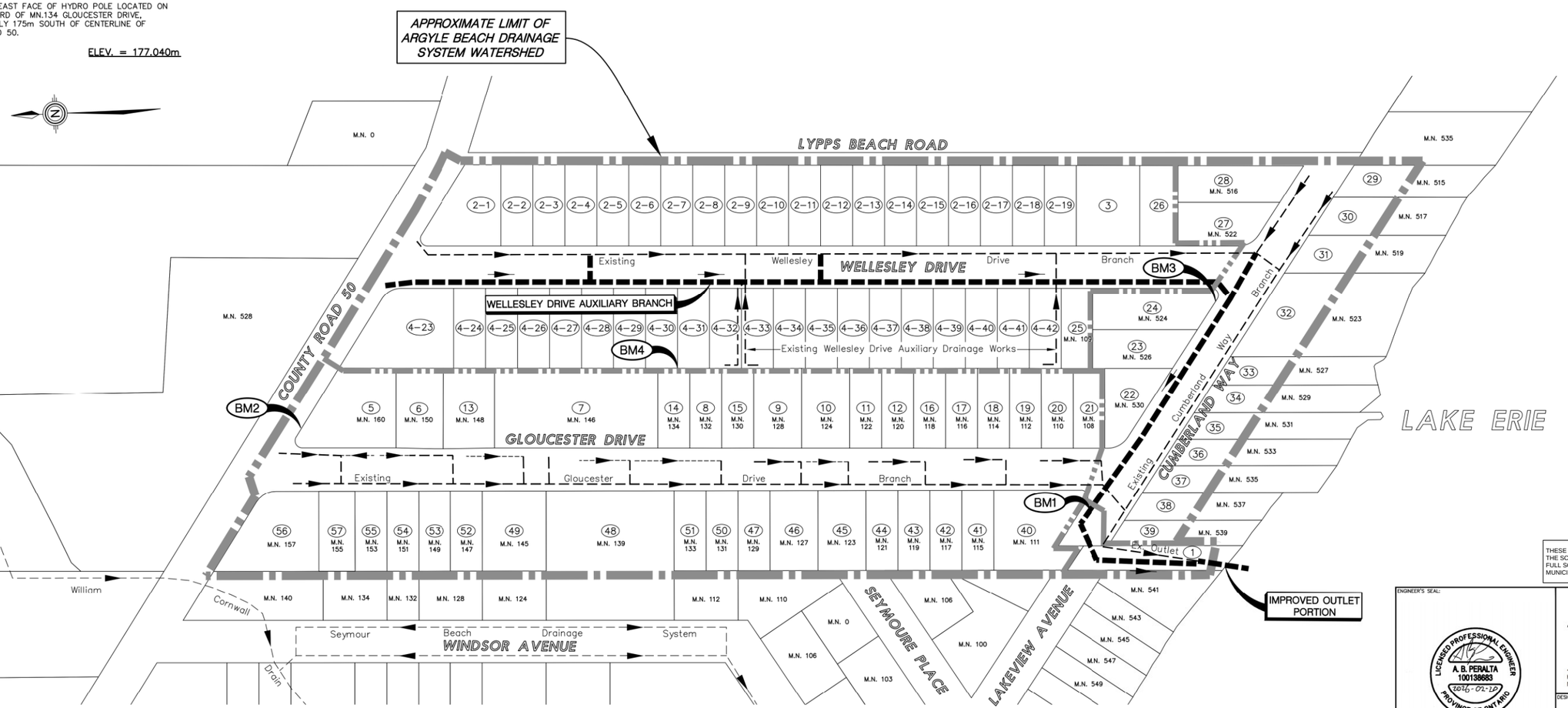
4. NAIL SET IN EAST FACE OF HYDRO POLE LOCATED ON THE REAR YARD OF MN.134 GLOUCESTER DRIVE, APPROXIMATELY 175m SOUTH OF CENTERLINE OF COUNTY ROAD 50.

   ELEV. = 177.040m

DENOTES EXISTING ARGYLE BEACH DRAINAGE SYSTEM ALIGNMENT
DENOTES EXISTING ARGYLE BEACH DRAINAGE SYSTEM SWALES
DENOTES PROPOSED ARGYLE BEACH DRAINAGE SYSTEM ALIGNMENT
DENOTES OVERALL WATERSHED LIMITS
DENOTES SUB-WATERSHED LIMITS
(XX) *DENOTES PARCEL IDENTIFICATION NUMBER*

PARCEL I.D.	ROLL #	OWNER
1	660–07501	Mark St Louis
2–1	660–08301 – Lot 1	Castle Gate Towers Inc.
2–2	660–08301 – Lot 2	Castle Gate Towers Inc.
2–3	660–08301 – Lot 3	Castle Gate Towers Inc.
2–4	660–08301 – Lot 4	Castle Gate Towers Inc.
2–5	660–08301 – Lot 5	Castle Gate Towers Inc.
2–6	660–08301 – Lot 6	Castle Gate Towers Inc.
2–7	660–08301 – Lot 7	Castle Gate Towers Inc.
2–8	660–08301 – Lot 8	Castle Gate Towers Inc.
2–9	660–08301 – Lot 9	Castle Gate Towers Inc.
2–10	660–08301 – Lot 10	Castle Gate Towers Inc.
2–11	660–08301 – Lot 11	Castle Gate Towers Inc.
2–12	660–08301 – Lot 12	Castle Gate Towers Inc.
2–13	660–08301 – Lot 13	Castle Gate Towers Inc.
2–14	660–08301 – Lot 14	Castle Gate Towers Inc.
2–15	660–08301 – Lot 15	Castle Gate Towers Inc.
2–16	660–08301 – Lot 16	Castle Gate Towers Inc.
2–17	660–08301 – Lot 17	Castle Gate Towers Inc.
2–18	660–08301 – Lot 18	Castle Gate Towers Inc.
2–19	660–08301 – Lot 19	Castle Gate Towers Inc.
3	660–08405	Abraham DeJonge
4–23	660–08500 – Lot 23	Castle Gate Towers Inc.
4–24	660–08500 – Lot 24	Castle Gate Towers Inc.
4–25	660–08500 – Lot 25	Castle Gate Towers Inc.
4–26	660–08500 – Lot 26	Castle Gate Towers Inc.
4–27	660–08500 – Lot 27	Castle Gate Towers Inc.
4–28	660–08500 – Lot 28	Castle Gate Towers Inc.
4–29	660–08500 – Lot 29	Castle Gate Towers Inc.
4–30	660–08500 – Lot 30	Castle Gate Towers Inc.
4–31	660–08500 – Lot 31	Castle Gate Towers Inc.
4–32	660–08500 – Lot 32	Castle Gate Towers Inc.
4–33	660–08500 – Lot 33	Castle Gate Towers Inc.
4–34	660–08500 – Lot 34	Castle Gate Towers Inc.
4–35	660–08500 – Lot 35	Castle Gate Towers Inc.
4–36	660–08500 – Lot 36	Castle Gate Towers Inc.
4–37	660–08500 – Lot 37	Castle Gate Towers Inc.
4–38	660–08500 – Lot 38	Castle Gate Towers Inc.
4–39	660–08500 – Lot 39	Castle Gate Towers Inc.
4–40	660–08500 – Lot 40	Castle Gate Towers Inc.
4–41	660–08500 – Lot 41	Castle Gate Towers Inc.
4–42	660–08500 – Lot 42	Castle Gate Towers Inc.
5	660–08600	Colin Zakoor
6	660–08610	John Gignac
7	660–08700	Jason & Emily Stevenson
8	660–08701	Kevin Laporte and Jessica Jenner
9	660–08702	Thomas Platt and Elizabeth Ogilvy
10	660–08703	Joseph Nardella
11	660–08704	Janet Neuts

PARCEL I.D.	ROLL #	OWNER
12	660–08705	David Rousseau & Jocelyn Harris
13	660–08707	Daniel Jenner
14	660–08740	Nicholas Dumouchelle
15	660–08750	Joshua & Sydney Menard
16	660–08800	David & Shannon Rowe
17	660–08801	Villew Property Management Inc.
18	660–08810	Jason & Kimberly Standish
19	660–08820	Rhonda Van Poucke–Sinasac
20	660–08830	Andrew DiPaolo
21	660–08900	Lydia & John Stevens
22	660–09000	Dennis Masse and Elizabeth Wilson
23	660–09100	Paula & William White
24	660–09150	Tina Caza and Paul Laking
25	660–09200	Matthew Harris
26	660–09300	Abraham Dejonge
27	660–09301	Daniel & Barbara DeJonge
28	660–09305	Brain Strachan and Denise Talbot
29	660–09400	Phyllis Vigh
30	660–09500	Richard & Jennifer Bortolon
31	660–09510	Robert & Carol Petroni
32	660–09600	James & Susan Steer
33	660–09700	Sheri Miesmer and Michael Akpata
34	660–09800	Dellburn & Renee White
35	660–09810	Duyen Pham and David Cheslea
36	660–09820	Grant Lavery and Margaret McCrorie
37	660–09850	Marc–Antoine Senecal
38	660–09899	Mitchen Gellman and Amanda Pulliam–Gellman
39	660–09900	Mark St. Louis
40	660–10000	Michael & Sandra Pasick
41	660–10002	Jake Moroun and Bernadette Lafferty
42	660–10003	Joseph Rabie and Chelsae Schurman
43	660–10004	Lionel & Bonnie Richards
44	660–10005	Girard & Pauline Banks
45	660–10006	David & Stuart Milling, Tersea Stone, and Maryjo DiGiovanni
46	660–10008	Erin Allen
47	660–10100	Daniel DeJonge
48	660–10101	David & Marilyn Molnar
49	660–10103	William & Elizabeth Surgent
50	660–10110	Tyler Cosgrove
51	660–10120	Amanda Sauve and Gerry Ladouceur
52	660–10140	Ryan & Lacy Hewitt
53	660–10145	James Watters and Chantelle Bonsant
54	660–10150	Dale Quinlan and Rachel Hughes
55	660–10160	Manual & Fe Arnaldo
56	660–10200	Paul DesChamps
57	660–10202	Mohamad Mohammad and Manon Espinal



WATERSHED PLAN
Scale = 1:1000

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES.
FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

ENGINEER'S SEAL:
LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2026-02-20
PROVINCE OF ONTARIO

DATE: February 20, 2026

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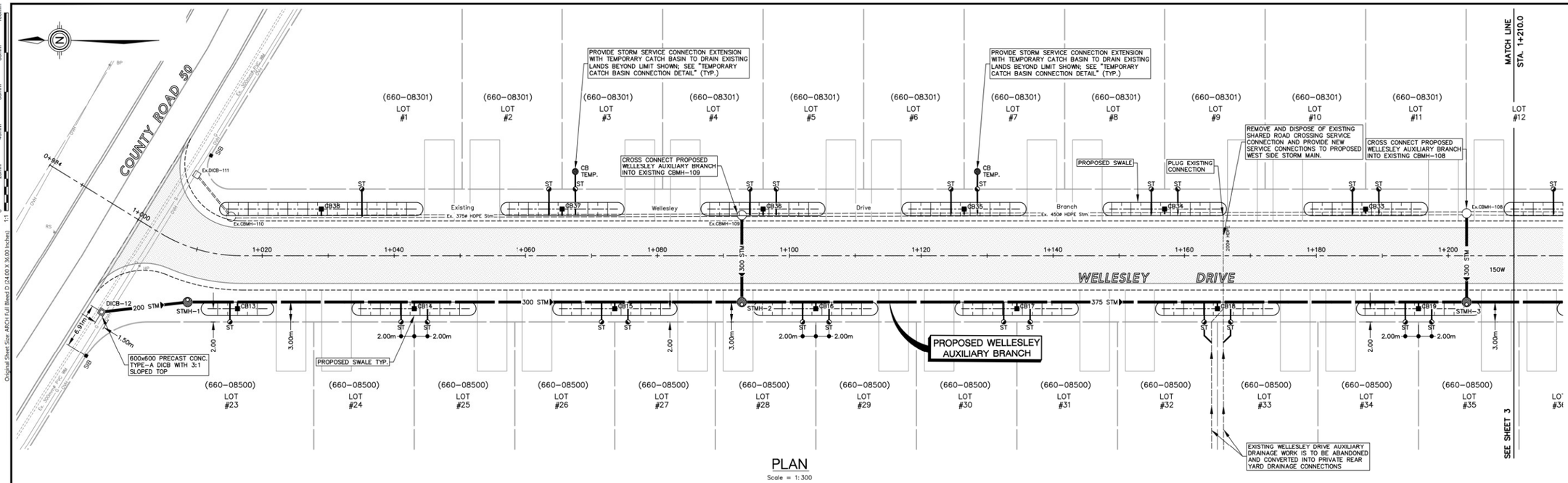
DESIGNED BY:	DRAWN BY:	CHECKED BY:
B.N.D.	C.M.S.	A.B.P.

