

City Council Meeting

Date: Monday, February 28, 2022

Time: 1:00 o'clock p.m.

Location: Council Chambers, 1st Floor, Windsor City Hall

All members will be participating electronically and will be counted towards quorum in accordance with Procedure By-law 98-2011 as amended, which allows for electronic meetings during a declared emergency. The minutes will reflect this accordingly.

MEMBERS:

Mayor Drew Dilkens

Ward 1 – Councillor Fred Francis

Ward 2 – Councillor Fabio Costante

Ward 3 – Councillor Rino Bortolin

Ward 4 – Councillor Chris Holt

Ward 5 – Councillor Ed Sleiman

Ward 6 – Councillor Jo-Anne Gignac

Ward 7 – Councillor Jeewen Gill

Ward 8 – Councillor Gary Kaschak

Ward 9 – Councillor Kieran McKenzie

Ward 10 - Councillor Jim Morrison

ORDER OF BUSINESS

Item #	Item Description
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1.	ORDER OF BUSINESS
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| 1.1. | In the event of the absence of the Mayor, Councillor Kaschak has been Appointed Acting Mayor for the month of February, 2022 in accordance with By-law 176/2018 as amended. |
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2.	CALL TO ORDER
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READING OF LAND ACKNOWLEDGEMENT

We [] would like to begin by acknowledging that the land on which we gather is the traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomie. The City of Windsor honours all First Nations, Inuit and Métis peoples and their valuable past and present contributions to this land.

3.	DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF
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4.	ADOPTION OF THE MINUTES
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5.	NOTICE OF PROCLAMATIONS
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“Nutrition Month” – March 2022

6.	COMMITTEE OF THE WHOLE
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7.	COMMUNICATIONS INFORMATION PACKAGE (This includes both Correspondence and Communication Reports)
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8.	CONSENT AGENDA
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| 8.1. | Audit and Accountability Funds Awarded to Digitization and Modernization of Workflows Project (C 21/2022) |
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| 8.2. | Alley Lighting Policy Change – Citywide (C 28/2022) |
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- 8.3. A Provisional By-Law for the Repair and Improvement to the McKee Drain - Wards 1 and 2 (**C 26/2022**)

CONSENT COMMITTEE REPORTS

- 8.4. RICBL Exemption 2021-4 - Dillon Consulting Limited - 0 Tecumseh Road East - Ward 7 (**SCM 43/2022**) (**S 3/2022**)
- 8.5. Rezoning - 2776557 Ontario Ltd - 1153-1159 Riverside Drive East - Z-037/21 ZNG/6588 - Ward 4 (**SCM 44/2022**) (**S 5/2022**)
- 8.6. Rezoning - 2156567 Ontario Ltd. – 1092-1096 Dougall Avenue - Z-041/21 ZNG/6624 - Ward 3 (**SCM 45/2022**) (**S 6/2022**)
- 8.7. Pillette Village BIA Streetscape Improvements - Funding Proposal (**SCM 42/2022**) (**C 21/2020**)
- 8.8. Response to CQ 32-2020: Tree Protection and Replacement Policies Related to Development – City Wide (**SCM 46/2022**) (**C 142/2021**)

9. **REQUEST FOR DEFERRALS, REFERRALS AND/OR WITHDRAWALS**

10. **PRESENTATIONS AND DELEGATIONS**

PRESENTATION

Michelle Bishop, General Manager EWSWA re Regional Food & Organics Waste Management Project

11. **REGULAR BUSINESS ITEMS** (Non-Consent Items)

- 11.1. Regional Food and Organic Waste and Biosolids Processing Project Update - City Wide (**C 14/2022**)
- 11.2. 2021 Micro-Mobility Pilot Review - Bird Canada E-Scooters and E-Bikes (**C 10/2022**)

12. **CONSIDERATION OF COMMITTEE REPORTS**

- 12.1. (i) Report of the Special In-Camera meeting or other Committee as may be held prior to Council (if scheduled)
- 12.2. Minutes of the Housing & Homelessness Advisory Committee of its meeting held January 25, 2022 (**SCM 40/2022**)

- 12.3. Report No. 12 of the Housing & Homelessness Advisory Committee - Increase supports for Housing Retention Policies (**SCM 39/2022**)
13. **BY-LAWS** (First and Second Reading)
14. **MOVE BACK INTO FORMAL SESSION**
15. **NOTICES OF MOTION**
16. **THIRD AND FINAL READING OF THE BY-LAWS**
17. **PETITIONS**
18. **QUESTION PERIOD**
19. **STATEMENTS BY MEMBERS**
20. **UPCOMING MEETINGS**
 - Windsor Accessibility Advisory Committee
Tuesday, February 22, 2022
10:00 a.m., Zoom Video Conference
 - Environment, Transportation and Public Safety Standing Committee
Wednesday, February 23, 2022
4:30 p.m., Zoom Video Conference
 - Community Services Standing Committee - **CANCELLED**
Wednesday, March 2, 2022
9:00 a.m., Zoom Video Conference
 - Development and Heritage Standing Committee
Monday, March 7, 2022
4:30 p.m., Zoom Video Conference
21. **ADJOURNMENT**



Subject: Audit and Accountability Funds Awarded to Digitization and Modernization of Workflows Project

Reference:

Date to Council: February 28, 2022

Author: Averil Parent

Asset Coordinator

aparent@citywindsor.ca

519-255-6100 ext.6126

Asset Planning

Report Date: February 2, 2022

Clerk's File #: AF/14041

To: Mayor and Members of City Council

Recommendation:

- II. THAT City Council **PRE-APPROVE** and **AWARD** of any procurement(s) necessary that are related to the Audit and Accountability Fund, Intake 3 provided that the procurement(s) are within previously approved budget amounts, pursuant to the Purchasing By-Law 93-2012 and amendments thereto; satisfactory in financial content to the Chief Financial Officer/City Treasurer, and in technical content to the CIO/Executive Director of Information Technology; and,
- III. THAT the Chief Administrative Officer and the City Clerk **BE AUTHORIZED** to take any such action required to effect the recommendation noted above and sign any required documentation for the Audit and Accountability Fund, Intake 3 , satisfactory in legal form to the City Solicitor, in financial content to Chief Financial Officer/City Treasurer, and in technical content to the CIO/Executive Director of Information Technology; and further
- IV. THAT the Purchasing Manager **BE AUTHORIZED** to issue Purchase Orders as may be required to effect the recommendation noted above, subject to all specification being satisfactory in financial content to Chief Financial Officer/City Treasurer, and in technical content to the CIO/Executive Director of Information Technology; and,
- V. THAT the Chief Administrative Officer **BE AUTHORIZED** to delegate signing of all claims, applicable schedules and other such documents required as part of the request for payment or the submission of a reporting package to the CIO/Executive Director of Information Technology, subject to financial content approval from the area's Financial Manager; and,

VI. THAT the Chief Financial Officer/City Treasurer **BE AUTHORIZED** to post the Final Report to the corporate website by no later than February 1 2023 in accordance with the grant's requirements.

Executive Summary:

N/A

Background:

In October 2021 the third intake of the Audit and Accountability Fund (AAF) was launched. This fund is open to large municipalities to conduct service delivery and administrative expenditure reviews, with the goal of finding service delivery efficiencies. There is no matching funding required. The City of Windsor has received funding from this program for projects in the past, as part of Intake 1 and 2.

After discussions with the IT department, it was agreed that administration would proceed with submitting an application for a Digital Modernization of Forms and Workflow project.

Through CAO 258/2021 authority to submit an application to the Audit and Accountability Fund Intake 3 was provided. On October 28th, 2021 the City of Windsor submitted an application requesting \$125,000 to support a Digitization of Forms and Workflow project.

Discussion:

On January 28, 2022 the City received notification that the application to the Audit and Accountability Fund Intake 3 for a Digitization of Forms and Workflow Project had been successfully awarded funding. We provided an estimated maximum cost of \$125,000 for the project and have been awarded up to \$127,200.

On February 14th council approved the creation of a by-law necessary to sign the transfer payment agreement. Once signed, the project will move forward according to the agreement.

A consultant will conduct a digital modernization assessment and associated works with the end goal to produce a report outlining a business case and supporting recommendations to deploy digital modernization and process transformation within the City of Windsor. Eligible costs are exclusively for third-party service provider fees and covers 100% of costs for a consultant/third party.

As per the grant agreement an update on selection of the consultant is to be provided to the funder by May 31st 2022. In addition, the final report prepared by the consultant is required to be posted publicly as per the grant agreement requirements. Recommendations in the report will be considered by administration and future projects as outlined may be put forward for consideration as part of future budget requests.

Risk Analysis:

There is a risk that after proceeding through the purchasing process the quote from the consultant is more than the \$127,200 provided by grant funding. This risk is considered to be low as cost estimates based on similar project have come back in the \$50,000 - \$125,000 range. If the quote comes back higher than the funding provided a report will be brought forward to Council outlining options to fund the balance.

There is a slight risk of timeline pressure. This risk is mitigated in part by sole sourcing the project and executing agreements now that funding has been secured. The remaining risk of available staff resources required to work with the consultant will be monitored and managed internally to address completing priorities.

Climate Change Risks

Climate Change Mitigation:

There is no climate change mitigation risk to applying for funding this digital modernization project. The digitalization of forms and workflow will not impact the City's greenhouse gas emissions directly, however the reduction in paper use contributes to environmental sustainability and decreased greenhouse gas emissions resulting from our supply chain.

Climate Change Adaptation:

There is no climate change adaptation risk to applying for funding this digital modernization project.

Financial Matters:

The Audit and Accountability Fund covers 100% of the cost of the project, namely the costs associated with a third-party consultant. We will receive up to \$127,200 as awarded by the funder. The estimated cost of the project is between \$50,000 and \$125,000 and this range correlates with the financial range requirements within the grant application. These costs reflect the total cost of the third-party consultant including non recoverable HST. The cost window is an estimate based on past consulting engagements of a similar nature, discussions with peer municipalities who've embarked on a similar project, and internal research. Costs will vary based on the scope of the review and size of the pilot. Upon completion of a Request for Proposal, 3rd party costs will be confirmed for the project. While Administration will be required to provide input to the consultants no internal labour or other ineligible costs are expected. As such, no City funding is required for this project.

Consultations:

Anna Caro, Business Analyst, IT

Trevor Bennet, Manager Business Process Modernization, IT

Alex Vucinic, Manager Purchasing

Conclusion:

In conclusion administration recommends proceeding with this project as the Audit & Accountability Fund, Intake 3 has awarded the City of Windsor with the necessary funding.

Approvals:

Name	Title
Melissa Osborne	Senior Manager of Asset Planning
Norm Synnott	CIO/Executive Director of Information Technology
Shelby Askin Hager	Commissioner of Legal & Legislative Services
Joe Mancina	Commissioner of Corporate Services
Jason Reynar	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:



Subject: Alley Lighting Policy Change - Citywide

Reference:

Date to Council: February 28, 2022
Author: Shawna Boakes
Senior Manager, Traffic Operations & Parking
519-255-6247 x6791
sboakes@citywindsor.ca

Public Works - Operations
Report Date: March 31, 2021
Clerk's File #: SL/14255

To: Mayor and Members of City Council

Recommendation:

THAT the Street Lighting Policy, attached as Appendix B of this report **BE ADOPTED**;

THAT the Local Improvement Policy, attached as Appendix A of this report **BE ADOPTED**; and,

THAT the annual operating cost requirements **BE REFERRED** to the 2023 budget process.

Executive Summary:

N/A

Background:

This report addresses the Council Directive CR565/2021:

That Administration **BE DIRECTED** to report back related to cost implications and differences including Local Improvement Policy implications and effects of the Alley Lighting Policy on the general Street Lighting Policy; and further,

That the report **BE PROVIDED** as soon as possible or at a February 2022 meeting of Council.

The Alley Lighting Policy, attached as Appendix C of this report, was approved by Council in January 2020 (B10/2020). The policy states that residents requesting alley lighting were required to follow the local improvement process to obtain alley lighting and that, with a successful petition, the residents were responsible for the initial

installation costs, on-going maintenance and electricity costs, and replacement costs. On-going maintenance and electricity fees were to cost the residents \$150 per year, per fixture, which would be added to the tax bills of the residents abutting the location of the lighting.

The City of Windsor has approximately 23,600 existing lighting fixtures which covers approximately 75% of City streets. There are 1,076 kilometers of roads in the City and 151 kilometers of maintained alleys.

Discussion:

Administration has reviewed potential solutions with regards to Council's direction that alley lighting continue to be part of the local improvement process (LIP) but that the residents no longer would be required to pay for the cost of on-going maintenance, electricity and/or replacement costs.

With regards to the LIP process, there are two options;

1. Residents immediately abutting the installation location of the proposed light(s) are responsible for 100% of the installation costs, including appropriate engineering and administrative costs. This option would require all abutting residents to split the cost of the material, equipment and labour, and design costs related to the installation. Abutting in the policy would be defined as any property that is entirely or partially contained within a 20 m radius of the fixture or multiple fixtures. This option would not require funding from the City and therefore not compete for funding with other LIP projects. Timing of installation would be based on availability of staff to complete the design, tender, and installation/supply.
2. This option is similar to Option 1, however the residents would be responsible for only a portion of the material, equipment and labour, and design costs related to the installation. This option would require funding from the City and therefore would compete for funding with other roadway LIP projects. Timing of installation would be based on availability funding, staff to complete the design, and tender and installation/supply.

Administration recommends option 1 above.

Costs for initial installation would include the design time for staff required to meet with ENWIN Utilities to confirm location of the fixtures, time for staff to develop tender documents and/or coordinate with contractors to complete the installation, and all equipment / material / labour costs related to the installation. ENWIN will maintain standard fixtures installed in alleyways if they are consistent with the City's standard roadway lighting fixture and mast arm. ENWIN would bill the City as per the existing fee structure for street lights.

In general, installations in alleys may be able to utilize existing utility poles, with permission required from the utility of ownership. Most utility poles in alleys will be owned by ENWIN and potentially have secondary services in the general area and therefore costs may be kept lower.

However, if the utility does not grant permission or there is not a suitable pole for the installation available, installation costs will increase due to the need for installation of a pole and possible electrical service wiring from the closest service location.

Options are available for the installation of solar lighting however the initial cost of solar lighting is typically higher than standard lighting. In some locations, due to the requirement of a solar panel to be mounted to the pole, it is possible the poles are not structurally capable of the additional weight and therefore new poles would be required. Additionally, an alley that has tree coverage due to mature trees growing in adjacent yards, may not yield enough sun light to consistently power the fixtures. ENWIN will not maintain solar lights on behalf of the City. Should solar lights be used, the City would be required to hire an electrical contractor to perform maintenance.

Based on the above, it is difficult at this time to estimate the initial installation costs for one or multiple fixtures. There are many variables that can change the direction of the project, therefore until a specific location is identified, costs cannot be estimated.

Lighting level assessments are required to be performed for the installation of the lights to ensure the lighting levels and spill light is not excessive. Due to the possible limitation for mounting heights when existing poles are used, the design will be as close as possible to average levels of residential / local roadways (as per the City's standard lighting design practice of ANSI RP-8), however residents will be notified as part of the petition process that we cannot guarantee spill lighting into their yards/homes will be eliminated. Alley lights will not be allowed to be placed on motion sensors as the lights will be billed by ENWIN as part of the standard street lighting agreements, the use of a motion sensor would require the City to place an energy meter and pay a monthly meter fee for all lights installed.

Risk Analysis:

There are a number of risks identified based on the recommendation.

1. There is a risk related to this change specific to the existing funding for maintenance and replacement of the City's street lighting infrastructure. There is currently not sufficient funding to properly maintain and replace the existing street lighting infrastructure therefore the addition of the alley lights would add to an already under funded operating and capital budget therefore creating additional yearly variances and projects that are underfunded for replacement.
2. There is a risk related to continued access to the fixtures in alleyways. Should an alleyway with lighting be closed at any time, the fixtures would be removed prior to the closure.
3. There is a risk that even with a careful design process, there is light spill into homes in the vicinity of the fixture. By utilizing existing light poles in the alley, space on the pole may be limited and in order to reduce costs related to installation, the mounting height of the fixture may not be optimal. Residents should be notified of this potential during the petition process to ensure they are aware of this risk and possibility.

4. There are no guidelines and standards specific for alley lighting. There are guidelines for roadways, including the number of lights along a block, intended to reduce the need for the human eye to continuously readjust to changing lighting levels along a specific path. The eye requires time to adjust from light to dark and dark to light. Therefore by allowing random lights to be installed in alleys without continuous levels along a standard block of the alley, there is a risk of drivers not seeing pedestrians or other vehicles in that time period while the eye adjusts. This risk is mitigated by the fact that speeds in alleys are typically very low, and traffic is not as heavy as on a typical roadway. Another mitigation option is to reduce the wattage of the fixtures as low as possible so the adjustment to the eye is not as severe. Lights are typically spaced 40 m apart in order to properly maintain average illumination, therefore another option to mitigate is for the designer to recommend the number of lights that would be required to ensure safety. The design and therefore petition would include all lights as recommended by the City Engineer.

Climate Change Risks

Climate Change Mitigation:

N/A

Climate Change Adaptation:

N/A

Financial Matters:

The City has approximately 151 kilometers of alleys. If all the alleys had continuous lighting, which is neither necessary nor expected, this would add approximately 3,775 fixtures to the City's infrastructure. Based on current spending, this would require an increase of approximately \$566,250 annually in operating funding, including maintenance and power.

There are currently a total of 47 alley lights being installed in and around the Erie Street BIA. The estimated electricity and maintenance cost for these lights (not including replacement at end of life) is \$150 per light, per year. Based on this, the current addition to the City's budget for power and maintenance would be \$7,050 annually. Replacement costs are estimated to be \$1,400 per location and typical life cycle would be 10-15 years, therefore the estimated replacement cost of the existing installations would be \$65,800.

Existing operating and capital budgets for street lighting replacement are not able to accommodate this additional cost at this time. Incremental operating costs related to alley installations would be brought forward as part of the annual Operating Budget process. Capital costs related to streetlight replacement, inclusive of alley lighting, will be identified as part of the 2023/2024 Asset Management Plan and funding would be requested at that time for these assets. As these assets are currently not part of the City's existing Asses Management Plan, the current AMP levy of 1.16% does not

include life-cycle replacement costs related to the City's existing or new streetlight infrastructure

Based on the recommendation of residents paying the value of the initial design and installation, costs related to the provision of alley lighting would be on-going maintenance of approximately \$150 per year, per fixture) and replacement costs estimated to be \$1,400 per fixture required every 10-15 years.

Consultations:

Adam Mourad, Engineer II

France Isabelle Tunks, Senior Manager Engineering

Dana Paladino, Purchasing, Risk Management, and Provincial Offences

Natasha Gabbana, Senior Manager of Asset Planning

Conclusion:

The Street Lighting Policy, attached as Appendix B is recommended to be adopted.

Planning Act Matters:

N/A

Approvals:

Name	Title
Cindy Becker	Financial Planning Administrator – Public Works - Operations
	Executive Director of Operations
Chris Nepszy	Commissioner, Infrastructure Services
Joe Mancina	Commissioner, Corporate Services CFO/City Treasurer
Shelby Askin Hager	Commissioner, Legal & Legislative Services
Jason Reynar	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:

Appendix A – Local Improvement Consolidated Policy

Appendix B – Street Lighting Policy 2022

THE CORPORATION OF THE CITY OF WINDSOR POLICY

Service Area:	Office of the City Engineer	Policy No.:	
Department:	Engineering	Approval Date:	TBD
Division:	Design and Development	Approved By:	
		Effective Date:	IMMEDIATE
Subject:	Local Improvement Policy Consolidation	Procedure Ref.:	
Review Date:	TBD	Pages:	Replaces: S 60/2020
Prepared By:	Janelle Coombs/Adam Mourad	Date:	TBD

1. PURPOSE

- 1.1 To present a cost-sharing policy setting forth special assessments for municipal infrastructure such as storm and sanitary sewers, street lighting, sidewalks, pavements, and curbs and gutters, and private drain connections constructed under the provisions of the Local Improvement Regulation, O. Reg. 586/06.
- 1.2 To address the situation where there are no sanitary or storm sewers in an existing neighbourhood of the City. Some areas of the City are still serviced by septic tanks with no sanitary sewers. Elimination of the remaining septic tanks within the City is considered a high priority to reduce environmental issues and improve water quality in the municipal drainage system and receiving water bodies.
- 1.3 To address streets that may have a sanitary sewer and roadside ditches, but no storm sewer. In order to close the roadside ditches, the ditches would need to be replaced with a storm sewer.
- 1.4 To amend and replace the existing Council Resolution regarding local improvements and the correlated cost sharing policies.
 - S 60/2020 – Local Improvement Policy Consolidation
- 1.5 To encourage the construction of municipal infrastructure where current municipal infrastructure is deficient.

2. SCOPE

This Policy applies to all roads and highways within the municipal boundaries of the City of Windsor. This policy does not apply to lands without any municipal infrastructure, such as greenfield developments.

3. DEFINITIONS

- 3.1 **Approved Rate** – for the purpose of this policy, refers to the rate set out in the Fees and Charges By-law 392-2002 for a 250mm diameter sanitary

sewer and a 300mm diameter storm sewer.

- 3.2 Oversizing** – for the purpose of this policy, refers to any sewer larger than a 250mm diameter sanitary sewer and a 300mm diameter storm sewer.
- 3.3 Frontage** – the property line along or abutting the municipal roadway. On a corner lot, the frontage shall be considered to be the shorter of the property lines regardless of the direction the building on the property faces.
- 3.4 Flankage** – for the purpose of this policy, refers to the longest dimension of the corner lot that abuts the local improvement, typically the full depth of the lot.
- 3.5 Private Drain Connection** – for the purpose of this policy, refers to the sewer pipe length from the centre line of the right-of-way to the private property line.
- 3.6 Boulevard Restoration** – for the purpose of this policy, means the installation of sod (or seed if approved) and topsoil up to a maximum of 2 metres from the back of curb or edge of pavement. Property owners will be assessed for the full frontage of the lot. Any additional restoration is to be paid by the City.

3.7 GENERAL ASSESSMENTS

- 3.7.1** All local improvements are subject to applicable fees for engineering, project administration, interest charges, and applicable taxes.
- 3.7.2** All existing approved local improvements will be governed by the policy in place at the time of their approval.
- 3.7.3** The costs for abutting property owners will be based on the assessable property frontage which excludes intersections and City owned properties.
- 3.7.4** Unless noted for lot flankage (side lot), all costs are assessed according to the property frontage (front or rear yard width) adjacent to the works.
- 3.7.5** In the case of irregular shaped lots, adjustments to the assessment are made on a case-by-case basis to mitigate over/under assessing an irregular lot.

4. POLICY

In accordance with the described purpose and scope, this policy specifies cost-sharing arrangements for the construction of storm and sanitary sewers, pavements, curbs and gutters, sidewalks, private drain connections, alley lighting, and street lighting as local improvements, implemented under the provisions of Ontario Regulation 586/06, made under the Municipal Act, 2001.

4.1 SEWERS

Where:

- A storm and/or sanitary sewer does not exist; and,
- Abutting property owners have requested in writing a storm and/or sanitary sewer be installed as a local improvement; or,
- The City initiates the installation of a storm and/or sanitary sewer as a local improvement.

The abutting property owners will be assessed for:

- The cost at the approved rate, per metre of frontage, of a new storm and/or sanitary sewer;
- The full cost for the construction of a private drain connection and cleanout extending from the centre line of the right-of-way to the property line of the benefiting property;
- 100% of the cost for boulevard restoration.

In addition, where flankage properties exist, those property owners will be assessed for:

- 25% of the approved rate, per metre of flankage, for the construction of a storm sewer and boulevard restoration for the first 45 metres of lot flankage;
- 100% of the cost for any remaining works over and above the first 45 metres of lot flankage, at the approved rate.

The City will pay:

- The remainder of the total cost of the work, as outlined in section 4.6.

4.2 PAVEMENTS

Where:

- Unpaved alleys or roads, including residential or local industrial roads, exist within the City right-of-way; and,
- Abutting property owners have requested in writing these unpaved alleys and/or roads be paved; or,
- The City initiates the installation of road pavement as a local improvement.

The abutting property owners will be assessed for:

- 100% of the cost, per metre of frontage, for the construction of the road base and asphalt and/or concrete pavements up to 8.6 metres in width;
- 100% of the cost for the construction of curb and gutter, if applicable;
- 100% of the cost for boulevard restoration.

In addition, where flankage properties exist, those property owners will be assessed for:

- 25% of the cost, per metre of flankage, for construction of the road base and pavement for the first 45 metres of lot flankage;
- 25% of the cost for boulevard restoration for the first 45 metres of lot flankage;
- 100% of the cost for any remaining works over and above the first 45 metres of lot flankage.

The City will pay:

- The remainder of the total cost of the work, as outlined in section 4.6.

Pavements will be designed to such structural and geometric standards as the City Engineer determines to be appropriate, having regard for subsoil conditions, vehicular loads, and other relevant matters.

Residential pavements will be constructed to a minimum width of 8.6 metres measured face to face of curbs.

Where, at the City's option, a pavement is constructed of greater width or structural strength than is required, the City shall assume the cost of the additional work. In the case of residential streets, "a greater width" will mean in excess of 8.6 metres.

This policy applies only to pavements constructed on rights-of-way assumed by the City.

4.2.1 RURAL PAVED ROADS

For the rehabilitation of badly deteriorated rural paved roads where the majority of the abutting properties are side lot properties, the City may undertake the following:

- That, where the percentage of side lot properties are greater than or equal to 50% of the total frontage for the street segment, reconstruct the roadway with or without the addition of curbs and gutters at no cost to the abutting residents (local improvements will not apply).

- That where this applies, proceed without the provisions of Ontario Regulation 586/06 for Local Improvements.

4.3 CURBS AND GUTTERS

Where:

- A paved road is currently without curbs and gutters; and,
- Pavement rehabilitation/reconstruction is to be undertaken by the City; and,
- Abutting property owners have requested in writing curbs and gutters be installed; or,
- The City initiates the installation of curbs and gutters as a local improvement in conjunction with a pavement rehabilitation project

The abutting property owners will be assessed for:

- 100% of the cost, per metre of frontage, for the construction of concrete curbs and gutters;
- 100% of the cost for boulevard restoration.

In addition, where flankage properties exist, those property owners will be assessed for:

- 25% of the cost, per metre of flankage, for the construction of concrete curbs and gutters and boulevard restoration for the first 45 metres of lot flankage;
- 100% of the cost for any remaining works over and above the first 45 metres of lot flankage.

The City will pay:

- The remainder of the total cost of the work, as outlined in section 4.6.

The curbs and gutters, and rehabilitated/reconstructed pavements will be of geometric design, as the City Engineer determines to be appropriate.

4.4 SIDEWALKS: RESIDENTIAL AND PEDESTRIAN GENERATOR POLICY

Where:

- A paved road is currently without sidewalks; and,
- Abutting property owners have requested in writing sidewalks be installed; or,
- The City initiates the installation of sidewalks as a local improvement.

The abutting property owners will be assessed for:

- 100% of the cost, per metre of frontage, for the construction of concrete sidewalks;
- 100% of the cost for boulevard restoration.

In addition, where flankage properties exist, those property owners will be assessed for:

- 25% of the cost, per metre of flankage, for the construction of sidewalks and boulevard restoration for the first 45 metres of lot flankage;
- 100% of the cost for any remaining works over and above the first 45 metres of lot flankage.

The City will pay:

- The remainder of the total cost of the work, as outlined in section 4.6.

New sidewalks will be constructed to meet the Accessibility for Ontarians with Disabilities Act (AODA) requirements, except where the safety of pedestrians warrants a greater width, or the City Engineer determines a greater width is necessary and/or desirable.

Where a residential sidewalk is constructed wider than the AODA standard, the abutting property owners will only be assessed for a standard AODA width sidewalk. The City will pay the balance of the cost in addition to the amounts set out above.

Where a sidewalk meets the conditions of the Pedestrian Generator Policy, the total cost of the sidewalk and boulevard restoration will be paid by the City.

Where a sidewalk is constructed on a transit route, the total cost of the sidewalk and boulevard restoration will be paid by the City.

4.5 STREET LIGHTING

Where:

- A municipal right-of-way is currently without street lighting; and,
- Abutting property owners have requested in writing street lighting be installed; or,
- The City initiates the installation of street lights as a local improvement.

The abutting property owners will be assessed for:

- 50% of the cost for standard street lighting;

- 50% of the cost for boulevard restoration.

In addition, where flankage properties exist, those property owners will be assessed for:

- 25% of the cost for street lighting and boulevard restoration along the first 45 metres of lot flankage;
- 100% of the cost of any remaining works over and above the first 45 metres of lot flankage.

The City will pay:

- The remainder of the total cost of the work, as outlined in section 4.6.

If ornamental street lighting is requested by the property owners, then the owners will be responsible for 100% of the cost difference between standard street lighting and ornamental street lighting.

4.5.1 ALLEY LIGHTING

Where:

- A municipally owned alley is currently unlit; and,
- One or more abutting property owners have requested in writing that alley lighting be installed; or,
- The City initiates the installation of alley lighting as a local improvement.

The abutting property owners will be assessed for:

- 100% of the cost for alley lighting;

The City will pay:

- 0% of the costs associated with the installation of alley lighting; and,
- 100% of the costs associated with power, ongoing maintenance, and replacement.

The number, type, and location of the lighting, and the properties to be included in the local improvement will be at the sole discretion of the City Engineer. These requests will be received by the Design and Development group, and processed through Traffic Operations, with assistance by Design and Development as required.

4.6 CITY'S SHARE FOR LOCAL IMPROVEMENT WORK

For all local improvement work implemented under this policy, the City's share of the cost will consist of the following:

- The cost for the work at intersections;
- The cost for the work in front of city owned property and alleys;
- The cost related to road drainage;
- The cost of additional road width greater than 8.6 metres;
- The cost of oversizing sewers larger than the diameter set out in the approved rate;
- The remainder of the total cost that is not defined in the assessable local improvement work under this policy.

5. RESPONSIBILITY

5.1 The responsibilities of the City, City Council, the Committee of Revision, the Commissioner of Infrastructure, the Commissioner of Corporate Services, CFO/City Treasurer, the City Clerk, and the abutting property owners, are set out in the Municipal Act, 2001 - Ontario Regulation 586/06.

5.2 The responsibilities are as follows:

5.2.1 City Council may authorize the work be done as a local improvement by passing a Local Improvement Charges By-law for such work.

5.2.2 Once the local improvement work is completed, Council shall pass a Special Charges By-law to impose charges on abutting property owners.

5.2.3 The Committee of Revision shall hear objections to the local improvement roll and make decisions to finalize the Local Improvement Roll.

5.2.4 The Commissioner of Infrastructure shall implement the work as a local improvement and follow the provisions of the O. Reg. 586/06.

5.2.5 The Commissioner of Corporate Services, CFO/City Treasurer shall certify the Local Improvement Roll.

5.2.6 The City Clerk shall receive petitions for or against local improvement work, appeals to the assessment notice; and shall certify the sufficiency of such petitions.

5.2.7 The abutting property owners may petition for or against a local improvement work. After the Special Charges by-law is passed, the owners are obligated to pay their share of the local improvement charges by lump sum or through their property taxes over 10 years.

5.2.8 The Local Improvement Roll, or Record of Assessment, shall be maintained by the City Clerk office and City Treasurer.

6. GOVERNING RULES AND REGULATIONS

The Municipal Act, 2001 - Ontario Regulation 586/06 is the governing legislation.

7. RECORDS, FORMS AND ATTACHMENTS

7.1 The Local Improvement Roll, or Record of Assessment, shall be maintained by the City Clerk and City Treasurer. Local improvement booklets, which outline the local improvements generated in any given year and the statement of the work costs, are maintained by the Clerk's office and Office of Commissioner of Infrastructure.

7.2 The related forms include:

- The Petition form;
- Notice of Local Improvement Charges By-law;
- Notice of Local Improvement Special Charges By-law.

THE CORPORATION OF THE CITY OF WINDSOR POLICY

Service Area:	Office of the City Engineer	Policy No.:	
Department:	Public Works - Operations	Approval Date:	April 2021
Division:	Traffic Operations	Approved By:	
		Effective Date:	April 2021
Subject:	Street Lighting Policy	Procedure Ref.:	
Review Date:		<i>Pages:</i>	Replaces: City of Windsor Street Lighting Policy Date: 2021
Prepared By:	Shawna Boakes		

1. **POLICY**

1.1 The Corporation of the City of Windsor (“City”) is committed to outline effective policy for street lighting as it relates to lighting levels, installation of decorative fixtures, safety concerns, replacement of fixtures, and request for improved lighting through Local Improvements and capital projects for residential and commercial areas.

2. **PURPOSE**

- 2.1** To ensure consistency and uniformity for the existing and future street lighting design and installation throughout the city.
- 2.2** To ensure the policies of the City’s Official Plan are followed.
- 2.3** To provide a consistent approach for the selection, installation, maintenance, and replacement of decorative street and/or pedestrian light fixtures.
- 2.4** To ensure that city streets and rights-of-way are illuminated to the City’s standard lighting levels (most current revision of ANSI/IESNA RP-8).
- 2.5** To ensure streetlight funding is for the installation, maintenance, and replacement of street lighting and associated infrastructure within roadways.
- 2.6** To ensure that City approved lighting equipment is utilized.

3. **SCOPE**

- 3.1** This policy applies to any City of Windsor Department approving, certifying, designing, installing and/or maintaining streetlights and associated infrastructure within the roadway.
- 3.2** Other applicable policies are the Local Improvement Policy and the Alleyway Lighting Policy.

4. **RESPONSIBILITY**

- 4.1 City Council** is responsible for:
 - 4.1.1** The final approval and any amendments of the Street Lighting Policy.
 - 4.1.2** The approval of funding to continue to maintain and

improve the citywide street lighting system.

4.2 Standing Committees are responsible for:

- 4.2.1 Reviewing and recommending the Street Lighting Policy and any amendments to City Council for approval.

4.3 The Chief Administrative Officer (CAO) is responsible for:

- 4.3.1 Providing approval of the Street Lighting Policy and any amendments thereto, and associated reports and sending these to the Standing Committee.
- 4.3.2 Supporting the Street Lighting Policy including providing guidance and/or direction on issues that may arise.

4.4 Corporate Leadership Team (CLT) is responsible for:

- 4.4.1 Providing approval of the development of the Street Lighting Policy and any amendments thereto and associated reports prior to sending these to the CAO for approval.
- 4.4.2 Supporting Street Lighting Policy including providing guidance and/or direction on issues that may arise.

4.5 City Engineer, Manager or Supervisor is responsible for:

- 4.5.1 Reviewing the Street Lighting Policy to determine whether updates are required.
- 4.5.2 Consult with relevant stakeholders.
- 4.5.3 Forward the proposed policy and accompanying report to the CLT for approval.
- 4.5.4 Overseeing the street lighting portfolio including budget, selection, installation, maintenance, replacement and capital projects for the streetlight system.
- 4.5.5 Supporting Street Lighting Policy including providing guidance and/or direction on issues that may arise.
- 4.5.6 Payment of invoices for related to street lighting (i.e. maintenance).

4.6 Engineer II (Engineering Department) is responsible for:

- 4.6.1 Managing requests for lighting through the Local Improvement process

4.7 Engineer I (Operations Department) is responsible for:

- 4.7.1 Overseeing the daily operations of the street lighting portfolio.
- 4.7.2 Communicating any changes or issues related to street lighting, which may include new technology, request for lighting for Capital projects.
- 4.7.3 Maintaining and updating service requirements for the street lighting.
- 4.7.4 Overseeing street lighting capital projects.
- 4.7.5 Reviewing and approving street lighting levels and electrical designs related to street lighting.