PROJECT No.: D22-087
SHEET No.: 1 OF 9



PLAN

Scale = 1:300

1+002.6 DICB-12 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. DICB WITH FLAT GALVANIZED STEEL CONVCOMP GRATE WITH 430mm x 430mm OPENING; SET TOP ELEVATION = 177.185m

1+010.7 STMH-1 – PROVIDE AND INSTALL A 1200mm ø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 177.085m

1+016.4 CB13 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.900m

1+021.7 HIGH POINT OF PROPOSED SWALE

1+027.8 Property Line Between Lot 23 & 24

1+033.6 HIGH POINT OF PROPOSED SWALE

1+043.0 CB14 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.863m

1+043.0 Property Line Between Lot 24 & 25

1+052.4 HIGH POINT OF PROPOSED SWALE

1+058.3 Property Line Between Lot 25 & 26

1+064.1 HIGH POINT OF PROPOSED SWALE

1+073.5 CB15 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.959m

1+073.5 Property Line Between Lot 26 & 27

1+083.0 HIGH POINT OF PROPOSED SWALE

1+088.8 Property Line Between Lot 27 & 28

1+092.8 STMH-2 – PROVIDE AND INSTALL A 1200mm ø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 177.099m

1+094.5 HIGH POINT OF PROPOSED SWALE

1+104.0 CB16 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.868m

1+104.0 Property Line Between Lot 28 & 29

1+113.4 HIGH POINT OF PROPOSED SWALE

1+119.3 Property Line Between Lot 29 & 30

1+125.1 HIGH POINT OF PROPOSED SWALE

1+134.5 CB17 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.777m

1+134.5 Property Line Between Lot 30 & 31

1+143.8 HIGH POINT OF PROPOSED SWALE

1+149.8 Property Line Between Lot 31 & 32

1+156.6 HIGH POINT OF PROPOSED SWALE

1+165.0 CB18 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.552m

1+165.0 Property Line Between Lot 32 & 33

1+174.4 HIGH POINT OF PROPOSED SWALE

1+180.2 Property Line Between Lot 33 & 34

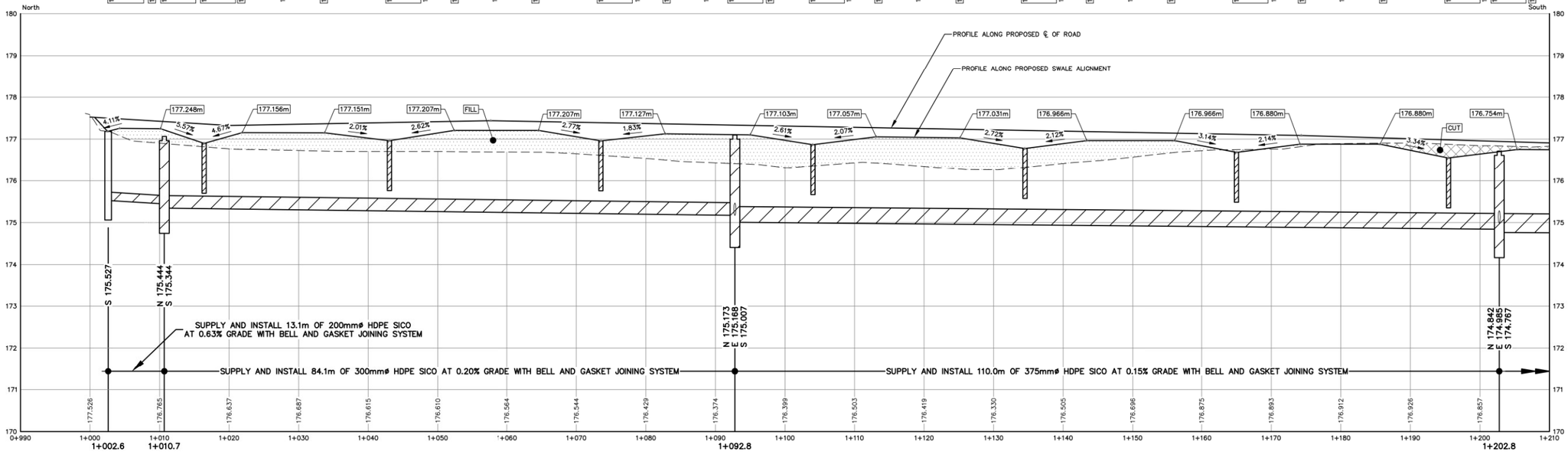
1+186.1 HIGH POINT OF PROPOSED SWALE

1+195.5 CB19 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND 2RATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.754m

1+195.5 Property Line Between Lot 34 & 35

1+202.8 STMH-3 – PROVIDE AND INSTALL A 1200mm ø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.767m

1+204.9 HIGH POINT OF PROPOSED SWALE



PROFILE - WELLESLEY DRIVE (WEST)

Scale = 1:300(H), 1:50(V)

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES.
FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

Peralta Engineering
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peraltaengineering.com

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A. B. PERALTA
100138683
2026-02-20
PROVINCE OF ONTARIO

February 20, 2026

DESIGNED BY:	DRAWN BY:	CHECKED BY:
B.N.D.	C.M.S.	A.B.P.

PROJECT No.:	SHEET No.:
D22-087	2 OF 9

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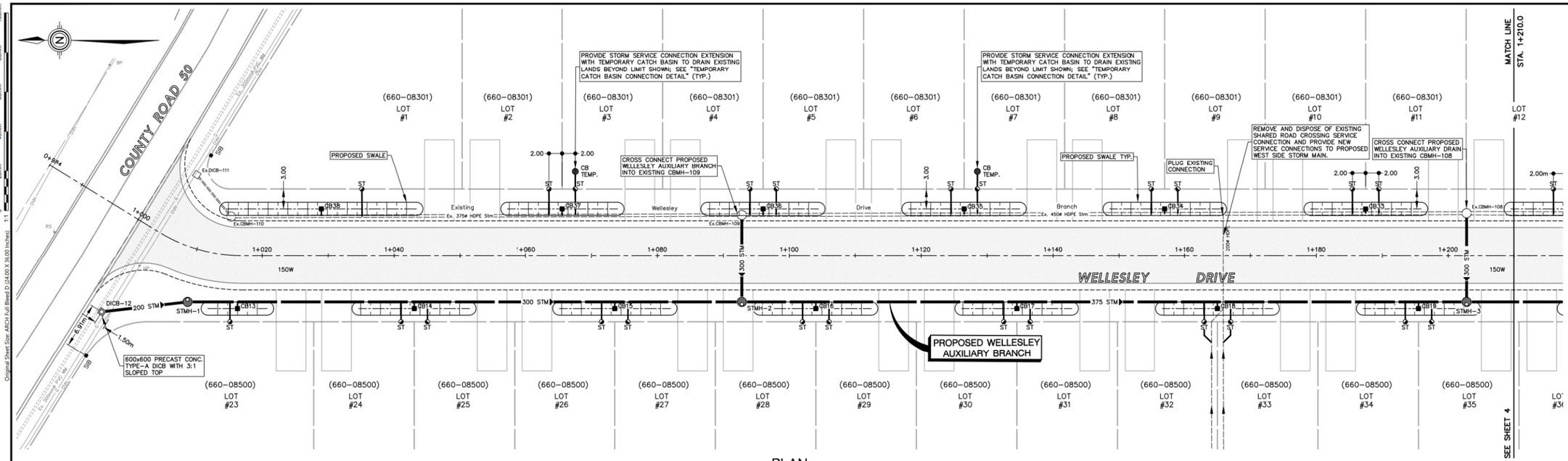
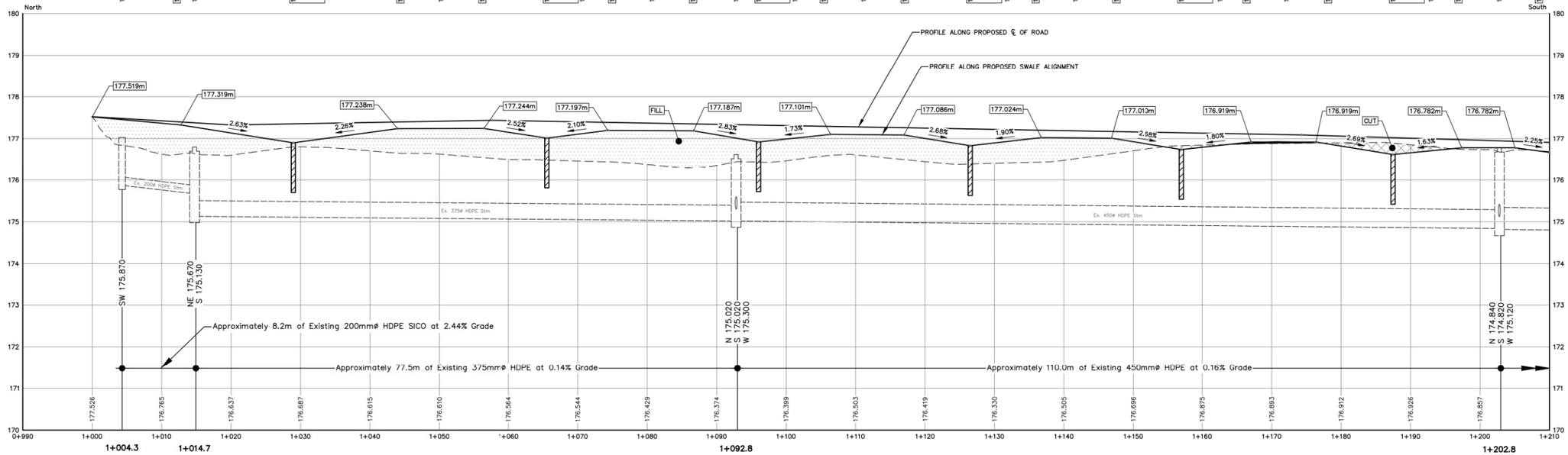


PLAN

Scale = 1:300

1+004.3	Ex.DICB-111 – 600x600 PRECAST CONC.	
1+012.2	HIGH POINT OF PROPOSED SWALE	
1+014.7	Ex.CBMH-110 – 1200ø CBMH	
1+028.0	CB38 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.900m	
1+044.4	HIGH POINT OF PROPOSED SWALE	
1+050.3	Property Line Between Lot 1 & Lot 2	
1+056.2	HIGH POINT OF PROPOSED SWALE	
1+065.5	CB37 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 177.013m	
1+065.5	Property Line Between Lot 2 & Lot 3	
1+075.0	HIGH POINT OF PROPOSED SWALE	
1+080.8	Property Line Between Lot 3 & Lot 4	
1+086.6	HIGH POINT OF PROPOSED SWALE	
1+092.8	Ex.CBMH-109 – 1200ø CBMH	
1+096.0	CB36 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.921m	
1+096.0	Property Line Between Lot 4 & Lot 5	
1+105.4	HIGH POINT OF PROPOSED SWALE	
1+111.3	Property Line Between Lot 5 & Lot 6	
1+117.1	HIGH POINT OF PROPOSED SWALE	
1+126.5	CB35 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.905m	
1+126.5	Property Line Between Lot 6 & Lot 7	
1+135.9	HIGH POINT OF PROPOSED SWALE	
1+141.7	Property Line Between Lot 7 & Lot 8	
1+147.6	HIGH POINT OF PROPOSED SWALE	
1+157.0	CB34 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.739m	
1+157.0	Property Line Between Lot 8 & Lot 9	
1+166.4	HIGH POINT OF PROPOSED SWALE	
1+172.2	Property Line Between Lot 9 & Lot 10	
1+178.1	HIGH POINT OF PROPOSED SWALE	
1+187.5	CB33 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.621m	
1+187.5	Property Line Between Lot 10 & Lot 11	
1+196.9	HIGH POINT OF PROPOSED SWALE	
1+202.8	Ex.CBMH-108 – 1200ø CBMH	
1+208.5	HIGH POINT OF PROPOSED SWALE	



PROFILE - WELLESLEY DRIVE (EAST)

Scale = 1:300(H), 1:50(V)

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February 20, 2026

DESIGNED BY:	DRAWN BY:	CHECKED BY:
B.N.D.	C.M.S.	A.B.P.

PROJECT No.:	SHEET No.:
D22-087	3 OF 9

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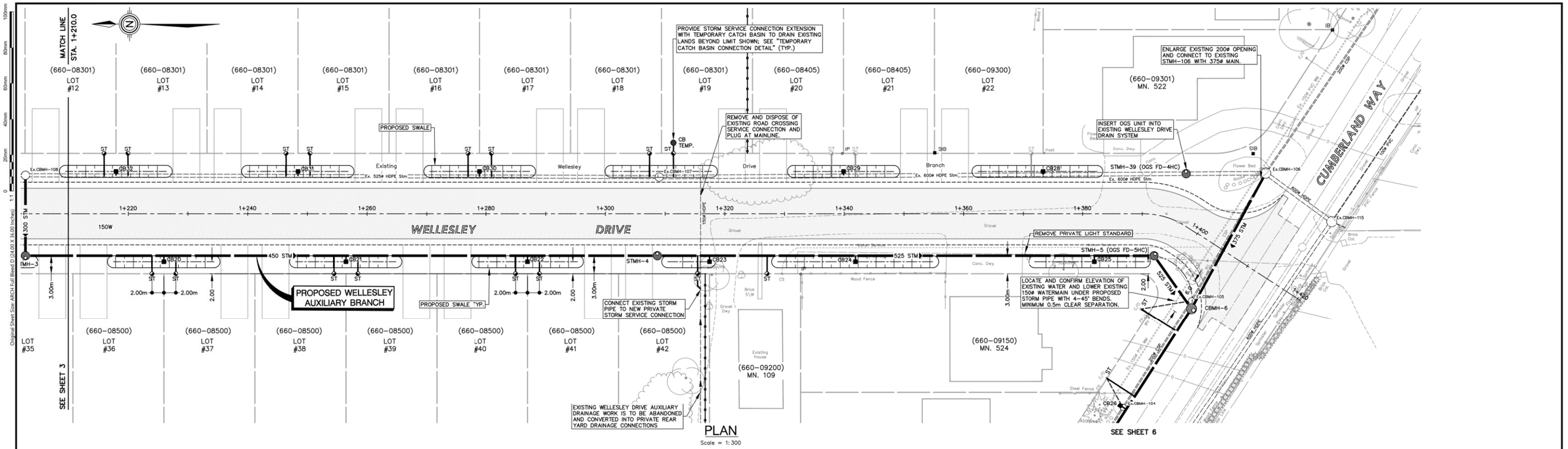


[1+226.0 CB20 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.398m]

1+226.0 Property Line Between Lot 36 & 37

[1+235.4 HIGH POINT OF PROPOSED SWALE]

1+241.2 Property Line Between Lot 37 & 38

[1+247.0 HIGH POINT OF PROPOSED SWALE]

[1+256.5 CB21 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.377m]