4.8 City Planner, Manager or Supervisor is responsible for:

- 4.8.1 Reviewing the Street Lighting Policy to determine whether updates are required.
- 4.8.2 Ensuring that the budget for streetscaping projects that result in the

- installation of decorative lights is in accordance with 5.3.6.
- 4.8.3** Consult with relevant stakeholders about the selection of Decorative Fixtures and Pedestrian Fixtures.
- 4.8.4** In conjunction with the City Engineer Forward the proposed policy and accompanying report to the CLT for approval.
- 4.8.5** Supporting Street Lighting Policy including providing guidance and/or direction on issues that may arise.

4.9 Subdivision Planner is responsible for:

- 4.9.1** Implementing this policy through the review and approval of subdivisions.

5. GOVERNING RULES AND REGULATIONS

5.1 DEFINITIONS

- 5.1.1 ANSII/IESNA RP-8** – is short form for American National Standard Institute/Illuminating Engineering Society of North America with RP-8 as the American National Standard Practice for Roadway Lighting, last amended in 2014.
- 5.1.2 BIAs** – is a Business Improvement Area as described by the *Municipal Act, 2001*.
- 5.1.3 City Engineer**-means the City's City Engineer from time to time or their designate
- 5.1.4 City Planner**-means the City's City Planner from time to time or their designate
- 5.1.5 Civic Ways** - are municipal roads that are defined as a "Civic Way" on Schedule G: Civic Image of the City's Official Plan.
- 5.1.6 Colour Temperature** – All standard street lighting is to have a colour temperature of 4000k unless otherwise directed by the City Engineer or designate. All new decorative light fixtures are to have a colour temperature of 3000k or less.
- 5.1.7 Decorative Fixture** – consists of the pole, light fixture, mast arm, bracket and associated wiring.
- 5.1.8 Developer** – is the individual, group or entity that undertakes the development of land, which may include all of the associated activities to prepare and service the land for construction.
- 5.1.9 Fixture** – is the light source used to provide lighting for the roadway.
- 5.1.10 Heritage Area** – an area or neighbourhood that is identified in the City's Official Plan as a "heritage area" or an area or neighbourhood that has been designated under the *Ontario Heritage Act*.
- 5.1.11 LED Fixture** – is a streetlight fixture that utilizes light emitting diode technology.
- 5.1.12 Lighting Levels** – The amount of light measured on a roadway with a photometric device.
- 5.1.13 Mainstreet** – are municipal roads that are defined as a "Mainstreet" on Schedule G: Civic Image of the City's Official Plan.
- 5.1.14 New Residential Area** – a residential area where streetlights will be installed after April 19, 2021.
- 5.1.15 Pedestrian Lighting** – Any lighting designed to illuminate the

sidewalk/walkway. A pedestrian fixture is usually decorative in nature and can be attached to the streetlight pole over hanging the sidewalk/walkway or on its own pole.

- 5.1.16 Photocell or Shorting Cap** – Photocell is a light sensory control device that turns on or off a fixture. Shorting Caps are mainly associated with fixtures on EC Row, which are connected to a master photocell(s).
- 5.1.17 Pole** – is any wooden, steel or concrete structure, which may or may not have a fixture attached to it and is connected by wire for the operation of the street lighting system. Poles can be either city-owned poles or poles owned by other utilities, mainly EnWin Utilities. There are approximately 16,000 city-owned poles.
- 5.1.18 Residential Area** – is an area of the city that consists mostly of residential dwellings units.
- 5.1.19 Standard Street Lighting** – consist of the approved 30 foot gray concrete pole, NXT style roadway fixture, elliptical mast arm, bracket and associated wiring.
- 5.1.20 Street Lighting System** –in Windsor is composed of approximately 24,000 streetlight fixtures, the associated wiring, poles, controls, meters, transformers, conduits and photocells/shorting caps.

5.2 LIGHTING LEVELS

- 5.2.1** Lighting levels for city roadways are to meet ANSI/IESNA RP-8 as approved by CR 146/2015 for all new construction or installation of streetlight fixtures and poles. The glare factor **for decorative poles only** may be exempt from the lighting calculation results in order to keep with the existing height and spacing of poles within a residential area.
- 5.2.2** Lighting levels for all roadways with existing poles that are less than required lighting levels as outlined in ANSI/IESNA RP-8 will be updated to the current standard at the time of replacement.

5.3 USE OF DECORATIVE FIXTURES

- 5.3.1** Decorative fixtures are generally reserved for installation on Mainstreets, Civic Ways, and Heritage Areas.
- 5.3.2** Decorative fixtures may be considered for installation in Residential Areas and New Residential Areas.
- 5.3.3** Decorative fixtures may be selected based on the area/location they are installed;
 - 5.3.2.1** Heritage Area areas may have decorative fixtures. The fixture will be selected based on consultation between the residents, City Planner and City Engineer
 - 5.3.2.2** Mainstreets and Civic Ways may have decorative fixtures. The fixture will be selected based on consultation between the City Planner and the City Engineer.
 - 5.3.2.3** Residential areas may have decorative fixtures, where agreed upon by the City Planner and City Engineer. The fixture must be selected from the list of the City's approved fixture list.
- 5.3.4** Decorative fixtures may be installed in New Residential Areas

where the cost of street lighting is included with the cost of developing the lands. However, when an existing Residential Area would like to upgrade the street lighting to decorative fixtures, the costs of such lighting will be allocated in accordance with the provisions of the Local Improvement Policy. A minimum of one (1) block is required to be upgraded.

5.3.5 Capital budgets for projects that include Decorative Fixtures shall include the replacement costs for a minimum of (4) full component replacement for the Decorative Fixture assembly.

5.3.6 For New Residential Areas developers are required to pay for the initial installation of street lighting, standard or decorative. Developers that choose to install decorative lighting shall provide the City an additional 100% of the cost of one (1) full replacement cycle of the decorative lighting. The funds shall be placed into a reserve account to be utilized for street lighting maintenance or future replacement of the decorative lights. After funding has been exhausted, the City will take responsibility of the maintenance of such decorative street lights.

5.4 DESIGN AND INSTALLATION OF STREET LIGHTING FOR ROADWAYS

5.4.1 All new design for street lighting of city roadways must meet ANSI/IESNA RP-8.

5.4.2 All designs must utilize LED fixtures. Fixture types are to be from pre-approved list or additional approval is required from City Engineer.

5.4.3 Designs shall consider pedestrian traffic, location of sidewalks, location of existing or proposed driveways/egresses.

5.4.4 Photometrics of the streetlight design must be submitted and approved by City Engineer prior to any installation.

5.4.5 As-builts which are to include the serial number of each fixture installed are to be submitted to the City Engineer prior to EnWin connection.

5.5 REQUEST FOR NEW OR IMPROVEMENT STREET LIGHTING ON EXISTING ROADWAYS

5.5.1 Funding for new or improved street lighting on expressway, arterial and collector roadways will be through the City's Capital budget.

5.5.2 To request street lighting on roadway without any lighting, property owners are required to follow the Local Improvement Policy.

5.5.3 To request decorative street lighting on a roadway with existing standard lighting, property owners are required to follow the Local Improvement Policy.

5.5.4 As part of a road rehabilitation project, allowances are to be made to improve the street lighting to city standards and to improve the street lighting infrastructures (i.e. poles, wiring, etc.) where street lighting currently exists.

5.6 REQUEST FOR ALLEY LIGHTING

5.6.1 To request lighting in alleys without any lighting, property owners are required to follow the Local Improvement Policy.

5.6.2 Alley lighting levels are not required to meet the uniformity

requirements of ANSI RP-8, however average levels shall be required to meet local/residential levels in the area of the light.

5.7 REQUEST FOR LIGHTING DUE TO SAFETY CONCERNS

- 5.7.1** In special circumstances, lighting may be installed to deter criminal activities. A history of previous criminal activities must be confirmed by Windsor Police Services, who recommend that lighting will assist with crime deterrence, prior to the installation of lighting. This lighting shall be approved by the City Engineer and will be funded from the City's capital budget.
- 5.7.2** There may be requests to light walkways to deter criminal activities and to promote safe travel areas. Each request will be reviewed on its merit and if approved, will be funded by other means (i.e. ward fund) unless directed by the City Engineer.

5.8. REPLACEMENT OF EXISTING LIGHTING DUE TO END OF LIFE OR FAILURE

- 5.8.1** Standard street lighting will be replaced with the City's current standard concrete poles, luminaires, mast arms and brackets in accordance with 5.7.2., 5.7.3., and 5.7.4..
- 5.8.2** If two or less lights in consecutive spacing are to be replaced at the same time, a like for like replacement of the fixture size, type and wattage shall be utilized. These replacements shall be coordinated and paid for through the City's operating budget.
- 5.8.3** If more than two lights in consecutive spacing are to be replaced at the same time, a lighting calculation shall be performed to ensure the correct size, type and wattage are used to complete the replacement. These replacements shall be coordinated through the City's capital budgets and shall be scheduled based on available budgets. Emergency replacements shall be made temporarily where required.
- 5.8.4** Non-LED Luminaires shall be replaced with LED. Where an area is still non-LED, a minimum of 1 block or four (4) luminaires in a row (whichever is less) shall be replaced with LED in order to maintain consistency of lighting.
- 5.8.5** Where decorative fixtures are to be replaced, similar decorative fixtures shall be utilized as per the following;
 - 5.7.5.1** In Heritage Areas, existing decorative fixtures shall be replaced with similar make and model if available from the original manufacturer in accordance with 5.7.2., 5.7.3., and 5.7.4. Where the similar make and model are no longer available, the City shall select the closest replacement in size, colour, material, and distribution, etc. and that shall be the new decorative fixture standard moving forward.
 - 5.7.5.2** In Heritage Areas, if residents prefer an alternative fixture, or wish to attempt to re-furbish the existing lighting, this may be considered through the Local Improvement Process. The costs funded in accordance with the Local Improvement Process should be limited to the difference between the costs for the City's recommended alternative and the refurbishment or another alternative. Alternative

fixture selection must be agreed upon by the City Planner and City Engineer.

- 5.7.5.3** In Mainstreets and Civic Ways, existing decorative lighting shall be replaced with similar make and model if available from the original manufacturer in accordance with 5.7.2, 5.7.3., and 5.7.4. Where the similar make and model are no longer available, the City shall select the closest replacement in size, colour, material, and distribution, etc. and that shall be the new decorative lighting standard moving forward
- 5.7.5.4** The City Planner and City Engineer will ensure that the budget for capital projects that result in the installation of decorative fixtures in Mainstreets and Civic Ways includes additional funding consistent with 5.3.6.
- 5.7.5.5** In Residential Areas with existing decorative fixtures, where individual replacements are required streetlights shall be replaced with similar make and model if available from the original manufacturer in accordance with 5.7.2, 5.7.3., and 5.7.4. Where the similar make and model are no longer available, the City shall select the closest replacement in size, colour, material, and distribution, etc.
- 5.7.5.6** In Residential Areas with existing decorative fixtures that have reached the end of life and large scale replacements are required, street lights shall be replaced with the City's current approved decorative pole and luminaire.

5.8 FESTIVAL/HOLIDAY LIGHTING

- 5.8.1** Holiday/Festival lighting may be attached to streetlight poles. Requests will be reviewed with input from other departments, i.e. Planning, Development, Projects and ROW. All funding for the installation, general maintenance and energy of festive/holiday lighting is to come from other sources unless otherwise directed.

5.9 PEDESTRIAN LIGHTING

- 5.9.2** Pedestrian lighting may be installed in specific areas, i.e. BIAs or high pedestrian generators. The street lighting levels will be calculated separate from the pedestrian lighting levels. The street lighting must meet ANSI/IESNA RP-8 requirements without including the pedestrian lighting. Any installation of pedestrian lighting is to be through a capital project.
- 5.9.3** The fixture will be selected in consultation between the City Planner and the City Engineer.

6 RECORDS, FORMS AND ATTACHMENTS

- 6.1.1** All records in relation to this policy will be kept in accordance with *Records Retention By-Law 21-2013*.



Subject: A Provisional By-Law for the Repair and Improvement to the McKee Drain - Wards 1 and 2

Reference:

Date to Council: February 28, 2022

Author: Paul Mourad

Engineer III

519-255-6100 ext. 6119

pmourad@citywindsor.ca

Design and Development

Engineering

Report Date: February 10, 2022

Clerk's File #: SW/14303

To: Mayor and Members of City Council

Recommendation:

- I. That Council **ADOPT** the drainage report entitled, "*Drainage Report for the McKee Drain Improvements in the City of Windsor, County of Essex*", dated February 9, 2022, as prepared by Landmark Engineers Inc., by Provisional By-law ____/2022 in accordance with Section 45 of the Drainage Act; and,
- II. That City Council **REFER** the project to the 2023 Capital Budget.

Executive Summary:

N/A

Background:

The McKee Drain originates just west of Malden Road and flows westward towards Matchette Road. The drain, which was altered due to the development of the Rt. Hon. Herb Gray Parkway (Parkway), then flows through a stormwater detention facility owned and maintained by the Ontario Ministry of Transportation (MTO). It then flows across the E.C. Row Expressway and under the Essex Terminal Railway (ETR) tracks in several locations, towards Sandwich Street, and ultimately outlets to the Detroit River.

In 2013, following substantial completion of the Parkway construction, the MTO filed petitions under the *Drainage Act* for improvements to those municipal drains that provide a drainage outlet for the Parkway. The legislation directs City Council to appoint an engineer to examine and report on the request. Landmark Engineers Inc. was subsequently appointed as the Drainage Engineer by CR511/2016 in accordance with Section 8 of the *Drainage Act*. Landmark made an examination of the drain and prepared the attached drainage report recommending repairs and improvements to the drain. The MTO has also committed to pay costs associated with the engineering and preparation of the drainage report, however this does not include the cost to implement the improvements called for in the report.

Affected lands are assessed in accordance with Council Resolution 388/2007, as amended by CR64/2015, which directed use of the general tax levy for drain maintenance costs as permitted by the *City of Windsor Act, 1968*. The exceptions are private access structures and “special benefit” works that benefit individual properties, which are to be assessed to those benefiting landowners.

Discussion:

The drainage report recommends several repairs and improvements to the McKee Drain, including:

1. Brushing and clearing of woody vegetation in several locations along the drain;
2. Excavating of the drain to provide a minimum 1:5 year design storm service level;
3. Replacement of several private access bridges that do not meet the minimum design storm service level;

Copies of the drainage report and notices of the Council meeting to consider the report for adoption by by-law, were sent to the affected landowners in accordance with section 41 of the Drainage Act.

In accordance with Section 45 of the Drainage Act, at the Council meeting in which the drainage report is considered, the drainage report may be adopted by by-law when such a by-law is given two readings by Council. The report shall then be deemed to be adopted and the by-law shall be known as a Provisional By-law.

Council shall then, within 30 days of adoption of the drainage report, send a copy of the Provisional By-law and Notice of the Court of Revision meeting to all affected landowners listed in the assessment schedule and/or allowance and compensation schedule. The notice shall inform each landowner that the landowner may appeal the owner’s assessment and/or allowances to a Court of Revision by giving notice to the Clerk not later than 10 days prior to the first sitting of the Court of Revision.

Following the Court of Revision and the expiration of the appeal period, the By-law may be passed by giving third and final reading of the by-law by Council.

A copy of the drainage report, entitled “*Drainage Report for the McKee Drain in the City of Windsor, County of Essex*”, dated February 9, 2022, is attached in the appendices.

Risk Analysis:

There are minimal risks associated with adoption of the report by City Council.

Associated risks to the Corporation resulting from carrying out the recommendations in the report, include general risks typical of any construction project, such as bodily injury, property damage, and matters arising from violations of the Occupational Health and Safety Act. These risks are experienced at the time of the project tender.

Improvements to the drain, such as restoring the channel and increasing culvert sizes, will improve overall flows and capacities to the original drain design.

Climate Change Risks:

Climate Change Mitigation:

The proposed works do not inherently mitigate from the impacts of climate change.

Climate Change Adaptation:

The proposed works, if constructed, will improve the flow capacity of the drain. This can help with stormwater management and provides enhanced flood protection for the land that this drain services.

Financial Matters:

The MTO has previously committed to pay all costs associated with preparation of the Drainage Report as identified in CR511/2016. There are no costs to the City related to the drainage report, except for staff time to oversee the consultant’s work. These costs will be charged to and managed within the department’s Operating Budget.

All expenses associated with any repair and improvements (construction works) to the McKee Drain, as identified in the report, would necessarily be assessed to the City of Windsor, with the exception of the replacement of private access bridges which will be assessed to the benefitting property owners. The estimated cost to undertake the recommended repairs and improvements for construction and construction related services in this report is \$1,691,141.44. It is recommended that this project be referred to the 2023 Capital Budget under the existing project 7086004 – Municipal Drains Maintenance. Based on funding in the current 10-Year Capital Budget for this project, additional funding may be required in order for this recommended work to move forward.

Consultations:

Carrie McCrindle, Financial Planning Administrator

Michael Dennis, Manager of Capital Budget & Reserves

Andrew Dowie, Engineer III/Drainage Superintendent

Conclusion:

Administration recommends that City Council adopt the Provisional By-law to adopt the drainage report entitled, "*Drainage Report for the McKee Drain in the City of Windsor, County of Essex*", February 9, 2022, in accordance with Section 45 of the Drainage Act.

Approvals:

Name	Title
Fahd Mikhael	Manager of Design & Development
France Isabelle-Tunks	Senior Manager of Engineering/Deputy City Engineer
Chris Nepszy	Commissioner, Infrastructure Services
Shelby Askin Hager	Commissioner, Legal & Legislative Services
Joe Mancina	Commissioner, Corporate Services CFO/City Treasurer
Jason Reynar	Chief Administrative Officer

Notifications:

Name	Address	Email
Fred Francis, Ward 1 Councillor	c/o 350 City Hall Square West, Suite 220 Windsor, ON N9A 6S1	ffrancis@citywindsor.ca
Fabio Constante, Ward 2 Councillor	c/o 350 City Hall Square West, Suite 220 Windsor, ON N9A 6S1	fcostante@citywindsor.ca

Name	Address	Email
James Bryant, Director, Watershed Management Services, Essex Region Conservation Authority	360 Fairview Ave W, Suite 311, Essex, ON N8M 1Y6	jbryant@erca.org
Daniel Krutsch, P.Eng.	Landmark Engineers Inc. 2280 Ambassador Drive, Windsor, ON, N9C 4E4	dkrutsch@landmark.ca

Appendices:

- 1 Drainage Report for the McKee Drain in the City of Windsor, County of Essex, dated February 9, 2022



February 9, 2022

Project No.: 16-019

The Corporation of the City of Windsor
350 City Hall Square West, 3rd Floor
Windsor, ON
N9A 6S1

**Re: Drainage Report for the
McKee Drain
City of Windsor – County of Essex**

Dear Mayor and Council:

In accordance with Council Resolution #511/2016 dated August 22, 2016, and City of Windsor (hereafter *City*) administration's subsequent instructions, we have completed our examinations into the improvement of the McKee Drain. The following report addresses the outcome of our examinations, our findings, and our recommendations for improvements to the subject drain.

1.0 Introduction

In 2010, the Province of Ontario commissioned the WEMG to construct the Rt. Hon. Herb Gray Parkway (hereafter Parkway). Its construction necessitated substantial modifications, realignments and or other impacts to several municipal drains within the City, Town of LaSalle and Town of Tecumseh, including the McKee Drain.

The McKee Drain provides drainage for approximately 339 hectares of lands in the City. The drain commences from its upstream limit, approximately 150 metres west of Malden Road and 10 metres south of the Parkway roadway embankment, and flows westerly to Parkway SWM Pond 6 within the Parkway corridor. After exiting SWM Pond 6, the drain routes briefly along the north side of the Ojibway Parkway to the Essex Terminal Railway (ETR) right-of-way. It then flows along the east side of the ETR approximately 475m before crossing the railway right-of-way and entering the Lou Romano Pollution Control Plant property. From there it meanders northwest towards Sandwich Street. After crossing Sandwich Street, the drain flows northwest across several riverfront industrial properties, crosses a spur of the ETR, thence flows through a 475m long canal before ultimately discharging to the Detroit River.

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Professional Engineers
Ontario

In 2013, following the substantial completion of the Parkway construction, the Ministry of Transportation of Ontario (MTO) filed petitions with the City for Council to appoint an engineer to examine and report on the municipal drains that provide a drainage outlet for the Parkway. City Council resolved to authorize Landmark Engineers Inc. to prepare a report on the McKee Drain under Section 78 of the *Drainage Act*.

2.0 Background Information

2.1 Watershed Description

The watershed of the McKee Drain has an area of approximately 339 ha (837 acres). Based on Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) mapping, the entire portion of drain located upstream of Sandwich Street is classified as a Class F drain. Downstream of Sandwich Street, the drain is unrated. The drain and its watershed have been substantially altered over the past decades by way of urbanization and industrialization of the tributary lands. Most recently, construction of the Parkway in 2013 resulted in a significant realignment and reconfiguration of the approximate 500m segment of drain that traversed the Parkway right-of-way. The watershed currently exists as a mixture of residential, commercial and industrial lands, portions of the Parkway corridor, and open meadow and wooded areas. Some of the open lands are designated as environmentally significant and will likely remain undeveloped into the future.

Like most lands in the region, the watershed generally exhibits limited topography and relief, having an overall watershed slope in the order of 0.14%. The only significant relief is associated with the Parkway and EC Row Expressway embankments and a former landfill known as Malden Park. Surface soils predominantly consist of Berrein Sand and Granby Sand over clayey, impermeable soils.

2.2 Drain History

The City's search of their drainage records revealed the following reports and by-laws pertaining to the McKee Drain:

1. **“McKee Creek Bank Improvements Drainage Report”** dated August 21, 2012 by Matthew J. Baird and Don Joudrey of Stantec Consulting Ltd.
2. **“By-Law No. 106-2012”** passed by the City Council pursuant to Section 58 of the Drainage Act.
3. **“Letter of Opinion for Drain Improvements to the McKee Drain as Part of the Windsor-Essex Parkway”** dated October 23, 2012 by Tom H. Marentette of Dillon Consulting and Parkway Infrastructure Engineers (PIE).

The 2012 Stantec report by Matthew J. Baird and Don Joudrey, and By-Law No. 106-2012 addressed improvements to a segment of the drain located immediately upstream of Sandwich Street. Improvements generally consisted of replacement of existing steel sheet pile erosion

protection that had deteriorated along 110m of the channel with new retaining walls constructed with a precast concrete block system, and associated drainage and restoration works.

The 2012 Letter of Opinion by Tom H. Marentette of Dillon / PIE addressed the improvements / alterations to the McKee Drain associated with construction of the Parkway.

In addition to reports prepared pursuant to the provisions of the *Drainage Act*, two studies were provided by the City that contained information relevant to this assignment, specifically:

- a) **“McKee Creek Drainage Study – Final Report”** dated July 27, 2006 by N. J. Peralta Engineering Ltd.
- b) **“McKee Creek Drainage Study”** dated September 1978 by M. M. Dillon Consulting Ltd.

The 2006 report by N. J. Peralta Engineering Ltd. examined the status of the drain and culverts, determined the watershed boundary of the McKee Creek, estimated the current 100-year flood levels along the drain, determined the scope of improvements needed to reduce flood levels, and identified interim works needed to accommodate development in the Joyce Street area. The report also proposed a design profile for the drain.

The 1978 report by M. M. Dillon Ltd. analyzed flood flows and predicted flood levels within the watershed for a range of flood frequencies, for both existing and future conditions. It also recommended a scope of improvements to reduce the risk of flooding based on conditions that existed at that time. The study concluded that the channel and numerous culverts were severely undersized to convey the 100-year design flows. Drain improvements were identified to convey the 5-year, 50-year and 100-year estimated flows that included channel realignments and enlargements, and culvert replacements.

2.3 Construction of Rt. Hon. Herb Gray Parkway

As noted previously, construction of the Parkway resulted in substantial modification of that portion of the drain lying within the limits of the Parkway lands, as well as the drainage area boundary of the McKee Drain. Parkway construction also significantly changed the hydrologic characteristics of the lands that it occupies, some of which outlet to the McKee Drain and other municipal drains in the region. The Parkway Infrastructure Engineers (PIE) undertook an independent hydrologic modelling exercise to calculate peak flood flows generated by the Parkway, and more relevantly, the flows that would outlet to the respective receiving watercourses. PIE documented their independent hydrologic analysis and findings in various stormwater management reports, which formed the basis for sizing of the parkway drainage infrastructure and modification of the affected municipal drains through the parkway corridor.

Prior to construction of the works that impacted the drains, reports were prepared pursuant to Section 77 of the *Drainage Act* by Tom H. Marentette, P.Eng. of Dillon Consulting. The report entitled “Drain Improvements to the McKee Drain as Part of the Windsor-Essex Parkway” dated

October 23, 2012, addressed the impact of the Parkway drainage improvement on the subject drain.

The most relevant aspects of the aforementioned reports that were relied on for this report are summarized below.

2.3.1 Stormwater Management Report (SWM Report)

The flows that were calculated by the PIE were used to design the new Parkway drainage infrastructure, including a stormwater management pond known as Pond 6, which discharges into the lower McKee Drain. Modification of the watershed boundary and portion of the drain within the Parkway right-of-way by WEMG prompted the need for a new report under the provisions of the *Drainage Act* to ensure a secure outlet for Pond 6 and to ensure that the risk of flooding of downstream lands was not worsened. The following paragraphs summarize the information provided in the SWM report that we consider most relevant to this undertaking. This information was taken into consideration for the purpose of completing our assessment of the drain.

The detailed SWM plan for the Parkway includes five pumping stations and seven SWM ponds to service all new sections of Highway 401 and the majority of Highway 3.

Pond 6 is the only stormwater management pond associated with the McKee Drain. Pond 6 has been designed to provide water quality and quantity treatment in accordance with the Ontario Ministry of the Environment (MOE) Stormwater Management Planning and Design Manual (2003) to meet Ministry and project specific design criteria

Stormwater Conveyance – The roadway drainage system for Highway 401 and roadways below grade will be constructed to convey the 100-year design event. The drainage system will be designed to prevent flooding of the travelled Highway 401 lanes. For sections of Highway 3 that are at-grade, the minor system will be designed to convey the 10-year design storm flow and the major system will be design to convey the 100-year design storm flow.

Stormwater Quantity Control – Post development peak flows will be controlled to pre-development levels for a range of design events up to and including the 100-year event.

Stormwater Quality Control – Enhanced quality control will be provided to treat storm runoff from highway 401 and Highway 3.

SWM Pond 6 operating characteristics are summarized in Table 10.4 of the SWM Report. The 24-hour duration results using the MTO 2011 updated IDF curves were summarized and presented in the table, since the 24-hour duration produced the most conservative storage requirements. The table presented the peak discharges/outflows from Pond 6 during the 5-year and 100-year events to be 0.58 and 2.78 m³/s respectively.

Calculated 100-year peak flows were compared to and found to be less than the 100-year flows estimated by M. M. Dillon in 1978. It is presumably on that basis that PIE concluded that there are no adverse impacts to downstream properties in terms of water quality and peak flow rates.

A copy of the main body of the SWM Report is provided for reference as Appendix A.

2.3.2 Report under Section 77 of the Drainage Act

The following summarizes the information provided in the report prepared by PEI under the provisions of Section 77(3) of the *Drainage Act* that we consider most relevant to this undertaking.

The report concluded that if the work were carried out in accordance with the drawings and specifications, that the portion of the McKee Drain being improved can proceed without adversely affecting any person(s) and / or property.

The total contributing area to Pond 6 is approximately 77 ha.

The report recommended that the drainage associated with the McKee Drain be constructed in accordance with the Phase 3 Highways IFC Submission Sheet H302.

A copy of the entire report is provided for reference as Appendix B.

2.4 Basis of Hydrologic Modelling

We deemed it appropriate to undertake an independent hydrologic and hydraulic evaluation of the subject drain as part of this report, in order to confirm the drains capabilities to receive and safely convey flows to a sufficient outlet.

A new PCSWMM model was developed for the entire drainage basin. Using the estimated flows, backwater calculations were undertaken for the existing conditions and proposed improvements. GeoHECRAS software by CivilGEO was employed to estimate water levels through the drain for the 5-year and 100-year events.

3.0 On-site Meeting

The on-site meeting required under Section 9 of the *Drainage Act* was held on 28 August 2018 at the Capri Pizza Recreation Complex at 2555 Pulford Street. A copy of the Notice of On-Site Meeting that was issued by the City Clerk is attached herein as Appendix C. All property owners that would potentially be impacted by the drainage improvement works were invited to attend the meeting.

The meeting opened by introducing the attendees and highlighting the purpose of the meeting. With the aid of a PowerPoint presentation, the purpose of the meeting was reviewed, some brief history and status of the McKee Drain was provided, the *Drainage Act* process was explained and opportunities for input by interested members of the public were identified. Specific needs

for drainage improvements and the known issues with the drain were identified. At the end of the formal presentation, the meeting was opened up for questions and discussion.

The property owner of 4027 Sandwich Street, Brian Rizok, expressed a concern with periodic flooding that he is experienced on his land since the new concrete block retaining wall was construction adjacent to his property. Mr. Krutsch noted that he had observed the issue during his site visit and assured the property owner that measures would be included in the recommended works to correct what he deemed to be the local drainage deficiency.

An attendee that did not sign the meeting attendance sheet introduced himself as Dimitri and asked if any repairs to the drain would involve an adjustment to the drain route. Mr. Krutsch indicated that repairs or improvements to the drain would not likely involve any significant realignment of the drain.

4.0 Field Surveys and Investigations

Due to the quality of available topographic information throughout the watercourse, a limited amount of survey work was needed to complete our examinations and this report.

The existing topography of the drain was acquired from:

- LiDAR data obtained from Land Information Ontario. Accordingly, the base mapping for this project contains information licensed under Open Government License - Ontario;
- information contained in as-built drawings of the Parkway prepared by PIE in 2016; and,
- localized topographic surveys by Landmark staff to infill data gaps and confirm the existing channel profile.

For the purpose of ground-proofing the foregoing information and data, confirming the condition of the existing drain, and the size and condition of existing culverts, inspections of the entire drain were undertaken by Landmark originally in February through April 2018. A follow-up investigation to confirm the present condition of the drain and culverts was undertaken in February 2020.

5.0 Design Considerations

A recent document published by OMAFRA (Publication 852) entitled “A Guide for Engineers working under the Drainage Act in Ontario” is the current reference document used by engineers carrying out works under the *Act*. That document addresses the application of *Drainage Act, 1990* and the requirements and other regulations, policy and legislative aspects of completing drainage undertakings. The document also provides guidelines on the technical design components of engineering reports.

5.1 Design Event / Level of Service

Historically, the drainage standard that has been applied to most municipal drains in rural Ontario is the 2-year storm, a storm return period that has a 50% chance of occurring each year. In residential and commercial areas or where the location of flooding may result in significant losses, the 5-year and 10-year events are the recommended drainage standards due to the increased risk of flooding. These events have an annual chance of occurrence of 20% and 10% respectively. The *Act* assigns the responsibility for selection of an appropriate design storm / level of service to the appointed engineer.

The McKee Drain serves as drainage outlet for a significant portion of the Parkway and E. C. Row Expressway. As noted in Section 2.2 of this report, previous studies have examined the capability of the drain to convey the 100-year storm. Considering the above, and the fact that a considerable area of tributary lands located downstream of the ETR are low lying and flood-prone, and assuming that there is a need to ensure that an appropriate degree of flood proofing is provided to those lands, the 5-year and 100-year event have been adopted as the design events for the drain.

The 5-year storm event was adopted for the purpose of sizing all channels and culverts. Culvert diameters were selected to convey the 5-year storm event without causing significant surcharging or backwater effects. The system was then evaluated under the 100-year event to ensure that the calculated hydraulic grade line does not cause flooding to existing structures.

5.2 New Hydrologic and Hydraulic Analysis

As noted in Section 2.4, a new hydrologic model of the McKee Drain watershed was developed and analyzed by Landmark for the purpose of independently confirming flood flows and assessing the capability of the recommended drainage improvements to safely convey these flood flows. Since the hydrologic analysis of PIE only addressed the upstream portion of the watershed (i.e., those lands that inflow to the existing culvert under the E.C. Row Expressway), and since the hydrologic analysis did not include the lower reaches of the drain, this was deemed to be most prudent.

The complete modeling approach and results are presented in Section 6.3 of this report.

6.0 Findings and Recommendations

6.1 Outlet Considerations

Section 15 of the *Drainage Act* prescribes that every drainage works shall be continued to a sufficient outlet. Drains shall be discharged at a point where they can do no damage to other lands or roads.

Previous hydrologic studies, with exception to the hydrologic analysis undertaken by PIE, have examined the entire watershed of the McKee Drain. These studies have consistently defined the

downstream limit of the drain to be the east limit of the existing slip / canal that the drain discharges into. The issue with establishing this point as the drain outlet relates to the ownership and control of the slip /canal.

We note that the existing slip / canal presently has no legal status with regard to the *Drainage Act*. Therefore, the potential exists for the downstream landowner to infill or otherwise modify the slip / canal in a manner that adversely impacts the McKee Drain function.

In order to ensure proper long-term function of the drain, we recommend that the drain outlet be relocated to the westerly limit of the slip / canal, where it discharges to the Detroit River. As prescribed by Section 15 of the *Act*, we consider this to be a sufficient outlet for the subject drainage project for the following reasons:

- The existence of the slip / canal, or a sufficient portion of it, would be secured in perpetuity;
- The slip can be maintained along with the balance of the Drain under the provisions of the *Drainage Act*, to ensure that sediments do not accumulate within the slip and backup into the culverts under the Essex Terminal Railway; and,
- Should the owner of the slip / canal ever wish to infill the slip or otherwise modify it, provision can be made under the *Drainage Act* to redefine the slip / canal, or a sufficient portion of it to maintain a proper drainage outlet.

Section 31 of the *Drainage Act* authorizes the engineer to incorporate an existing private drain into the municipal drainage system and to compensate the owner for a portion or all of its value. We have assessed a nominal allowance to the owner of the lands upon which the slip / canal lies as presented in Section 7 of this report

6.2 Existing Drain State and Condition

Based on our examinations of the drain, and our consideration of the various background reports and documents, we have summarized the current state and condition of the drain below. For convenience, we have presented our findings based on the delimited drain segments that exhibit similar characteristics. In addition to listing bounding landmarks, channel station locations are also provided. We have designated the outlet of the McKee Drain into the Detroit River as Station 0+000.

Drain Outlet at Detroit River to East Limit of Canal (Station 0+000 to Station 0+446). The drain through this segment generally consists of an open earth-lined slip / canal that presumably was used at one time for mooring of vessels. The channel exhibits heavy amounts of sedimentation in the order 600 to 900mm deep. The canal has an average width of approximately 20 metres and the channel banks are generally gravel or earth-lined and well vegetated.

East Limit of Canal to Upstream of Culvert Under Sandwich Street (Station 0+446 to Station 0+781). The drain through this segment consists predominantly of earth-lined open channels segments separated with 5 bridge / culvert structures. The bridges / culverts within

the reach include multi-barrel culverts, box culverts and rigid concrete bridges. The open channel segments have typical top widths that range from 7.5 to 15 m, with depths in the order of 2 m. The large majority of the open channel segments are heavily overgrown with phragmites and other bank vegetation. The bridges / culverts within the reach range in condition from poor to fair. A thorough inspection of the structures was not possible during the course of this assignment due to predominance of elevated Great Lake and Detroit River water levels, which results in many of the culverts being substantially or completely submerged.

Upstream of Culvert Under Sandwich Street to Upstream Limit of Rectangular Channel Section (Station 0+778 to Station 0+885). The drain through this segment consists of a rectangular channel constructed from precast concrete block. The drain has a typical width of 2.5m, near vertical side slopes, and a standard depth of 2.25m. The existing channel is the product of repairs that were designed in 2012 by Stantec Consulting Ltd. and presumably constructed in 2013. This segment is in good condition except for a very short segment of the north channel bank which appears to have undergone some minor displacement / deflection since its construction.

Upstream Limit of Rectangular Channel Section to Downstream of Lou Romano Water Reclamation Plant Enclosure (Station 0+889 to Station 1+080). The drain through this segment consists of intermittent open channel segments and culvert enclosures. The open channel segments have typical top widths that range from 7 to 13 m with depths in the order of 1.2 to 1.5 m. There are 4 culvert crossings within the reach that range in condition from poor to fair.

Lou Romano Water Reclamation Plant Enclosure (Station 1+080 to Station 1+258). This drain segment consists of a 1200mm culvert enclosure the traverses the north limit of the Lou Romano PCP property. The exposed ends of the enclosure consist of heavily corroded corrugated steel pipe. It is assumed that the entire enclosure is constructed from the same material. It is worth noting that a railway spur once existed over the enclosure. The rails and ballast appear to have been removed sometime between 2010 and 2013. Our examination of the culvert was limited to what could be viewed through the upstream culvert end. From this vantage point, the culvert appears to be in poor condition and requires either replacement, or removal and transformation of the drain into an open channel.

Upstream Limit of Lou Romano Water Reclamation Plant Enclosure to Downstream Limit of ETR Culvert (Station 1+258 to Station 1+605). The drain through this channel segment consists of a large earth-lined open channel. Typical top widths range from 15 to 18 m and depths range from 2 to 3 m. During our initial site examinations and surveys in 2018, the channel was severely overgrown with a mixture of phragmites and woody shrubs. Our inspections in 2020 revealed that substantial portions of the drain segment had been recently cleared and brushed.

The channel banks have side slopes in the range of 2.0(HOR):1(VERT) to 2.5(HOR):1(VERT), and appear to be in good condition. The downstream portion of the drain is vegetated with a mixture of herbaceous plants, shrubs and trees. The upstream portion of the drain is overgrown with phragmites, which is likely adversely impacting the capacity of the drain.

ETR Culvert Crossing (Station 1+605 to Station 1+626). The drain through this segment consists of twin culverts that cross under the ETR. The diameter and material of the exposed culvert ends differ on the west and east sides of the tracks. On the west side of the railway embankment, the culverts consist of 750mm diameter corrugated steel pipe. The exposed portion of the culverts on the east side of the embankment consist of 800mm concrete pipe.

The exposed portions of the CSP culverts appear heavily corroded and may be reaching the end of their service life. The concrete pipe ends appear sound and feature a dry stack concrete rubble headwall. Both ends of the culverts were heavily obstructed with vegetation, which is likely limiting the hydraulic capacity of the culverts and the drain.

Upstream Limit of ETR Culvert Crossing to Downstream Limit of E.C. Row Culvert (Station 1+626 to Station 2+514). The drain through this segment consists of an earth-lined trapezoidal shaped channel. Lower segments of this reach of drain (Station 1+633 to 2+103) parallel the south side of the ETR, exhibit side slopes in the range of 1.5(HOR):1(VERT) to 1.7(HOR):1(VERT), and appear to be in good condition, except for some minor erosion near the toe of slope in localized areas. Drain banks are well vegetated with a mixture of herbaceous plants, however a significant amount of phragmites growth has established throughout this segment of drain, which is likely adversely impacting the capacity of the drain. Our inspections in 2020 revealed that substantial portions of the drain segment had been recently cleared and brushed.

The upper segment of this reach of drain (upstream of Station 2+103) meanders through the City's West Windsor Inert Dump Site and along the north side of the Ojibway Parkway and E. C. Row W/B Offramp. The channel cross-section through this reach varies. Channel banks have side slopes in the range of 1.5(HOR):1(VERT) to 1.7(HOR):1(VERT), and appear to be in good condition, except for some minor erosion near the toe of slope in localized areas.

There are 4 culvert crossings within the reach that are in good condition.

E.C. Row Culvert (Station 2+514 to Station 2+566). The drain through this segment consists of concrete box culvert that serves as the outlet to the Parkway's SWM Pond 6, which is comprised generally of 52m of 2440 x 1570mm rigid frame box. The structure was installed concurrent with construction of the E.C. Row Expressway.

Inlet of E.C Row Culvert through SWM Pond 6, Matchette Road Culvert and CV31 of Parkway Project to Exclusion Fencing (Station 2+566 to Station 3+190). This segment of drain comprises all of the segments within the limits of the Parkway lands. The drain was improved in conjunction with construction of the Parkway between 2011 and 2013. According to the SWM Report that PIE authored for the McKee Drain, Pond 6 receives flows from approximately 77 ha. of land, and attenuates flood flows before discharging to the culvert under the E.C. Row Expressway. Other than runoff generated from within the Parkway lands, Pond 6 receives runoff from a relatively small tributary area that extends southerly to Armanda Street and easterly towards Malden Road. Most of these lands that are external to the Parkway lands occur as open, undeveloped lands, which have a very low runoff generating potential.

We understand that pursuant to a maintenance agreement between the City of Windsor and the Ministry of Transport, the portion of the McKee Drain that lies within the lands owned by the Parkway will be maintained by, and at the expense of, the operating road authority.

Upstream of Parkway (Station. 3+190 to Station 3+729) The drain through this segment consists of a shallow 500 to 1000 mm deep grass-lined drainage swale. The swale appears to be remnant from a more substantial drainage ditch that serviced the lands that preexisted the Parkway construction. The present-day drainage function of this minor swale is to collect runoff from a relatively minimal tributary drainage area consisting primarily of open grass meadow.

Bridges and Culvert Assessments

From Station 0+000 to Station 2+561, there are sixteen (16) bridge and/or culvert structures that are located at railways, roadways and private access driveways, as described below:

Bridge No.1 (Access Culvert @ Station 0+464) consists of 30 m long twin 1200mm diameter concrete pipe culverts. The culvert appears structurally sound and it has sufficient hydraulic capacity to pass the 5-year storm event without significant backwater effects.

Bridge No.2 (Access Bridge @ Station 0+482) consists of 4.8 m long x 4.5 m span ridged concrete bridge with concrete wing walls. The bridge appears structurally sound and has adequate hydraulic capacity. However, the bridge does not appear to serve any current access function.

Bridge No.3 (ETR Culvert @ Station 0+508) consists of three (2 concrete, 1 Steel) 10 m long pipes. Two pipes have diameters of 900 mm and a third has a diameter of 750 mm. The pipes appear structurally adequate, however the hydraulic capacity of the access is insufficient.

Bridge No.4 (Old Access Bridge @ Station 0+729) consists of a 10 m long x 5.7 m span ridged concrete bridge with concrete wing walls. The bridge appears structurally sound and has adequate hydraulic capacity. Substantial sediment accumulation under and adjacent to the bridge is limiting its hydraulic capacity. The bridge does not appear to serve any current access function, however based on its appearance, it may have some heritage significance.

Bridge No.5 (Sandwich Street Culvert @ Station 0+767) consists of a 10 m long 2500 mm x 900 mm concrete box culvert that extends across Sandwich Street. The culvert appears structurally adequate and it has sufficient hydraulic capacity to pass the 5-year storm event without significant backwater effects. However, the substantial amount sediment accumulation under and adjacent to the culvert is limiting its hydraulic capacity. The City is in the process of self-performing a 4 metre extension of the culvert to incorporate minor roadway improvements to Sandwich Street. Drawings depicting the scope of works are included in Appendix F.

Bridge No.6 (ETR Culvert @ Station 0+895) consists of a 20 m long 1200 precast concrete pipe culvert. The culvert appears to be in satisfactory condition but is hydraulically deficient.

Bridge No.7 (Roll No. 050-170-06900 @ Station 0+938) consists of two (2) 10 m long steel pipes – a 1200 mm corrugated steel pipe (CSP) and a 825 mm smooth steel pipe. The culvert appears to be in poor condition and is hydraulically deficient.

Bridge No.8 (Roll No. 050-170-06900 @ Station 1+014) consists of a 12 m long 1200 mm precast concrete pipe culvert with concrete headwalls. The culvert appears to be in poor condition and is hydraulically inadequate.

Bridge No.9 (Roll No. 050-170-06700 @ Station 1+068) consists of a 8 m long culvert. The pipe was not visible during any of our inspections. Previous studies indicate that the culvert has a diameter of 900 mm. Two 12 m long 375 mm PVC pipes have been installed beside the primary culvert, presumably in an effort to increase the hydraulic capacity of the crossing, which remains hydraulically inadequate.

Bridge No. 10 (Pollution Control Plant Culvert @ Station 1+242) consists of the 175 m long culvert that comprises the drain enclosure at the Lou Romano WRP. The exposed ends of the 1200 mm diameter corrugated steel pipe (CSP) culvert ends are in poor condition and the culvert is hydraulically inadequate.

Bridge No.11 (ETR Culvert @ Station 1+617) consists of twin 20 m long 750 mm diameter corrugated steel pipe (CSP) culverts. The east end of the culvert consists of 800 mm diameter precast concrete culvert sections with a stone headwall. The downstream exposed ends of the CSPs are severely corroded and poor condition. The culverts are also hydraulically inadequate.

Bridge No.12 (Plains Midstream Culvert @ Station 1+660) consists of twin 20 m long 1200 mm diameter concrete pipe culverts. The upstream side of the culverts are fitted with sluice gates, presumably to prevent contaminants from migrating downstream in the event of a spill on Plains Midstream's property. The culverts are in satisfactory condition and are hydraulically adequate.

Bridge No.13 (Culvert @ Station 1+777) consists of a 6 m long 1050 mm diameter corrugated steel pipe (CSP) culvert. The culvert does not appear to be providing any current function and is hydraulically inadequate.

Bridge No.14 (Access Culvert @ Station 2+060) consists of a 10 m long 1800 mm diameter corrugated steel pipe (CSP) culvert with sloping rock end treatments. The culvert is in satisfactory condition and is hydraulically adequate.

Bridge No.15 (City Disposal and Storage Facility Access Culvert 1 @ Station 2+145) consists of a 12 m long 1800 mm diameter corrugated steel pipe (CSP) culvert with sloping rock end treatments. The culvert is in satisfactory condition and is hydraulically adequate.

Bridge No.16 (E.C. Row W/B Offramp Culvert @ Station 2+535) consists of a 52 m long 2440 mm x 1570 mm rigid frame box that serves as the outlet to the Parkway's SWM Pond 6. The culvert is in satisfactory condition and is hydraulically adequate.

6.3 Hydrologic and Hydraulic Assessment of Drain Capacity

As noted previously, in order to assess the capabilities of the drain to safely convey the anticipated flows, we developed a PCSWMM model to represent the existing site condition within the entire McKee Drain watershed. Simulations were then undertaken to estimate the runoff rates that would be produced during a range of statistical runoff events.

A few notable aspects of the modelling are summarized below:

- i. The hydrologic and hydraulic analysis was performed using the PCSWMM 2019 Professional 2D software version 7.2.2780. PCSWMM provides a modern, easy-to-use graphical user interface for the U.S. EPA SWMM5 program. The EPA Storm Water Management Model (SWMM) is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas.
- ii. The open channel segments of the drain were represented based on LiDAR data supplemented with survey data to represent the channel bottom. A channel roughness of 0.035 and an overbank roughness of 0.05 were assigned. The enclosed segment of the drain and culverts were constructed from measured pipe dimensions and assumed a pipe roughness of 0.013 for concrete pipe and 0.024 for corrugated steel pipe.
- iii. The major storm events selected for the analysis included the Chicago 5-year, 10 year, 25-year and 100-year 4-hour storms. A 20-minute time step was used for the simulations.
- iv. The estimated discharge rates that were presented in Table 10.3 of the SWM report authored by PIE were applied to the model at constant rates.

The modelling of the existing drain condition revealed that the drain has insufficient capacity to convey the 5-year storm without causing significant backwater at some existing culverts. Simulations of the 10-year, 25-year and 100-year storm events caused substantial flooding of lands abutting the drain.

Model simulations were undertaken to assess the impact of the recommended improvements. Under the 5-year storm, the improved drain conveys the runoff without causing significant backwater increases. The 10-year and 25-year events can be passed by the improved channel without overtopping the drain banks or causing significant backup at structures. Under the 100-year storm event, the drain will overtop the drain banks and spill into some adjacent properties, however due to the limited number of structures within the watershed, flooding will not be severe enough to cause flooding of existing structures.

6.4 Recommended Drain Improvements

Based on our consideration of the drain history, the information obtained during the site meeting, our examination and analysis of the survey data, and our hydrologic and hydraulic analyses, we recommend that improvements to the McKee Drain be undertaken as follows:

- Some segments of drain exhibit heavy overgrowth of brush and trees along the channel banks that restrict flow, raise upstream water levels, and inhibit growth of more desirable, herbaceous vegetation on the channel banks. We recommend that the drain bottom and drain banks be substantially brushed and cleared of woody vegetation from Station 0+477 to Station 0+756, Station 1+033 to Station 1+079, Station 1+257 to Station 1+605, and Station 1+637 to Station 2+509, in accordance with the drawings and specifications that form part of this report.
- A design profile and channel cross sections for the drain were established based on a consideration of the recommendations of prior reports and our calculation of channel capacity and outlet requirements of the tributary lands. The drain profile that was recommended in the 2006 Peralta report was deemed appropriate and was therefore adopted for this report. Design cross sections are identified in the drawings that accompany this report.

The existing profile of the drain deviates critically from the adopted design profile, either due to sedimentation or because the drain was never excavated to the design grade. Where significant accumulation of sediment has shallowed the channel and is reducing its hydraulic capacity, we recommend that the drain bottom be excavated or otherwise cleaned out to remove accumulated sediments. This condition exists from Station 0+477 to Station 0+756, Station 0+906 to Station 1+079, Station 1+257 to Station 1+605, and Station 2+069 to Station 2+514. In addition, reshaping of the channel banks to the lines and grades depicted in the drawings is required from Station 0+906 to Station 1+079, to provide a minimum 5-year free flow design storm capacity and sufficient outlet for upstream properties.

- Several existing access bridges do not match the design drain capacity. Therefore, the following bridges should be removed, replaced or improved:
 - Replace Bridge No.3 (ETR Culvert @ Station 0+508)
 - Improve Bridge No.6 (ETR Culvert @ Station 0+900)
 - Replace Bridge No.8 (Roll No. 050-170-06900 @ Station 1+014)
 - Replace Bridge No.9 (Roll No. 050-170-06700 @ Station 1+061)
 - Remove and Partially Replace Bridge No. 10 (Pollution Control Plant Culvert @ Station 1+242)
 - Replace Bridge No.11 (ETR Culvert @ Station 1+617)
 - Remove Bridge No.13 (Culvert @ Station 1+776)

- Two private access bridges exist at Roll No. 050-170-06900. Both bridges are hydraulically deficient and would require enlargement to achieve the capacity requirements of the drain. Section 18 of the *Drainage Act* generally requires that every property owner be provided access to their property. Only one bridge is necessary to achieve this requirement.

We note that the site is currently vacant and that the buildings that formerly existed on the east portion of the site were removed between 2010 and 2013. The east portion of the site currently remains in an undeveloped state. To achieve the requirements of Section 18 of the *Act*, and to maintain maximum flexibility for future redevelopment of the site, we recommend that Bridge No.8 be replaced, and that Bridge No.7 be removed and disposed of, and not replaced.

- The existing pipe enclosure between Station 1+080 to Station 1+256 (Bridge No. 10) should be removed and replaced with an open earth-lined channel from Station 1+080 to Station 1+225 to provide a 5-year design storm capacity and sufficient outlet for upstream properties, as illustrated in the drawings and as specified.

To maintain access to the north portion of the Lou Romano WRP property, we recommend that a new culvert be installed near the upstream limit of the existing enclosure, to re-establish access while providing a minimum 5-year free flow design storm capacity and sufficient outlet to upstream properties.

- During our site inspections, the owner of 4027 Sandwich Street expressed that a local drainage deficiency was caused by the 2012 drain improvements. A low-lying area that is set back from the drain top of bank lacks a proper outlet and is ponding water for extended periods following any measurable rainfall. To correct the deficiency, we recommend that a new catch basin and lead be installed by the City, outside the provisions of this report. No costs for this work have been included in this report.

7.0 Allowances and Compensation

In accordance with Sections 29, 30 and 31 of the *Drainage Act*, we have made a determination of amounts to be paid as allowances and compensation to the owners of lands affected by improvement of the McKee Drain for the following:

- loss of land and use of land for rights-of-way
- damages to lands, fences, ornamental trees, etc.
- the value of incorporating the existing canal into the drainage works in order to extend the drain to a sufficient outlet

Regarding the warrants for assessing allowances for lands taken and for use of lands for rights-of-way, we concluded the following:

- i. With exception to the extension of the drain out to include the slip /canal on Roll No. 050-170-04600, the proposed drain improvements do not cause any new loss of land beyond

what the current drain occupies. Presumably, allowances would have been granted to the property owners that held the lands when the original drain was established.

- ii. Presumably, during the original establishment of the drain, allowances would have been paid to establish a maintenance right-of-way or corridor. Typically, such corridors consisted of a 6 m wide right-of-way along one or both sides of the drain. We have assumed for the purpose of this report, that the original report would have only identified a corridor on one side of the drain. Given the requirements of modern construction equipment, we deem a 6 m wide corridor to be insufficient for the purpose of conducting proper drain maintenance. We recommend the establishment of a 9 m wide corridor on one side of the drain, or an additional width of 3 m.

Regarding the warrants for assessing compensation for damages to lands, fences, ornamental trees, etc., we concluded the following:

- iii. Any temporary damage to property (i.e., lawns, etc.), that may occur for the purpose of accessing the drain for construction or maintenance will be restored to a condition that matches, or is better than, pre-construction conditions. Consequently, there will be no permanent negative impact to privately-owned lands as a result of the works.
- iv. No excavated material will be disposed of on privately-owned lands, either during initial improvement of the drain or during maintenance activities. Any soil material removed from the drain during construction or future maintenance will either be disposed of on City-owned lands at the areas designated in the drawings, or hauled away to a suitable disposal site.
- v. The drainage improvements will be carried out to a sufficient outlet.
- vi. The drainage works will not result in any loss of access to privately-owned lands.

The 2012 Stantec report established a standard for assessment of allowances under Section 29 of the *Drainage Act*. We found it reasonable to follow suit, and to adopt a similar unit rate of \$50,000 per hectare, as assessed in the 2012 report. However, the assessment is only applied to the incremental width of 3m, and is only applied on lands with development potential. For segments of the drain that occupy privately-owned lands and rights-of-way (e.g. railways and utility corridors) that have no future development potential, and therefore are not significantly encumbered by the drain, a modest allowance of \$1,000 per hectare has been applied. The following table summarizes the allowances and compensation that we have assessed under Sections 29 and 30 of the *Drainage Act*.

Lot or Part	Con	Owner	Roll No.	Section 29 Allowance (\$)
59	1	Coco Aggregates Inc.	050-170-04600	2,440
59	1	Coco Paving Inc.	050-170-00601	580

59	1	Essex Terminal Railway Co.	080-850-03200	100
59	1	Central McKinlay International Ltd.	050-170-04110	420
59	1	Central McKinlay International Ltd.	050-170-04700	290
59	1	12427222 Canada Inc.	050-170-06900	1,800
59	1	Kinder Morgan Utopia Ltd.	050-170-06700	690
59	1	Ontario Hydro Networks	080-840-32300	900

Total Allowances under Sections 29 and 30 \$ 7,220.00

Regarding the assessment allowances under Section 31 of the Drainage Act, we concluded the following:

- Prior to this report, the downstream limit of the McKee Drain was assumed to be the west limit of the canal. We consider the existing canal to be an unsecured outlet for the drain;
- It is conceivable that the owners of the canal could undertake to infill the canal in the future. Other canals along the Detroit River have in fact been infilled (at least partially) in recent years (e.g., Morterm canal near Brighton Beach); and,
- The City has no legal entitlement or authority to maintain sufficient conveyance capacity through the canal in perpetuity.

Based on the foregoing, we recommend that the drain outlet be extended to the west limit of the canal, near the Detroit River shoreline. In accordance with Section 31 of the *Drainage Act*, we have determined that the owners of the existing canal should be compensated the following amounts:

Lot or Part	Con	Owner	Roll No.	Section 31 Allowance (\$)
59	1	Coco Aggregates Inc.	050-170-04600	16,260
59	1	Coco Paving Inc.	050-170-00601	3,840

Total Allowances under Section 31 \$ 20,100.00

We have provided for the above allowances in the estimate of costs as set out in Section 29 and 30 of the *Drainage Act*.

8.0 Cost Estimate

The total estimate of the cost of the work, including incidental expenses, is **\$1,287,764.80** made up as follows:

CONSTRUCTION

8.1 Clear and Brush of Drain

Carry out clearing and brushing of overgrown segments of improved earth-lined channels, including cutting and removal of trees and woody brush as specified.

Item	Description	Cost (\$)
a)	Clear and grub existing trees and woody vegetation from Station 0+477 to Station 0+756 including disposal to a suitable offsite facility	14,000.00
b)	Clear and grub existing trees and woody vegetation from Station 1+033 to Station 1+079 including disposal to a suitable offsite facility	4,900.00
c)	Clear and grub existing trees and woody vegetation from Station 1+257 to Station 1+605 including disposal to a suitable offsite facility	49,000.00
d)	Clear and grub existing trees and woody vegetation from Sta. 1+633 to 2+514 including disposal to a suitable offsite facility	21,000.00

Clear and Brush Subtotal = \$ 88,900.00

8.2 Channel Excavation Works

This work consisted of the excavation of the drain bottom to remove accumulated sediments and to achieve the profile grade shown on the drawings and/or excavation of the entire drain section to achieve the design drain cross-section that is depicted on the drawings.

Item	Description	Cost (\$)
a)	Excavation of drain bottom and disposal of material off site from Station 0+477 to Station 0+756.	105,000.00
b)	Excavation of entire drain section to restore drain cross-section as shown on the drawings Station 0+906 to Station 1+079, including disposal of material on site.	28,000.00
c)	Excavation of new open drain to replace existing enclosed drain including disposal of material on site from Station 1+080 to Station 1+225.	114,800.00
d)	Excavation of new realigned channel from Station 1+580 to Station 1+603 and from Station 1+630 to 1+640 to accommodate realignment of Bridge 11, including and disposal of excavated material on site.	7,000.00
e)	Bottom cleaning and excavation of the channel from Station 2+069 to Station 2+514, including disposal of material on site	28,000.00

Channel Excavation Subtotal = \$ 282,800.00

8.3 Bridge / Culvert Works

This component of the project consisted of culvert removals, modifications, and replacements that are needed to achieve the design hydraulic capacity and drainage outlet. The works should be completed in accordance with the design drawings and as specified.

Bridge No.3 (ETR Culvert @ Station 0+508)

Item	Description	Cost (\$)
a)	Clear and grub channel bank along proposed culvert alignment	2,800.00
b)	Install cofferdams to allow dewatering of existing culvert	11,200.00
c)	Salvage fish from work area, dewater channel and maintain bypass pumping	7,000.00
d)	Remove and dispose of three existing culverts and excavate railway bed to suit new culvert installation	8,400.00
e)	Supply and install precast twin box culverts including granular bedding and backfill, precast approach slabs, shear plates, seepage cutoff and headwalls	182,000.00
f)	Supply and install rock erosion protection	4,200.00
g)	Restore railway bed and ballast including material supply	5,600.00
h)	Restore disturbed areas seed and mulch	2,800.00

Bridge No. 3 Subtotal = \$ 224,000.00

Bridge No.6 (ETR Culvert @ Station 0+895)

Item	Description	Cost (\$)
a)	Clear and grub railway embankment along proposed culvert alignment and remove fencing as needed	2,800.00
b)	Install cofferdams to allow dewatering of existing culvert	11,200.00
c)	Salvage fish from work area, dewater channel and maintain bypass pumping	7,000.00
d)	Remove existing concrete headwall and portion of existing block retaining wall	7,000.00
e)	Excavate railway bed to suit new culvert installation	2,800.00

f)	Supply and install new 1200mm dia. concrete culvert including bedding and granular backfill, precast load distribution slabs, shear plates, and cast-in-place headwalls	126,000.00
g)	Install new chain link fence as illustrated in the drawings	2,800.00
h)	Restore railway bed and ballast including material supply	5,600.00
i)	Restore disturbed areas with seed and mulch	2,800.00

Bridge No. 6_Subtotal = \$ 168,000.00

Bridge No.7 (Culvert @ Station 1+776)

Item	Description	Cost (\$)
a)	Remove and dispose of existing culvert and headwalls	7,000.00
b)	Restore disturbed areas with seed and mulch	2,100.00

Bridge No. 7_Subtotal = \$ 9,100.00

Bridge No.8 (Roll No. 050-170-06900 @ Station 1+014)

Item	Description	Cost (\$)
a)	Clear and grub channel bank along culvert alignment	2,800.00
b)	Install cofferdams to allow dewatering of existing culvert	4,200.00
c)	Salvage fish from work area, dewater channel and maintain bypass pumping	7,000.00
d)	Remove and dispose of existing culvert and headwalls	2,800.00
e)	Excavate channel to suit culvert installation	2,100.00
f)	Supply and install twin 1200mm dia. (29.3m total length) HDPE culverts including granular bedding and backfill, seepage cutoff and rock end treatment	84,000.00
g)	Supply and install rock erosion protection	2,800.00
h)	Restore disturbed areas seed and mulch	2,100.00

Bridge No. 8_Subtotal = \$ 107,800.00

Bridge No.9 (Roll No. 050-170-06700 @ Station 1+068)

Item	Description	Cost (\$)
a)	Clear and grub channel bank along culvert alignment	2,800.00
b)	Install cofferdams to allow dewatering of existing culvert	4,200.00

c)	Dewater channel and maintain bypass pumping	7,000.00
d)	Remove and dispose of existing culvert and headwalls	2,800.00
e)	Excavate channel to suit culvert installation	2,100.00
f)	Supply and install twin 1200mm dia. (29.3m total length) HDPE culverts including granular bedding and backfill, seepage cutoff and rock end treatment	84,000.00
g)	Supply and install rock erosion protection	2,800.00
h)	Restore disturbed areas seed and mulch	2,100.00

Bridge No. 9_Subtotal = \$ 107,800.00

Bridge No.10 (Pollution Control Plant Culvert @ Station 1+242)

Item	Description	Cost (\$)
a)	Clear and grub channel bank along culvert alignment	1,400.00
b)	Excavate channel to suit culvert installation	3,500.00
d)	Supply and install twin 1200mm dia. (34.2m total length) concrete culverts including granular bedding and backfill, seepage cutoff and rock end treatment	98,000.00
e)	Supply and install rock erosion protection	4,200.00
f)	Restore disturbed areas with topsoil, seed and mulch	2,800.00

Bridge No. 10_Subtotal = \$ 109,900.00

Bridge No.11 (ETR Culvert @ Station 1+617)

Item	Description	Cost (\$)
a)	Clear and grub channel bank along culvert alignment	2,800.00
b)	Supply and install precast 1800mm dia. concrete culvert including granular bedding and backfill	168,000.00
c)	Supply and install precast concrete block headwalls	56,000.00
d)	Excavate channel to suit culvert installation	4,200.00
e)	Supply and install rock erosion protection	4,200.00
f)	Abandon existing culvert pipes and grout solid	42,000.00
g)	Restore disturbed areas with topsoil, seed and mulch	2,800.00

Bridge No.11_Subtotal = \$ 280,000.00

Bridge No.13 (Culvert @ Station 1+777)

Item	Description	Cost (\$)
a)	Remove and dispose of existing culvert and headwalls	7,000.00
b)	Restore disturbed areas with topsoil, seed and mulch	2,100.00

Bridge No. 13_Subtotal = \$ 9,100.00

SUB-TOTAL CONSTRUCTION COST..... \$ 1,387,400.00

NET HST (1.76%) ON CONSTRUCTION..... \$ 24,418.24

TOTAL CONSTRUCTION COST \$ 1,411,818.24

ENGINEERING AND INCIDENTALS

a) Allowances under Section 29 and 30 of the Drainage Act \$ 7,220.00

b) Allowances under Section 31 of the Drainage Act \$ 20,100.00

c) Surveys, Report, Estimate, Drawings, Specifications, attend Council meeting, attend Court of Revision \$ 120,000.00

d) Duplication Cost of Report and Drawings \$ 2,500.00

e) Estimated Cost of Letting Contract \$ 10,000.00

f) Estimated Cost of Construction Related Services \$ 80,750.00

g) Net H.S.T. on Incidental Items \$ 3,753.20

h) Estimated Cost of Finance and Eligible Municipal Administration \$ 20,000.00

i) Contingency Allowance for Engineering and Incidentals \$ 15,000.00

TOTAL ENGINEERING AND INCIDENTALS \$ 279,323.20

TOTAL ESTIMATE	\$ 1,691,141.44
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9.0 Assessment

9.1 Construction Schedule of Assessment

9.1.1 Rationale for Construction Assessment

We have established a construction assessment rationale relative to the improvements being carried out to the McKee Drain as follows:

From 2007 through 2015, costs associated with undertakings completed under the *Drainage Act* within the City of Windsor have been undertaken in accordance with CR388/2007, which states:

That the City of Windsor undertakes drain maintenance and costing in the following method:

- I. City of Windsor CONTINUE to use the general tax levy or the sewer surcharge levy, depending on location for drain maintenance costs in accordance with the City of Windsor Act, 1968: a) with the exception of private access structures, which are to be assessed to the benefiting property owners as per completed engineer's report and assessment schedule as a "special benefit" in accordance with s. 24 of the Drainage Act; b) Municipal Drains, excluding access structures will BE MAINTAINED at the general tax rate or sewer surcharge, depending on location, provided the landowners allow soil from the drains to be spread on their lands, as provided for in the Engineer's Report.*

CR388/2007 was later amended by Council Resolution CR64/2015, which extended the exception of private access structures to include exemption of "special benefit" works that benefit individual properties.

Having due regard for the provisions of the *Drainage Act*, and with due consideration given to CR388/2007 and CR64/2015, we have established a rationale for assessing the construction costs and associated incidental expenses including preparation of this report. Our assessment rationale is summarized below.

The *Drainage Act* gives authority to assess lands, roads and public utilities for benefit, outlet and injury liability, special benefit and special assessments. We have determined that four types of assessments are applicable to this project, namely: benefit; outlet liability; special benefit; and, special assessment.

Section 22 of the *Act* provides for assessment of project costs towards lands, roads, buildings, utilities or other structures that derive an advantage or improvement from the construction, improvement, repair or maintenance of a drainage system. For this project, the works result in the draining of water more efficiently, the substantial reduction of flood potential of lands within the watershed area, a reduction in the potential for bank erosion, increased capacity of the drain, improved appearance of the drain, and the provision of access to lands abutting the drain.

Section 23 of the *Act* provides for assessment of project costs towards any properties that use the drainage works as an outlet. For this project, all properties that contribute runoff to the drain are

assessed outlet liability in proportion to the volume and rate that they contribute storm runoff to the drain.

Sections 24 and 26 of the *Act* provide for the assessment of project costs that relate to any features in the construction, repair, improvement or maintenance of the drainage system that have no effect on the functioning of the drainage system.

The improvements proposed under this report can be separated into two principal categories: channel improvements (repairs); and bridge/culvert improvements (and replacements). We have assessed that each of these should be addressed in a different manner.

Channel Improvements (Repairs)

Channel improvements entail clearing and brush of the drain bottom and banks as well as excavation works (mostly drain bottom cleaning and minor bank reshaping) to restore the drain to its required 5-year conveyance capacity. The excavation works also establish a sufficiently deep channel for all lateral sewers and drain outlets.

Given the unavailability of the drainage reports that formed the basis of the original establishment of the McKee Drain as a municipal drain, it is not possible to confirm the level of service that the original drain was intended to provide. Most municipal drains in rural Ontario are designed to convey a 2-year return period design storm. We presume that the original drain was sized accordingly.

Nevertheless, our independent assessment of the hydraulic capacity of the drain has determined that the large majority of the open drain sections are sized sufficiently to convey the existing 5-year storm event. However, the current state of disrepair of some open-channel sections of the drain is limiting the capacity of the drain to less than the 5-year rainfall event.

It is most probable that the watershed of the McKee Drain generated less runoff when the drain was originally established, when in all likelihood it existed in a less developed state. Gradual urbanization of the watershed has undoubtedly increased both the volume of runoff and the rate at which it occurs. The recent development of the Rt. Hon. Herb Gray Parkway corridor has further increased the need for improved drainage through the entire drain corridor.

Based on the foregoing, we recommend that a substantial portion of the channel improvement costs be assessed as Benefit to the Parkway and roadways within the watershed.

Bridge / Culvert Improvements (and Replacements)

The hydraulic capability of each existing bridge / culvert was assessed for capacity to convey the adopted 5-year design storm without causing significant backwater effects. Based on this assessment, several of the existing bridges / culverts were found to be hydraulically deficient. The bridges/culverts were also assessed for their ability to convey the 2-year storm event. We found that all but three of the structures can convey the 2-year event.

Many of the bridges provide access to the abutting lands. Three (3) of the bridges occur at crossing of the Essex Terminal Railway. Section 26 of the *Drainage Act* grants the engineer authority to assess all the increase in cost of drainage works caused by the existence of the works of the public utility, which includes including railways.

The significance of the foregoing is as follows:

- Gradual and indiscernible transformation of the predominant land use within watershed from open-space/agricultural to urban/industrial, without stormwater management being applied, has contributed to the current hydraulic deficiency of the affected bridges.
- As noted, the principal purpose of the current drain assessment is to ensure that there is sufficient and reliable outlet capacity for the Parkway. The demand for the increased outlet capacity is also being contributed to by urbanization and the associated general need for improved roadway drainage.

Therefore, notwithstanding the authority granted by Section 26 of the *Act*, we deem it appropriate to assess a significant portion of the cost of bridge replacements to the tributary lands, as Special Benefit under Section 24 of the *Act* to the local road authorities

Based on the foregoing principles, we have assessed the cost of the drain improvements as set out below:

9.1.2 Construction Assessment

Section 24 Special Benefits and Section 26 Special Assessments

The first step in preparing the assessment schedule is to identify special benefits and assessments and deduct these costs from the total project costs. For this project, we have identified several occurrences where the assessment of special benefits and assessments is appropriate, namely:

- A fair portion of the costs associated with replacement of access bridges/culverts (Bridges 3, 6 and 11) that cross the Essex Terminal Railway right-of-way should be levied against the **Ministry of Transportation Ontario (MTO) and municipal road authority** in accordance with Section 24 of the *Drainage Act*.
- A fair portion of the costs associated with replacement of access bridges/culverts (Bridges 3, 6 and 11) that cross the Essex Terminal Railway right-of-way should be levied against the **Essex Terminal Railway** as a Section 26 Special Assessment.

We find that 50% of the cost of replacing or improving the above-noted bridges, including the associated incidental costs, should be levied against the **Essex Terminal Railway** as a Section 26 Special Assessment. Accordingly, we have calculated said cost, including construction and a proportion of engineering and incidental costs, to be **\$409,560.20**, and have included this in the Schedule of Assessment. The engineering and incidental cost portion of the foregoing net

amount is estimated to be \$67,646.40. The remaining 50% of the cost of Bridges 3, 6 and 11, and associated proportion of the engineering and incidental costs, should be assessed to the Ministry of Transportation Ontario (MTO) and municipal road authority as a Special Benefit.

Once the construction of this work is completed, the Essex Terminal Railway shall be assessed for the actual construction and a proportional amount of the engineering and incidental costs.