1+256.5 Property Line Between Lot 38 & 39

[1+265.8 HIGH POINT OF PROPOSED SWALE]

1+271.7 Property Line Between Lot 39 & 40

[1+277.5 HIGH POINT OF PROPOSED SWALE]

[1+286.9 CB22 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.095m]

1+286.9 Property Line Between Lot 40 & 41

[1+296.3 HIGH POINT OF PROPOSED SWALE]

1+302.2 Property Line Between Lot 41 & 42

[1+309.4 HIGH POINT OF PROPOSED SWALE]

[1+308.7 STMH-4 – PROVIDE AND INSTALL A 1200mmø PRECAST CONC. STMH WITH CONE AND 450mm DEEP SUMP; SET TOP ELEVATION = 176.186m]

[1+318.4 HIGH POINT OF PROPOSED SWALE]

[1+317.4 CB23 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.943m]

1+317.4 Property Line Between Lot 42 & MN. 109

[1+327.8 HIGH POINT OF PROPOSED SWALE]

1+332.7 Property Line Between MN. 109 & MN. 524

[1+341.9 CB24 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.821m]

[1+355.8 HIGH POINT OF PROPOSED SWALE]

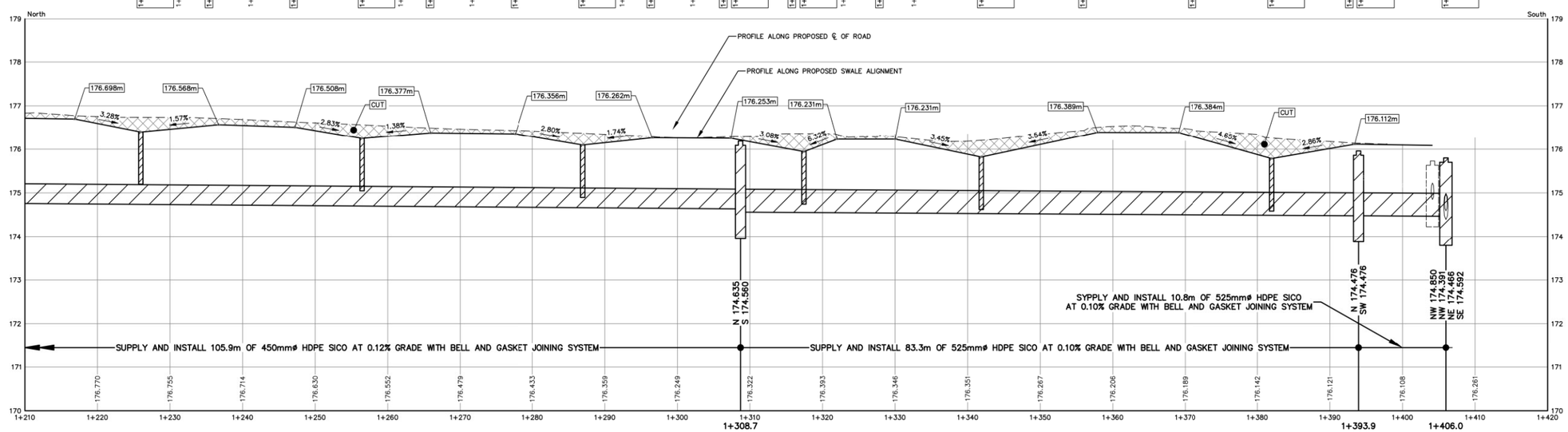
[1+371.0 HIGH POINT OF PROPOSED SWALE]

[1+382.0 CB25 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.785m]

[1+393.2 HIGH POINT OF PROPOSED SWALE]

[1+393.9 STMH-5 (OGS FD-5HC) – PROVIDE AND INSTALL A 1200mmø PRECAST CONC. STMH WITH CONE, FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.938m]

[1+406.0 CBMH-6 – PROVIDE AND INSTALL A 1500mm x 600mm PRECAST CONC. STMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.090m]



PROFILE - WELLESLEY DRIVE (WEST)

Scale = 1:300(H), 1:50(V)

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A. B. PERALTA
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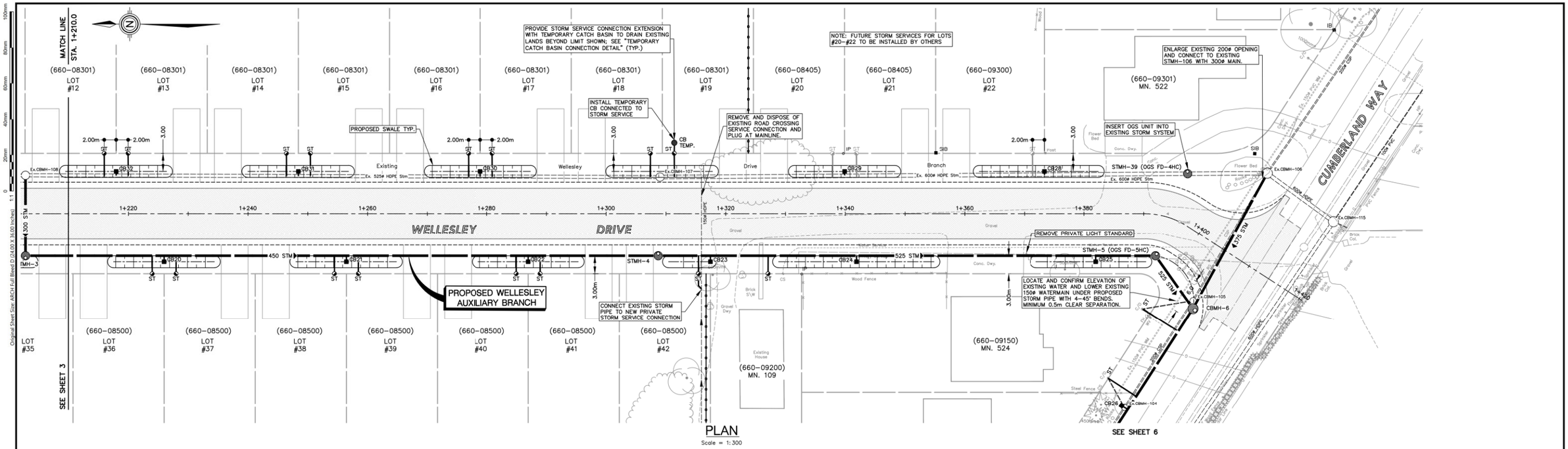
February 20, 2026

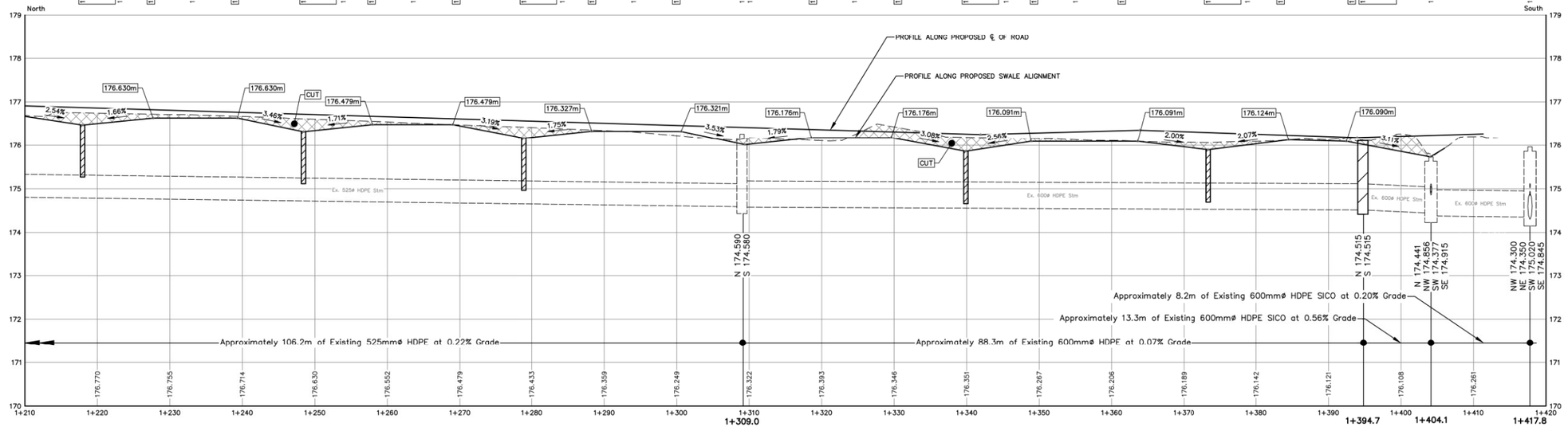
DESIGNED BY:	DRAWN BY:	CHECKED BY:
B.N.D.	C.M.S.	A.B.P.

PROJECT No.:	SHEET No.:
D22-087	4 OF 9



PLAN

Scale = 1:300



1+217.9 C832 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.686m

1+217.9 Property Line Between Lot 12 & Lot 13

1+227.4 HIGH POINT OF PROPOSED SWALE

1+233.2 Property Line Between Lot 13 & Lot 14

1+239.0 HIGH POINT OF PROPOSED SWALE

1+248.4 C831 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.316m

1+248.4 Property Line Between Lot 14 & Lot 15

1+257.8 HIGH POINT OF PROPOSED SWALE

1+263.7 Property Line Between Lot 15 & Lot 16

1+269.5 HIGH POINT OF PROPOSED SWALE

1+278.9 C830 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.164m

1+278.9 Property Line Between Lot 16 & Lot 17

1+288.3 HIGH POINT OF PROPOSED SWALE

1+294.1 Property Line Between Lot 17 & Lot 18

1+299.9 HIGH POINT OF PROPOSED SWALE

1+309.0 Ex.CBMH-107 – 1200ø CBMH

1+309.4 Property Line Between Lot 18 & Lot 19

1+318.8 HIGH POINT OF PROPOSED SWALE

1+324.6 Property Line Between Lot 19 & Lot 20

1+330.5 HIGH POINT OF PROPOSED SWALE

1+339.9 C829 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.859m

1+339.9 Property Line Between Lot 20 & Lot 21

1+349.3 HIGH POINT OF PROPOSED SWALE

1+355.1 Property Line Between Lot 21 & Lot 22

1+361.4 HIGH POINT OF PROPOSED SWALE

1+373.4 C828 – PROVIDE AND INSTALL A 600mm x 600mm PRECAST CONC. OFFSET CB WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.895m

1+373.4 Property Line Between Lot 22 and Existing Property

1+383.4 HIGH POINT OF PROPOSED SWALE

1+393.2 HIGH POINT OF PROPOSED SWALE

1+394.7 STMH-39 (OGS FD-4HC) - PROVIDE AND INSTALL A 1200mm ø PRECAST CONC. STMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 176.108m

1+404.1 Ex.CBMH-106 – 1500ø STMH

1+417.8 Ex.CBMH-115 – 1500ø CBMH

PROFILE - WELLESLEY DRIVE (EAST)

Scale = 1:300(H), 1:50(V)

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2026-02-20
PROVINCE OF ONTARIO

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PROJECT No.:	SHEET No.:
D22-087	5 OF 9

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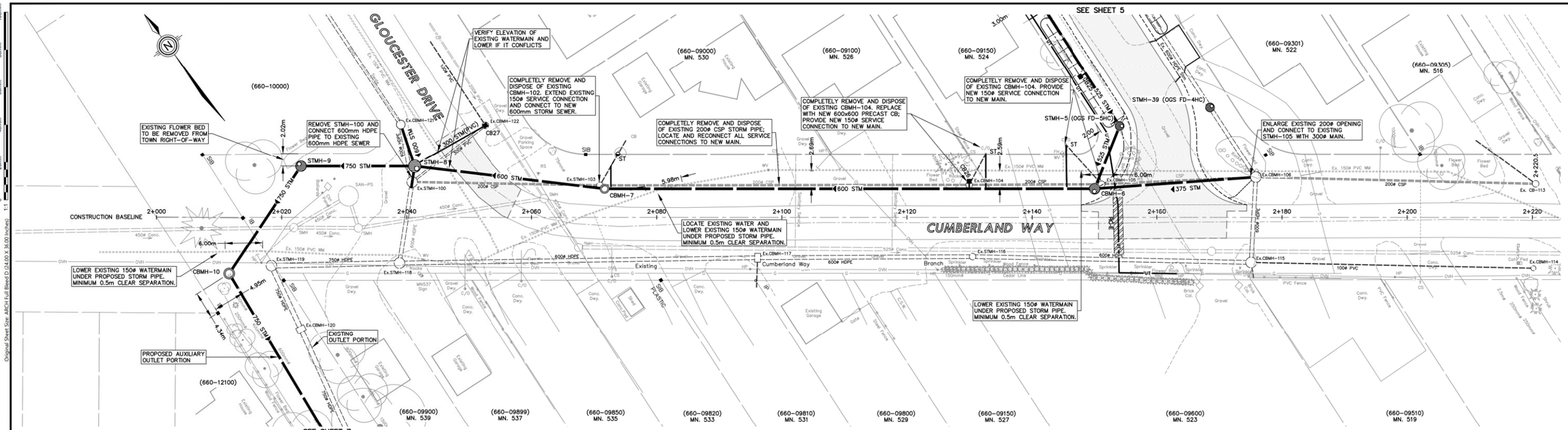


PLAN

Scale = 1:300

2+011.6 CBMH-10 – PROVIDE AND INSTALL A 1500mmø PRECAST CONC. CBMH WITHCAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 174.406m

2+018.4 Existing STMH – 1500ø PRECAST CONC.