Benefit

Three of the existing bridge / culvert crossings that occur along the drain, and serve as access to private properties, require replacement – Bridges 8, 9 and 10 respectively. Based on a consideration of the assessment rationale presented previously, it is our judgement that 40% of the estimated construction costs, and a proportional amount of the engineering and incidental costs, are properly assessed as benefit to the individual properties that the bridges service. Accordingly, we have calculated said cost, including construction and a proportion of engineering and incidental costs, to be **\$158,704.50**, and have included this in the Schedule of Assessment. The engineering and incidental cost portion of the foregoing net amount is estimated to be \$26,213.00.

It is furthermore our judgement that 20% of the estimated construction costs, and a proportional amount of the engineering and incidental costs, should be assessed to the Ministry of Transportation Ontario (MTO) and municipal road authority as a Special Benefit, for the reasons explained in Section 9.1.1 of this report. The remaining 40% of the costs of these items is properly assessable to the tributary properties and roads that contribute flow to the drain as outlet liability.

Outlet Liability

We recommend that the remaining project costs be assessed as outlet liability towards the lands that contribute flows to the drain. These lands include all of the lands that lie within the drainage boundary of the McKee Drain as depicted in the attached drawings.

CR388/2007 and CR64/2015

In accordance with Council Resolution CR388/2007 as amended by CR64/2015, we have assessed the outlet liability associated with this project against the ratable properties and roads within the watershed, as set out in the Schedule of Assessment below.

SCHEDULE OF ASSESSMENT

SPECIAL BENEFIT and SPECIAL ASSESSMENTS				
Roll No	Description		Owner	Value of Special Benefit (\$)
Not Applicable	Rt. Hon. Herb Gray Parkway Corridor		Ministry of Transportation Ontario	244,456.30
Not Applicable	Municipal Roads		City of Windsor	244,456.30
050-170-06900	Private Land Parcel		12427222 Canada Inc.	52,560.20
050-170-06700	Private Land Parcel		Kinder Morgan Utopia Ltd.	52,560.20
050-170-06600	Lou Romano Water Reclamation Plant		City of Windsor	53,584.10
080-850-03200	ETR Right-of-way		Essex Terminal Railway	409,560.20
TOTAL SPECIAL ASSESSMENT				1,057,177.30
OUTLET LIABILITY ASSESSMENT (per CR388/2007 and CR64/2015)				
Description	Area Affected (ha)	Area Affected (acres)	Value of Outlet (\$)	Total Assessment (\$)
Parkway Corridor	57.5	142.1	183,981.00	220,259.80
City Roads	14.5	35.8	46,395.20	55,543.80
City Lands	187.0	462.1	299,169.10	358,161.60
Sub-Totals	259.0	640.0	529,545.30	633,965.20
TOTAL BENEFIT & OUTLET LIABILITY ASSESSMENT				1,691,142.50

The foregoing represents the assessments applicable to initial construction of the drain improvements. Thereafter, we recommend that future costs associated with maintenance of the drainage works be assessed pursuant to the provisions of Council Resolution CR388/2007 as amended by CR64/2015.

10.0 Future Maintenance Provisions

10.1 Working / Maintenance Corridors

Access to the drain for the purpose its of improvement and maintenance shall be limited to the corridors indicated in the following table.

From	To	Owner	Roll No.	Working Corridor Description
0+000	0+380	Coco Paving Inc.	050-170-04600	Within canal plus 9 m wide on south and west side of drain
0+380	0+515	Coco Paving Inc.	050-170-00601	Within canal plus 9 m wide on south and west side of drain
N/A	N/A	Essex Terminal Railway Co.	080-850-03200	Within drain plus 6 m wide on both sides of drain (with permission from ETR)
0+515	0+656	Central McKinlay International Ltd.	050-170-04110	Within drain plus 9 m wide on west side of drain
0+656	0+781	Central McKinlay International Ltd.	050-170-04700	Within drain plus 9 m wide on west side of drain
0+781	0+885	4027 Sandwich Street	050-170-07101	Within drain plus 6 m wide on both sides of drain
0+885	0+906	Essex Terminal Railway Co.	080-850-03200	Within drain plus 6 m wide on both sides of drain (with permission from ETR)
0+906	1+025	12427222 Canada Inc.	050-170-06900	Within drain plus 9 m wide on west side of drain
1+025	1+070	Kinder Morgan Utopia Ltd.	050-170-06700	Within drain plus 9 m wide on west side of drain
1+070	1+605	Lou Romano Water Reclamation Plant	05-170-06600	From City Owner Property
1+605	1+920	Essex Terminal Railway Co.	080-850-03200	Within drain plus 9 m wide on east side of drain (with permission from ETR)

1+920	2+330	Ontario Hydro Networks	080-840-32300	Within drain plus 9 m wide on east side of drain and east side of drain
2+330	2+514	City of Windsor	080-840-04900	Within drain plus 9 m wide on north side of drain and east side of drain
2+514	3+729	Parkway MTO	Parkway R.O.W.	Maintained by WEMG

The above working corridors should be used to access the drain during construction of initial improvements (where needed) as well as for any future maintenance that may be required.

Access to some drain segments, or portions thereof, is only available across privately-owned lands. All construction activities will be confined to the limits described above or within the working limits defined by the Engineer at the time of construction.

10.2 Recommended Maintenance

I recommend that the drain be maintained in a good state of repair as provided for in the *Drainage Act*. Guidelines for future inspection and maintenance frequencies are provided below:

11.0 Approvals

The works recommended herein, (and any future maintenance works) will be subject to the approval of various local, provincial and federal authorities - including the Essex Region Conservation Authority (ERCA), the Ministry of Natural Resources and Forestry (MNR), the Ministry of the Environment, Conservation and Parks (MECP), and the Department of Fisheries and Oceans Canada (DFO).

We note that none of the proposed works occur within designated Areas of Natural and Scientific Interest (ANSIs), Environmentally Sensitive Areas (ESAs), or Provincially Significant Wetlands (PSWs). These designations by the Government of Ontario are applied to contiguous geographical regions within the province that have geological and/or ecological features which are considered significantly representative provincially, regionally, or locally. These areas are commonly inhabited by endangered species and species-at-risk.

As of April 1, 2019, the administration of the *Endangered Species Act, 2007* (ESA) transitioned responsibility from MNR to the MECP. By way of a workshop with the Drainage Superintendents of Ontario in June 2021, a framework for addressing the provisions of the ESA was established. The key aspects of this framework shall be addressed via the following steps:

1) Record Review of Species-at-Risk (SAR) Data

The Essex Region is home to several fish, animal, and plant species that are currently designated as being Endangered, Threatened, or of Special Concern. The most common examples of such fish species found (or potentially found) in the vicinity of the subject site include: the Channel Darter, the Silver Chub, the Northern Madtom, the Eastern Sand Darter, the Spotted Sucker and the Silver Lamprey. Designated plant species include: the American Chestnut, Colicroot, the common hoptree, the dense blazing star, the dwarf hackberry, the Kentucky coffee-tree, the willowleaf aster, the Climbing prairie rose, Riddell's goldenrod and Shumard oak. Screening maps from various sources (including the Essex Region Conservation Authority, MNRF website, and DFO Aquatic Species-at-Risk Map) were reviewed to determine the potential for encountering such species or their habitat within the subject site.

2) Habitat Assessment / SAR Surveys

As noted above, some potential exists within the subject site to encounter, fish, animal, and plant species that are designated as being Endangered, Threatened, or of Special Concern. Given that the subject drain routes through heavily urbanized / industrialized lands, however, and having due regard for the findings of previous local SAR surveys, the potential for SAR or their habitat to be encountered along the drain appears to be minimal. This potential will largely depend on the conditions that exist at the time that the proposed improvements to the existing drain are undertaken - as the highly-variable water levels that prevail on the Great Lakes (and the Detroit River, specifically) will directly impact the aquatic and riparian characteristics of the drain bottom and banks, and hence their suitability to support fish habitat.

For the foregoing reasons, no additional SAR surveys were undertaken during preparation of this report.

3) Avoid and/or Minimize Adverse Effects

Regardless of the extent to which conditions at the time of the proposed drain improvements vary from the present, it is expected that some precautionary measures will be warranted to mitigate adverse impacts on any SAR and/or SAR habitat that may be found to exist within the proposed work area. For example, it is recommended that the channel improvements and bridge replacements prescribed in this report will be completed in the dry, at an appropriate time of year, and within work areas that will be isolated and evacuated of any fish and other wildlife.

For this project, the most appropriate action is to seek approval for the proposed drain improvement works immediately prior to construction. Given the limited opportunity to alter the drain route due to land-use constraints, any impacts that cannot be fully mitigated will need to be either:

- Sheltered under the drainage works exemption in Section 23.9 of *Ontario Regulation 242/08*; or,
- Authorized under the *ESA*.

12.0 Utilities

The cost estimates presented herein do not provide for relocating or adjusting existing utilities as needed to complete the recommended works. In accordance with Section 26 of the *Drainage Act*, if any existing utilities interfere with the construction of the recommended drainage works, and require relocating or adjusting, the added cost of completing the works is directly chargeable to the affected utility. Potential utilities that may have existing infrastructure within the project limits include Union Gas Ltd., ENWIN Utilities Ltd., Bell Canada, Allstream, Cogeco, MNSi, Windsor Utilities Commission, and Hydro One.

13.0 Attachments

The following documents form part of this report and are appended hereto.

- A. PIE Stormwater Management Report (main body only)
- B. Drainage Report prepared by PIE under Section 77(3) of the *Drainage Act*
- C. Notice of On-Site Meeting
- D. As-Built drawings for Parkway Culverts and Pond No. 6, Stantec McKee Creek Bank Improvement Drawings
- E. Specifications
- F. Drawings (Including: Watershed Plan, Plan Drawings, Drain Profile, Sections)

All of which is herewith submitted for consideration with copies for the affected Owners, the relevant Ministries and any other agencies or departments with environmental or other interest.

Respectfully submitted,

Landmark Engineers Inc.



Daniel M. Krutsch, P.Eng.
Encl.



APPENDIX A

PIE Stormwater Management Report
(main body only)



WINDSOR ESSEX MOBILITY GROUP



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McKee Drain Stormwater Management Report




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McKee Drain Stormwater Management Report

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McKee Drain Stormwater Management Report

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1 Introduction

The Detroit River International Crossing (DRIC) Study is a bi-national transportation improvement study that has been undertaken by the governments of Canada, United States, Ontario and Michigan who have formed the Canada-United States-Ontario-Michigan Border Transportation Partnership (the Partnership). The purpose of the undertaking is to provide for the safe, efficient and secure movement of people and goods across the Canadian-U.S. border in the Detroit River area to support the economies of Ontario, Michigan, Canada and the U.S. The Canadian portion of the DRIC study consists of three primary components: the Detroit River crossing, a new inspection plaza and new access roads linking these to the existing Highway 401.

The Partnership retained URS Canada Inc. to assist in the undertaking of the Ontario Environmental Assessment for the DRIC Study which was submitted to the Ontario Minister of the Environment on December 31, 2008. Through the EA process, the Windsor-Essex Parkway (The Parkway) was identified as the technically and environmentally preferred alternative (TEPA) to connect the new inspection plaza to the existing Highway 401 terminus. A Preliminary Design was also completed by URS on behalf of the Ministry of Transportation of Ontario (MTO) in November 2009.

In November 2010, the Windsor-Essex Mobility Group (WEMG) was awarded the Detailed Design of The Parkway along with the construction, finance and maintenance of the new parkway infrastructure. The WEMG is a consortium of three of the world’s premiere infrastructure developers and contractors, each with an equal share:

- Acciona Concessions Canada, Inc.
- ACS Infrastructure Canada
- Fluor Canada, Ltd.

The Windsor-Essex Parkway is an integrated transportation corridor consisting of a six lane extension of Highway 401, a new four lane Highway 3 service road and parkland with a trail system. It is important to note that when referring to “The Parkway”, this refers to the entire integrated transportation corridor and when referring to any one portion of the system, they must be referred to by their individual names.

2 Proceedings Under the Drainage Act

The Drainage Act (Act) provides the legislative vehicle for the construction and management of many of the communal drainage systems in Ontario. The local municipality is responsible for the management of the drainage systems located within their municipal boundaries and the cost of the work is normally assessed to the landowners in the watershed of the drain.

The Drainage Act is fairly precise in its description of how works of drainage are to be handled, however some discretion on the application of the Act is left to the appointed Engineer.

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On March 16, 2010, the Ontario Ministry of Transportation (MTO) issued Ministry Directive PLNG – B012 which clarifies and documents the Ministry’s policy with respect to proceedings under the Drainage Act. The purpose of the Directive is:

“To define the responsibilities and key activities for the Ministry’s area and regional staff in the initiation, review, and approval of drainage works implemented under the Drainage Act within or affecting highway rights of way and other lands owed by the Ministry, in both organized and unorganized territory. The directive is not intended to provide a detailed summary of Drainage Act procedures.”

The Road Authority, as commonly referred to in the *Ontario Drainage Act* refers to the MTO or the municipality in which the roadway lies. In situations where the drainage works extend outside of the MTO controlled lands, but remains within a municipal road right of way, the Road Authority refers to the entity that is responsible for control and maintenance of that roadway. Municipal drainage works for The Parkway are largely contained within the MTO right of way.

3 Stormwater Management and Drainage Strategy

To facilitate the review and approval process, stormwater management (SWM) reports will be issued that provide stormwater and drainage design information on an outlet by outlet basis. These reports will demonstrate how the stormwater quality and quantity criteria specified in the Project Agreement are met and will include the hydrologic and hydraulic analyses completed to support the design of SWM and drainage infrastructure for The Parkway. The following individual SWM reports will be issued:

- Grand Marais Drain SWM Report
- Grand Marais Drain Supplementary SWM Report
- Burke Drain SWM Report
- Wolfe/Cahill and Talbot Drains SWM Report
- McKee Drain SWM Report
- Lennon Drain SWM Report
- Marentette Mangin Drain SWM Report
- Basin and Youngstown Drains SWM Report.

This Stormwater Management Report has been prepared to document the development of the SWM plan, the flood plain management plan and the design of drainage infrastructure for the section of The Parkway associated with the McKee Drain.

4 Study Location and Extents

The Windsor-Essex Parkway will be approximately 11 kilometres long; beginning at the current terminus of Highway 401 and concluding at the future inspection plaza at Ojibway Parkway. The Parkway will traverse through three municipalities: the Town of Tecumseh, Town of LaSalle and City of Windsor. The alignment of The Parkway, in general, will be along North Talbot Road, Huron Church Line and E.C. Row Expressway. **Figure 4.1** (report figures are provided in **Appendix A**) illustrates the regional context

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of The Parkway. Access to local roadways will be provided via the new Highway 3. **Figure 4.2** and **Figure 4.3** illustrate key Parkway infrastructure.

There are currently two crossings of the McKee Drain: the Matchette Road crossing approximately 85 m south of the existing E.C. Row Expressway eastbound ramp, and the E.C. Row Expressway crossing approximately 215 m northeast of the intersection of E.C. Row Expressway and Ojibway Parkway. The section of The Parkway associated with the McKee Drain is from approximately Highway 401 Station 9+900 to Station 11+800. **Figure 4.4** illustrates the entire study area considered for the hydrologic and hydraulic analyses of the existing and future crossings of the McKee Drain.

4.1 Purpose and Objectives

This SWM Report has been prepared in support of the detailed design of the proposed Highway 401 crossing of the McKee Drain and to demonstrate that the proposed design has met the requirements of Schedule 15-2, Part 2, Article 7 of the Windsor-Essex Parkway Executed Project Agreement.

This report documents the hydrologic and hydraulic analyses, and detailed design rationale for the proposed McKee Drain crossings. These analyses were used in the development of the proposed SWM and flood plain management plans for the section of The Parkway that is directly associated with the Drain. These plans are provided in **Section 10** of this report.

The objectives of this report are to demonstrate that:

- The Parkway drainage design can safely convey stormwater runoff across and through The Parkway
- The Parkway is adequately protected against extreme flood events
- The Parkway will not result in adverse flooding impacts on upstream and downstream properties
- The Parkway will not adversely impact aquatic habitat.

4.2 Supplementary Design Information

This report is supplemented by additional technical studies completed as part of the Detailed Design for The Parkway; including but not limited to the following:

- Phase 2 Highway and Roadway Drainage Design Report (PIE/Dillon Consulting; 2012)
- Phase 3 Highway and Roadway Drainage Design Report (PIE/Dillon Consulting; 2012)
- Phase 2 New Construction Drawings (PIE/Hatch Mott MacDonald; 2012)
- Phase 3 New Construction Drawings (PIE/Hatch Mott MacDonald; 2012)
- Windsor-Essex Parkway Project – McKee Drain: Letter of Opinion (PIE/Dillon Consulting; 2012)
- Technical Memo: Flooding Assessment in Depressed Highway Sections (PIE/Dillon Consulting; September 21, 2011)
- Windsor-Essex Parkway Project – Fish Habitat Compensation Plan, Version B (PIE/AMEC; August 2011).

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5 Background Review

Key stakeholder agencies were consulted to inform the analysis and design of the McKee Drain crossings. Several sub-watershed studies have been completed in and around the study area; including technical studies completed in support of the Environmental Assessment. The following sections provide a brief overview of the technical studies reviewed and agency feedback received in preparation for this study.

5.1 DRIC Environmental Assessment

An Ontario Environmental Assessment Report (EA Report) was prepared as part of the DRIC study. The EA Report documents the formal federal and provincial environmental assessment processes undertaken for a new or expanded Detroit River International Crossing; and the selection of the TEPA.

Chapters 4, 10 and 11 of the Ontario EA Report are of particular interest in making informed decisions in the design of the proposed McKee Drain crossing. Chapter 4 describes the existing conditions relative to land use, socio-economic environment and natural environment. Chapter 10 of the EA Report contains details on the environmental effects and proposed mitigation measures of the Recommended Plan; and commitments to future work. Chapter 11 outlines commitments to consultation, compliance monitoring, and permits/approvals that must be obtained during future stages of the project.

5.2 The Windsor-Essex Parkway Preliminary Design Report

The Windsor-Essex Parkway Preliminary Design Report (PDR) was completed by URS and issued in November 2009. The PDR expands on Chapter 9 of the EA report (Description of the Recommended Plan) and provides details on the preliminary design of the Windsor-Essex Parkway. As part of the preliminary design, a preliminary stormwater management plan was developed by URS and is outlined in *The Windsor-Essex Parkway Stormwater Management Report (November 2009)*. The report included the preliminary design of several drainage elements and, in conjunction with the EA Report, established the basis for the detailed design of the Windsor-Essex Parkway.

5.3 The Windsor-Essex Parkway Stormwater Management Report

The Windsor-Essex Parkway Stormwater Management Report (URS; November 2009) outlines the preliminary SWM Plan that was developed for The Parkway to address the highway drainage and the potential impacts of The Parkway on the Drains and drain crossings.

The preliminary design of the McKee Drain crossing of Highway 401 and Matchette Road consisted of a 2.0 m span, 1.0 m rise box culvert approximately 215 m long. Section 7.6 of the URS SWM Report states that this box culvert "...is proposed to convey the 100-year storm event under both Highway 401 and Matchette Road without significantly impacting the existing McKee Drain." However, the impacts of the proposed culvert are not outlined in the report.

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5.4 Existing Technical Studies

McKee Creek Drainage Study Final Report

Prepared by N.J. Peralta – July 2006

The N.J. Peralta Report was undertaken to evaluate the existing conditions of the McKee Drain and its crossings. A HEC-RAS model was prepared using starting water levels that were observed during the topographic survey and flows calculated using the Rational Method. The recommendations of the report include replacement of several culvert crossings to provide a higher level of service than currently exists. Two options were provided to lower the 100-year return period event water surface elevation: Option A consists of a combination of maintenance on the Drain and the construction of an auxiliary channel, and Option B is maintenance only.

McKee Creek Watershed Study

Prepared by M.M. Dillon – September 1978

The McKee Creek Watershed Study was prompted by the Ministry of Transportation’s (Ministry of Transportation and Communications at the time) design of the E.C. Row Expressway and City of Windsor’s desire to evaluate the existing and future drainage requirements for the watercourse. The study included a hydrologic and hydraulic analysis to estimate the existing and anticipated future peak flow rates and water surface elevations for the 5-year, 50-year and 100-year return period events, and the Hurricane Hazel Regional Storm event.

Recommendations for the replacement of restrictive culverts and increased channel capacity were developed and evaluated to provide lowered proposed 100-year return period event water surface elevations. The topographic survey completed to support the detailed design of The Parkway has revealed that some of the recommendations for channel improvements were implemented. Although it is undetermined at this time if all recommendations were implemented as described in the M.M. Dillon report, The Parkway SWM Plan for the McKee Drain has been designed to control the post-development 100-year return period event peak flow rate to not exceed the 3.91 m³/s calculated for the watershed study. The resulting water surface elevation (WSEL) approximately 40 m downstream of the E.C. Row Expressway culvert, with the proposed channel improvements, was calculated in the watershed study to be 178.00 m. This elevation was used in the design of The Parkway SWM Plan as the fixed WSEL for the 100-year return period event approximately 45 m downstream of the E.C. Row Expressway culvert. Normal depth was assumed for the 2- through 50-year events and the 25 mm event.

5.5 Stakeholder Agency Consultation

Stakeholder consultation has been an on-going commitment of the Windsor-Essex Mobility Group since the initiation of the detailed design process. Core agency consultation group meetings have been held on an average of every four to six weeks. These provide opportunities for the design team to present aspects

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of the design in advance of submissions to HMQ, and solicit feedback to identify additional design considerations and/or concerns.

Several agencies were consulted throughout the detailed design of the proposed McKee Drain crossings:

- City of Windsor, maintains the McKee Drain
- ERCA, regulatory authority of the Drain with respect to hydraulic performance and flood plain management
- Fisheries and Ocean Canada (DFO), regulatory authority of the Drain, with respect to fisheries
- Ontario Ministry of Natural Resources, regulatory authority of the Drain with respect to species at risk.

6 Description of Existing Conditions

The existing conditions within The Parkway project limits, and beyond the property line, are described in detail in Chapter 4 of the *Environmental Assessment Report (URS, December 2008)* completed for the DRIC Study and in *The Windsor-Essex Parkway Stormwater Management Report (URS, November 2009)* which was completed as part of the Preliminary Design. A detailed survey of The Parkway right-of-way and existing infrastructure was completed by AGM in support of the detailed design phase. This information was used to assess existing drainage patterns for both the minor and major flows. The proceeding sections summarize the existing conditions within the study area for the McKee Drain (**Figure 4.4**).

6.1 Watercourse Characterization

The McKee Drain is a regulated municipal drain and lies within the Detroit River Watershed. The headwaters of the Drain are in the City of Windsor between Malden Road and Matchette Road, south of E.C. Row Expressway. From its upstream limit to Matchette Road, the Drain is an intermittent flowing watercourse and is not considered fish habitat. From Matchette Road to its confluence with McKee Creek, the Drain is considered warm water sportfish habitat. Based on OMAFRA mapping (provided in **Appendix C**) the Drain is classified from its upstream limit to McKee Creek as a Class F drain.

The McKee Drain, within The Parkway property limits, is a linear trapezoidal conveyance feature with relatively uniform geometry. The upstream limit of the Drain is located approximately 360 m west of Malden Road and 115 m south of E.C. Row Expressway. There are currently two crossings of the McKee Drain within The Parkway property: the Matchette Road crossing approximately 85 m south of the existing E.C. Row Expressway eastbound ramp, and the E.C. Row Expressway crossing approximately 215 m northeast of the intersection of E.C. Row Expressway and Ojibway Parkway.

The existing E.C. Row Expressway crossing of the McKee Drain serves as an outlet to a drainage area of approximately 77 hectares immediately upstream and south of the Expressway. The Drain serves as an outlet for local drainage and is primarily accessed by overland flow and ditches. The Drain flows west, parallel to the Expressway, crossing Matchette Road through a 900 mm culvert. The Drain continues to flow west and turns to flow northwest just upstream of the Expressway through a 2.44 m span, 1.52 m rise

box culvert crossing of the Expressway. From there, the Drain flows west and curves to flow adjacent to the intersection of Ojibway Parkway and E.C. Row to eventually flow north to its confluence with McKee Creek. The creek continues to flow north and discharges to the Detroit River.

Refer to **Appendix D** for a photo inventory of the existing McKee Drain.

6.2 Watershed Characterization

Watershed characteristics for the McKee Drain Sub-Watershed were determined using information obtained from ERCA’s online GIS database (refer to **Appendix C** for the GIS mapping), topographic mapping from the AGM survey, the City of Windsor Storm Sewer Atlas (provided in **Appendix C**) and field investigations.

Due to the environmental sensitivity of the McKee Drain sub-watershed, it has not been substantially impacted by urban developments. The current land uses in the McKee Drain sub-watershed consist of approximately 16 percent residential and 84 percent undeveloped open space. **Figure 6.2** illustrates the sub-watershed boundary for the McKee Drain sub-watershed.

6.3 Geology

The soil characteristics were determined based regional soil mapping obtained from Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA). The soils within and in the vicinity of the McKee Drain study area are composed primarily of sandy soils ranging from good to poor natural drainage. Approximately 29 percent of the soils in this watershed consist of Berrien Sand; classified as HSG ‘AB’, and approximately 62 percent consist of Granby Sand which is classified as HSG ‘B.’. The remaining 9 percent of the soils consist of Plainfield Sand and is classified as HSG ‘A’. The distribution of soils within the McKee Drain study areas is illustrated in **Figure 6.3**.

7 Description of Proposed Conditions

The future Parkway will traverse the McKee Drain at the existing Matchette Road crossing and immediately upstream of it. To facilitate this crossing, a 3.0 m span, 1.8 m rise concrete box culvert will be installed to convey flows to an open channel between the Highway 401 westbound lanes embankment and the E.C. Row Expressway eastbound ramp. Flows will continue westward to a new Matchette Road crossing located approximately 40 m north of the existing road crossing. The new crossing will consist of a 3.0 m span, 1.2 m rise box culvert which will outlet to Pond 6; a future stormwater management wetland which is discussed later in **Section 10** of this report.

For the most part, runoff from The Parkway will be captured and conveyed by a network of storm sewers which will outlet to vegetated swales at the toes of the embankment slopes. These swales will provide water quality and quantity treatment prior to discharging to the McKee Drain upstream of the Highway 401 crossing, and Pond 6 downstream of the Matchette Road crossing.

New Construction Sheet H302 in **Appendix B** illustrates the proposed conditions for the McKee Drain crossings.

8 Design Analysis

8.1 Design Criteria and Agency Requirements

Project specific design standards and criteria are defined in the Executed Project Agreement (Schedule 15-2, Part 2 – Design and Construction Requirements, Article 7 Drainage and Erosion Control Design Criteria). Article 7 lists drainage design requirements for the Parkway and provides a list of reference documents applicable to The Parkway drainage design and stormwater management plan.

The design standards and criteria from Article 7 provide design guidance with respect to drainage elements such as storm sewers, roadside ditches, pump stations, stormwater management facilities and watercourses. In general, the design criteria provided the drainage design requirements for the conveyance of stormwater, quantity control, quality control and flood protection. They can be summarized as follows:

Stormwater Conveyance – The roadway drainage system for Highway 401 and roadways below grade will be constructed to convey the 100-year design event. The drainage system will be designed to prevent flooding of the travelled Highway 401 lanes. For sections of Highway 3 that are at-grade, the minor system will be designed to convey the 10-year design storm flow and the major system will be design to convey the 100-year design storm flow.

Stormwater Quantity Control – Post development peak flows will be controlled to pre-development levels for a range of design events up to and including the 100-year event.

Stormwater Quality Control – Enhanced quality control will be provided to treat storm runoff from Highway 401 and Highway 3.

Flood Protection – The Parkway will not be overtopped during the Regional Storm Flood event (i.e., Hurricane Hazel).

The design event for The Parkway drainage system is the 100-year return period event, which is also ERCA’s Regulatory Event. Hurricane Hazel is the Regional Storm Event and is the required level of design flood protection for Highway 401. Hurricane Hazel will also be used to evaluate the level of service of drainage features in areas sensitive to flood risk.

8.2 Hydrology

Consistent with the methods adopted by URS in the Preliminary Design, the StormNET model with the EPA SWMM runoff procedures was used for the watershed hydrology to define design flows for drains and crossings. StormNET was also used to evaluate the proposed conditions and to demonstrate that the design complies with the Executed Project Agreement and Regulatory Authority design criteria.

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Figures 8.1 and 8.2 illustrate the sub-watershed catchment delineation.

8.2.1 Updated MTO IDF Standards

MTO has developed new Intensity-Duration-Frequency (IDF) curves which are to be used in the design of Ministry highway infrastructure. The new IDF curves replace those in the *MTO Drainage Management Manual (1997)*. The implementation date for these new curves was February 28, 2011. As per Highway Design Bulletin 2011- 001, projects that have passed the 30 percent completion stage are to assess the impacts of using the new IDF curve values on the design. If the new rainfall intensities are greater than 10 percent of the values used in the design, the new values should be used.

The design of the drainage elements proposed for the Windsor-Essex Parkway was developed to the 60 percent completion stage based on two IDF curves, as follows:

- The system of storm sewers, oil and grit separators, pumping stations and stormwater management facilities are designed based on the IDF curves in the *MTO Drainage Management Manual, 1997*
- The sub-watershed hydrology, municipal drain re-alignments and crossings are designed based on the Windsor Airport IDF curves (1946 to 2003 period of record).

The Windsor Airport IDF curves were selected and deemed more appropriate for the sub-watershed hydrology and drain realignments as the station is within 15 km of The Parkway study area and provides rainfall statistics that are more representative of the area compared to the MTO District 1 curves.

The new IDF curves were reviewed and a comparison of the rainfall intensities for the 100-year return period event, which the design of the drainage infrastructure is based on, is provided in the following tables:

Table 8.1 – Comparison of Windsor Airport and New MTO IDF Curves

100-Year Return Period			
Time (mins)	Windsor Airport Intensity (mm/hr)	MTO Updated IDF Intensity (mm/hr)	Difference %
5	228.5	212.4	-7
10	161.5	158.4	-2
15	142.6	136	-5
30	98.9	102.4	4
60	62.1	66.5	7
120	35.1	40.5	15
360	14.5	16.8	16
720	8.3	9.5	14
1440	4.6	5	9

Table 8.2 – Comparison of MTO Drainage Management Manual, 1997 and New MTO IDF Curves

100-Year Return Period			
Time (mins)	MTO District 1 - South of Dresden	MTO Updated IDF	Difference
	Intensity (mm/hr)	Intensity (mm/hr)	%
5	235	212.4	-10
10	165	158.4	-4
15	135	136	1
30	100	102.4	2
60	64	66.5	4
120	43	40.5	-6
360	14	16.8	20
720	9.1	9.5	4
1440	4.5	5	11

A preliminary evaluation of the 30 percent design of drainage elements was undertaken to estimate the impacts of the new IDF curves on simulated peak flows and water surface elevations. Although for the drain realignments and crossings, it was demonstrated that the criteria for freeboard could not be met, no changes to the design storms for these elements were completed. This was based on an assessment of flood risk potential by HMQ, given that these elements were designed to convey the Hurricane Hazel Storm Event.

The evaluation of the performance of the stormwater management ponds with the new MTO IDF curves demonstrated that none of the seven ponds were capable of meeting the criteria for freeboard. However, with the exception of Ponds 4 and 6, all ponds were capable of controlling post-development peak flow rates to pre-development rates. As such, and as directed by HMQ, only Ponds 4 and 6 were redesigned to provide the additional required active storage. Pond 6 is discussed later in **Section 10** of this report. Refer to the *Lennon Drain Stormwater Management Report (PIE/Dillon Consulting, 2012)* for the design of Pond 4.

8.2.2 Data Collection and Model Parameters

Several sources of data were used in the development of the StormNET models. Detailed topographic survey data provided by AGM was used to establish the existing McKee Drain contributing drainage area and sub-catchments. Curve Numbers (CN) and percent impervious were determined using OMAFRA soils mapping data, aerial photography and site reconnaissance. CN were obtained from Design Chart H2-6A from the *MTC Drainage Manual (1986)* and Design Chart 1.09 from the *MTO Drainage Management Manual (1997)*.

The equivalent width parameter is typically used as a model calibration parameter. However, the EPA SWMM 5.0 manual (November 2004) suggests a physically based approach to estimating this parameter; which has been applied in the development of the McKee Drain sub-watershed model. The following excerpt from the Manual describes the approach:

“An initial estimate of the characteristic width is given by the subcatchment area divided by the average maximum overland flow length. The maximum overland flow length is the length of the flow path from the inlet to the furthest drainage point of the subcatchment. Maximum lengths from several different possible flow paths should be averaged. These paths should reflect slow flow, such as over pervious surfaces, more than rapid flow over pavement, for example. Adjustments should be made to the width parameter to produce good fits to measured runoff hydrographs.”

The percentage of impervious area with no depression storage used is 25 percent which is the suggested default from the EPA SWMM 5.0 manual.

Figures 8.1 and 8.2 illustrate the existing and future conditions sub-catchment delineations respectively. **Tables 8.3 and 8.4** summarize the areas and calculated CNs of each sub-catchment for the existing and future conditions respectively.

Table 8.3 – Summary of Existing Drainage Areas to the McKee Drain

Area ID	Total Area (ha)	Weighted Average CN (AMC II)
1	11.08	60
1A	1.14	60
2	0.26	62
3	1.15	60
4	1.54	65
5	1.72	87
6	1.23	73
7	0.88	82
8	1.85	70
8A	1.60	63
9	19.75	72
10	14.86	77
11	8.04	66
12	1.71	65
13	0.54	67
13A	1.32	76
14	1.32	74
15	0.93	64
16	2.29	69
17	3.61	83

Table 8.4 – Summary of Future Drainage Areas to the McKee Drain

Area ID	Total Drainage Area (ha)	Weighted Average CN (AMC II)
1	11.08	59
1A	1.14	98
2	0.26	62
3	1.15	60
4	1.54	98
5	1.72	88
6	1.23	73
7	0.88	82
8	1.85	75
8A	1.60	98
9	19.75	69
10	14.86	77
11	8.04	79
12	1.71	98
13	0.54	74
13A	1.32	83
14	1.32	84
15	0.93	77
16	2.29	80
17	3.61	83

8.2.3 Model Results

The results of the existing and future conditions StormNET models show that post-development peak flow rates are similar to, but less than existing conditions; and that the post-development 100-year return period event peak flow rate is less than the M.M. Dillon calculated peak flow rate of 3.91 m³/s. This is achieved through the quantity control and peak flow attenuation provided by Pond 6 which is discussed further in **Section 10**. Refer to **Appendix E** for model simulation results.

Table 8.5 provides a comparison of the existing and future peak flow rates for the 2- through 100-year return period events in McKee Drain at the upstream face of the E.C. Row crossing using the Windsor Airport IDF, 6-hour duration with the Chicago distribution.

**Table 8.5 – Existing and Future Peak Flows for the McKee Drain
(Windsor Airport IDF - 6-Hour Chicago Event)**

Return Period Event	Existing Peak Flow Rate (m ³ /s)	Future Peak Flow Rate (m ³ /s)
2-Year	1.36	0.42
5-Year	1.78	0.61
10-Year	2.10	0.86
25-Year	2.52	1.21
50-Year	2.81	1.46
100-Year	3.38	2.85

9 Additional Design Considerations

9.1 Culvert Crossings

There are a number of non-structural culverts required within Phase 3 of The Parkway to maintain drainage associated with the McKee Drain. For culverts not on a watercourse, the design flow for which a minimum of 0.3 m of freeboard shall be provided to the top of sub-grade upstream of the culvert is the 10-year return period event peak flow. **Table 9.1** below illustrates that the requirement for freeboard in accordance with SD-13 of the MTO *Highway Drainage Design Standards* (2008) has been met. Refer to **Appendix E** for model simulation results.

Table 9.1 – Freeboard for Culverts not on a Watercourse

Culvert ID	Top of Sub-Grade Elev'n (m)	10-Year Event WSEL (m)	Freeboard Provided (m)
CV-12	178.0	178.19	0 (see Note 1)
CV-29	180.0	178.66	1.3
CV-40	182.0	178.70	3.3
CV-51	179.5	178.81	0.7

Note 1. Sub-drain provided to drain subgrade to Ojibway Parkway storm sewer.

There are two proposed culvert crossings of the McKee Drain. The first is a new crossing of Highway 401 at approximately Station 10+840, and the second is a replacement and relocation of the existing Matchette Road crossing. For culverts on a watercourse, the design flow for which a minimum of 1.0 m of freeboard shall be provided to the edge of the travelled lane for freeways, arterials and collectors. The design storms as per WC-1 are the 50-year return period event for freeways and urban arterials (i.e. Highway 401, E.C Row and ramps) and the 25-year event for rural arterials (i.e. Matchette Road).

Table 9.2 below illustrates that the requirement for freeboard in accordance with WC-7 of the MTO *Highway Drainage Design Standards* (2008) has been met. Refer to **Appendix E** for model simulation results.

Project:	Windsor-Essex Parkway	Date:	October 2012
Document:	McKee Drain Stormwater Management Report	Rev:	C
Doc No.:	285380-70-119-0007	Page No.:	13

Table 9.2 – Freeboard for Culverts on a Watercourse

Culvert ID	Edge of Travelled Lane	Design Event WSEL (m)	Freeboard Provided (m)
CV-31	183.0	178.34 (50-Year)	4.66
CV-53	178.8	178.12 (25-Year)	0.68 (see Note 2)

Note 2. The existing 25-Year water surface elevation at the upstream face of Matchette Road is 178.35 m. Therefore, the freeboard condition is improved compared to the existing condition and there is no proposed roadway reconstruction work on Matchette Road as part of The Parkway project.

9.2 Roadside Ditches

The roadside ditches throughout the west portion of Phase 3 of The Parkway have been designed to safely convey runoff to the McKee Drain. The design flow for which a minimum of 0.3 m of freeboard shall be provided to the top of sub-grade is the 10-year return period event peak flow. Generally in Phase 3, there is excess freeboard provided due to the ‘fill embankment’ nature of the roadway platform. As well, sub-drains have been provided where the sub-grade can not be ‘day-lighted’ to the roadside ditch. A number of locations have been identified to evaluate freeboard. **Table 9.3** below illustrates that the requirement for freeboard in accordance with SD-9 of the MTO *Highway Drainage Design Standards* (2008) has been met. Refer to **Appendix E** for model simulation results.

Table 9.3 – Freeboard for Roadside Ditches

Location	Top of Sub-Grade Elev’n (m)	10-Year Event WSEL (m)	Freeboard Provided (m)
D/S of CV-29	180.0	178.63	1.37
U/S of CV-31	183.0	178.34	4.66
U/S of CV-40	182.0	178.70	3.30

9.3 Scour and Erosion

No indications of scour or erosion were observed in the vicinity of the existing McKee Drain crossings. The barrel velocities simulated during the 100-year return period (Windsor Airport IDF) event are 1.99 m/s for the E.C. Row culvert and 1.09 m/s for the Matchette Road culvert. Standard R50 rip rap will be specified in the Phase 3 Highways submission package for scour and erosion protection.

9.4 Fish Passage

The McKee Drain, upstream of E.C. Row Expressway is an intermittently flowing watercourse. The permanent pool of Pond 6 has been set at the observed standing WSEL of 177.40 m. The Pond 6 outlet structure is a compound weir with a 0.6 m long low flow crest set at the permanent pool elevation, and will be fish passable during frequent flows. Furthermore, a deep pool has been incorporated in the design of Pond 6 as a wetland which will provide refuge for fish upstream of the existing E.C. Row culvert.

Project:	Windsor-Essex Parkway	Date:	October 2012
Document:	McKee Drain Stormwater Management Report	Rev:	C
Doc No.:	285380-70-119-0007	Page No.:	14

9.5 Erosion and Sediment Control (During Construction)

An Erosion and Sediment Control Plan will be developed by PIC and submitted under separate cover.

10 Stormwater Management Plan

10.1 Design Rationale

The PDR SWM plan identified a set of SWM design criteria (summarized in **Section 8.1**) to guide the development and implementation of The Parkway SWM plan. The set of criteria was established to mitigate the potential development impacts related to water quality, in-stream erosion and peak flow control. In order to achieve these criteria, the PDR SWM plan screened several stormwater management practices (SWMPs) that could be utilized to mitigate potential impacts of The Parkway. The screening process resulted in a number of preferred SWMPs that were developed as part of the preliminary design stage:

- Storage SWMPs to provide quality treatment, erosion control, and quantity control
- Oil & grit separators to provide quality treatment for small areas and pre-treatment for pumping stations
- Vegetative SWMPs such as grassed swales and buffers to provide passive water quality treatment and erosion control.

The PDR SWM plan also noted that a treatment train approach to quality treatment should be emphasized. This strategy is particularly conducive to this study given the extensive aesthetic and restoration landscapes proposed within The Parkway corridor. In particular, vegetative SWMPs are low cost, low maintenance practices that provide quality treatment through filtration, settlement and infiltration for small drainage areas. These linear features are well suited for highway roadside and table land areas, and can provide erosion protection with well placed rock check dams which serve to reduce overland flow velocities.

The PDR SWM plan has been further refined in support of The Parkway detailed design. Changes to the PDR SWM plan are a result of several design changes:

- Highway and tableland grading refinements resulting in changes to catchment plan
- Optimization of storm sewer network and pumping stations
- Relocation and optimization of some SWMPs to suit detailed design changes, improve access, functionality and integration with other discipline design considerations.

The detailed SWM plan includes five pumping stations and seven SWM ponds to service all new sections of Highway 401 and the majority of Highway 3. Runoff from the remaining sections of Highway 3 and other tableland areas, which can not outlet to a pumping station or SWM pond, will be managed utilizing a combination of oil & grit separators and vegetated swales. Landscaping and environmental design elements are also integrated into the detailed SWM plan to provide passive water quality treatment.

These measures serve as at-source controls by reducing runoff potential, promoting infiltration and evapotranspiration, and serve as a landscape buffer at the property line and along roadsides.

With respect to the detailed SWM plan for the McKee Drain, runoff from Highway 401 will be conveyed to the Drain at the upstream end of the Matchette Road crossing via vegetated swales and directly to Pond 6 which will provide water quality and quantity treatment prior to discharging to the Drain downstream of The Parkway. The table land areas in the vicinity of the crossing will be drained via swales and discharge into the Drain by means of overland flow or a piped outfall.

The following sections describe how the stormwater management criteria have been achieved for areas that discharge directly into the McKee Drain.

10.2 Quality Control

As noted in **Section 10.1**, water quality treatment will be achieved by means of vegetated swales and stormwater management Pond 6. The McKee Drain SWM plan utilizes a multi component approach to achieve the water quality criterion outlined in **Section 8.1**. Quality treatment in the table land areas will be achieved by managing runoff through a landscape planting strategy. Further water quality enhancements will be achieved via vegetated swales at the toes of the embankment slopes. Pond 6 has been designed as a wetland in accordance with the *MOE Stormwater Management Planning and Design Manual (2003)*.

10.3 Water Quantity Control

The 6-, 12- and 24-hour durations of the 2- through 100-year return period events were simulated using the MTO 2011 updated IDF curves to identify the most stringent storage requirements. The 24-hour 100-year event was found to require the highest peak flow rate control and runoff volume storage. **Table 10.3** summarizes the existing and future peak flow rates at the upstream face of the E.C. Row culvert for the 24-hour duration of the 2- through 100-year return period events using the MTO 2011 updated IDF curves.

**Table 10.3 –Existing and Future Peak Flows for the McKee Drain
(MTO 2011 IDF - 24-Hour Chicago Event)**

Return Period Event	Existing Peak Flow (m ³ /s)	Future Peak Flow (m ³ /s)
2-Year	1.39	0.44
5-Year	1.80	0.65
10-Year	2.34	1.17
25-Year	2.85	1.66
50-Year	3.25	2.04
100-Year	3.84	3.03

10.4 SWM Pond 6 Design Summary

The operating characteristics of SWM Pond 6 using the MTO 2011 updated IDF curves are summarized in **Table 10.4**.

Table 10.4 – Summary of SWM Pond 6 Operating Characteristics

Return Period Event	Inflow (m ³ /s)	Outflow (m ³ /s)	Maximum Storage (m ³)	WSEL (m)
Extended Detention	0.92	0.08	2875	177.59
2-Year	1.68	0.34	5208	177.73
5-Year	2.40	0.58	6601	177.81
10-Year	3.26	1.06	9239	177.96
25-Year	4.20	1.51	11 784	178.10
50-Year	5.01	1.88	13 808	178.20
100-Year	5.60	2.78	19 631	178.50

The detailed design of SWM Pond 6 is in accordance with the MOE *Stormwater Management Planning and Design Manual* (2003). Design features include:

- 72 hours extended detention (minimum 24 hour extended detention) of the runoff generated from the 25 mm Event (4-hour Chicago distribution)
- Control of the 100-year return period event peak flow rate to less than the M.M. Dillon watershed study calculated peak flow rate.
- Access road to the outlet control weir and access road extending into the bottom of the pond.
- Maximum side slopes of 6H:1V for 3 m on both sides of the permanent pool edge and maximum side slopes of 4H:1V elsewhere.
- An outlet control structure consisting of a rectangular compound weir; with a 0.6 m long crest for low flows (max depth of 0.2 m), and a 2.4 m long crest for flows up to and including the 100-year return period event peak flow.

The 90% detailed design drawings and supporting calculations for SWM Pond 6 are provided in **Appendix F** of this report, and include plan, section and detail drawings. Refer to the Landscaping Planting Plan for details on planting strategy for SWM Pond 6.

To ensure that the SWM pond continues to operate as designed, a pond maintenance plan should be developed for routine maintenance of the facility and should include:

- Frequency of pond inspection (during wet weather operation) to assess its performance and operation
- Repair and maintenance protocols
- Frequency of removal of accumulated sediment.

11 Conclusions and Recommendations

This report documents the analysis and detailed design of the proposed Matchette Road and Highway 401 crossings of the McKee Drain, along with the proposed SWM plan for future runoff discharging to the

Drain. The preliminary crossing design developed in support of the PDR was used as a basis, further refined by integrating hydraulic, hydrologic, highway, structural and environmental design considerations to meet the requirements of the Project Agreement. Stakeholder agencies were consulted to ensure that the detailed design meets the most current policy requirements and planning initiatives associated with the McKee Drain. In view of the objectives stated in **Section 4.1**, the following conclusions are provided:

- Minor and major systems of Highway 401 have been designed to convey the 100-year return period event flow to the McKee Drain without allowing flooding to occur in the travelled lanes
- The SWM plan demonstrates that there are no adverse impacts to downstream properties in terms of water quality and peak flow rates
- The hydrodynamic modeling has determined that there are no adverse impacts to upstream properties in terms of water surface elevations.

The following recommendations are provided:

- Develop an ESC Plan to mitigate potential construction impacts
- Develop a Maintenance Plan to minimize risks of debris blockage and ice accumulation.

APPENDIX B

Drainage Report prepared by PIE under
Section 77(3) of the *Drainage Act*

October 23, 2012

Mayor and Council
Corporation of the City of Windsor
360 City Hall Square West
Windsor, Ontario
N9A 6S1

Attention: Ms. Anna Godo, P. Eng.
Drainage Superintendent

**Drain Improvements to the
MCKEE DRAIN**
As part of the Windsor-Essex Parkway
City of Windsor

Dear Sir:

Instruction

We have reviewed the proposed drainage improvements contained within the McKee Drain Stormwater Management Report as prepared by the Parkway Infrastructure Engineers (PIE), and have made an examination of the area for improvement to the McKee Drain in the City of Windsor. Instructions were initiated by a request from the Windsor-Essex Mobility Group (WEMG), acting as agents for the Ministry of Transportation (MTO) as part of the infrastructure construction and development of the Windsor-Essex Parkway.

The proposed work as it affects the McKee Drain is consistent with the hydraulic analysis and design prepared by PIE. We find that if the work is carried out in accordance with the drawings and specifications, that the portion of the McKee Drain being improved can proceed without adversely affecting any person(s) and / or property. All of the works recommended shall be at the cost of the MTO (Road Authority) and the entirety of the proposed work is on lands solely under the jurisdiction of the City of Windsor or the Ministry of Transportation. We hereby recommend that the improvements, as described in this letter, may proceed as set out in our written opinion in accordance with Section 77(3) of the Drainage Act. As such, a formal report under the Drainage Act is not required.

Watershed Description

The existing E.C. Row Expressway crossing of the McKee Drain serves as an outlet to a drainage area of approximately 77 hectares immediately upstream and south of the Expressway. The McKee Drain is a regulated municipal drain and lies within the Detroit River Watershed. The headwaters of the Drain are in the City of Windsor between Malden Road and Matchette Road, south of E.C. Row Expressway. The current land uses in the McKee Drain sub-watershed consist of approximately 16 percent residential and 84 percent undeveloped open space.

The McKee Drain is under the jurisdiction of ERCA with respect to hydraulic performance and floodplain management, and the Ontario Ministry of Natural Resources (OMNR) with respect to species at risk (SAR). Watershed characteristics for the McKee Drain Sub-Watershed were determined using information obtained from ERCA's online GIS database, topographic survey completed as part of The Parkway Project, the City of Windsor Storm Sewer Atlas and field investigations.

Consistent with the methods adopted by URS in the preliminary design, the StormNET model with the EPA SWMM runoff procedures was used for the watershed hydrology to define design flows for drains and crossings. StormNET was also used to evaluate the proposed conditions and to demonstrate that the design complies with the Executed Project Agreement and Regulatory Authority design criteria.

Existing Conditions

The McKee Drain, from its upstream limit to Matchette Road, is an intermittent flowing watercourse and is not considered fish habitat. From Matchette Road to its confluence with McKee Creek (located downstream of the Parkway Project), the Drain is considered warm water sportfish habitat. Based on Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) mapping, the Drain is classified from its upstream limit to McKee Creek as a Class F drain.

The upstream limit of the Drain is located approximately 360 m west of Malden Road and 115 m south of E.C. Row Expressway. There are currently two crossings of the McKee Drain within The Parkway property: the Matchette Road crossing approximately 85 m south of the existing E.C. Row Expressway eastbound ramp, and the E.C. Row Expressway crossing approximately 215 m northeast of the intersection of E.C. Row Expressway and Ojibway Parkway. The McKee Drain, within The Parkway property limits, is a linear trapezoidal conveyance feature with relatively uniform geometry.

The Drain serves as an outlet for local drainage and is primarily accessed by overland flow and ditches. The Drain flows west, parallel to the Expressway, crossing Matchette Road through a 900 mm culvert. The Drain continues to flow west and turns to flow northwest just upstream of the Expressway through a 2.44 m span, 1.52 m rise box culvert crossing of the Expressway. From there, the Drain flows west and curves to flow adjacent to the intersection of Ojibway Parkway and E.C. Row to eventually flow north to its confluence with McKee Creek. The creek continues to flow north and discharges to the Detroit River

Design Considerations

In general, the design criteria provide the drainage design requirements for the conveyance of stormwater, quantity control, quality control and flood protection. These criteria are summarized in the stormwater management (SWM) report prepared as part of the detailed design of drainage infrastructure for the section of the Windsor-Essex Parkway associated with the McKee Drain.

Proposed drainage conditions have been reviewed and hydrodynamic modeling has determined that there are no adverse impacts on upstream properties in terms of water surface elevations. Additionally, the SWM plan demonstrates that there are no adverse impacts on downstream properties in terms of peak flows during the design events.

Recommendations

We recommend that the drainage improvements to the existing McKee Drain be constructed in accordance with the Phase 3 Highways IFC Submission Sheet H302. Attached to this letter is a figure identifying the sub-watershed area for the McKee Drain.

The following provides a brief description of the improvement work on the McKee Drain:

- There are two proposed culvert crossings of the McKee Drain.
 - The first is a new crossing of Highway 401 at approximately Station 10+840. To facilitate this crossing, a 3.0 m span, 1.2 m rise concrete box culvert will be installed to convey flows to an open channel between the Highway 401 westbound lanes embankment and the E.C. Row Expressway eastbound ramp.
 - The second is a replacement and relocation of the existing Matchette Road crossing. The new Matchette Road crossing located approximately 40 m north of the existing road crossing will consist of a 3.0 m span, 1.2 m rise box culvert which will outlet to Pond 6.
- In general, runoff from The Parkway will be captured and conveyed by a network of storm sewers which will outlet to vegetated swales at the toes of the embankment slopes. These swales will provide water quality and quantity treatment prior to discharging to the McKee Drain upstream of the Highway 401 crossing, and Pond 6 downstream of the Matchette Road crossing. Pond 6 has been designed as a wetland in accordance with the *MOE Stormwater Management Planning and Design Manual (2003)*.

All of the works recommended shall be entirely on lands solely under the jurisdiction of the City of Windsor and Ministry of Transportation (MTO), however all costs shall be borne by the MTO. Therefore, a detailed summary of the items for construction and cost are not included as part of this letter. Detailed plans & specifications are not included as part of this letter, but they will be provided for tendering and construction and will provide the basis for future maintenance.

The portions of the McKee Drain and associated structures within The Parkway property will be maintained by the Windsor-Essex Mobility Group (WEMG), acting as agents for the Ministry of Transportation (MTO) as part of the infrastructure construction and development of the Windsor-Essex Parkway.

Sincerely yours,



Tom H. Marentette, P. Eng.
Drainage Engineer
T 519-948-5000 F 519-948-5054
tmarentette@dillon.ca



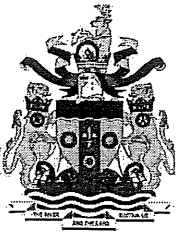
- Legend
- McKee Drain Subwatershed
 - WEPA Property Limits
 - Watercourse
 - Waterbody
 - Roads
 - Railways

MC KEE DRAIN SUBWATERSHED

DESIGNED BY: WJM	DRAWN BY: HI	FIGURE NO.:
DATE: MAR-12	SHEET:	6.2

APPENDIX C

Notice of On-Site Meeting



THE CITY OF WINDSOR
COUNCIL SERVICES DEPARTMENT

VALERIE CRITCHLEY
CITY CLERK

IN REPLY, PLEASE REFER
TO OUR FILE NO. **SW/12628**

August 16, 2018

**NOTICE OF ON-SITE MEETING
AND APPOINTMENT FOR EXAMINATION BY ENGINEER**

TO: Affected Property Owners

RE: Repair & Improvements to the McKee Creek Drain

Please take notice that the Council of the City of Windsor has appointed Mr. Dan Krutsch, P.Eng., representing the engineering firm of Landmark Engineers Inc., to prepare a drainage report under Section 78 of the Drainage Act, for the repair and improvements to the **McKee Creek Drain**.

In accordance with Section 9(1) of the Drainage Act, you as a land owner located within the drainage area are notified of an on-site meeting with the appointed engineer to examine the area of drainage for the new report and discuss the nature of the report.

DATE: Tuesday August 28, 2018

TIME: 5:00 p.m. – 6:00 p.m.

**LOCATION: Capri Pizzeria Recreation Complex
(See map on reverse for location)**

If you are affected by the proposed drainage report, you will continue to receive notifications as required by the Drainage Act. A questionnaire is *attached* should you wish to provide any concerns on the drain in writing.

Should you have any questions, please contact Mr. Dan Krutsch, P.Eng., at 519-972-8052, or alternatively Paul Mourad, P.Eng., from the City of Windsor at 519-255-6100 ext. 6119.

DATED at the City of Windsor this 16th day of August 2018.

Valerie Critchley
City Clerk

Attachment – Questionnaire

APPENDIX D

PIE As-Built Drawings for Windsor-Essex Parkway Culverts and Pond #6
Stantec McKee Creek Bank Improvements Drawings

METRIC

Parkway Infrastructure Engineers



Windsor-Essex Parkway Project
RFP No. 09-54-1007



THIS DRAWING HAS BEEN REVISED BY THE ENGINEER BASED ON AS-BUILT INFORMATION PROVIDED BY PIC. THE ENGINEER CERTIFIES THAT, TO THE EXTENT OF THE ACCURACY AND COMPLETENESS OF THE INFORMATION SO PROVIDED, THE AS-BUILT INFORMATION HAS NO MATERIAL EFFECT ON THE DESIGN.

REVISIONS	DATE	REV. BY	DESCRIPTION
10-JUN-16	R	MAS	AS-BUILT DIMS BASED ON PIC'S DATA
DESIGN WS	APR SM	DATE	14-Dec-12

NEW CONSTRUCTION
STA 10+550 TO STA 10+900
Survey 26-Jul-11

SHEET
H302R

Phase 3
IFC

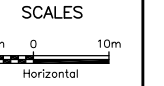
NOTE: POND 6 DETAILS PROVIDED SEPARATELY

FOR CULVERT 53 RESTORATION DETAILS REFER TO PLATE D547

NOTE: SEE BRIDGE B-2 DRAWING PACKAGE FOR DETAILED APPROACHWAY AND ABUTMENT BACKFILL CONFIGURATION

LIVE BIRTHING SITE 1

POINT	EASTING	NORTHING
1	329212.05	4682201.97
2	329251.94	4682184.18
3	329231.89	4682164.39
4	329211.21	4682186.15
5	329268.82	4682189.48



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METRIC

Parkway Infrastructure Engineers



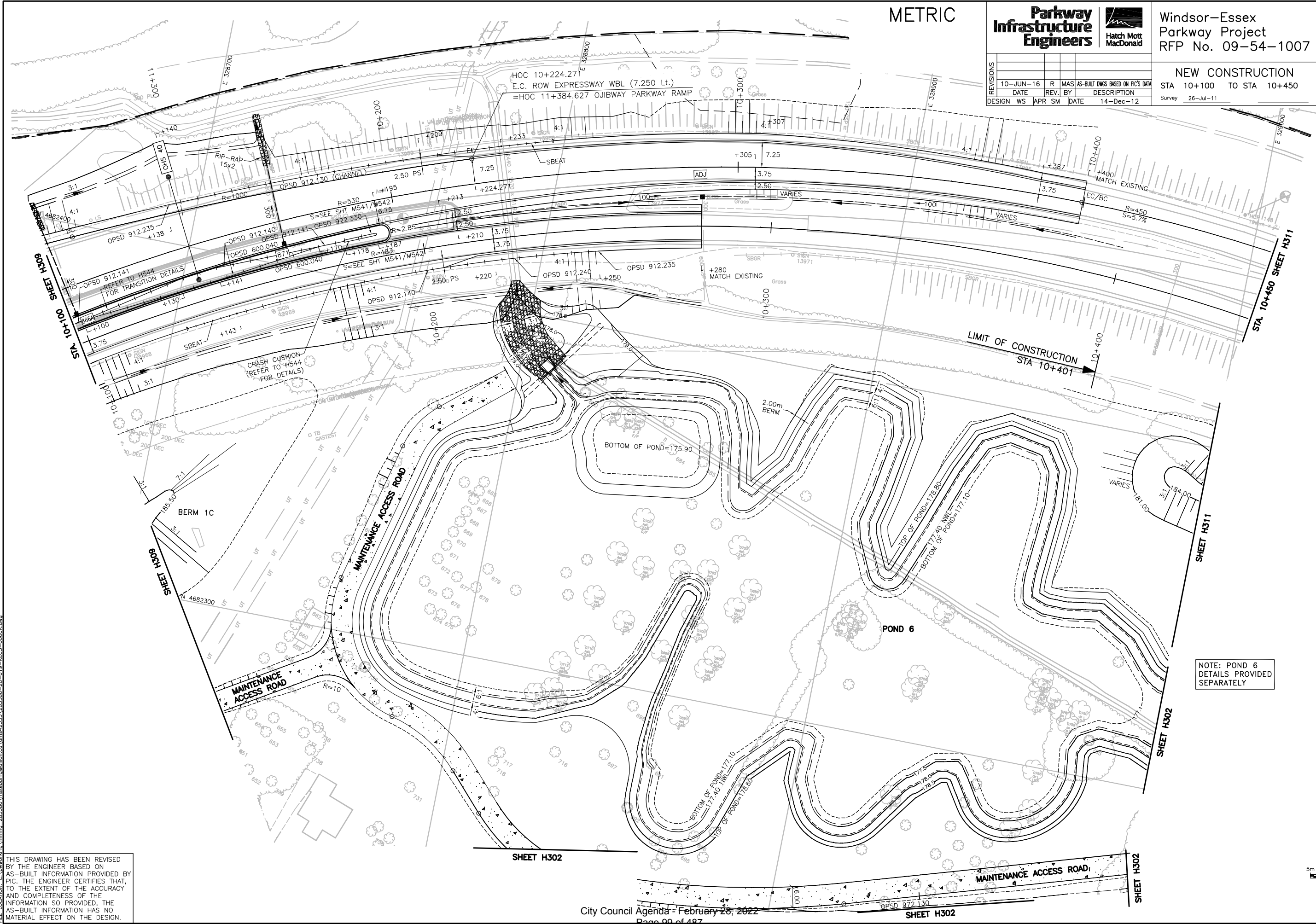
Windsor-Essex Parkway Project
RFP No. 09-54-1007



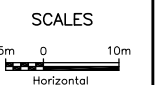
REVISIONS	DATE	REV. BY	DESCRIPTION
10-JUN-16	R	MAS	AS-BUILT DIMS BASED ON PIC'S DATA
14-DEC-12	WS	APR SM	DATE

NEW CONSTRUCTION
STA 10+100 TO STA 10+450
Survey 26-Jul-11

SHEET
H310R
Phase 3
IFC



NOTE: POND 6
DETAILS PROVIDED
SEPARATELY



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NOTES:

1. THE DESIGN OF PERMANENT DRAINAGE WORKS INCLUDING CULVERTS, STORM SEWERS AND DITCHES IS BASED ON SUBSTANTIAL COMPLETION OF PRIMARY CONSOLIDATION ASSOCIATED WITH THE CONSTRUCTION OF THE HIGH EMBANKMENTS INCLUDING THE DESIGN SURCHARGE PROVIDED ABOVE THE FINAL EMBANKMENT ELEVATION.

IF DRAINAGE WORKS ARE CONSTRUCTED PRIOR TO SUBSTANTIAL COMPLETION OF THE PRIMARY CONSOLIDATION, THE CULVERT OR SEWER DESIGN MUST BE REASSESSED, INCLUDING, BUT NOT LIMITED TO:

- ASSESSING THE LONG TERM STRUCTURAL INTEGRITY AND PERFORMANCE OF THE CULVERT DUE TO ANTICIPATED NON-UNIFORM SETTLEMENT,
- NEED FOR ANTICIPATED SIGNIFICANT CAMBER IN THE CULVERT PROFILE TO ACCOMMODATE LARGE TOTAL AND DIFFERENTIAL SETTLEMENTS
- MORE COMPLEX STRUCTURAL DESIGN OF THE CULVERTS, DETERMINING THE ACCEPTABLE PIPE MATERIALS, WITH CONSIDERATION TO THE ALLOWABLE RADIUS OF CURVATURE AND JOINT ROTATION CRITERIA.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE PRECAST REINFORCED CONCRETE BOX CULVERTS, IN ACCORDANCE TO CAN/CSA-S6-06 CANADIAN HIGHWAY BRIDGE DESIGN CODE, MTO STRUCTURAL MANUAL AND MTO CONCRETE CULVERT DESIGN AND DETAILING MANUAL 2003. CONSTRUCTION TO BE IN ACCORDANCE WITH OPSS 422.

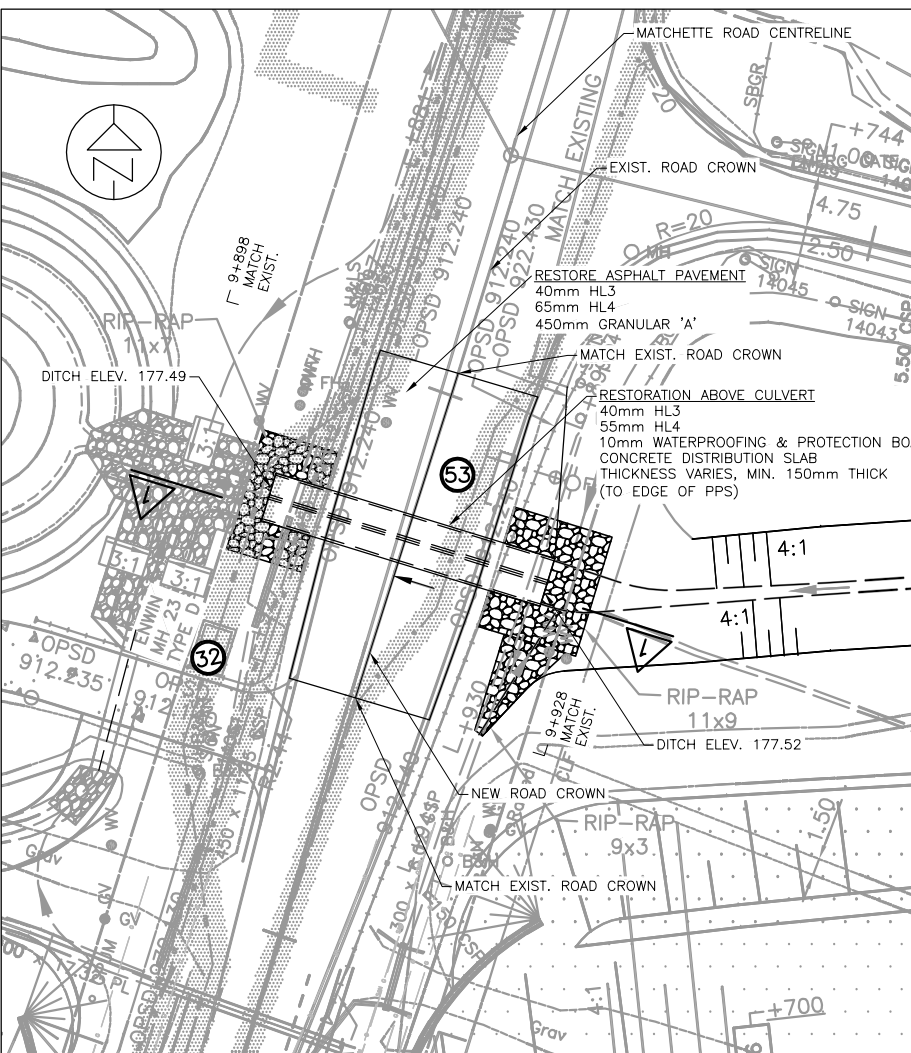
3. THE PRECAST BOX CULVERTS MUST HAVE A 1.2 METRE DEEP APRON WALL AT EACH END (SEE MTD 803.021).

4. RIP-RAP AT NON-STRUCTURAL PRECAST CULVERTS TO BE R-50, AS PER OPSS 1004. RIP-RAP TO BE 450mm DEPTH PLACED ON GEOTEXTILE FABRIC.

5. FOR CULVERT 55, CONTRACTOR TO FIELD MEASURE THE EXISTING BASIN DRAIN CULVERT PRIOR TO FABRICATION OF THE NEW TRANSITION SECTION.

6. CULVERTS TO BE INSTALLED OVER COMPETENT SUBGRADE SOILS (IE. UNDISTURBED INORGANIC NATIVE SOILS OR ENGINEERED FILL), AFTER REMOVING THE SOFT/DISTURBED CLAY AND ORGANIC OR OTHER DELETERIOUS MATERIAL.