2+022.0 Existing SMH

2+023.1 STMH-9 – PROVIDE AND INSTALL A 1500mmø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.456m

2+030.7 SAN-PS – 3000ø SAN PS

2+032.3 Existing SMH

2+041.3 STMH-8 – PROVIDE AND INSTALL A 1800mmø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.700m

2+040.9 Ex.STMH-100 – 1200ø STMH (Buried)

2+062.0 Existing SMH

2+070.9 Ex.STMH-103 – 600ø CSP

1+355.6 CBMH-7 – PROVIDE AND INSTALL A 1200mmø PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.600m

2+108.0 Property Line Between MN. 526 & MN. 530

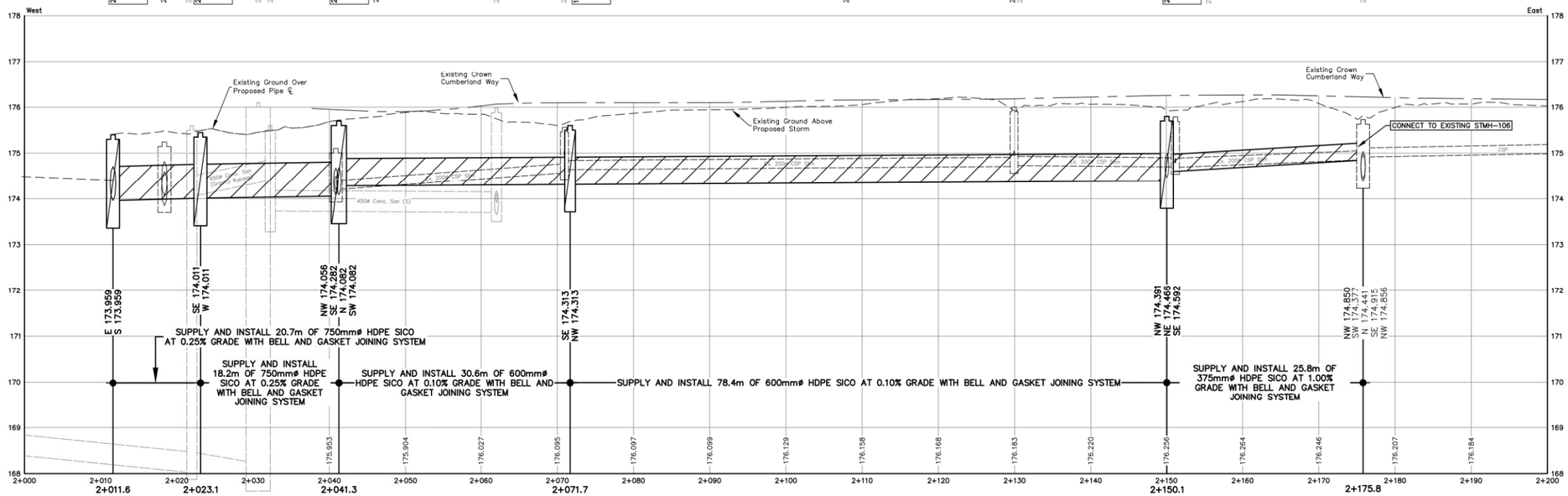
2+129.8 Property Line Between MN. 524 & MN. 526

2+129.9 Ex.CBMH-104 – 400ø CSP

2+150.1 CBMH-6 – PROVIDE AND INSTALL A 1500mmø PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.600m

2+151.2 Ex.CBMH-105 – 600ø CSP

2+175.8 Ex.CBMH-106 – 1500ø STMH



PROFILE - CUMBERLAND WAY

Scale = 1:300(H), 1:50(V)

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PROJECT No.: D22-087

SHEET No.: 6 OF 9

Original Sheet Size: ARCH E Full Bleed D (24.00 X 36.00 Inches) 1:1 0 20mm 40mm 60mm 80mm 100mm

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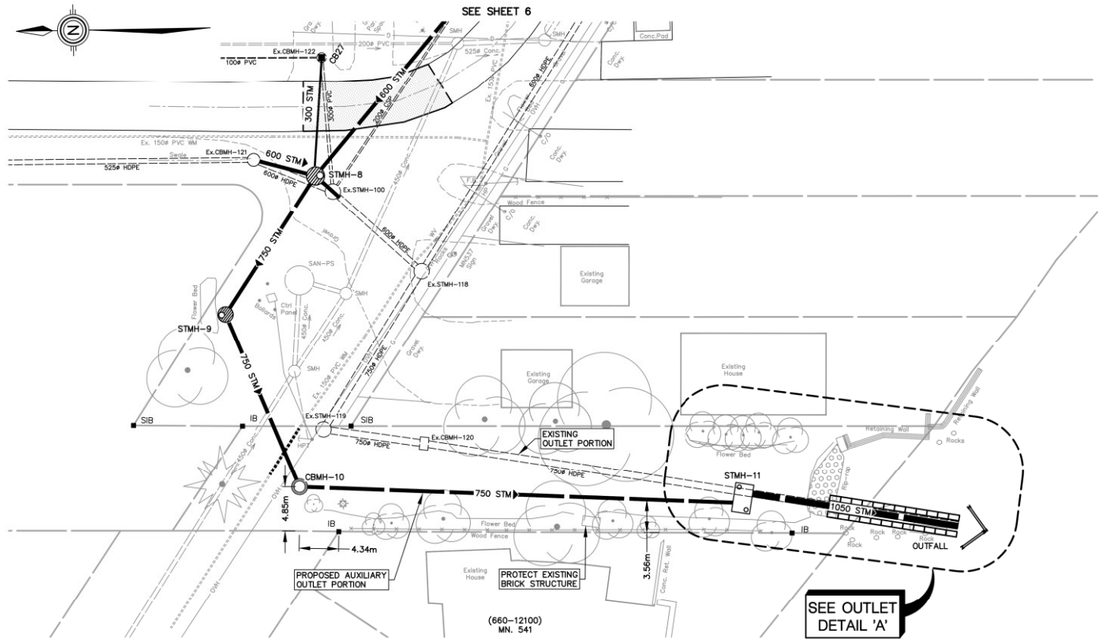
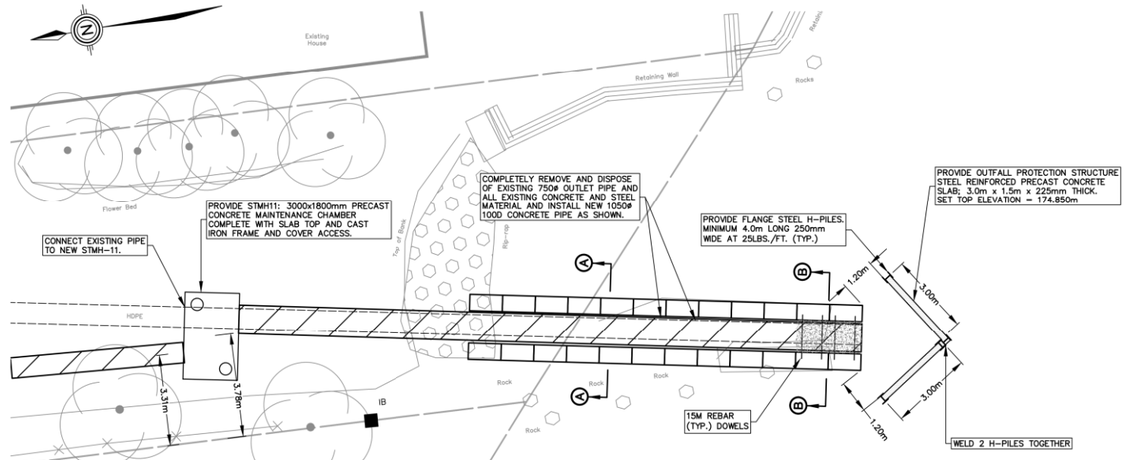


PLAN

Scale = 1:300

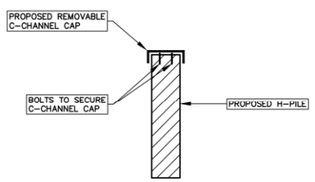


OUTLET DETAIL 'A'

Scale = 1:100

NOTES:

1. CONCRETE TO BE MIN. 30MPa AT 28 DAYS WITH 6% AIR ENTRAINMENT
2. CONCRETE REINFORCEMENT FOR SLABS TO BE 15M REBAR @ 300mm O/C EACH WAY
3. SET TOP OF CONCRETE SLAB ELEVATION TO MATCH TOP OF CONCRETE PIPE
4. PROVIDE CHANNEL IRON CAP OVER CONCRETE SLABS AND PILES (C10 X 30)
5. PROVIDE WELDED CLIPS 1.5m DOWN FROM THE TOP OF THE H-PILE TO HOLD THE CONCRETE SLAB IN PLACE
6. PROVIDE REMOVABLE C-CHANNEL CAPS, BOLTED AT EACH END AND MID-POINT OF THE CAP



H-PILE CAP DETAIL

Scale = N.T.S.

3+002.0 STMH-9 - PROVIDE AND INSTALL A 1500mmø PRECAST CONC. STMH WITH CAST IRON FRAME AND LID WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.450m

3+010.2 CBMH-10 - PROVIDE AND INSTALL A 1500mmø PRECAST CONC. CBMH WITH CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.400m

3+012.8 Existing STMH

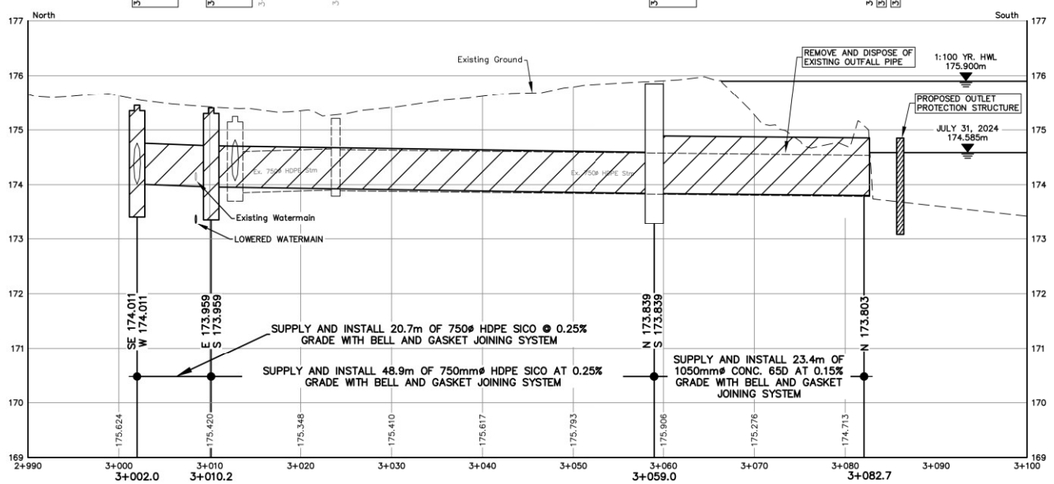
3+023.9 Existing CBMH

3+059.0 STMH-11 - PROVIDE AND INSTALL A 3000 x 1800mm PRECAST CONC. BOX CHAMBER WITH SLAB TOP AND CAST IRON FRAME AND GRATE WITH 450mm DEEP SUMP; SET TOP ELEVATION = 175.850m

3+082.7 Existing Outfall

3+082.7 END OF PROPOSED OUTLET PIPE

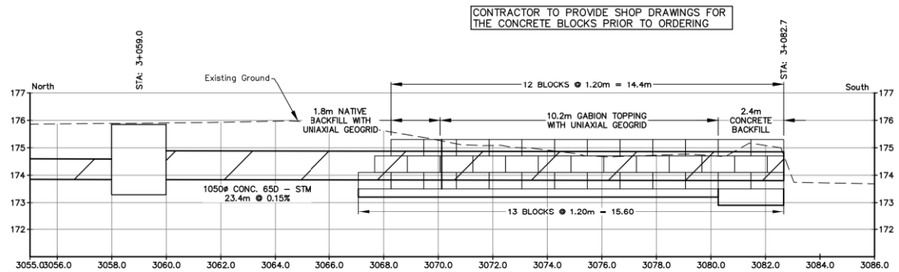
3+085.5 PROPOSED OUTFALL PROTECTION STRUCTURE



PROFILE - OUTLET PORTION

Scale = 1:300(H), 1:50(V)

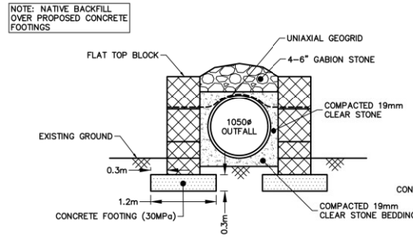
CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR THE CONCRETE BLOCKS PRIOR TO ORDERING



PROFILE - OUTLET DETAIL 'A'