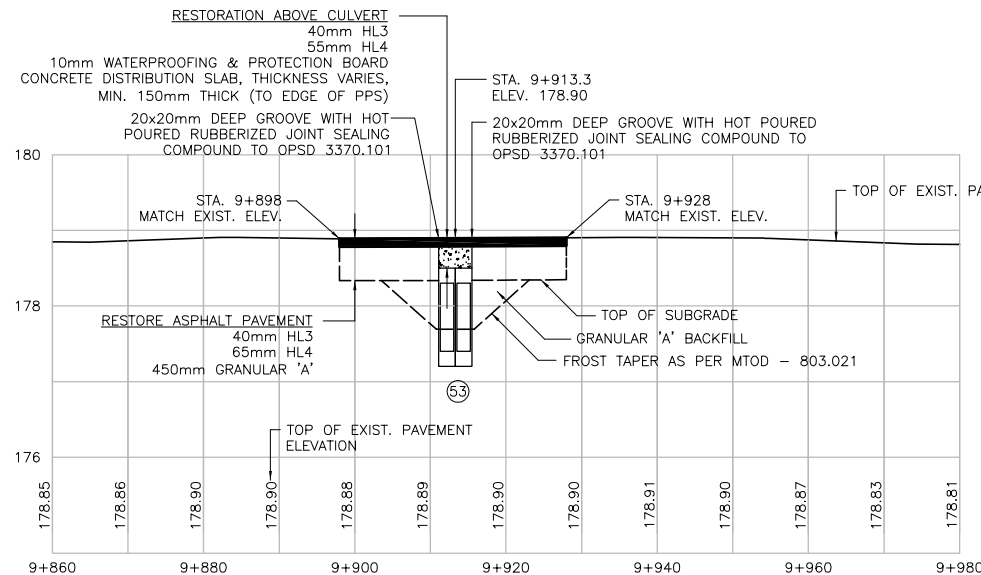
7. CONCRETE DISTRIBUTION SLAB:
- CONCRETE CLASS TO BE 30MPa, TYPE GU
 - REINFORCING STEEL TO BE GRADE 400W, BLACK
 - CLEAR COVER TO BLL 40 ± 10; EDGES 60 ± 20



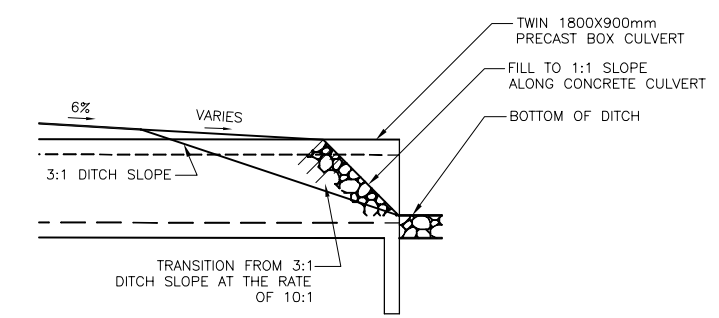
CULVERT 53 PLAN

Culvert No.	Station	Location and Position	Ext		Skew No.	End Finish	Depth of Culvert	Pipe Fill Material			Treatment	Inv. Elev.		Culvert Diameter (mm)	Length (m)
			Left	Right				Bedding	Cover	Backfill		Upstream	Downstream		
CV-31	Hwy 401 10+817.1	10+842.5 / 41.4 Rt to 10+786.6 / 54.9 Lt			60	SqE	7	G	G	N	-	177.49	177.38	3,000 x 1,500	111.5
CV-53	Matchette Rd. 9+913.3	13.8 Lt to 11.9 Rt			90	SqE	0.3	G	G	-	F	177.42	177.39	Twin 1,800 x 900	25.7
CV-55	HWY 401	12+180.2 - 8.1 Lt to 12+263.4 - 79.8 Rt			N/A	-	6.0	G	G	N	-	177.93	177.80	2,400 x 1,800	125.7

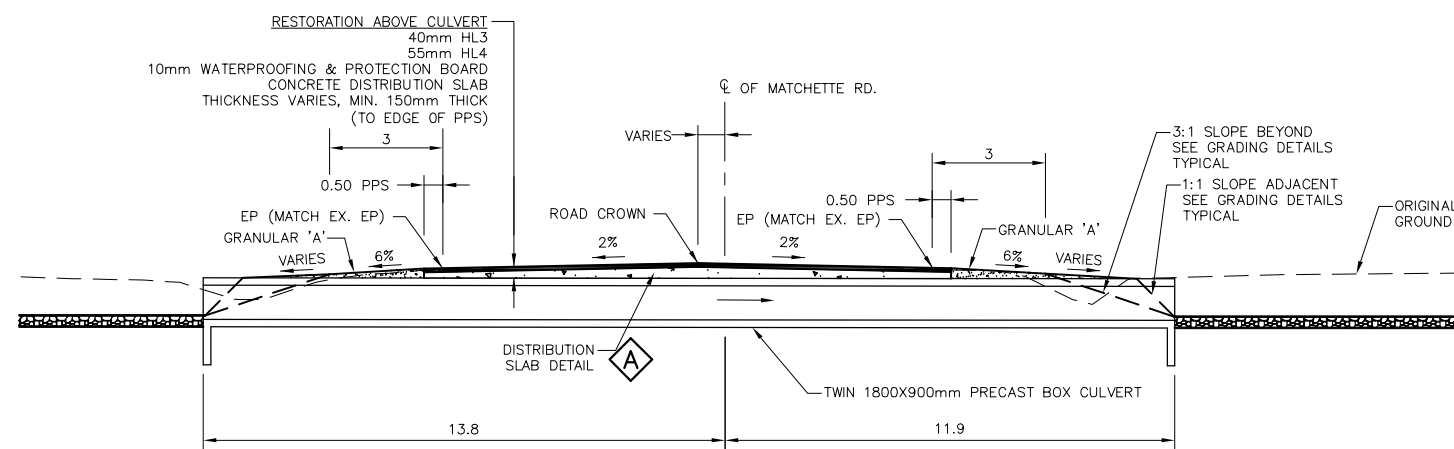
QUANTITIES - NON-STRUCTURAL PRECAST BOX CULVERTS



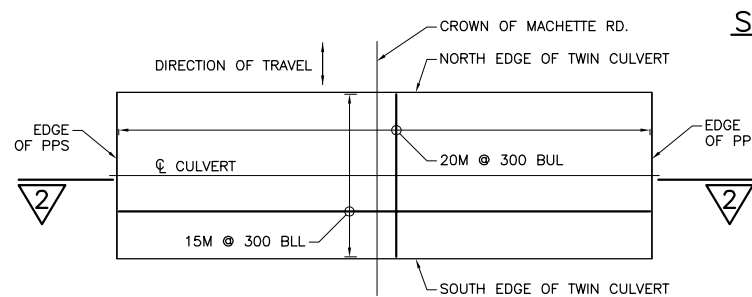
MATCHETTE ROAD CENTRELINE PROFILE



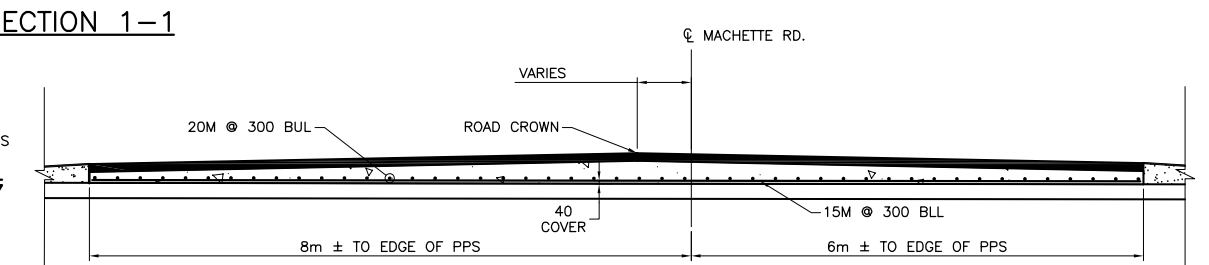
GRADING DETAILS @ CONCRETE CULVERT 53



SECTION 1-1



DISTRIBUTION SLAB REINFORCING PLAN



DISTRIBUTION SLAB SECTION 2-2

NOTES:
 EP = EDGE OF PAVEMENT
 PPS = PARTIALLY PAVED SHOULDER
 BLL = BOTTOM LOWER REINFORCING LAYER
 BUL = BOTTOM UPPER REINFORCING LAYER

Windsor-Essex Parkway Project
 RFP No. 09-54-1007

MISCELLANEOUS DETAILS
 DRAINAGE

SHEET
 D547R

Phase 3
 IFC

DATE PLOTTED: 6/12/2016 7:48:43 AM
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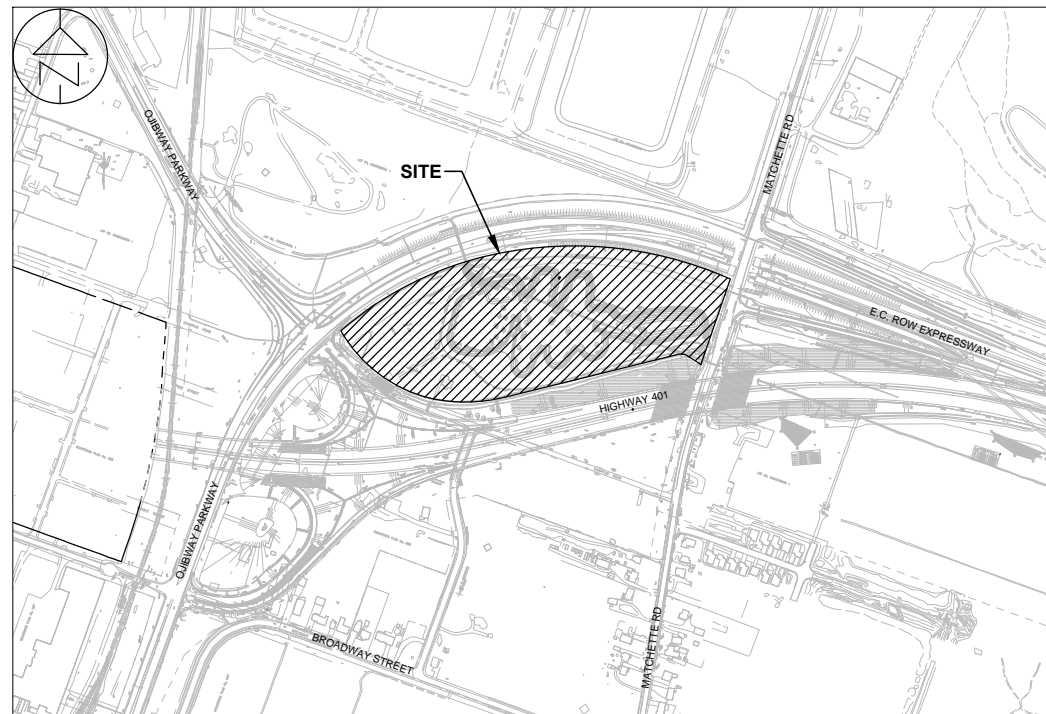
N.T.S.

WINDSOR-ESSEX PARKWAY PROJECT

PHASE 3 - POND #6

AS-BUILT DRAWING SUBMISSION

SHEET No.	DESCRIPTION
D600	POND 6 PLAN - STA. ___ TO STA. ___
D601	POND 6 SECTIONS
D602	POND 6 DETAILS
D800	TYPICAL POND DETAILS
G600	NEW CONSTRUCTION - POND 6 GEOTECHNICAL NOTES, BOREHOLE LOCATIONS & SOIL STRATA



KEY PLAN
N.T.S.

NOTES:







1. HYDRAULIC CAPACITIES OF STORM SEWERS CALCULATED ASSUMING A MATERIAL ROUGHNESS OF 0.013.
2. RIP-RAP FOR SPLASH PADS TO BE 5-50, AS PER OPSS 1004. RIP-RAP TO BE 700mm DEPTH PLACED ON GEOTEXTILE FABRIC (NON-WOVEN CLASS I - OPSS 1860).
3. GRANULAR SOILS ARE EXPECTED TO BE ENCOUNTERED IN THE EXCAVATION OF POND 6 (REFER TO "ESTIMATES OF IN/OUTFLOWS - STORMWATER MANAGEMENT, FISH HABITAT COMPENSATION PONDS AND REALIGNED DRAINS" - AMEC, FEBRUARY 2012) RECOMMENDED TREATMENT B IN THE TABLE ON DWG. G600 SHALL APPLY.
4. FOR TYPICAL AND NON-STANDARD DETAILS SEE DWG. SHEET-D602 AND SHEET-D800.
5. FOR SECTIONS A-A TO F-F SEE DWG. SHEET-D601.
6. FOR LANDSCAPE FEATURES REFER TO LANDSCAPE DESIGN PACKAGE.
7. ALL WORKS REQUIRED TO TAKE PLACE IN ACCORDANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND PROJECT COMMITMENTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING DUE DILIGENCE IN REGARDS TO SPECIES AT RISK CLEARANCE AND POTENTIAL INTERACTION WITH SAR.
9. REFER TO GENERAL ENVIRONMENTAL NOTES SPECIFIED IN ENVIRONMENTAL PROTECTION PACKAGE SHEETS E9001 AND E9002 FOR ADDITIONAL ENVIRONMENTAL CONSTRAINTS AND MITIGATION MEASURES.
10. FOR GEOTECHNICAL NOTES, BOREHOLE LOCATIONS AND SOIL STRATA, SEE DWG. G600.



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SUPPLEMENTAL LEGEND

- RIGHT OF WAY (R.O.W.)
-  EROSION CONTROL BLANKET
-  GRAVEL TRAIL
-  RIP-RAP
-  CONCRETE HEADWALL
-  DITCH INLET STRUCTURE
-  MANHOLE CONTROL STRUCTURE
- - - STORM SEWER PIPE

METRIC

Revisions		DATE	REV. BY	DESCRIPTION
14-APR-16	R	RS	AS-BUILT DWGS BASED ON PIC'S DATA	
DESIGN	NMK	APR	BGH	DATE 14-APR-16



Windsor-Essex Parkway Project
RFP No. 09-54-1007



POND 6 PLAN TO STA

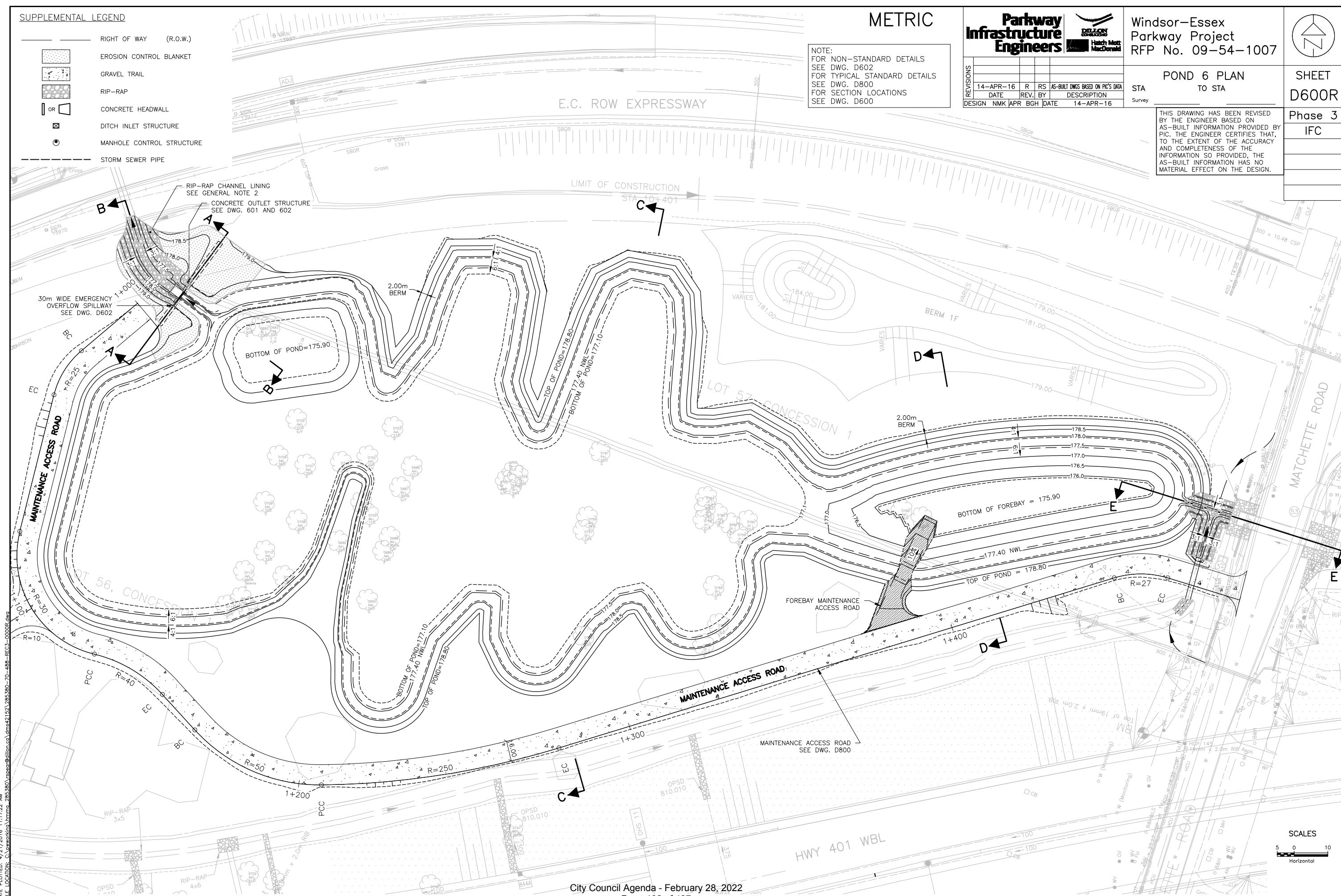
SHEET D600R

STA Survey

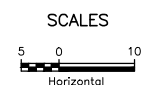
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Phase 3 IFC

NOTE:
FOR NON-STANDARD DETAILS SEE DWG. D602
FOR TYPICAL STANDARD DETAILS SEE DWG. D800
FOR SECTION LOCATIONS SEE DWG. D600



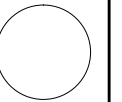
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METRIC



Windsor-Essex Parkway Project RFP No. 09-54-1007



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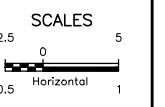
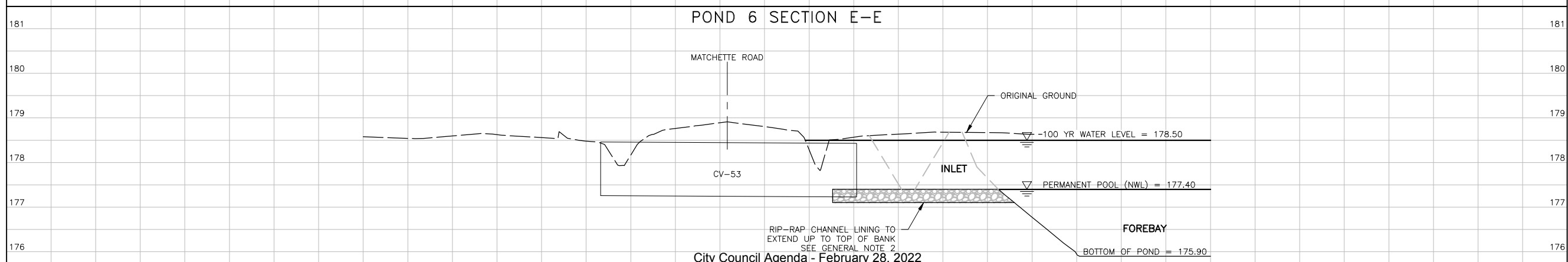
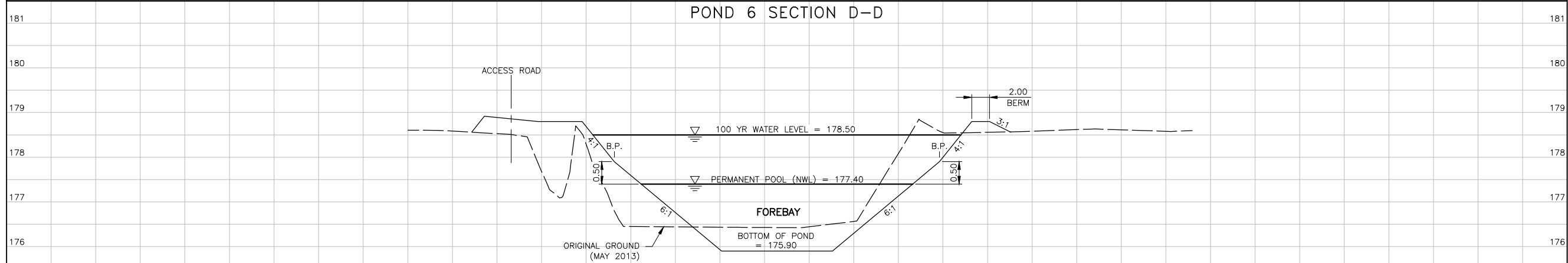
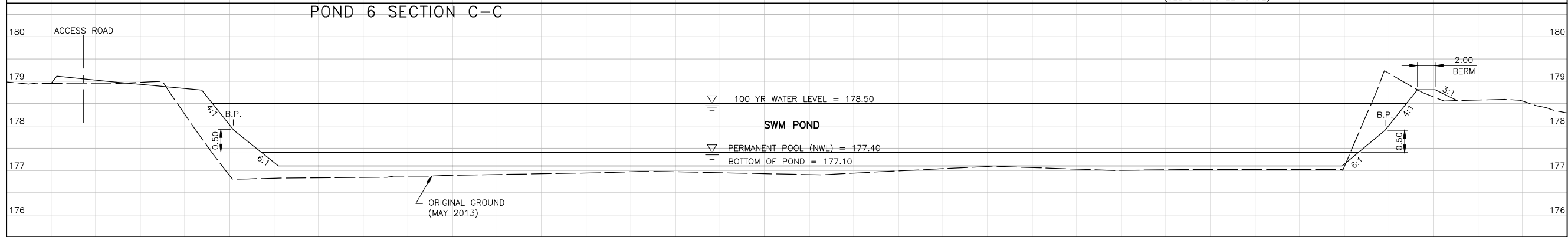
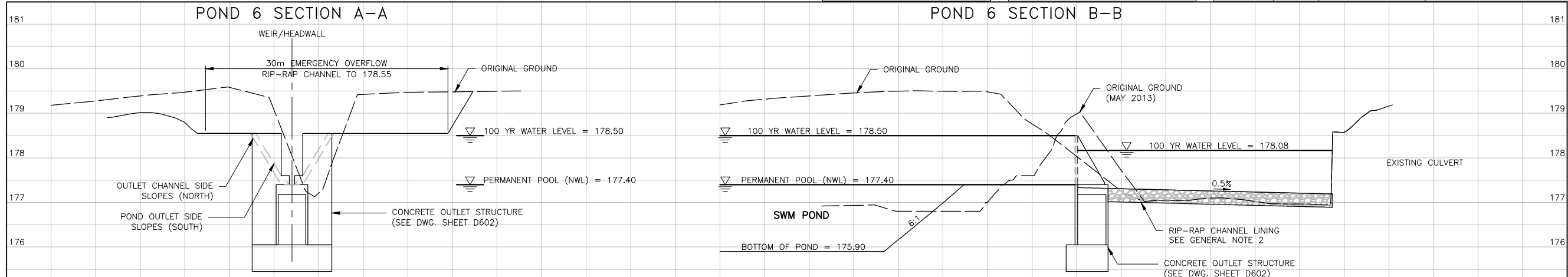
NOTE: FOR NON-STANDARD DETAILS SEE DWG. D602 FOR TYPICAL STANDARD DETAILS SEE DWG. D800 FOR SECTION LOCATIONS SEE DWG. D600

REVISIONS	DATE	REV. BY	DESCRIPTION
14-APR-16	R	RS	AS-BUILT DWGS BASED ON PIC'S DATA
14-APR-16			

POND 6 SECTIONS TO STA

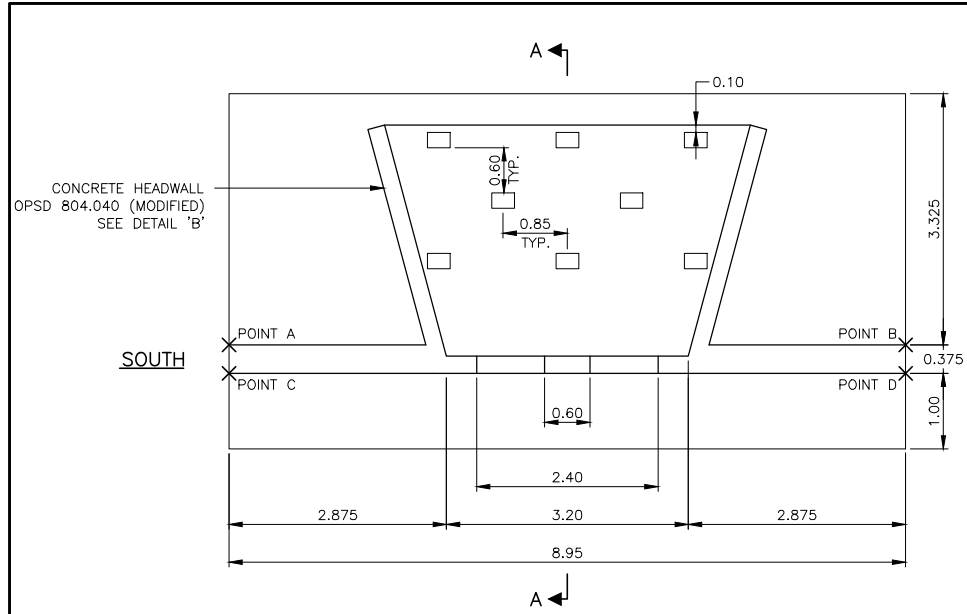
SHEET D601R

Phase 3 IFC

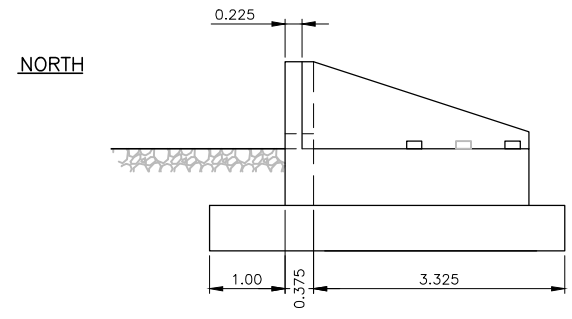


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PLAN



SECTION A-A

WEIR WALL COORDINATES		
POINT	NORTHING	EASTING
A	4682381.752	328806.226
B	4682388.934	328811.567
C	4682381.528	328806.527
D	4682388.710	328811.868

Parway Infrastructure Engineers

Windsor-Essex Parkway Project
RFP No. 09-54-1007

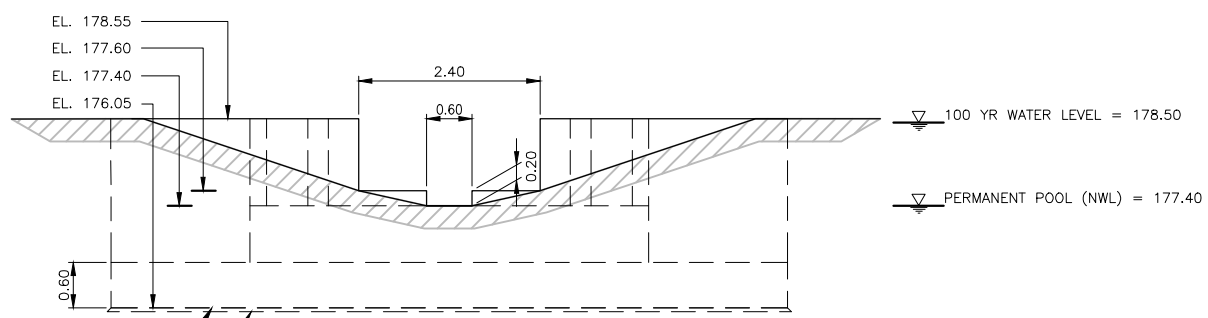
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DATE REV. BY DESCRIPTION
DESIGN NMK APR BGH DATE 14-APR-16

POND 6 DETAILS

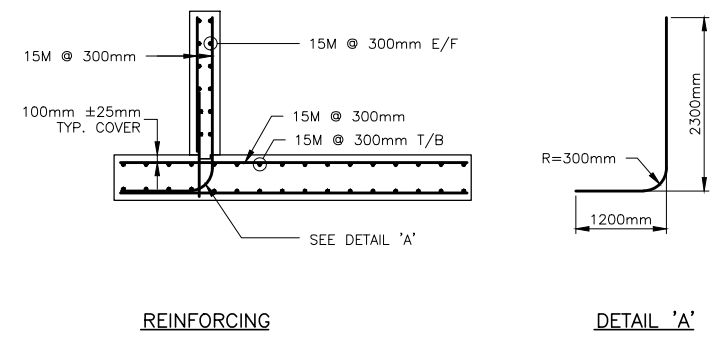
SHEET D602R

Phase 3 IFC

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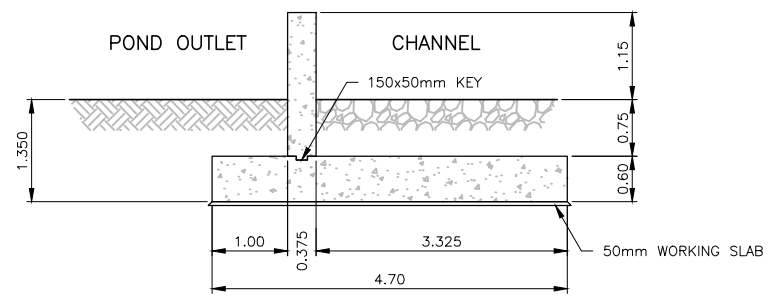


SOUTH ELEVATION
OUTLET DETAILS



REINFORCING

DETAIL 'A'



LAYOUT
RETAINING WALL DETAILS

ENDWALL DIMENSIONS			
A	B	C	D
3200	3000	3550	4840

NOTES:

- 1 Poured concrete chute blocks 300x200x100mm high or as specified. (optional)
- A Concrete to be 25MPa compressive strength at 28 days with 5% to 7% air entrainment.
- B Reinforcing bars to have 75mm cover.
- C Granular backfill to be placed to 300mm min thickness on all sides.
- D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE

Date _____

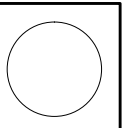
OPSD - 804.040 MODIFIED

DETAIL 'B'

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Parway Infrastructure Engineers		DILLON ENGINEERS Heath Matt MacDonnell	
DESIGN	KL	APR	BGH
DATE	REV. BY	DESCRIPTION	DATE
14-APR-16	R	AS-BUILT DIMS BASED ON PIC'S DATA	14-APR-16

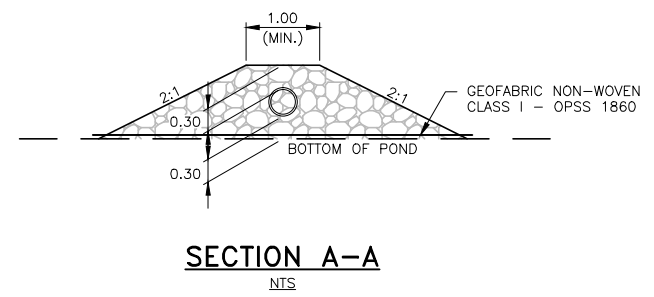
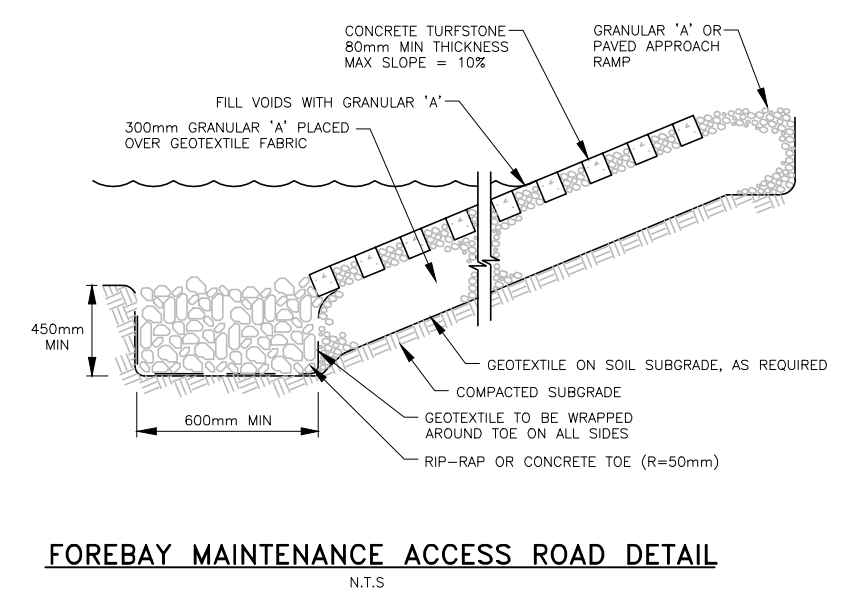
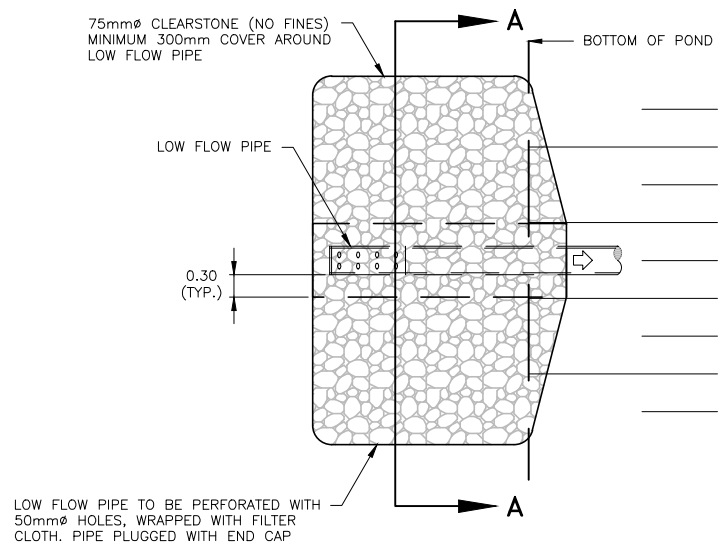
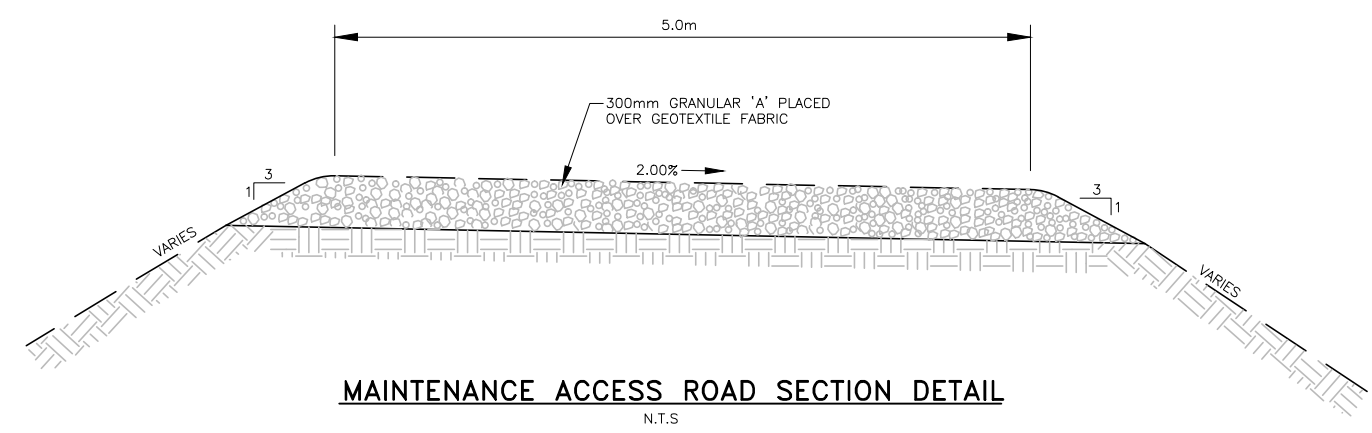
Windsor-Essex Parkway Project
RFP No. 09-54-1007



TYPICAL POND DETAILS

SHEET
D800R

Phase 0
IFC



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STORM WATER MANAGEMENT BERM CONSTRUCTION NOTES:

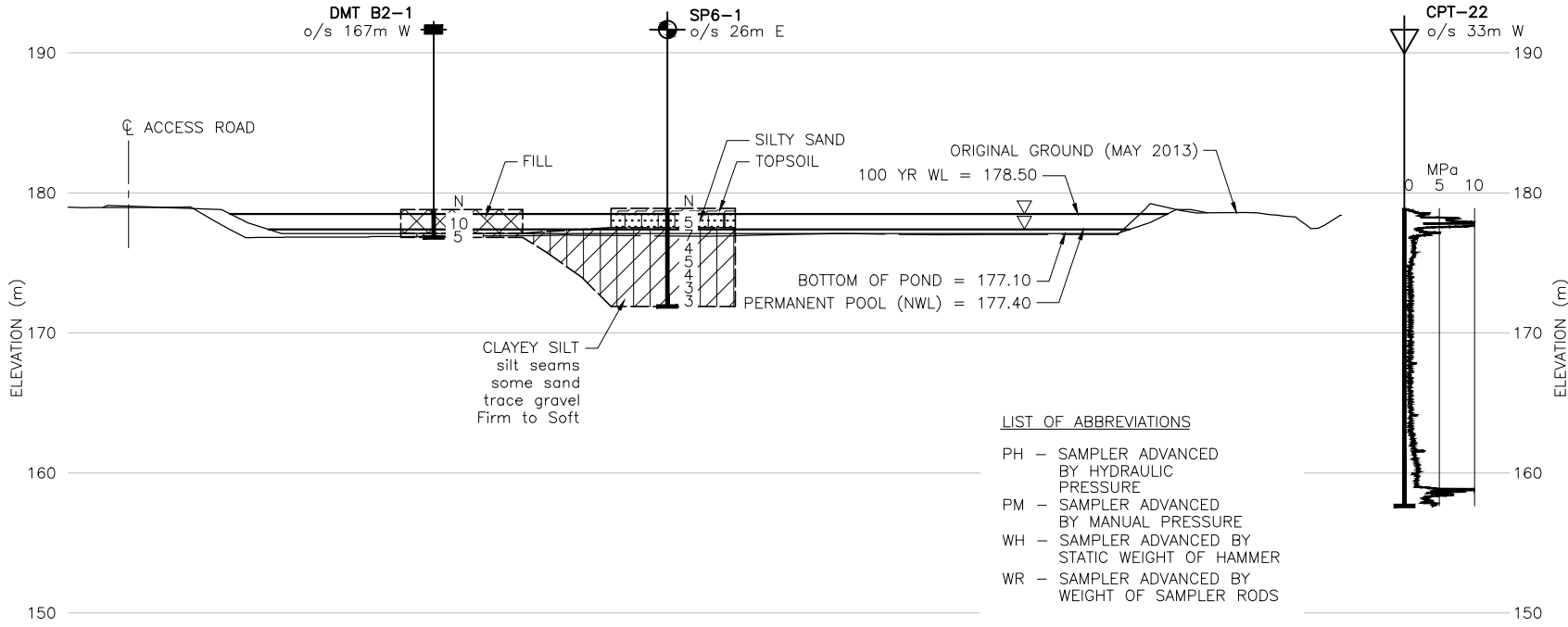
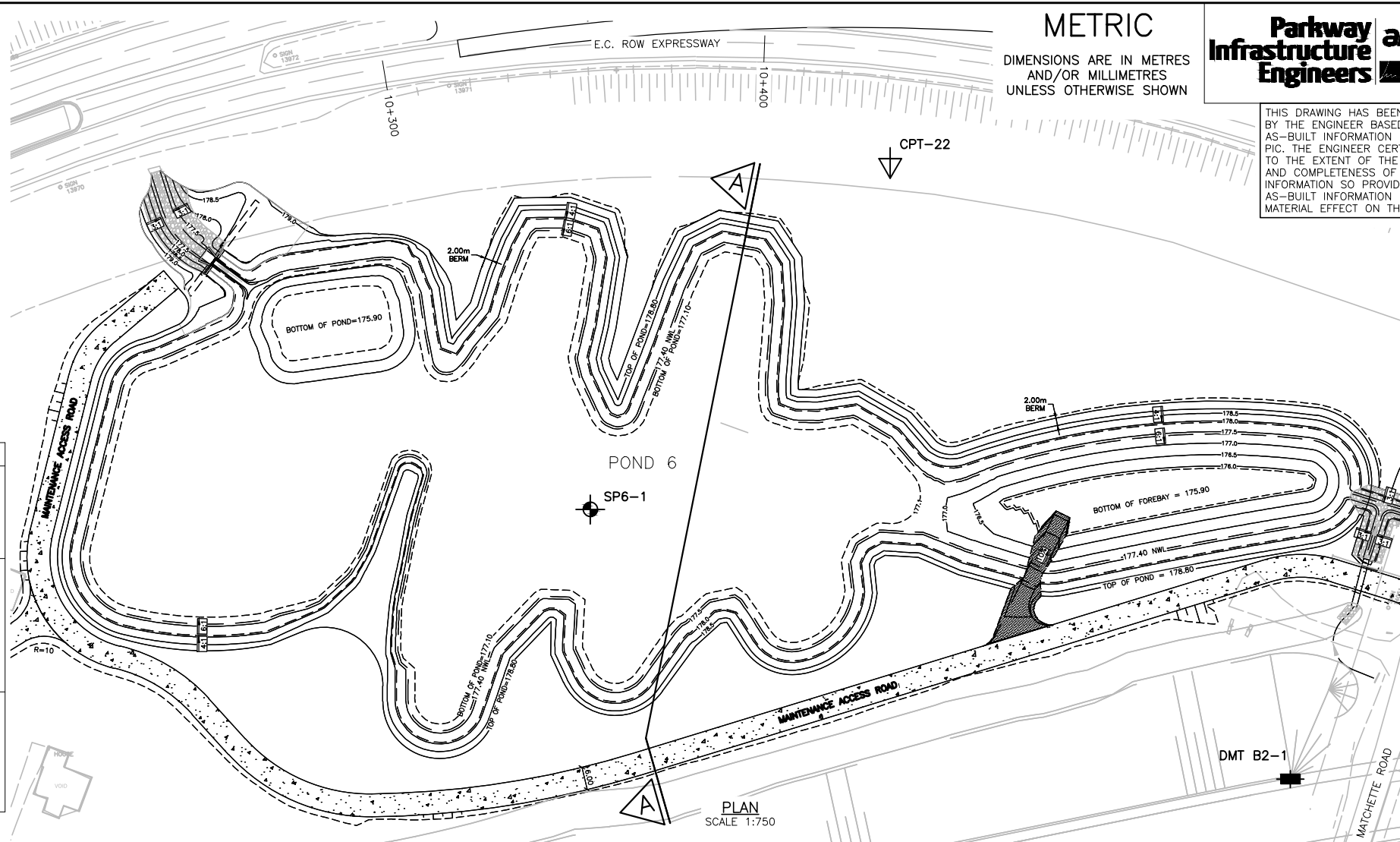
- BERMS MUST BE BUILT OVER COMPETENT SUBGRADE SOILS (I.E. UNDISTURBED INORGANIC NATIVE SOILS OR ENGINEERED FILL) AFTER REMOVING THE SOFT/DISTURBED CLAY AND ORGANIC OR OTHER DELETERIOUS MATERIAL.
 - A COMPACTED SILTY CLAY KEY TRENCH (1m BASE WIDTH AND 1H:1V SIDE SLOPES) SHOULD BE BUILT TO PENETRATE PERVIOUS SAND OR SAND AND GRAVEL LAYERS AND AT LEAST 300mm INTO THE UNDERLYING LOW PERMEABILITY DEPOSIT. CONSULT THE ENGINEER FOR CUTOFF CONFIGURATION IF THE PERVIOUS LAYER IS MORE THAN 0.5m THICK.
 - THE BERM AND KEY TRENCH MATERIAL MUST BE COMPACTIBLE SILTY CLAY PLACED IN MAXIMUM 200mm LIFTS AT MOISTURE CONTENTS VARYING BETWEEN THE OPTIMUM AND 2% TO 3% WET OF OPTIMUM, AND COMPACTED TO AT LEAST 95% SPMDD(*).
 - THE FINISHED SLOPE FACES OF THE BERMS TO BE TREATED WITH EROSION CONTROL PROTECTION.
- (*) - STANDARD PROCTOR MAXIMUM DRY DENSITY

STORM WATER MANAGEMENT POND SUBGRADE CONSTRUCTION NOTES:

- THE FINAL POND SUBGRADE SHALL BE INSPECTED IN THE FIELD BY A QUALIFIED PERSON AND APPROPRIATE SUBGRADE TREATMENT AS DEFINED IN THE FOLLOWING TABLE SHALL BE APPLIED.

POND SUBGRADE CONDITION	RECOMMENDED TREATMENT
A. THE POND SUBGRADE TO WITHIN THE HIGH WATER LEVELS CONSISTS OF NATIVE STIFF SILTY CLAY/CLAYEY SILT.	<ol style="list-style-type: none"> STRIP ANY SOFT DELETERIOUS SOILS. SCARIFY THE SUBGRADE TO A DEPTH OF 200mm AND RECOMPACT IN PLACE WITH SHEEPSFOOT ROLLERS. COVER IMMEDIATELY WITH VEGETATED BLANKETS/EROSION CONTROL MATS AS PER DESIGN.
B. THE POND SUBGRADE ENCOUNTERS FILLS AND/OR NATIVE GRANULAR SOILS AND SILT SEAMS.	<ol style="list-style-type: none"> SUBEXCAVATE TO 500mm STRIP ANY SOFT/DELETERIOUS SOILS FROM THE EXPOSED SUBGRADE. RESTORE DESIGN GRADES WITH COMPACTIBLE SILTY CLAY FILL IN 200mm LIFTS COMPACTED TO >95% SPMDD(*) AT 2% TO 3% WET OF OPTIMUM MOISTURE CONTENT. COVER WITH VEGETATED BLANKETS/EROSION CONTROL MATS PER DESIGN.
C. WHERE SEEPAGE FROM GROUNDWATER PERCHED WITHIN THE UPPER SOIL DEPOSITS IS ENCOUNTERED AND THIS SEEPAGE PREVENTS THE CONSTRUCTION/PLACEMENT OF THE CLAY LINER AS DISCUSSED IN A AND B.	<ol style="list-style-type: none"> CONSTRUCT CUT-OFFS/BARRIERS IN ACCORDANCE WITH THE TYPICAL DETAILS PROVIDED ON HIGHWAY 401 TYPICAL SECTIONS SHEET H501(1FC) 25-JAN-12, FOLLOWED BY COMPLETION OF THE POND BASE TREATMENT PRESENTED ABOVE.

- THE CLAY LINER THICKNESS DESCRIBED AT CONDITION "B" ABOVE TO BE INCREASED TO AT LEAST 1000mm WHERE THE BASE OF THE POND ABUTS ANY GRANULAR BACKFILL TO STRUCTURES WITHIN THE ADJACENT TUNNEL ABUTMENT, UTILITY TRENCHES AND STRUCTURES WITHIN ADJACENT SLOPES ALONG DEPRESSED HWY 401. ALTERNATIVELY, SYNTHETIC LINER CAN BE USED AS DIRECTED BY THE ENGINEER.



MATERIAL LEGEND

[Symbol]	TOPSOIL/ ORGANICS	[Symbol]	SILT
[Symbol]	FILL	[Symbol]	SANDY SILT
[Symbol]	SAND	[Symbol]	CLAYEY SILT
[Symbol]	SILTY CLAY	[Symbol]	SAND AND GRAVEL
[Symbol]	SILTY SAND	[Symbol]	SILTY SAND AND GRAVEL
[Symbol]	COBBLES AND BOULDERS	[Symbol]	LIMESTONE /BEDROCK

No.	ELEVATION	CO-ORDINATES (UTM, NAD 83 ZONE 17)	
		NORTHING	EASTING
AMEC BOREHOLES			
SP6-1	178.9	4682320.3	328907.6
DMT B2-1	178.8	4682249.9	329090.6
PREVIOUS BOREHOLES			
CPT-22	178.9	4682412.0	328986.0

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PROFILE A-A THROUGH POND 6
HORIZ SCALE 1:500
VERT SCALE 1:250

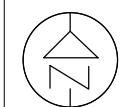
DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

METRIC

DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN



Windsor-Essex Parkway Project
RFP No. 09-54-1007

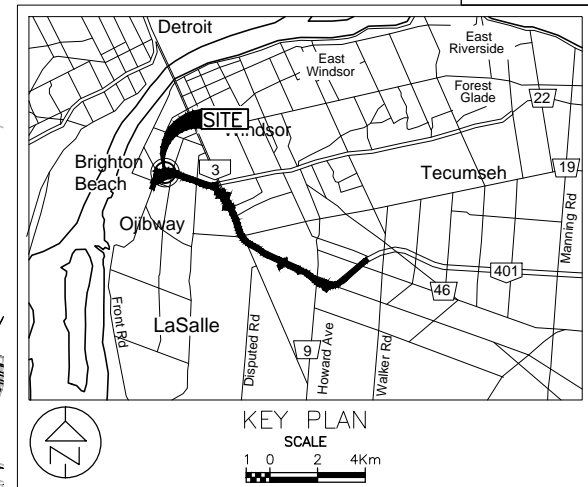


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NEW CONSTRUCTION
POND 6
GEOTECHNICAL NOTES
BOREHOLE LOCATIONS & SOIL STRATA

SHEET
G600R

Phase 3
IFC



LEGEND

- [Symbol] BOREHOLE CURRENT INVESTIGATION
- [Symbol] BOREHOLE AND NILCON VANE CURRENT INVESTIGATION
- [Symbol] SW/SP HOLE (HYDROGEOLOGY) CURRENT INVESTIGATION
- [Symbol] NILCON VANE CURRENT INVESTIGATION
- [Symbol] CPT - CURRENT INVESTIGATION
- [Symbol] DMT - CURRENT INVESTIGATION
- [Symbol] BOREHOLE PREVIOUS INVESTIGATION
- [Symbol] BOREHOLE, CPT AND NILCON VANE PREVIOUS INVESTIGATIONS
- [Symbol] CPT -PREVIOUS INVESTIGATION
- [Symbol] N SPT N-VALUE
- [Symbol] BLOWS/0.3m UNLESS OTHERWISE STATED (STD. PEN. TEST, 475 J/BLOW)
- [Symbol] MHSg - MAGNETIC HEAVE/SETTLEMENT GAUGE (SM)
- [Symbol] P - VIBRATING WIRE PIEZOMETER (VWP)
- [Symbol] DRY BOREHOLE DRY DURING DRILLING
- [Symbol] WATER LEVEL DURING DRILLING
- [Symbol] WATER LEVEL (SHALLOW PIEZO)
- [Symbol] WATER LEVEL (DEEP PIEZO)

NOTES

- THE INTERPRETED STRATIGRAPHY REPRESENTS SIMPLIFIED SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN DEFINED AT BOREHOLE LOCATIONS ONLY. CONDITIONS BETWEEN BOREHOLE LOCATIONS COULD DIFFER FROM ILLUSTRATED CONDITIONS.
- ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.

REVISIONS	DATE	REV. BY	DESCRIPTION
14-APR-16	R	BL	AS-BUILT DWGS BASED ON PIC'S DATA

DESIGN: BL CHK NSV CODE CAN/CSA S6-06 LOAD CL-625-ONT
DRAWN: SJL CHK DD SITE POND 6 DATE 14-APR-16



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www.stantec.com

Stantec

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Legend

- LIMIT OF EXCAVATION
- SNOW FENCE
- NEW LOCK BLOCK WALL
- INVERT ELEVATION

Notes

APPROVED AS TO FORM, IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF
STANTEC CONSULTING LIMITED
CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION

CITY ENGINEER

EXECUTIVE DIRECTOR OF OPERATIONS

CHIEF OF POLICE
THE CORPORATION OF THE CITY OF WINDSOR

Revision By Appd. YY.MM.DD

B	UPDATED DRAINAGE REPORT	D.A.J.	D.A.J.	2012.11.22
A	DRAINAGE REPORT	M.J.B.	D.A.J.	2011.05.03
Issued		By Appd. YY.MM.DD		
File Name: 165601199C-101-4		K.F.F.	D.A.J.	M.B.
		Dwn.	Chkd.	Dsgn.
		YY.MM.DD		

Permit/Seal



Client/Project

CORPORATION OF THE CITY OF WINDSOR

McKEE CREEK
BANK IMPROVEMENTS
Windsor ON Canada

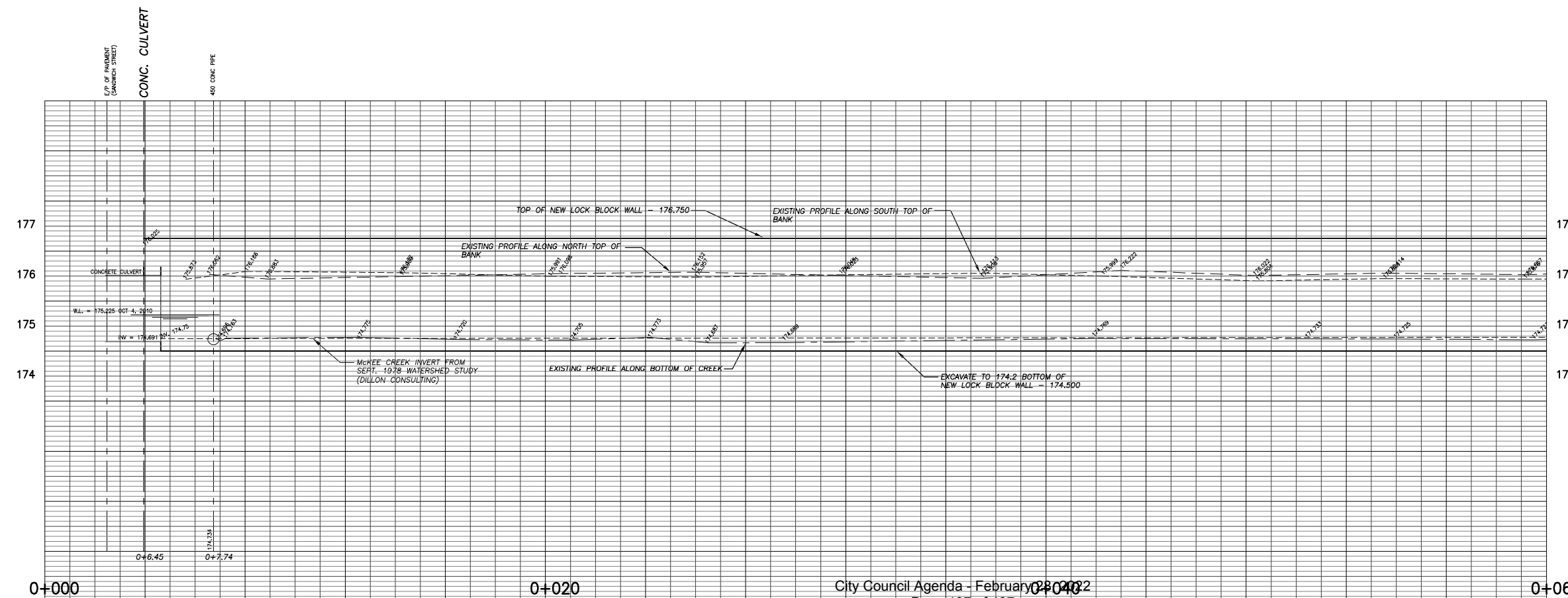
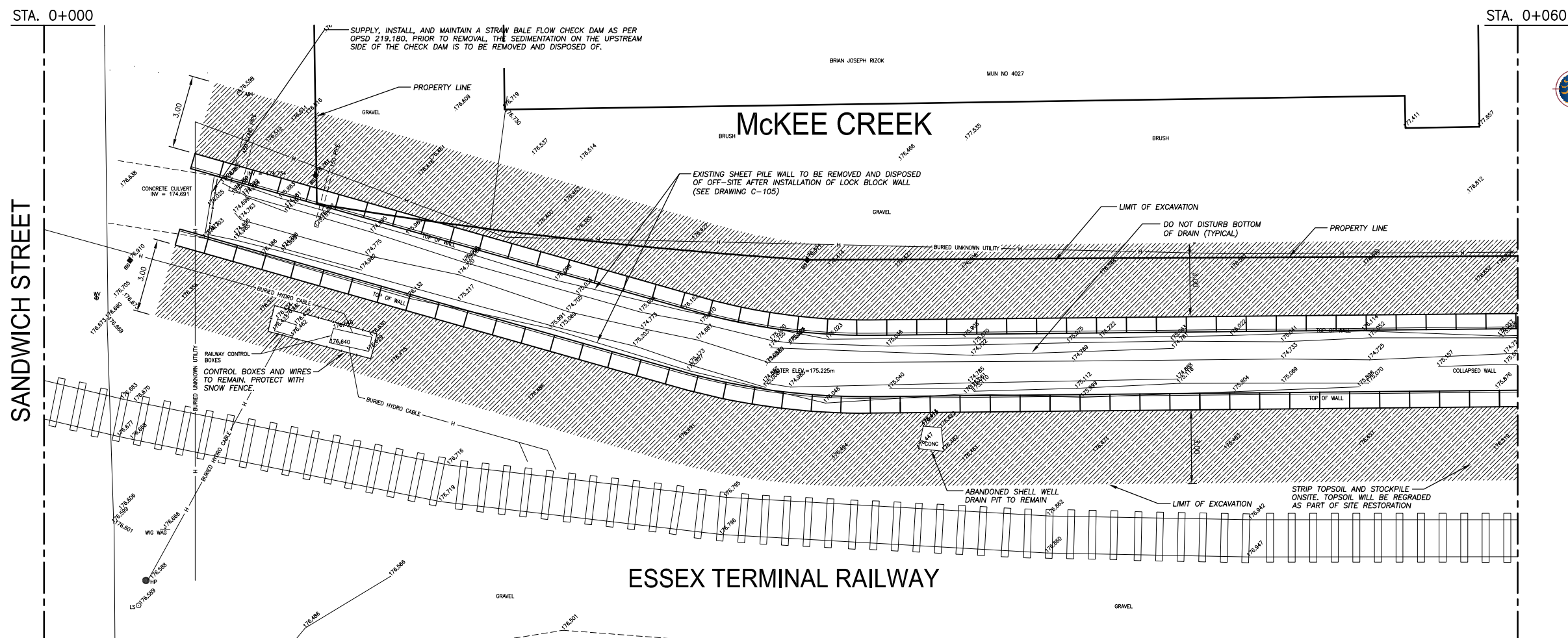
Title

McKEE CREEK
REMOVALS & UNDERGROUND
STA 0+000 TO STA 0+060

Project No. 165601199 Scale 1:100

Drawing No. Sheet Revision

C-101



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Legend

- LIMIT OF EXCAVATION
- NEW LOCK BLOCK WALL
- INVERT ELEVATION

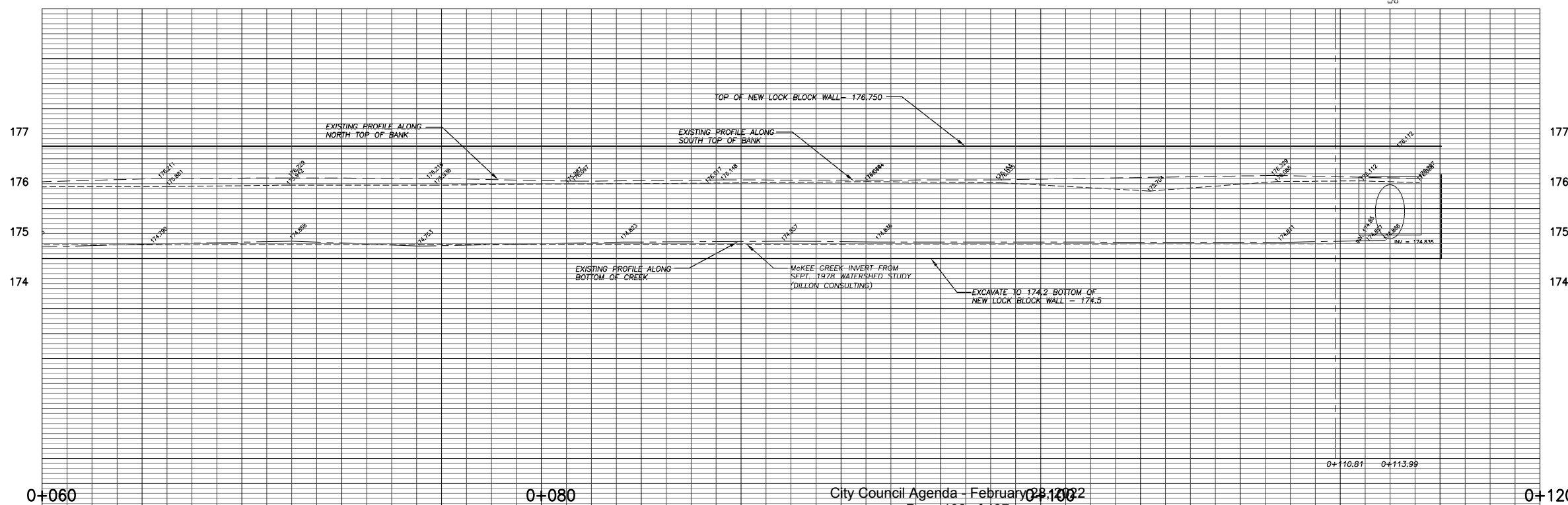
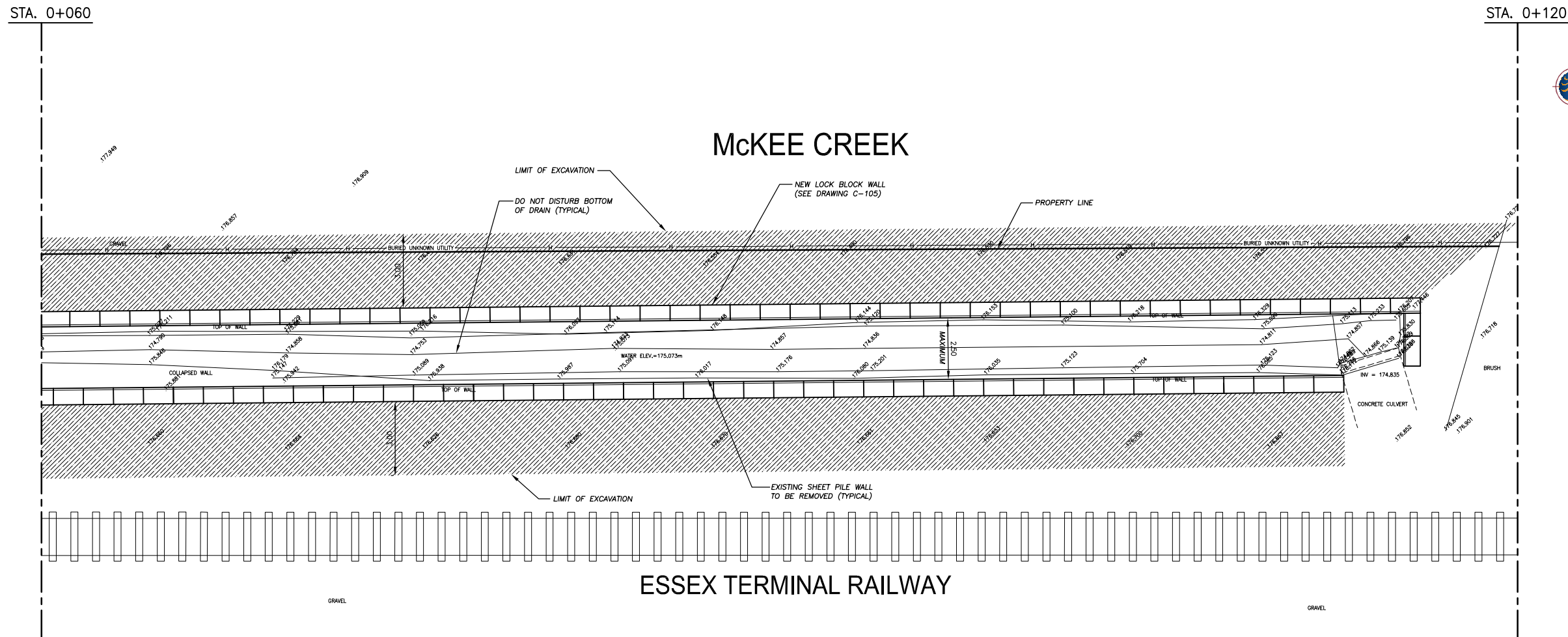
Notes

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 CITY ENGINEER

 EXECUTIVE DIRECTOR OF OPERATIONS

 CHIEF OF POLICE
 THE CORPORATION OF THE CITY OF WINDSOR



Revision	By	Appd.	YY.MM.DD		
B	UPDATED DRAINAGE REPORT	D.A.J.	D.A.J.	2012.11.22	
A	DRAINAGE REPORT	M.J.B.	D.A.J.	2011.05.03	
Issued		By	Appd.	YY.MM.DD	
File Name:	165601199C-101-4	K.F.F.	D.A.J.	M.B.	2010.11.04
		Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

Client/Project
CORPORATION OF THE CITY OF WINDSOR

McKEE CREEK BANK IMPROVEMENTS
 Windsor ON Canada

Title
McKEE CREEK REMOVALS & UNDERGROUND STA 0+060 TO STA 0+120

Project No. 165601199 Scale 1:100
 Drawing No. Sheet Revision

C-102

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Legend

- GRANULAR 'A'
- HYDROSEED
- RIP RAP
- 500mm DIA. SHADE TREE
- NEW LOCK BLOCK WALL
- INVERT ELEVATION
- PROPOSED FISH HABITAT

Notes

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A	DRAINAGE REPORT	M.J.B.	D.A.J.	2011.05.03	
Issued		By	Appd.	YY.MM.DD	
File Name:	165601199C-101-4	J.M.F.		2010.11.18	
		Dwn.	Chkd.	Dagn.	YY.MM.DD

Permit/Seal



Client/Project

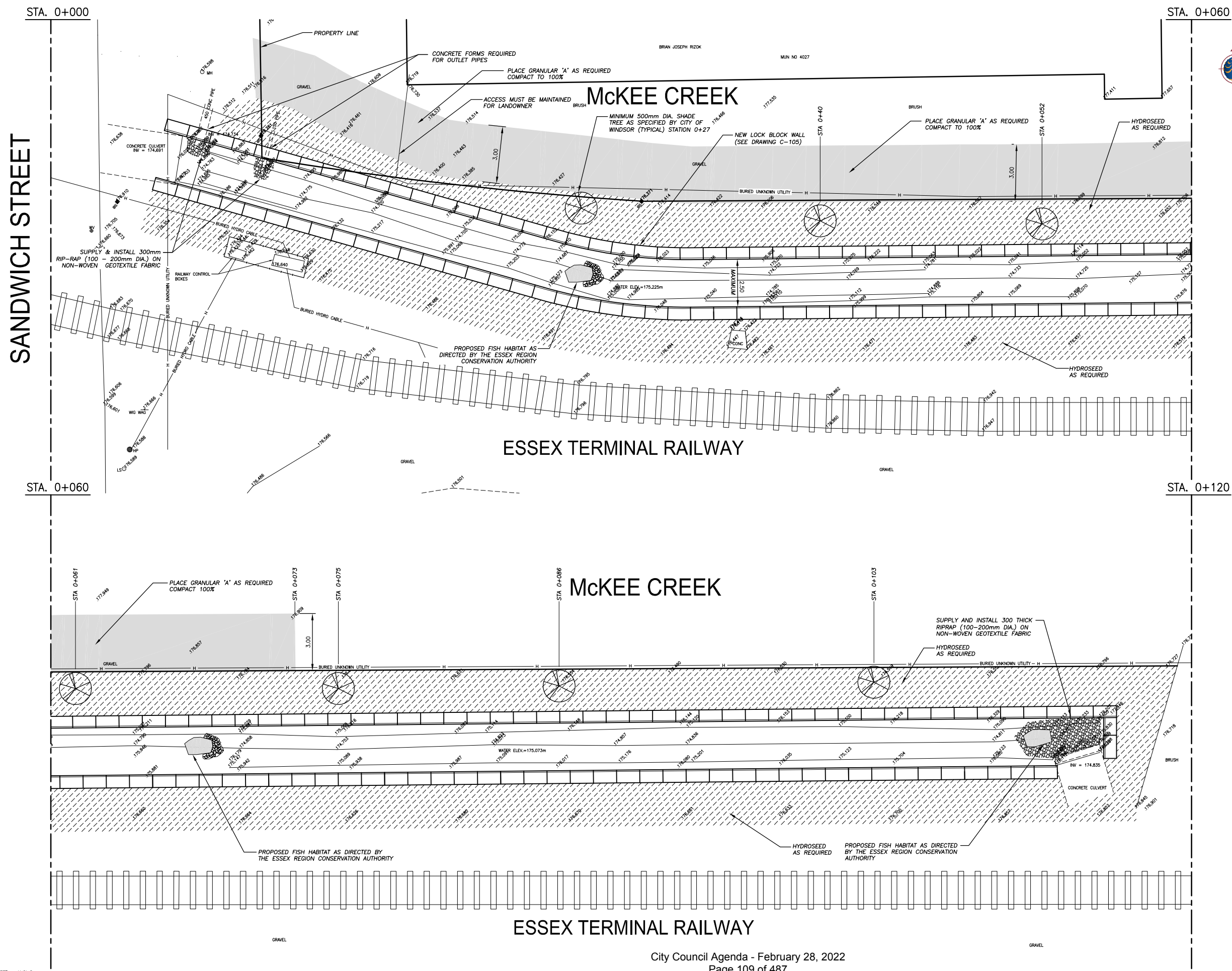
CORPORATION OF THE CITY OF WINDSOR

McKEE CREEK
BANK IMPROVEMENTS
Windsor ON Canada

Title

McKEE CREEK
RESTORATION
STA 0+000 TO STA 0+120

Project No.	Scale
165601199	1:100
Drawing No.	Sheet
C-103	Revision



SANDWICH STREET



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ORIGINAL SHEET - ANSI D



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Legend

- GRANULAR 'A'
- BRIAN JOSEPH RIZOK TEMPORARY WORKING EASEMENT AREA
- ETR TEMPORARY WORKING EASEMENT AREA
- 500mm DIA. SHADE TREE
- NEW LOCK BLOCK WALL
- INVERT ELEVATION
- PROPOSED FISH HABITAT

Notes

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File Name:	165601199C-101-4	J.M.F.		2010.11.18	
		Dwn.	Chkd.	Dsgn.	YY.MM.DD

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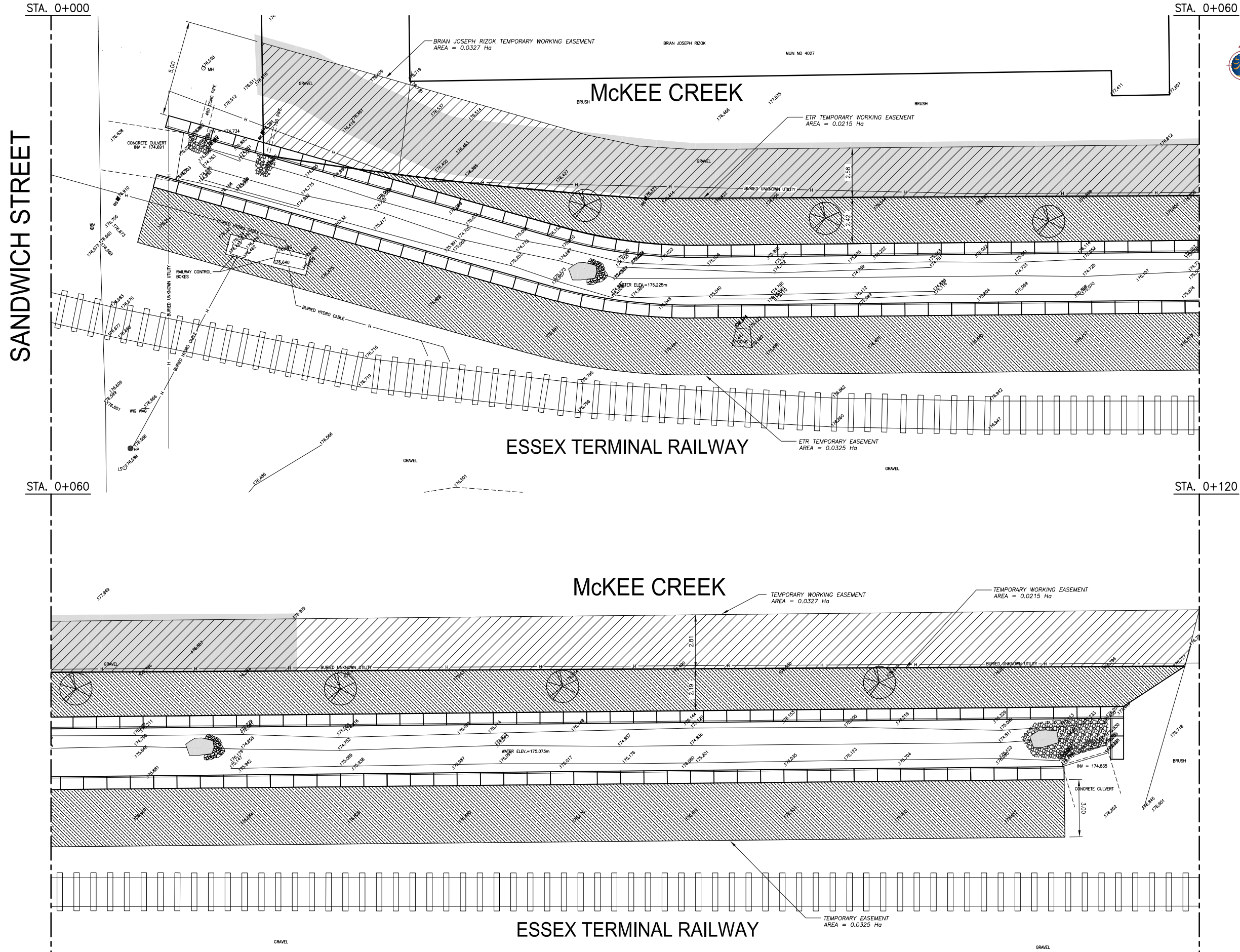
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McKEE CREEK BANK IMPROVEMENTS
 Windsor ON Canada

Title
McKEE CREEK EASEMENT BOUNDARIES STA 0+000 TO STA 0+120

Project No.	Scale
165601199	1:100
Drawing No.	Sheet
	Revision

C-104



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Legend

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File Name:	165601199C-101-4	K.F.F.		2010.11.04	
		Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit Seal