Scale = 1:100

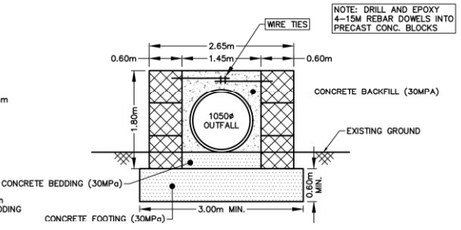
NOTE: NATIVE BACKFILL OVER PROPOSED CONCRETE FOOTINGS



OUTLET SECTION A-A

Scale = 1:50

NOTE: DRILL AND EPOXY 4-15M REBAR DOWELS INTO PRECAST CONC. BLOCKS



OUTLET SECTION B-B

Scale = 1:50

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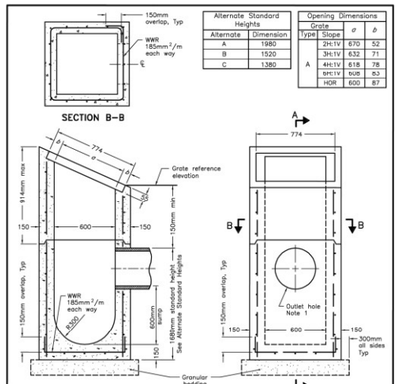
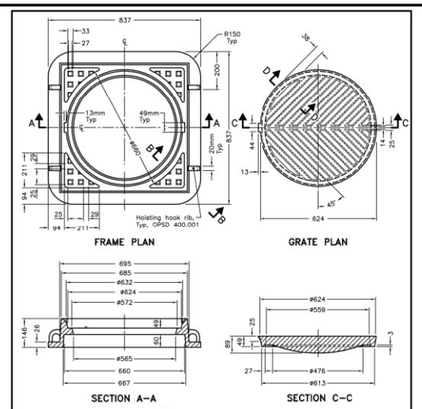
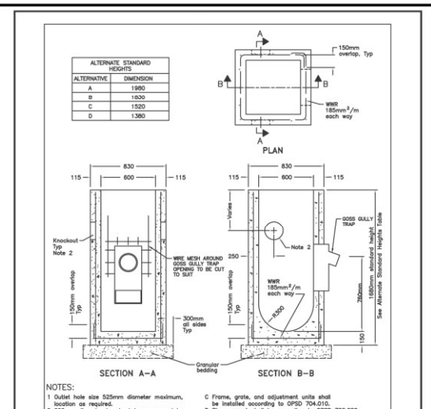
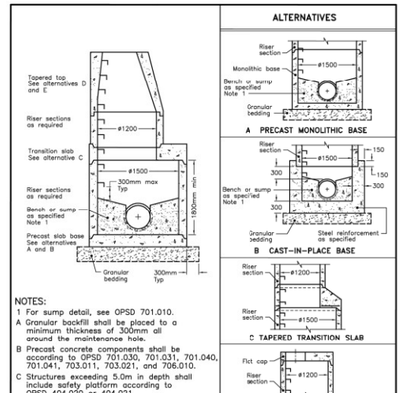
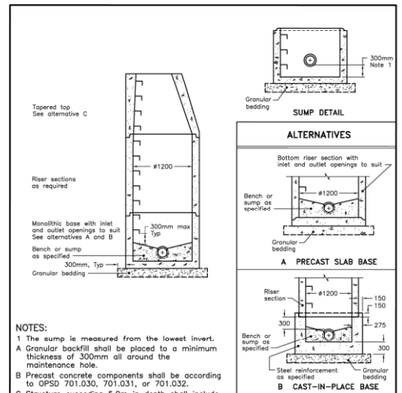
PROJECT No.:	SHEET No.:
D22-087	7 OF 9

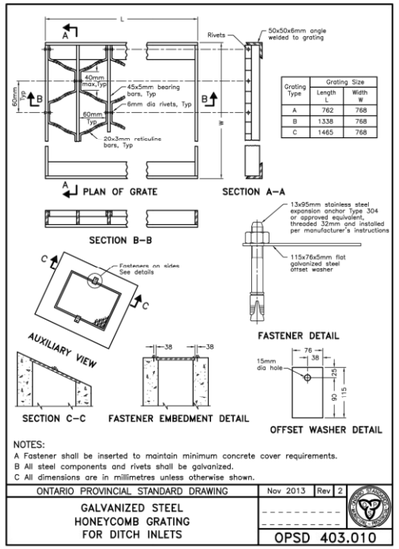


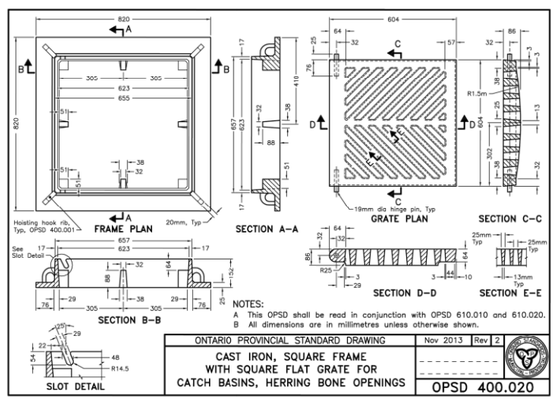


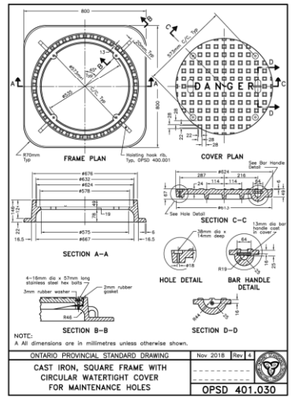


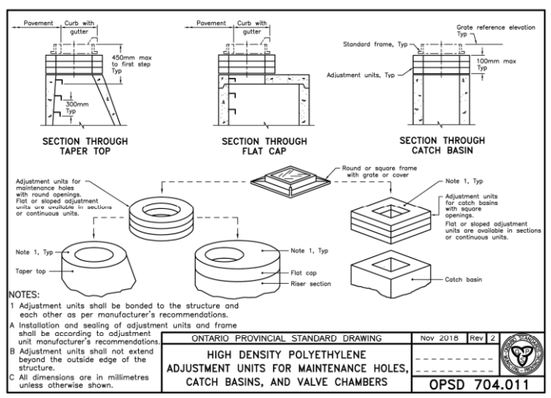


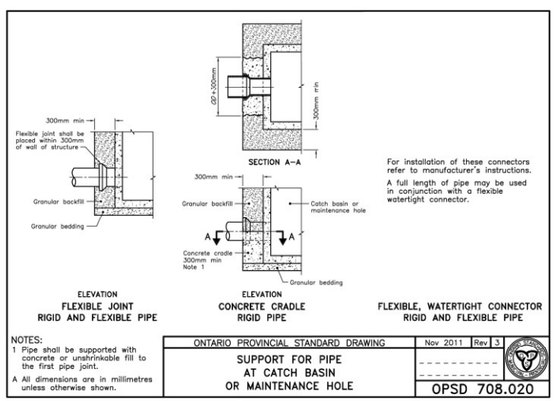


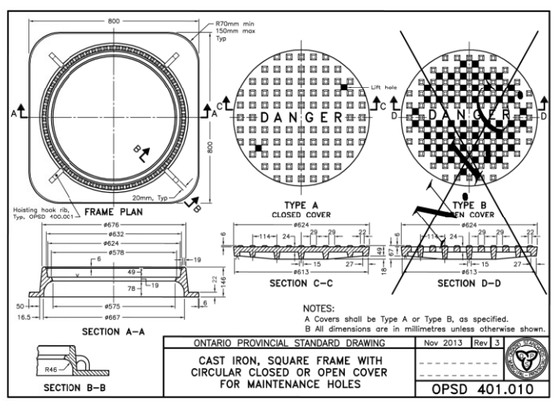


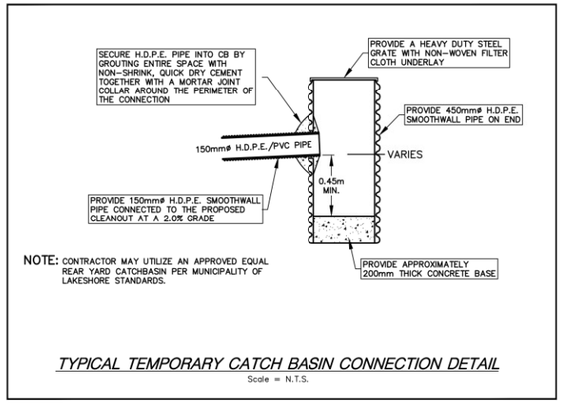












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PROJECT No.: D22-087
SHEET No.: 8 OF 9

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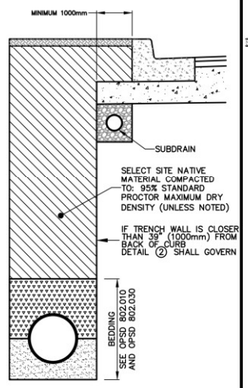
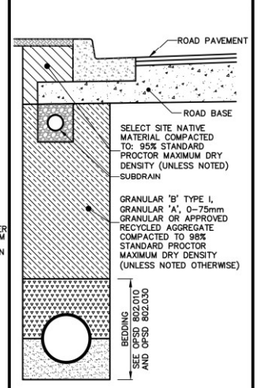
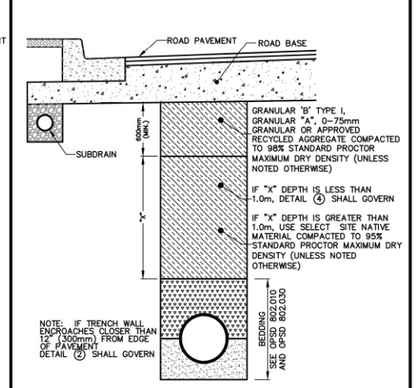


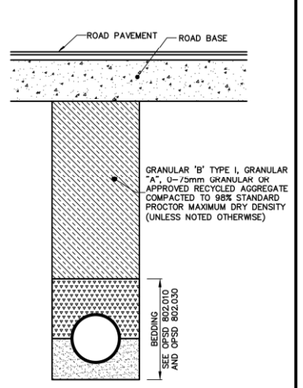
TRENCH IN BOULEVARD
DETAIL ①



TRENCH ALL OR PARTIALLY UNDER CURB
DETAIL ②



TRENCH ALONG ROAD
DETAIL ③

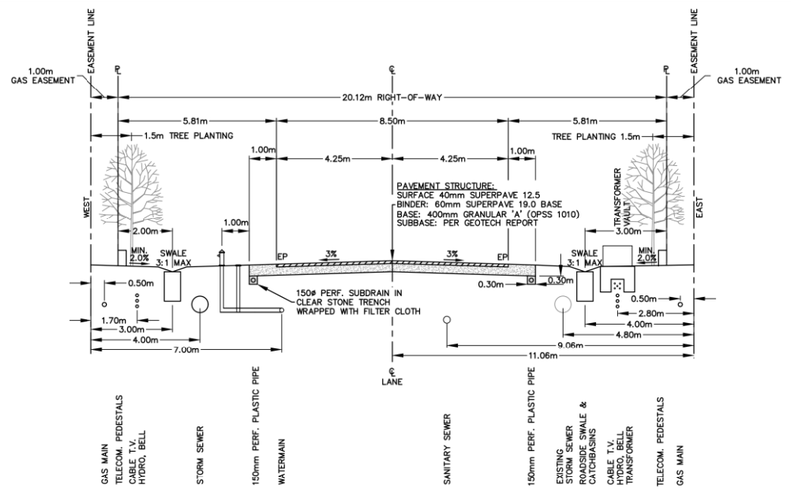


TRENCH CROSSING ROAD
DETAIL ④

NOTES:

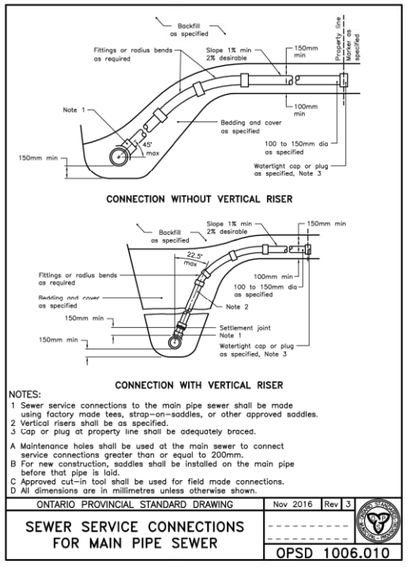
1. FOR SEWER AND PRIVATE SEWER CONNECTION CONSTRUCTION, ALL WORK TO BE IN ACCORDANCE WITH THE MUNICIPAL STANDARD SPECIFICATIONS.
2. FOR ALL CASES, IF TRENCH WALL IS CLOSER THAN 1000mm FROM THE BACK OF CURB (FUTURE OR EXISTING) OR EDGE OF PAVEMENT (FUTURE OR EXISTING), IN ANY DIRECTION, THEN DETAIL 2 SHALL GOVERN.
3. FOR DETAIL 4, WHERE TRENCH CROSSES PERPENDICULAR TO ROADWAY (±45°) AND CROSSES UNDERNEATH AN EXISTING CURB, DRIVEWAY, OR SIMILAR STRUCTURE, EXTEND GRANULAR BACKFILL TO 1.8m (MIN.) EITHER SIDE OF STRUCTURE.
4. THIS DETAIL ADDRESSES TRENCH BACKFILL ONLY. SURFACE RESTORATION SHALL BE OTHERWISE APPROVED BY THE PUBLIC WORKS SUPERINTENDENT.
5. SEE SOILS REPORT FOR ADDITIONAL DETAILS REGARDING NATIVE BACKFILL IN BOULEVARD

STANDARD TRENCH BACKFILL DETAILS



TYPICAL STREET CROSS SECTION
20.12m RIGHT-OF-WAY

1:100

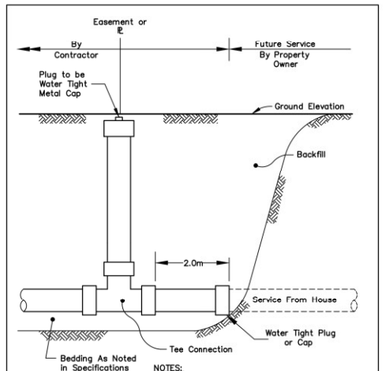


CONNECTION WITH VERTICAL RISER

NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees, strap-on-saddles, or other approved saddles.
2 Vertical risers shall be as specified.
3 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut-in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER		
	OPSD 1006.010	

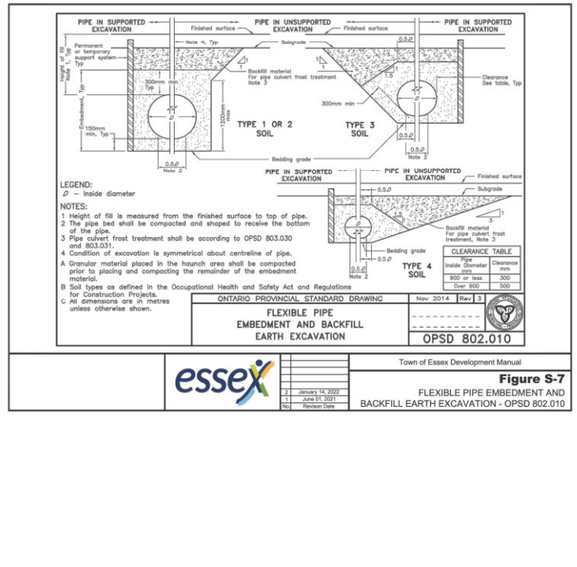


NOTES:

1. RISER & CONNECTION TO BE 125mmø PVC FOR SANITARY. RISER & CONNECTION TO BE 150mmø PVC FOR STORM.
2. PROVIDE 37mm x 89mm (2x4) MARKER POST PAINTED PINK FOR SANITARY AND GREEN FOR STORM.

TYPICAL SERVICE CLEAN-OUT

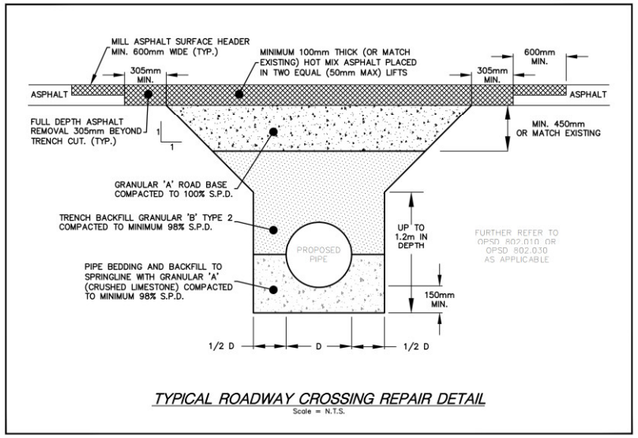
NOT TO SCALE



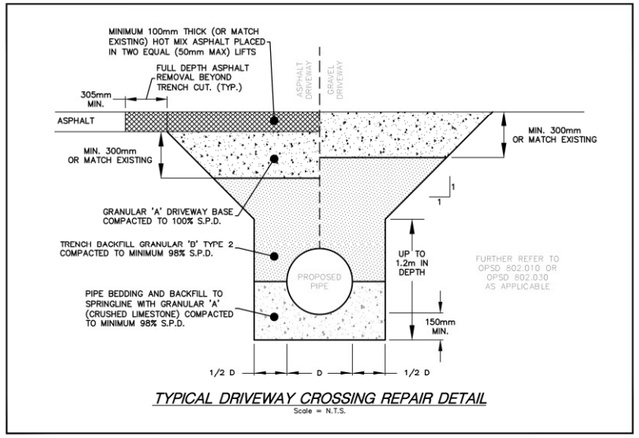
Town of Essex Development Manual

Figure S-7
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION - OPSD 802.010

No.	Revision Date
2	January 14, 2022
1	June 01, 2021



TYPICAL ROADWAY CROSSING REPAIR DETAIL
Scale = N.T.S.



TYPICAL DRIVEWAY CROSSING REPAIR DETAIL
Scale = N.T.S.

PROJECT NOTES:

GENERAL NOTES:

1. THE ACCURACY OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED BY THE OWNER OR N.J. PERALTA ENGINEERING LTD. OTHER UTILITIES MAY BE PRESENT OR THE UTILITIES SHOWN MAY DIFFER IN SIZE OR LOCATION SHOWN. CONTRACTOR SHALL LOCATE AND VERIFY DEPTHS OF ALL UTILITIES PRIOR TO CONSTRUCTION AND ADVISE THE ENGINEER OF ANY CONFLICTS. SUPPORT UTILITIES WHEN ENCOUNTERED.
2. ALL PLAN DIMENSIONS AND ELEVATIONS SHOWN IN METRES UNLESS OTHERWISE NOTED. DIMENSIONS DENOTE HORIZONTAL DISTANCE ALONG GROUND UNLESS OTHERWISE NOTED.
3. ALL PIPE DIAMETERS SHOWN IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. PROPERTY LINES SHOWN ARE APPROXIMATE AND BASED ON TOWN OF ESSEX (COUNTY OF ESSEX) GIS INFORMATION AND LIMITED PROPERTY MARKERS FOUND DURING TOPOGRAPHIC SURVEY. PROPERTY LINES SHOWN ARE FOR GENERAL REFERENCE ONLY ARE SHALL NOT BE USED TO ESTABLISH OR CONFIRM PROPERTY BOUNDARIES. STATION LABELS FOR PROPERTY LINES ARE APPROXIMATE.
5. CONTRACTOR SHALL LAY OUT NEW WORK BASED ON LOCATIONS OF EXISTING STRUCTURES AND MAY ADJUST THE LOCATION OF PROPOSED WORK TO SUIT EXISTING CONDITIONS DURING CONSTRUCTION WITH APPROVAL BY THE ENGINEER AND/OR THE TOWN DRAINAGE SUPERINTENDENT.

DRAIN NOTES:

6. ALL NEW DRAIN PIPE TO BE TO BE BOSS 2000 PIPE (320 kPa) WITH WATER–TIGHT ULTRA SLAB JOINING SYSTEM (BELL AND GASKET) BY ARMTEC, OR APPROVED EQUAL DUAL–WALL SMOOTHWALL INSIDE CORRUGATED OUTSIDE HDPE PIPE WITH 320 kPa STIFFNESS AND BELL AND GASKET WATERTIGHT JOINTS. MINIMUM 300mm COVER, UNLESS OTHERWISE NOTED.
7. BACKFILL OF NEW DRAIN ENCLOSURES SHALL BE PER TYPICAL BACKFILL DETAIL, OR GEOTECHNICAL REPORT.
8. DRAINS CROSSING ABOVE WATERMAINS SHALL HAVE PIPE SECTIONS CENTRED OVER THE WATERMAIN. MINIMUM CLEAR VERTICAL OF 0.50m UNLESS STATED OTHERWISE OR APPROVED BY THE ENGINEER OR TOWN.
9. PROPOSED SWALE ALIGNMENTS SHALL BE POSITIONED AS NOTED ON SHEETS 2 THROUGH 5.

RESTORATION NOTES:

10. PLACE MINIMUM 4" (100mm) THICK TOPSOIL ON NEW CUT DITCH AND SWALE BANKS, AND ALL DISTURBED AREAS. HYDRA–SEED TO GRASS PER OPSS 804.
11. PROVIDE TEMPORARY SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH OPSS 805. SEE OPSD 219.130 AND OPSD 219.180.
12. CONTRACTOR SHALL PROTECT ALL PRIVATE FEATURES (SUCH AS FENCES, SPRINKLERS, FLOWER BEDS, ETC.) IN THE EVENT THAT A PRIVATE FEATURE IS IN THE ALIGNMENT OF THE NEW COVERED DRAINAGE SYSTEM, THE CONTRACTOR SHALL CAREFULLY REMOVE AND RE–INSTALL THE PRIVATE FEATURE TO ITS ORIGINAL STATE, UNLESS OTHERWISE NOTED.

Peralta Engineering
N.J. Peralta Engineering Ltd.
Consulting Engineers
45 Division Street North
Kingsville, ON
N9Y 1E1 Canada
P: 519-733-6587
F: 519-733-6588
peraltaengineering.com

ENGINEER'S SEAL:

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2026-02-20
PROVINCE OF ONTARIO

February 20, 2026

DESIGNED BY:	DRAWN BY:	CHECKED BY:
B.N.D.	C.M.S.	A.B.P.

PROJECT No.: D22-087
SHEET No.: 9 OF 9

THESE DRAWINGS HAVE BEEN REDUCED IN SIZE AND THE SCALE THEREFORE VARIES. FULL SCALE DRAWINGS CAN BE VIEWED AT THE MUNICIPAL OFFICES IF REQUIRED.

Original Sheet Size: ARCH E Full Bleed D (24.00 X 36.00 Inches) 1:1 0 20mm 40mm 60mm 80mm 100mm

Z:\PROJECTS\ENGINEERING\2022\E2409\CADD\DWG\Sheets\Drainage Set\E2409 DrainagePlanAndProf.dwg, Last Saved: 2026/02/20

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APPENDIX “D”

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APPENDIX D-1

Maintenance Schedule of Assessment

Wellesley Drive (Station 1+002.6 to Station 1+406.0)

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MAINTENANCE SCHEDULE OF ASSESSMENT
Argyle Beach Drainage System - Wellesley Drive (Station 1+002.6 and Station 1+406.0)

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
		Wellesley Drive			2.00	0.809	Town of Essex	$ 1,356.00	$ 575.00	$ 1,931.00
		County Road 50			0.45	0.182	County of Essex	$ -	$ 75.00	$ 75.00
		Total on Municipal Lands.....						**$ 1,356.00**	**$ 650.00**	**$ 2,006.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
2-1	660-08301 - Lot 1	Plan 1382	Pt. Lot 38	0.28	0.28	0.113	Castle Gate Towers Inc.	$ 48.00	$ 79.00	$ 127.00
2-2	660-08301 - Lot 2	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-3	660-08301 - Lot 3	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-4	660-08301 - Lot 4	Plan 1382	Lot 37	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-5	660-08301 - Lot 5	Plan 1382	Lot 36	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-6	660-08301 - Lot 6	Plan 1382	Lot 35	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-7	660-08301 - Lot 7	Plan 1382	Lot 34	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-8	660-08301 - Lot 8	Plan 1382	Lot 33	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-9	660-08301 - Lot 9	Plan 1382	Lot 32	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-10	660-08301 - Lot 10	Plan 1382	Lot 31	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-11	660-08301 - Lot 11	Plan 1382	Lot 30	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-12	660-08301 - Lot 12	Plan 1382	Lot 29	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-13	660-08301 - Lot 13	Plan 1382	Lot 28	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-14	660-08301 - Lot 14	Plan 1382	Lot 27	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-15	660-08301 - Lot 15	Plan 1382	Lot 26	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-16	660-08301 - Lot 16	Plan 1382	Lot 25	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-17	660-08301 - Lot 17	Plan 1382	Lot 24	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-18	660-08301 - Lot 18	Plan 1382	Lot 23	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
2-19	660-08301 - Lot 19	Plan 1382	Lot 22	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 26.00	$ 42.00	$ 68.00
3	660-08405	Plan 1382	Lots 20 & 21	0.29	0.29	0.117	Abraham DeJonge	$ 49.00	$ 82.00	$ 131.00
4-23	660-08500 - Lot 23	Plan 1382	Pt. Lot 39	0.40	0.40	0.162	Castle Gate Towers Inc.	$ 68.00	$ 113.00	$ 181.00
4-24	660-08500 - Lot 24	Plan 1382	Pt. Lot 39	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-25	660-08500 - Lot 25	Plan 1382	Lot 40	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-26	660-08500 - Lot 26	Plan 1382	Lot 41	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued*

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
4-27	660-08500 - Lot 27	Plan 1382	Lot 42	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-28	660-08500 - Lot 28	Plan 1382	Lot 43	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-29	660-08500 - Lot 29	Plan 1382	Lot 44	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-30	660-08500 - Lot 30	Plan 1382	Lot 45	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-31	660-08500 - Lot 31	Plan 1382	Lot 46	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-32	660-08500 - Lot 32	Plan 1382	Lot 47	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-33	660-08500 - Lot 33	Plan 1382	Lot 48	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-34	660-08500 - Lot 34	Plan 1382	Lot 49	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-35	660-08500 - Lot 35	Plan 1382	Lot 50	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-36	660-08500 - Lot 36	Plan 1382	Lot 51	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-37	660-08500 - Lot 37	Plan 1382	Lot 52	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-38	660-08500 - Lot 38	Plan 1382	Lot 53	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-39	660-08500 - Lot 39	Plan 1382	Lot 54	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-40	660-08500 - Lot 40	Plan 1382	Lot 55	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-41	660-08500 - Lot 41	Plan 1382	Lot 56	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
4-42	660-08500 - Lot 42	Plan 1382	Lot 57	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 24.00	$ 39.00	$ 63.00
25	660-09200	Plan 1382	Lot 58	0.14	0.14	0.058	Matthew Harris	$ 25.00	$ 30.00	$ 55.00
26	660-09300	Plan 1382	Pt. Lot 16 & Lot 19	0.17	0.17	0.070	Abraham DeJonge	$ 30.00	$ 49.00	$ 79.00
	Total on Privately Owned - Non-Agricultural Lands.....							**$ 1,144.00**	**$ 1,850.00**	**$ 2,994.00**
	TOTAL ASSESSMENT				**9.10**	**3.681**		**$ 2,500.00**	**$ 2,500.00**	**$ 5,000.00**

1 Hectare = 2.471 Acres

APPENDIX D-2

Maintenance Schedule of Assessment

Cumberland Way (Station 2+041.3 to Station 2+220.5

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MAINTENANCE SCHEDULE OF ASSESSMENT
Argyle Beach Drainage System - Cumberland Way (Station 2+041.3 and Station 2+220.5)

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
		Wellesley Drive			2.00	0.809	Town of Essex	$ -	$ 670.00	$ 670.00
		Cumberland Way			0.60	0.243	Town of Essex	$ 445.00	$ 173.00	$ 618.00
		County Road 50			0.45	0.182	County of Essex	$ -	$ 138.00	$ 138.00
		Total on Municipal Lands.....						**$ 445.00**	**$ 981.00**	**$ 1,426.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
2-1	660-08301 - Lot 1	Plan 1382	Pt. Lot 38	0.28	0.28	0.113	Castle Gate Towers Inc.	$ -	$ 94.00	$ 94.00
2-2	660-08301 - Lot 2	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-3	660-08301 - Lot 3	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-4	660-08301 - Lot 4	Plan 1382	Lot 37	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-5	660-08301 - Lot 5	Plan 1382	Lot 36	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-6	660-08301 - Lot 6	Plan 1382	Lot 35	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-7	660-08301 - Lot 7	Plan 1382	Lot 34	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-8	660-08301 - Lot 8	Plan 1382	Lot 33	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-9	660-08301 - Lot 9	Plan 1382	Lot 32	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-10	660-08301 - Lot 10	Plan 1382	Lot 31	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-11	660-08301 - Lot 11	Plan 1382	Lot 30	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-12	660-08301 - Lot 12	Plan 1382	Lot 29	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-13	660-08301 - Lot 13	Plan 1382	Lot 28	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-14	660-08301 - Lot 14	Plan 1382	Lot 27	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-15	660-08301 - Lot 15	Plan 1382	Lot 26	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-16	660-08301 - Lot 16	Plan 1382	Lot 25	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-17	660-08301 - Lot 17	Plan 1382	Lot 24	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-18	660-08301 - Lot 18	Plan 1382	Lot 23	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
2-19	660-08301 - Lot 19	Plan 1382	Lot 22	0.15	0.15	0.061	Castle Gate Towers Inc.	$ -	$ 50.00	$ 50.00
3	660-08405	Plan 1382	Lots 20 & 21	0.29	0.29	0.117	Abraham DeJonge	$ -	$ 97.00	$ 97.00
4-23	660-08500 - Lot 23	Plan 1382	Pt. Lot 39	0.40	0.40	0.162	Castle Gate Towers Inc.	$ -	$ 134.00	$ 134.00
4-24	660-08500 - Lot 24	Plan 1382	Pt. Lot 39	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-25	660-08500 - Lot 25	Plan 1382	Lot 40	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued*

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
4-26	660-08500 - Lot 26	Plan 1382	Lot 41	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-27	660-08500 - Lot 27	Plan 1382	Lot 42	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-28	660-08500 - Lot 28	Plan 1382	Lot 43	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-29	660-08500 - Lot 29	Plan 1382	Lot 44	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-30	660-08500 - Lot 30	Plan 1382	Lot 45	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-31	660-08500 - Lot 31	Plan 1382	Lot 46	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-32	660-08500 - Lot 32	Plan 1382	Lot 47	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-33	660-08500 - Lot 33	Plan 1382	Lot 48	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-34	660-08500 - Lot 34	Plan 1382	Lot 49	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-35	660-08500 - Lot 35	Plan 1382	Lot 50	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-36	660-08500 - Lot 36	Plan 1382	Lot 51	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-37	660-08500 - Lot 37	Plan 1382	Lot 52	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-38	660-08500 - Lot 38	Plan 1382	Lot 53	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-39	660-08500 - Lot 39	Plan 1382	Lot 54	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-40	660-08500 - Lot 40	Plan 1382	Lot 55	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-41	660-08500 - Lot 41	Plan 1382	Lot 56	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
4-42	660-08500 - Lot 42	Plan 1382	Lot 57	0.14	0.14	0.057	Castle Gate Towers Inc.	$ -	$ 47.00	$ 47.00
22	660-09000	Plan 1382	Pt. Lots 62, 63, & 64	0.19	0.19	0.075	Dennis Masse and Elizabeth Wilson	$ 35.00	$ 52.00	$ 87.00
23	660-09100	Plan 1382	Pt. Lot 60 & Lot 61	0.20	0.20	0.081	Paula & William White	$ 37.00	$ 54.00	$ 91.00
24	660-09150	Plan 1382	Lot 59 & Pt. Lot 60	0.27	0.27	0.111	Tina Caza and Paul Laking	$ 51.00	$ 61.00	$ 112.00
25	660-09200	Plan 1382	Lot 58	0.14	0.14	0.058	Matthew Harris	$ -	$ 35.00	$ 35.00
26	660-09300	Plan 1382	Pt. Lot 16 & Lot 19	0.17	0.17	0.070	Abraham DeJonge	$ -	$ 58.00	$ 58.00
27	660-09301	Plan 1382	Pt. Lots 17 & 18	0.21	0.21	0.086	Daniel & Barbara DeJonge	$ 39.00	$ 54.00	$ 93.00
28	660-09305	Plan 1382	Pt. Lots 16 & 17	0.24	0.24	0.096	Brian Strachan and Denise Talbot	$ 44.00	$ 49.00	$ 93.00
29	660-09400	Plan 1382	Pt. Lot 14 & Lot 15	0.25	0.15	0.061	Phyllis Vigh	$ 28.00	$ 33.00	$ 61.00
30	660-09500	Plan 1382	Pt. Lots 13 & 14	0.29	0.16	0.065	Richard & Jennifer Bortolon	$ 30.00	$ 57.00	$ 87.00
31	660-09510	Plan 1382	Pt. Lot 11 & Lot 12	0.30	0.16	0.065	Robert & Carol Petroni	$ 30.00	$ 57.00	$ 87.00
32	660-09600	Plan 1382	Lots 9 & 10	0.68	0.35	0.142	James & Susan Steer	$ 65.00	$ 69.00	$ 134.00
33	660-09700	Plan 1382	Pt. Lots 7 & 8	0.25	0.15	0.061	Sheri Miesmer and Michael Akpata	$ 28.00	$ 46.00	$ 74.00
34	660-09800	Plan 1382	Pt. Lots 6 & 7	0.26	0.15	0.061	Dellburn & Renee White	$ 28.00	$ 46.00	$ 74.00
35	660-09810	Plan 1382	Pt. Lots 5 & 6	0.27	0.15	0.061	Duyen Pham and David Cheslea	$ 28.00	$ 46.00	$ 74.00
36	660-09820	Plan 1382	Pt. Lots 4 & 5	0.27	0.15	0.061	Grant Lavery and Margaret McCrorie	$ 28.00	$ 46.00	$ 74.00
37	660-09850	Plan 1382	Pt. Lots 3 & 4	0.27	0.15	0.061	Marc-Antoine Senecal	$ 28.00	$ 46.00	$ 74.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: ***Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
38	660-09899	Plan 1382	Lot 2 & Pt. Lot 3	0.22	0.15	0.061	Mitchen Gellman and Amanda Pulliam-Gellman	$ 28.00	$ 46.00	$ 74.00
39	660-09900	Plan 1382	Lot 1	0.19	0.15	0.061	Mark St Louis	$ 28.00	$ 46.00	$ 74.00
		Total on Privately Owned - Non-Agricultural Lands.....						**$ 555.00**	**$ 3,019.00**	**$ 3,574.00**
	TOTAL ASSESSMENT				**12.67**	**5.129**		**$ 1,000.00**	**$ 4,000.00**	**$ 5,000.00**

1 Hectare = 2.471 Acres

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APPENDIX D-3

Maintenance Schedule of Assessment

Gloucester Drive (Station 0+021.4 to Station 0+410.6)

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MAINTENANCE SCHEDULE OF ASSESSMENT
Argyle Beach Drainage System - Gloucester Drive (Station 0+021.4 and Station 0+410.6)

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
		Gloucester Drive			2.00	0.809	Town of Essex	$ 1,277.00	$ 610.00	$ 1,887.00
		County Road 50			0.45	0.182	County of Essex	$ -	$ 53.00	$ 53.00
		Total on Municipal Lands.....						**$ 1,277.00**	**$ 663.00**	**$ 1,940.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
5	660-08600	Plan 1382	Pt. Lot 84	0.36	0.36	0.147	Colin Zakoor	$ 58.00	$ 85.00	$ 143.00
6	660-08610	Plan 1382	Pt. Lots 83 & 84	0.21	0.21	0.087	John Gignac	$ 34.00	$ 59.00	$ 93.00
7	660-08700	Plan 1382	Pt. Lots 77 to 81	0.73	0.73	0.296	Jason & Emily Stevenson	$ 117.00	$ 163.00	$ 280.00
8	660-08701	Plan 1382	Lot 75	0.14	0.14	0.058	Kevin Laporte and Jessica Jenner	$ 23.00	$ 38.00	$ 61.00
9	660-08702	Plan 1382	Pt. Lot 72 & 73	0.22	0.22	0.087	Thomas Platt and Elizabeth Ogilvy	$ 34.00	$ 52.00	$ 86.00
10	660-08703	Plan 1382	Lot 71 & Pt. Lot 72	0.22	0.22	0.087	Joseph Nardella	$ 34.00	$ 52.00	$ 86.00
11	660-08704	Plan 1382	Lot 70	0.14	0.14	0.058	Janet Neuts	$ 23.00	$ 38.00	$ 61.00
12	660-08705	Plan 1382	Lot 69	0.14	0.14	0.058	David Rousseau and Jocelyn Harris	$ 23.00	$ 38.00	$ 61.00
13	660-08707	Plan 1382	Pt. Lots 82 & 83	0.23	0.23	0.093	Daniel Jenner	$ 37.00	$ 57.00	$ 94.00
14	660-08740	Plan 1382	Lot 76	0.14	0.14	0.058	Nicholas Dumouchelle	$ 23.00	$ 38.00	$ 61.00
15	660-08750	Plan 1382	Lot 74	0.14	0.14	0.058	Joshua & Sydney Menard	$ 23.00	$ 38.00	$ 61.00
16	660-08800	Plan 1382	Lot 68	0.14	0.14	0.058	David & Shannon Rowe	$ 23.00	$ 38.00	$ 61.00
17	660-08801	Plan 1382	Lot 67	0.14	0.14	0.058	Villew Property Management Inc.	$ 23.00	$ 38.00	$ 61.00
18	660-08810	Plan 1382	Lot 66	0.14	0.14	0.058	Jason & Kimberly Standish	$ 23.00	$ 38.00	$ 61.00
19	660-08820	Plan 1382	Lot 65	0.14	0.14	0.058	Rhonda Van Poucke-Sinasac	$ 23.00	$ 38.00	$ 61.00
20	660-08830	Plan 1382	Pt. Lots 62, 63, & 64	0.14	0.14	0.058	Andrew DiPaolo	$ 23.00	$ 38.00	$ 61.00
21	660-08900	Plan 1382	Pt. Lots 62, 63, & 64	0.14	0.14	0.058	Lydia & John Stevens	$ 23.00	$ 38.00	$ 61.00
40	660-10000	Plan 1382	Pt. Lots 105 & 106	0.37	0.37	0.148	Michael & Sandra Pasick	$ 58.00	$ 82.00	$ 140.00
41	660-10002	Plan 1382	Pt. Lots 105 & 106	0.14	0.14	0.058	Jake Moroun and Bernadette Lafferty	$ 23.00	$ 38.00	$ 61.00
42	660-10003	Plan 1382	Lot 104	0.14	0.14	0.058	Joseph Rabie and Chelsae Schurman	$ 23.00	$ 38.00	$ 61.00
43	660-10004	Plan 1382	Lot 103	0.14	0.14	0.058	Lionel & Bonnie Richards	$ 23.00	$ 38.00	$ 61.00
44	660-10005	Plan 1382	Lot 102	0.14	0.14	0.058	Girard & Pauline Banks	$ 23.00	$ 38.00	$ 61.00
45	660-10006	Plan 1382	Pt. Lot 100 & Lot 101	0.22	0.22	0.087	David & Stuart Milling, Tersea Stone, and Maryjo DiGiovanni	$ 34.00	$ 52.00	$ 86.00
46	660-10008	Plan 1382	Lot 99 & Pt. Lot 100	0.22	0.22	0.087	Erin Allen	$ 34.00	$ 52.00	$ 86.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued*

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
47	660-10100	Plan 1382	Lot 98	0.14	0.14	0.058	Daniel DeJonge	$ 23.00	$ 38.00	$ 61.00
48	660-10101	Plan 1382	Lot 92 to 95	0.93	0.93	0.376	David & Marilyn Molnar	$ 148.00	$ 140.00	$ 288.00
49	660-10103	Plan 1382	Lots 90 & 91	0.29	0.29	0.116	William & Elizabeth Surgent	$ 46.00	$ 66.00	$ 112.00
50	660-10110	Plan 1382	Lot 97	0.14	0.14	0.058	Tyler Cosgrove	$ 23.00	$ 38.00	$ 61.00
51	660-10120	Plan 1382	Lot 96	0.14	0.14	0.058	Amanda Sauve and Gerry Ladouceur	$ 23.00	$ 38.00	$ 61.00
52	660-10140	Plan 1382	Lot 89	0.14	0.14	0.058	Ryan and Lacy Hewitt	$ 23.00	$ 38.00	$ 61.00
53	660-10145	Plan 1382	Lot 88	0.14	0.14	0.058	James Watters and Chantelle Bonsant	$ 23.00	$ 38.00	$ 61.00
54	660-10150	Plan 1382	Lot 87	0.14	0.14	0.058	Dale Quinlan and Rachel Hughes	$ 23.00	$ 38.00	$ 61.00
55	660-10160	Plan 1382	Lots 86	0.14	0.14	0.058	Manual & Fe Arnaldo	$ 23.00	$ 38.00	$ 61.00
56	660-10200	Plan 1382	Pt. Lot 85	0.36	0.36	0.147	Paul DesChamps	$ 58.00	$ 80.00	$ 138.00
57	660-10202	Plan 1382	Pt. Lot 85	0.16	0.16	0.064	Mohamad Mohammad and Manon Espinal	$ 25.00	$ 61.00	$ 86.00
		Total on Privately Owned - Non-Agricultural Lands						**$ 1,223.00**	**$ 1,837.00**	**$ 3,060.00**
	TOTAL ASSESSMENT				**10.11**	**4.092**		**$ 2,500.00**	**$ 2,500.00**	**$ 5,000.00**

1 Hectare = 2.471 Acres

APPENDIX D-4

Maintenance Schedule of Assessment

Outlet Portion (Stations 2+011.6 – 2+041.3 and Stations 3+002.0 – 3+082.7)

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MAINTENANCE SCHEDULE OF ASSESSMENT

Argyle Beach Drainage System - Outlet Portion (Stations 2+011.6 – 2+041.3 and 3+002.0 – 3+082.7)

3. MUNICIPAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
		Wellesley Drive			2.00	0.809	Town of Essex	$ 355.00	$ 653.00	$ 1,008.00
		Gloucester Drive			2.00	0.809	Town of Essex	$ 355.00	$ 544.00	$ 899.00
		Cumberland Way			0.60	0.243	Town of Essex	$ 106.00	$ 163.00	$ 269.00
		County Road 50			0.45	0.182	County of Essex	$ -	$ 132.00	$ 132.00
		Total on Municipal Lands.....						**$ 816.00**	**$ 1,492.00**	**$ 2,308.00**

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS:

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
1	660-07501	Plan 1382	Pt. Blk A	0.22	0.11	0.044	Mark St Louis	$ 19.00	$ 12.00	$ 31.00
2-1	660-08301 - Lot 1	Plan 1382	Pt. Lot 38	0.28	0.28	0.113	Castle Gate Towers Inc.	$ 50.00	$ 91.00	$ 141.00
2-2	660-08301 - Lot 2	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-3	660-08301 - Lot 3	Plan 1382	Pt. Lot 38	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-4	660-08301 - Lot 4	Plan 1382	Lot 37	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-5	660-08301 - Lot 5	Plan 1382	Lot 36	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-6	660-08301 - Lot 6	Plan 1382	Lot 35	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-7	660-08301 - Lot 7	Plan 1382	Lot 34	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-8	660-08301 - Lot 8	Plan 1382	Lot 33	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-9	660-08301 - Lot 9	Plan 1382	Lot 32	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-10	660-08301 - Lot 10	Plan 1382	Lot 31	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-11	660-08301 - Lot 11	Plan 1382	Lot 30	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-12	660-08301 - Lot 12	Plan 1382	Lot 29	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-13	660-08301 - Lot 13	Plan 1382	Lot 28	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-14	660-08301 - Lot 14	Plan 1382	Lot 27	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-15	660-08301 - Lot 15	Plan 1382	Lot 26	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-16	660-08301 - Lot 16	Plan 1382	Lot 25	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-17	660-08301 - Lot 17	Plan 1382	Lot 24	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-18	660-08301 - Lot 18	Plan 1382	Lot 23	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00
2-19	660-08301 - Lot 19	Plan 1382	Lot 22	0.15	0.15	0.061	Castle Gate Towers Inc.	$ 27.00	$ 49.00	$ 76.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: ***Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
3	660-08405	Plan 1382	Lots 20 & 21	0.29	0.29	0.117	Abraham DeJonge	$ 51.00	$ 94.00	$ 145.00
4-23	660-08500 - Lot 23	Plan 1382	Pt. Lot 39	0.40	0.40	0.162	Castle Gate Towers Inc.	$ 71.00	$ 131.00	$ 202.00
4-24	660-08500 - Lot 24	Plan 1382	Pt. Lot 39	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-25	660-08500 - Lot 25	Plan 1382	Lot 40	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-26	660-08500 - Lot 26	Plan 1382	Lot 41	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-27	660-08500 - Lot 27	Plan 1382	Lot 42	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-28	660-08500 - Lot 28	Plan 1382	Lot 43	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-29	660-08500 - Lot 29	Plan 1382	Lot 44	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-30	660-08500 - Lot 30	Plan 1382	Lot 45	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-31	660-08500 - Lot 31	Plan 1382	Lot 46	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-32	660-08500 - Lot 32	Plan 1382	Lot 47	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-33	660-08500 - Lot 33	Plan 1382	Lot 48	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-34	660-08500 - Lot 34	Plan 1382	Lot 49	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-35	660-08500 - Lot 35	Plan 1382	Lot 50	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-36	660-08500 - Lot 36	Plan 1382	Lot 51	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-37	660-08500 - Lot 37	Plan 1382	Lot 52	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-38	660-08500 - Lot 38	Plan 1382	Lot 53	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-39	660-08500 - Lot 39	Plan 1382	Lot 54	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-40	660-08500 - Lot 40	Plan 1382	Lot 55	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-41	660-08500 - Lot 41	Plan 1382	Lot 56	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
4-42	660-08500 - Lot 42	Plan 1382	Lot 57	0.14	0.14	0.057	Castle Gate Towers Inc.	$ 25.00	$ 46.00	$ 71.00
5	660-08600	Plan 1382	Pt. Lot 84	0.36	0.36	0.147	Colin Zakoor	$ 65.00	$ 76.00	$ 141.00
6	660-08610	Plan 1382	Pt. Lots 83 & 84	0.21	0.21	0.087	John Gignac	$ 38.00	$ 53.00	$ 91.00
7	660-08700	Plan 1382	Pt. Lots 77 to 81	0.73	0.73	0.296	Jason & Emily Stevenson	$ 130.00	$ 146.00	$ 276.00
8	660-08701	Plan 1382	Lot 75	0.14	0.14	0.058	Kevin Laporte and Jessica Jenner	$ 25.00	$ 34.00	$ 59.00
9	660-08702	Plan 1382	Pt. Lot 72 & 73	0.22	0.22	0.087	Thomas Platt and Elizabeth Ogilvy	$ 38.00	$ 47.00	$ 85.00
10	660-08703	Plan 1382	Lot 71 & Pt. Lot 72	0.22	0.22	0.087	Joseph Nardella	$ 38.00	$ 47.00	$ 85.00
11	660-08704	Plan 1382	Lot 70	0.14	0.14	0.058	Janet Neuts	$ 25.00	$ 34.00	$ 59.00
12	660-08705	Plan 1382	Lot 69	0.14	0.14	0.058	David Rousseau and Jocelyn Harris	$ 25.00	$ 34.00	$ 59.00
13	660-08707	Plan 1382	Pt. Lots 82 & 83	0.23	0.23	0.093	Daniel Jenner	$ 41.00	$ 51.00	$ 92.00
14	660-08740	Plan 1382	Lot 76	0.14	0.14	0.058	Nicholas Dumouchelle	$ 25.00	$ 34.00	$ 59.00
15	660-08750	Plan 1382	Lot 74	0.14	0.14	0.058	Joshua & Sydney Menard	$ 25.00	$ 34.00	$ 59.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: ***Continued***

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
16	660-08800	Plan 1382	Lot 68	0.14	0.14	0.058	David & Shannon Rowe	$ 25.00	$ 34.00	$ 59.00
17	660-08801	Plan 1382	Lot 67	0.14	0.14	0.058	Villew Property Management Inc.	$ 25.00	$ 34.00	$ 59.00
18	660-08810	Plan 1382	Lot 66	0.14	0.14	0.058	Jason & Kimberly Standish	$ 25.00	$ 34.00	$ 59.00
19	660-08820	Plan 1382	Lot 65	0.14	0.14	0.058	Rhonda Van Poucke-Sinasac	$ 25.00	$ 34.00	$ 59.00
20	660-08830	Plan 1382	Pt. Lots 62, 63, & 64	0.14	0.14	0.058	Andrew DiPaolo	$ 25.00	$ 34.00	$ 59.00
21	660-08900	Plan 1382	Pt. Lots 62, 63, & 64	0.14	0.14	0.058	Lydia & John Stevens	$ 25.00	$ 34.00	$ 59.00
22	660-09000	Plan 1382	Pt. Lots 62, 63, & 64	0.19	0.19	0.075	Dennis Masse and Elizabeth Wilson	$ 33.00	$ 51.00	$ 84.00
23	660-09100	Plan 1382	Pt. Lot 60 & Lot 61	0.20	0.20	0.081	Paula & William White	$ 35.00	$ 52.00	$ 87.00
24	660-09150	Plan 1382	Lot 59 & Pt. Lot 60	0.27	0.27	0.111	Tina Caza and Paul Laking	$ 49.00	$ 59.00	$ 108.00
25	660-09200	Plan 1382	Lot 58	0.14	0.14	0.058	Matthew Harris	$ 25.00	$ 34.00	$ 59.00
26	660-09300	Plan 1382	Pt. Lot 16 & Lot 19	0.17	0.17	0.070	Abraham DeJonge	$ 31.00	$ 57.00	$ 88.00
27	660-09301	Plan 1382	Pt. Lots 17 & 18	0.21	0.21	0.086	Daniel & Barbara DeJonge	$ 38.00	$ 52.00	$ 90.00
28	660-09305	Plan 1382	Pt. Lots 16 & 17	0.24	0.24	0.096	Brian Strachan and Denise Talbot	$ 42.00	$ 48.00	$ 90.00
29	660-09400	Plan 1382	Pt. Lot 14 & Lot 15	0.25	0.15	0.061	Phyllis Vigh	$ 27.00	$ 32.00	$ 59.00
30	660-09500	Plan 1382	Pt. Lots 13 & 14	0.29	0.16	0.065	Richard & Jennifer Bortolon	$ 28.00	$ 55.00	$ 83.00
31	660-09510	Plan 1382	Pt. Lot 11 & Lot 12	0.30	0.16	0.065	Robert & Carol Petroni	$ 28.00	$ 55.00	$ 83.00
32	660-09600	Plan 1382	Lots 9 & 10	0.68	0.35	0.142	James & Susan Steer	$ 62.00	$ 67.00	$ 129.00
33	660-09700	Plan 1382	Pt. Lots 7 & 8	0.25	0.15	0.061	Sheri Miesmer and Michael Akpata	$ 27.00	$ 45.00	$ 72.00
34	660-09800	Plan 1382	Pt. Lots 6 & 7	0.26	0.15	0.061	Dellburn & Renee White	$ 27.00	$ 45.00	$ 72.00
35	660-09810	Plan 1382	Pt. Lots 5 & 6	0.27	0.15	0.061	Duyen Pham and David Cheslea	$ 27.00	$ 45.00	$ 72.00
36	660-09820	Plan 1382	Pt. Lots 4 & 5	0.27	0.15	0.061	Grant Lavery and Margaret McCrorie	$ 27.00	$ 45.00	$ 72.00
37	660-09850	Plan 1382	Pt. Lots 3 & 4	0.27	0.15	0.061	Marc-Antoine Senecal	$ 27.00	$ 45.00	$ 72.00
38	660-09899	Plan 1382	Lot 2 & Pt. Lot 3	0.22	0.15	0.061	Mitchen Gellman and Amanda Pulliam-Gellman	$ 27.00	$ 45.00	$ 72.00
39	660-09900	Plan 1382	Lot 1	0.19	0.15	0.061	Mark St Louis	$ 27.00	$ 45.00	$ 72.00
40	660-10000	Plan 1382	Pt. Lots 105 & 106	0.37	0.37	0.148	Michael & Sandra Pasick	$ 65.00	$ 73.00	$ 138.00
41	660-10002	Plan 1382	Pt. Lots 105 & 106	0.14	0.14	0.058	Jake Moroun and Bernadette Lafferty	$ 25.00	$ 34.00	$ 59.00
42	660-10003	Plan 1382	Lot 104	0.14	0.14	0.058	Joseph Rabie and Chelsae Schurman	$ 25.00	$ 34.00	$ 59.00
43	660-10004	Plan 1382	Lot 103	0.14	0.14	0.058	Lionel & Bonnie Richards	$ 25.00	$ 34.00	$ 59.00
44	660-10005	Plan 1382	Lot 102	0.14	0.14	0.058	Girard & Pauline Banks	$ 25.00	$ 34.00	$ 59.00
45	660-10006	Plan 1382	Pt. Lot 100 & Lot 101	0.22	0.22	0.087	David & Stuart Milling, Tersea Stone, and Maryjo DiGiovanni	$ 38.00	$ 47.00	$ 85.00
46	660-10008	Plan 1382	Lot 99 & Pt. Lot 100	0.22	0.22	0.087	Erin Allen	$ 38.00	$ 47.00	$ 85.00
47	660-10100	Plan 1382	Lot 98	0.14	0.14	0.058	Daniel DeJonge	$ 25.00	$ 34.00	$ 59.00

4. PRIVATELY OWNED - NON-AGRICULTURAL LANDS: *Continued*

Parcel ID Number	Tax Roll Number	Con. or Plan Number	Lot or Part of Lot	Acres Owned	Acres Affected	Hectares Affected	Owner's Name	Value of Benefit	Value of Outlet	TOTAL VALUE
48	660-10101	Plan 1382	Lot 92 to 95	0.93	0.93	0.376	David & Marilyn Molnar	$ 160.00	$ 126.00	$ 286.00
49	660-10103	Plan 1382	Lots 90 & 91	0.29	0.29	0.116	William & Elizabeth Surgent	$ 51.00	$ 59.00	$ 110.00
50	660-10110	Plan 1382	Lot 97	0.14	0.14	0.058	Tyler Cosgrove	$ 25.00	$ 34.00	$ 59.00
51	660-10120	Plan 1382	Lot 96	0.14	0.14	0.058	Amanda Sauve and Gerry Ladouceur	$ 25.00	$ 34.00	$ 59.00
52	660-10140	Plan 1382	Lot 89	0.14	0.14	0.058	Ryan and Lacy Hewitt	$ 25.00	$ 34.00	$ 59.00
53	660-10145	Plan 1382	Lot 88	0.14	0.14	0.058	James Watters and Chantelle Bonsant	$ 25.00	$ 34.00	$ 59.00
54	660-10150	Plan 1382	Lot 87	0.14	0.14	0.058	Dale Quinlan and Rachel Hughes	$ 25.00	$ 34.00	$ 59.00
55	660-10160	Plan 1382	Lots 86	0.14	0.14	0.058	Manual & Fe Arnaldo	$ 25.00	$ 34.00	$ 59.00
56	660-10200	Plan 1382	Pt. Lot 85	0.36	0.36	0.147	Paul DesChamps	$ 65.00	$ 72.00	$ 137.00
57	660-10202	Plan 1382	Pt. Lot 85	0.16	0.16	0.064	Mohamad Mohammad and Manon Espinal	$ 28.00	$ 55.00	$ 83.00
		Total on Privately Owned - Non-Agricultural Lands						**$ 3,084.00**	**$ 4,608.00**	**$ 7,692.00**
	TOTAL ASSESSMENT				**22.44**	**9.083**		**$ 3,900.00**	**$ 6,100.00**	**$ 10,000.00**

1 Hectare = 2.471 Acres