Client/Project

CORPORATION OF THE CITY OF WINDSOR

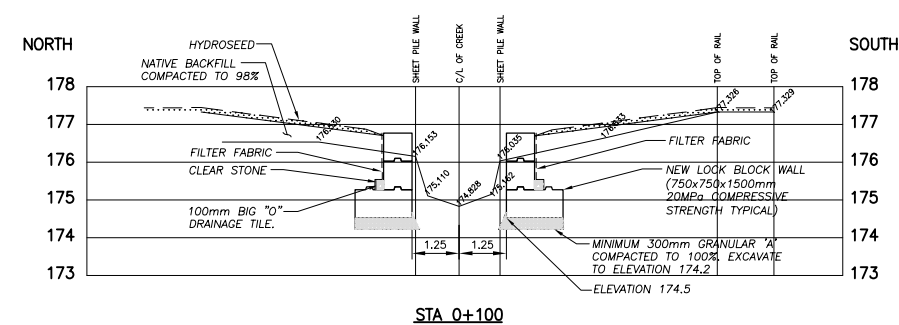
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 BANK IMPROVEMENTS
 Windsor ON Canada

Title

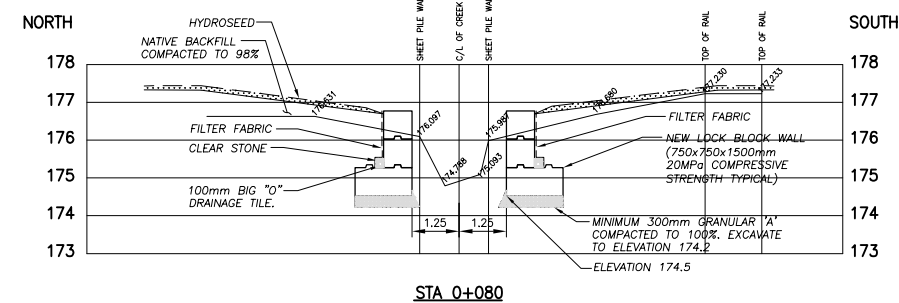
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 SECTIONS AND DETAILS

Project No.	Scale
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Drawing No.	Sheet
	Revision

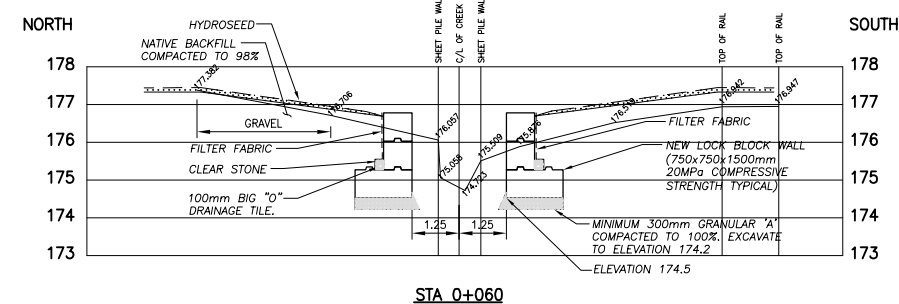
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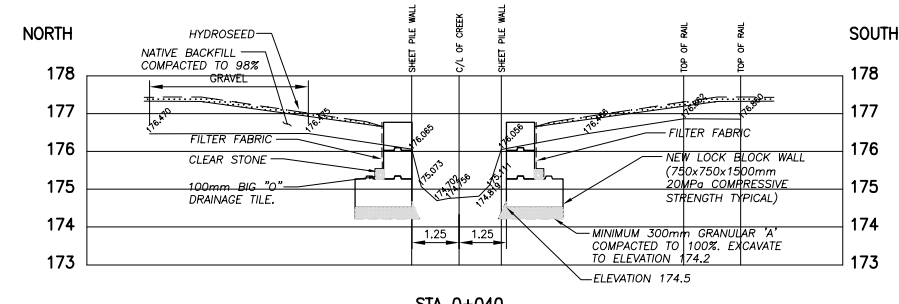
STA 0+100



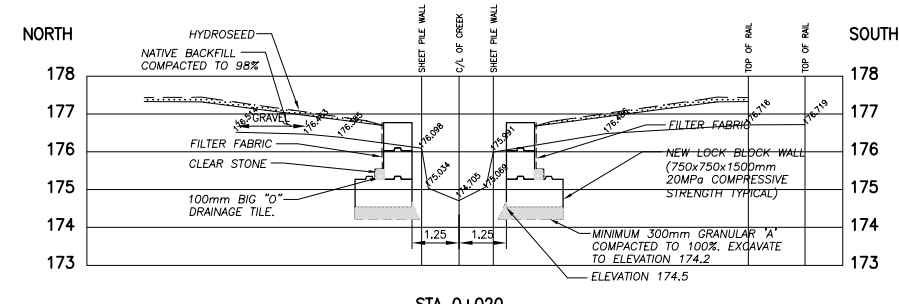
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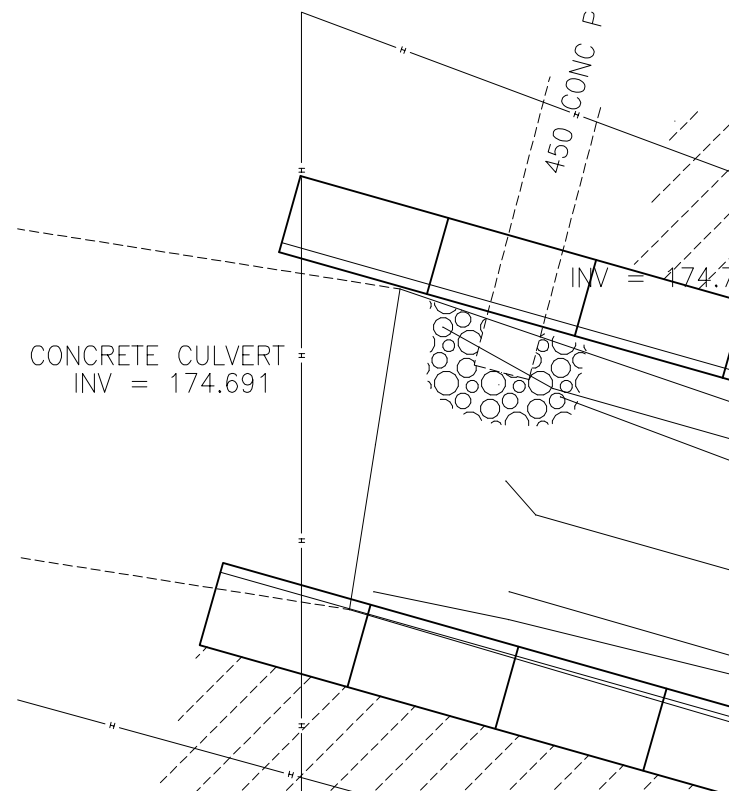
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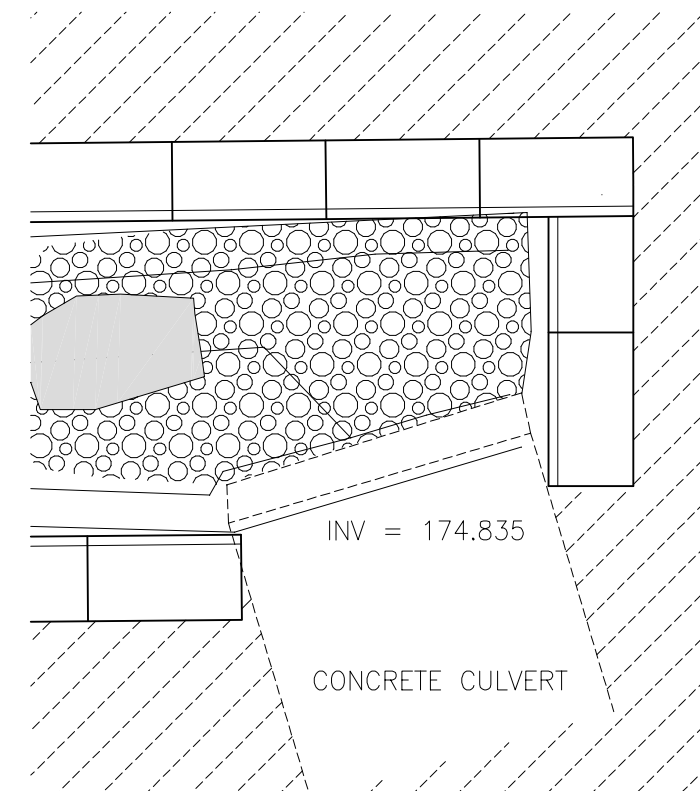
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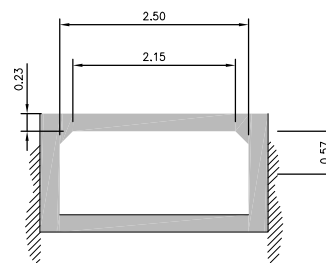
STA 0+020



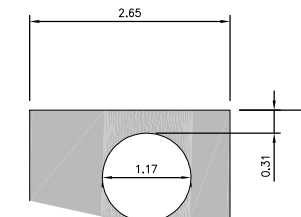
DETAIL OF WEST END OF DRAIN
 SCALE = 1:30



DETAIL OF EAST END OF DRAIN
 SCALE = 1:30



WESTERLY CULVERT - McKEE CREEK
 SCALE = 1:50



SOUTHERLY CULVERT - McKEE CREEK
 SCALE = 1:50

APPENDIX E

Specifications

APPENDIX E
SPECIFICATIONS FOR THE
McKEE DRAIN IMPROVEMENTS
CITY OF WINDSOR

1.0 Description of Work

The work to be completed under this Contract consists of the furnishing of all **labour, equipment, supervision and materials** necessary to carry out the following:

- Substantial brushing and clearing of woody vegetation from the drain bottom and drain banks from Station 0+477 to Station 0+754, Station 1+033 to Station 1+079, Station 1+257 to Station 1+605, and Station 1+633 to Station 2+514 in accordance with the drawings and specifications.
- Deepening, widening and minor realigning of the drain from Station 0+477 to Station 0+756, Station 0+906 to Station 1+079, Station 1+260 to Station 1+605, and Station 2+069 to Station 2+514. In addition, reshaping of the channel banks to the lines and grades depicted in the drawings is required from Station 0+906 to Station 1+079.
- Removal, replacement or improvement of the following bridges and culverts in accordance with the drawings and specifications:
 - Replace Bridge No.3 (ETR Culvert @ Station 0+508)
 - Improve Bridge No.6 (ETR Culvert @ Station 0+895)
 - Replace Bridge No.8 (Roll No. 050-170-06900 @ Station 1+014)
 - Replace Bridge No.9 (Roll No. 050-170-06700 @ Station 1+068)
 - Remove and Partially Replace Bridge No. 10 (Pollution Control Plant Culvert @ Station 1+242)
 - Replace Bridge No.11 (ETR Culvert @ Station 1+617)
 - Remove Bridge No.13 (Culvert @ Station 1+776)
- Removal of the existing pipe enclosure between Station 1+080 to Station 1+256 (Bridge No. 10) and excavation of an open earth-lined channel from Station 1+080 to Station 1+225 to provide a 5-year design storm capacity and sufficient outlet for upstream properties, in accordance with the drawings and specifications.
- Installation of a new catch basin and lead at 4027 Sandwich Street in accordance with the drawings and specifications.

The foregoing description is general only and must not be considered as limiting the scope of work.

Improvements to a segment of the McKee Drain were completed in 2013 in accordance with a report prepared by Stantec Consulting. The specifications that were prepared for the segment of drain from Sta. 0+781 to 0+889 follow this general specification.

In addition to the project specific specifications provided herein, reference is made to applicable OPSS Forms and City of Windsor Standard Specifications. OPSS Forms can be accessed at:

<https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/opsViews.aspx>

Applicable sections of the City of Windsor Standard Specifications can be accessed at:

<https://www.citywindsor.ca/business/buildersanddevelopers/Pages/Standard-Specifications.aspx>

Both standards shall govern the drainage improvement works.

2.0 Site Access and Working Areas

Access to the drain for the purpose of its improvement and maintenance shall be limited to the corridors indicated in the Engineer's Report which are reproduced in following table.

From	To	Owner	Roll No.	Working Corridor Description
0+000	0+380	Coco Paving Inc.	050-170-04600	Within canal plus 9 m wide on south and west side of drain
0+380	0+515	Coco Paving Inc.	050-170-00601	Within canal plus 9 m wide on south and west side of drain
N/A	N/A	Essex Terminal Railway Co.	080-850-03200	Within drain plus 6 m wide on both sides of drain (with permission from ETR)
0+515	0+656	Central McKinlay International Ltd.	050-170-04110	Within drain plus 9 m wide on west side of drain
0+656	0+781	Central McKinlay International Ltd.	050-170-04700	Within drain plus 9 m wide on west side of drain
0+781	0+885	4027 Sandwich Street	050-170-07101	Within drain plus 6 m wide on both sides of drain
0+885	0+906	Essex Terminal Railway Co.	080-850-03200	Within drain plus 6 m wide on both sides of drain (with permission from ETR)

0+906	1+025	12427222 Canada Inc.	050-170-06900	Within drain plus 9 m wide on west side of drain
1+025	1+070	Kinder Morgan Utopia Ltd.	050-170-06700	Within drain plus 9 m wide on west side of drain
1+070	1+605	Lou Romano Water Reclamation Plant	05-170-06600	From City Owner Property
1+605	1+920	Essex Terminal Railway Co.	080-850-03200	Within drain plus 9 m wide on east side of drain (with permission from ETR)
1+920	2+330	Ontario Hydro Networks	080-840-32300	Within drain plus 9 m wide on east side of drain and east side of drain
2+330	2+514	City of Windsor	080-840-04900	Within drain plus 9 m wide on north side of drain and east side of drain

The Contractor may utilize the foregoing corridors as well as any access driveways and roadways as necessary. All disturbed areas shall be restored to as good or better condition upon completion of the work.

While utilizing roadways for access, the Contractor shall control traffic in accordance with the Ontario Traffic Manual (Book 7 - Temporary Conditions) as published by the Ministry of Transportation. All signs shall be kept clean and in good condition, and shall meet or exceed the standard of reflectorization set out in the Ontario Traffic Manual. The Contractor shall review the placement of these signs with the Engineer in advance of any on-site construction.

3.0 List of Drawings

The following drawings are part of this Contract.

(DRAWING NO. - DRAWING TITLE)

- 1 - KEY AND WATERSHED PLAN
- 2 - PLAN 1 (STA. 0+000 TO 3+180)
- 3 - PLAN 2 (STA. 3+180 TO 3+729)
- 4 - PROFILE & TYPICAL DESIGN SECTIONS
- 5 - SECTIONS 1 (STA. 0+00 TO 1+008)
- 6 - SECTIONS 2 (STA. 1+008 TO 1+778)
- 7 - SECTIONS 3 (STA. 1+778 TO 2+194)
- 8 - SECTIONS 4 (STA. 2+194 TO 3+407)
- 9 - SECTIONS 5 (STA. 3+407 TO 3+721)
- 10 - CULVERT NO. 3 – EXISTING CONDITIONS & PROPOSED WORKS

- 11 - CULVERT NO. 3 – PROPOSED WORKS
- 12 - CULVERT NO. 6 – EXISTING CONDITIONS & PROPOSED WORKS
- 13 - CULVERT NO. 6 – PROPOSED WORKS
- 14 - CULVERT NO. 11 – EXISTING CONDITIONS & PROPOSED WORKS
- 15 - CULVERT NO. 11 – PROPOSED WORKS
- 16 - STANDARD TWIN CULVERT

4.0 Alignment and Profile

The drain improvements shall be constructed to the lines and grades shown in the Plan and Profile Drawings for each drain segment. The bottom width of each segment of the drain shall be uniform and in no case shall the bottom project above the grade line. The horizontal alignment throughout must be set to the satisfaction of the Drainage Superintendent and the Engineer.

Excavation must be made to the depth indicated by the invert elevations shown on the drain profiles (See Drawing No. 4). The grade line shall be established in the field by the Contractor based on the bench marks provided or other suitable means approved by the Engineer.

5.0 Clearing, Brushing and Debris Removal

OPSS Form 201 and City of Windsor Standard Specification S-36 shall apply and govern except as amended or extended herein. The Contractor shall clear, remove and dispose of off-site all woody vegetation (i.e. trees, stumps, shrubs, brush, etc.) from within the working limits as is required to complete the drain improvements.

Any trees located within the drain bank, that are larger than 200mm in diameter shall be flagged for assessment by the Engineer prior to their removal. The Contractor shall take precautions to prevent damage to any trees, shrubs, etc. that are designated to be protected and saved. The replacement and/or repairs of damaged trees shall be undertaken by a qualified person, approved by the Drainage Superintendent and the Engineer.

All brush and trees removed by the Contractor shall be disposed of off-site by the Contractor. No brush shall be buried or burned unless otherwise specified. Any burning of brush shall be done in conformance with local and provincial rules and regulations governing the same.

Upon completion of the work, the contractor shall trim any broken limbs or branches from standing trees. The proper disposal of all brush and trees removed during the course of construction shall be to the satisfaction of the Drainage Superintendent and Engineer.

5.0 Excavation and Trucking of Excavated Material

OPSS Form 206 (MUNI) and City of Windsor Standard Specification S-3, shall apply and govern except as amended or extended herein. The channel shall be excavated to within 50mm± of the design profile. The remainder of the channel cross-section shall be constructed to within 50mm± of the design section.

Over-excavation of the drain bottom will be corrected using compacted site selected material as approved by the Engineer and at no cost to the Owner. Over-excavation of the drain bank beyond the specified tolerances shall require that the bank be repaired in accordance with a repair detail prepared by a Professional Engineer (retained by the Contractor). The repair detail shall be subject to review by the Engineer. The full cost of the repair, including the fees of the aforementioned Professional Engineer, shall be borne by the Contractor.

6.0 Disposal of Surplus Earthen Material

Suitable excavated earthen material will be disposed of on-site at locations identified by the Drainage Superintendent and Engineer. Earth materials shall be stockpiled in a manner that maintains current drainage of the lands and does not block any swales, surface inlets or other drainage features. Material that is stockpiled shall be placed and graded so that it can be maintained by mowing.

All surplus excavated material designated for off-site disposal by the Drainage Superintendent and Engineer shall be disposed of in accordance with Ontario Regulation 406/19.

Any areas that are damaged by hauling or disposal operations shall be restored to original or better condition by the Contractor.

7.0 Rock Protection at Outfalls

OPSS Form 407, 511, 1004 and 1860 shall apply and govern except as amended or extended herein. This work shall include installation of rip rap erosion protection on geotextile fabric at all locations where outfalls tie into the new drain as detailed on the Drawings. Geotextile fabric shall be non-woven and must meet the following minimum standards:

Grab Tensile (kN)	1.0
Mullen Burst (kPa)	2900
Tear Strength (kN)	0.4

The Contractor shall submit proof to the Engineer in advance of the work that the product supplied meets the above minimum standards.

8.0 Rock Sheeting

OPSS Forms 511 and 1004 shall apply and govern except as amended or extended herein. The Contractor shall supply and place the rock sheeting for erosion protection purposes to the lines and grades depicted on the drawings and as specified. The rock shall be supplied from an approved source, and shall consist of 250mm nominal rip rap ranging in size from 200mm to 450mm (8" to 18"), with the majority of material being in the 300 mm (12") range. The rock sheeting shall be placed in such a manner as to provide a uniform mat thickness and surface as shown on the Drawings.

9.0 Culverts and Headwalls

OPSS Forms 180, 421, 501, 902, 1001, 1002 (MUNI), 1010, 1350 (MUNI), 1440, 1821 and 1842 and City of Windsor Standard Specification S-11 shall apply and govern except as amended or extended herein.

Precast concrete pipe sections shall be supplied by a manufacturer possessing a current Prequalification Certificate issued under the Plant Prequalification Program as outlined in the Ontario Concrete Pipe Association (OCPA) publication, Prequalification Requirements for Precast Concrete Drainage Products. The culvert sections shall conform to the dimensions shown in these Contract Drawings and shall be designed in accordance with CSA.S6-06, the Canadian Highway Bridge Design Code.

The Contractor shall submit Shop Drawings, sealed by a Professional Engineer who is registered and licensed to practice in the Province of Ontario, for the design of the precast concrete culvert sections. The Shop Drawings shall be submitted for review by the Engineer prior to the start of manufacturing of the precast concrete culvert sections.

Waterproofing of the concrete box culverts shall conform to Forms OPSS Forms 914, 1213 and 1215, except as amended and extended herein. This work shall include supply and installation of the new rubberized asphalt waterproofing membrane on the new precast concrete culverts, including all surface preparation and tack coats (as required to carry out work to OPSS standards).

HDPE pipe sections shall be supplied by a manufacturer that produces the polyethylene plastic pipe products according to CSA B182.6, CSA B182.8, AASHTO M294 Type S, ASTM F 894 or ASTM F 714. Installation shall be in accordance with OPSS 1842.

Installation of Precast Concrete Block Headwalls shall conform to OPSS Forms 180, 501 (MUNI), 902, 1002 (MUNI), 1010 (MUNI), 1350 (MUNI), AND 1440 (MUNI) shall apply and govern except as amended or extended herein. This work shall consist of all equipment and labour required to install precast concrete Easy Block (or approved equivalent) sections as depicted in the Drawings, complete, including layout, excavation, installation, soil reinforcement, backfill, bedding and compaction. The precast blocks shall be Easy Block plain style blocks by Underground Specialties (or approved equal). The blocks shall be installed in accordance with the manufacturer's specifications.

The Contractor shall install 150mm diameter perforated sub-drains with filter sock at the locations shown. The work shall conform to OPSS Form 405.

Culvert backfill, cover shall consist of compacted Granular 'A' road base as shown on the Drawings. OPSS Form 314, 501 (MUNI) and 1010 (MUNI) shall apply and govern except as amended or extended herein. The granular material shall be placed in maximum 250mm thick loose lifts and compacted to 100% of Standard Proctor Maximum Dry Density.

10.0 Construct Temporary Earth Dams

OPSS Form 206 (MUNI) shall apply and govern except as amended or extended herein. The existing drain shall be dammed both upstream and downstream of the culvert work area using Class II soils (non-impacted) from the on-site excavation of the new channel. The temporary earth dams shall extend the full width of the drain, and shall be built to the lines and grades shown on the Drawings – complete with non-woven geotextile and Rock Sheeting on their wetted face(s). The earth fill shall be placed in lifts no greater than 300mm and shall be compacted to the maximum extent practical.

The geotextile used on the wetted face of each dam shall be non-woven and shall meet the following minimum standards:

Grab Tensile (kN)	1.0
CBR Puncture (N)	2500
Tear Strength (kN)	0.4

The Contractor shall submit proof to the Drainage Superintendent and Engineer in advance of the work that the product supplied meets the above minimum standards.

The Rock Sheeting used to cover the wetted face of each dam shall consist of a well graded rock from an approved source conforming to Section 9 of this specification.

11.0 Dewater and Maintain Work Area

In order to construct the new culverts and headwalls in the dry, the Contractor shall supply, operate, and maintain portable pumps having sufficient capacity to completely dewater the work area (where applicable).

The Contractor shall submit a dewatering plan for approval at least 10 days prior to the start of construction. The dewatering plan shall include details (make, model, and capacity) regarding the pumps to be supplied for the purpose of dewatering and maintaining the work zone – and shall include at least one redundant backup pump to account for the possibility of equipment failures over the course of construction.

The Contractor shall be required to carry out fish salvage (see Section 24.0 of this Specification) in advance of each new dewatering operation.

12.0 Remove and Dispose of Existing Culvert Pipes

Upon completion of the dewatering operation, the Contractor shall excavate for and carefully remove the two existing 750mm diameter concrete pipes and the 900mm diameter steel pipe at the Culvert #3 site, and the 1200mm pipe at Culvert #10, and dispose of the pipe materials off-site. Care shall be taken to ensure that the adjacent lands (e.g., segments of railway at Culvert #3) are not disturbed during the removal process.

13.0 Supply and Install Precast Box Culverts

The Contractor shall supply and install new precast concrete box culverts at the site of Culvert #3, as detailed in the Drawings. City of Windsor Standard Specification S-11 shall apply and govern, including the OPSS specifications referenced therein.

The steel shear plates shall be constructed of CSA G40.21 Grade 300W steel and shall be hot-dipped galvanized in conformance with CAN/CSA G164-M92. The threaded rods and dowels shall also be galvanized and constructed of Grade 300W steel.

The threaded rods that are not pre-cast into the culvert segments shall be anchored to the concrete using a two-component acrylic adhesive (Epcon A7 or approved equal) to the depths recommended by the manufacturer. The Contractor shall also ensure that sufficient spacing and edge distance is provided in the concrete to develop the full tensile strength of each member.

14.0 Supply and Install Precast Concrete Culvert Pipes

The Contractor shall supply and install new precast concrete pipes at the sites of Culvert #6 and Culvert #11, as detailed in the Drawings. City of Windsor Standard Specification S-11 shall apply and govern, including the OPSS specifications referenced therein.

15.0 Supply and Install Precast Headwalls and Cut-Off Wall

The Contractor shall supply and install new precast concrete block headwalls (including the cut-off wall) at the sites of Culvert #3 and Culvert #11, as dimensioned in the Drawings. The Contractor shall be required to submit shop drawings to the Drainage Superintendent and Engineer, detailing the concrete block system that they intend to utilize (Easy Blocks by Wolseley Water Works or approved equal) at least 10 working days before the start of construction. City of Windsor Standard Specification S-11 shall apply and govern, including the OPSS specifications referenced therein.

The backfill of the precast headwalls shall consist of Granular 'A' (as per OPSS 1010), reinforced with layers of biaxial geogrid (Mirafi BXG12 or approved equal), well secured between each row of blocks. The backfill materials shall be placed in regular lifts and shall be compacted to 100% SPDD.

16.0 Construct New Cast-in-Place Concrete Headwall

The Contractor shall supply and install a new cast-in-place concrete headwall at the site of Culvert #6, as detailed in the Drawings. City of Windsor Standard Specification S-9 shall apply and govern, including the OPSS specifications referenced therein.

Notwithstanding the above, the concrete work shall be completed to the minimum requirements of CSA A23.1 and the following specifications:

- a) Minimum concrete strength @ 28 days = 35 MPa
- b) Maximum aggregate size = 19 mm
- c) Specified air content = 5% to 7%
- d) Maximum water/cement ratio (by weight) = 0.45
- e) The use of Type WN water reducing admixtures shall be permitted (in accordance with OPSS 1303)
- f) Maximum 25% SCM replacement (slag only)
- g) No water is to be added to the mix on-site or during transport

The Contractor shall submit a concrete mix design to the Drainage Superintendent and Engineer for approval at least five (5) working days in advance of placement.

17.0 Supply and Install Precast Approach Slabs / Load Distribution Slabs

The Contractor shall supply and install new precast concrete slabs at the sites of Culvert #3 and Culvert #6, as detailed in the Drawings. The Contractor shall be required to submit shop drawings of each slab to the Drainage Superintendent and Engineer at least 10 working days before the start of construction, detailing the final dimensions and rebar lists.

The concrete work shall be completed to the minimum requirements of CSA A23.1, and the hardened concrete shall have a minimum compressive strength of 30 MPa at the time of installation. The specified air content of the concrete mix is 5% to 7%. City of Windsor Standard Specification S-9 shall apply and govern, including the OPSS specifications referenced therein.

18.0 Abandon Existing Culvert Pipes

The Contractor shall abandon the two existing 1200mm diameter culvert pipes at the site of Culvert #11 upon completion of the new culvert, as indicated in the Drawings. The Contractor shall grout the existing pipes solid along their entire length(s).

The Contractor shall be responsible for specification of the grout mixture and grouting operation to be employed. At least 10 working days prior to the start of grouting operations, the Contractor shall be required to submit a grouting plan to the Drainage Superintendent and Engineer for approval. The plan shall include a detailed description of the equipment and operational procedures the Contractor intends to use for the grouting operation, including mix design and methods to monitor the effectiveness of the grouting.

The Contractor shall be prepared to modify or change his operation should the grouting not perform as proposed. Such modifications and changes shall be done in a timely manner to avoid unnecessary delay to the completion of the Project.

OPSS Forms 919 and 1359 shall apply and govern (where applicable) in carrying out this work.

19.0 Supply and Install HDPE Culvert Pipes and Rock Sheeting Headwalls

The Contractor shall supply and install new HDPE pipes at the sites of Culvert #8 and Culvert #9, as detailed in the Drawings. City of Windsor Standard Specification S-11 shall apply and govern, including the OPSS specifications referenced therein.

20.0 Pedestrian Barricades, Guards and Rails

The Contractor shall supply and install the new pedestrian barricades, guards and rails as detailed in the Drawings. Steel posts and railings, base plates and connection to the new headwalls, precast blocks and pile caps shall be as illustrated. All steel components of the pedestrian barricade shall conform to ASTM A325M or A490M and shall be hot-dipped galvanized in conformance with CAN/CSA G164-M92.

21.0 Topsoil

OPSS Forms 802 and City of Windsor Standard Specification S-34, apply and govern except as amended or extended herein. This work shall consist of supply, placement and grading a minimum thickness of 100mm (4") of clean topsoil at the locations indicated in the Drawings. The topsoil supplied shall be free from roots, vegetation and other debris and shall be from a source approved by the Owner/Engineer.

22.0 Seed and Mulch

OPSS Forms 804 and City of Windsor Standard Specification S-15, apply and govern except as amended or extended herein. This work shall consist of all material, labour and equipment required to supply and place hydraulic seed, mulch and fertilizer on the areas indicated in the Contract Drawings and areas that have been disturbed during construction.

The seed mixture supplied shall have the following composition:

- 10% Red Clover (Medium Type)
 - 15% Quebec Perennial Ryegrass
 - 25% Tall Fescue
 - 25% Creeping Red Fescue
 - 15% Richmond Timothy
 - 10% Kentucky Bluegrass

The mix shall be applied at the rate of 100 kg/hectare and the fertilizer (8-32-16) shall be applied at a rate of 200 kg/hectare.

The Contractor shall be responsible to water the planted areas as required to ensure that the seed germinates and the grass grows. Areas of the site with less than 75% germination shall be re-seeded. The mulch shall be a bonded fibre matrix (Soil Guard bonded fibre matrix or equivalent).

The Contractor's price shall include all watering required to ensure that the seed germinates and the grass grows. Areas of the site with less than 75% germination shall be re-seeded.

24.0 Fish Salvage

Prior to undertaking any improvements or repairs where fish may exist, measures shall be taken to collect and transfer fish and other aquatic or amphibious species from work areas to other areas of the McKee Drain.

In an effort to minimize fish stress and mortality, the Contractor shall be required to subcontract this work to a qualified fisheries biologist.

24.1 Coordination

The contractor shall be solely responsible for coordination of the fish salvage works with other works so as to ensure that the fish collection/transfer can occur in advance of other work included in this contract. Neither the Owner nor the Engineer will bear any responsibility for delays that may occur as a result of inadequate coordination of the work by the Contractor.

24.2 Fish Handling Guidelines

General fish handling guidelines are detailed below.

- a) The drain(s) will be blocked or diverted according to individual project section drawings.
- b) All fish will be removed from the project site through electrofishing, small seine and dip nets (various mesh size 1/8 – 1/4) and immediately transferred to aerated coolers located onshore.
- c) Fish will be graded (size) and transferred in aerated tanks to sites upstream of the project area. Size separation is conducted to reduce damage and stress on the fish.
- d) All transfer tanks will contain water from the original water body in order to reduce thermal or chemical stress on the fish.
- e) All Round Gobies encountered (*Neogobius melanostomus*) will be humanely euthanized by MS222 overdose on site according to Canadian Council on Animal Care protocols. Fish carcasses will be disposed as biological waste through protocols issued through Chemical Control Center (Waste) University of Windsor.

- f) All fish will be rapidly inspected for signs of obvious disease and excessive parasite infection. Fish that have been damaged by sampling, exhibit loss of equilibrium or have obvious signs of terminal disease will also be euthanized.
- g) All fish will be acclimated prior to release. Water from the release site will be slowly introduced in to the transfer tank in order to ensure both thermal and chemical equilibrium has been achieved prior to release.
- h) Fish will be released into appropriate habitat that (i.e. abundant cover) to allow for adjustment and to avoid predation. Larger fish will be released into deeper water under the same conditions previously described.
- i) A species diversity list will be issued to the City of Windsor upon completion of transfer.

24.3 Notifications

The Contractor shall be required to provide the Engineer with 48 hours notice of the fish transfer operation/activity.

25.0 Protection of Existing Utilities

The Contractors will satisfy themselves as to the location of any public utilities, power or transmission lines, underground cables, etc. which may be affected by the doing of any work and will conduct their operation so as to in no way interfere with the same. If in the doing of any work such lines, underground cables, etc., are damaged, the Contractor will save the Municipality or Engineer harmless from any cost or damage resulting therefrom.

It will also be the Contractor's responsibility to get any permits that may be required to carry out the work and also to see that the proper authorities are notified that he is working in the vicinity of any public utility, power or transmission lines, underground cables, etc. All work that is carried out in the vicinity of any of the above shall be carried out in accordance with their specifications or regulations for the same, as if their specifications or regulations formed part of this specification.

Where the Contractor is working on or adjacent to a road, he shall at his own expense, provide for the safe passage and control of traffic by placing, maintaining, changing and removing such barricades, signs, flags, lights (including flashing lights and flagmen), as are required for the proper notification and protection of the public approaching or passing through any part of the work area. All signs, flags, lights, etc. so used shall be in conformance with the provisions of Book 7 of the Ontario Traffic Manual. The Contractor will save harmless the Municipality and the Engineer from any legal actions resulting from any negligence or carelessness on the part of the Contractor which may result in damage claims for improper traffic control procedures.

26.0 Clean-up

After the Contractor has completed his work, he shall clean-up the site, removing all debris or any other waste materials in a neat and workmanlike manner, leaving the job in a neat and tidy condition and subject to the approval of the Drainage Superintendent and the Engineer.

27.0 General Contract Provisions and Conditions

The following general contract provisions shall apply. All references to Engineer in the following subsections shall also extend to the Drainage Superintendent.

27.1 Conflicts and Omissions

The Contractor shall do all the work and furnish all the materials in accordance with the best practices, and in the event of any inconsistency or conflict in the provisions of the plans and specifications, such provisions shall take precedence and govern in the following order:

- a) the Agreement between the Owner and Contractor
- b) the Definitions (as indicated in the Agreement)
- c) Supplementary Conditions
- d) General Conditions
- e) Specifications
- f) Material and Finishing Schedules
- g) Contract Drawings

Neither party to the Contract shall take advantage of any apparent error or omission in the plans or specifications, but the Engineer shall be permitted to make such corrections and interpretations as may be necessary for fulfillment of the intent of the plans and specifications. Any work or material not included herein but which may be fairly implied as included in this Contract, of which the Engineer shall be the judge, shall be done or furnished by the Contractor as if such work or materials had been specified.

27.2 Additional Details, Instructions and Drawings

Additional details, instructions and drawings may be issued by the Engineer to clarify work which shall become part of the Contract.

27.3 Applicable Regulations and Minimum Standards

The Contractor shall execute the work to meet or exceed the rules and regulations of authorities having jurisdiction, including the National Building Code of Canada, Ontario Building Code and Electrical Code, National Fire Code of Canada, Workplace Hazardous Materials Information System (WHMIS) and any other code of provincial or local application including all amendments up to the project date. In any case of conflict or discrepancy, the more stringent requirement shall apply.

27.4 Incidental Costs

The following is a partial list of items, the cost of which is to be included in the unit prices of the Tender items. No additional payment will be made for the following:

- a) Cost of permits and fees (see Item 6.0);
- b) Cost of removing and relocating to temporary and/or final locations; small signs, hedges, mail boxes and other minor obstructions interfering with construction;

- c) Cost of maintaining vehicular traffic and pedestrian access as noted elsewhere in these specifications;
- d) Cost of providing and maintaining the Engineer's office (if required) as outlined elsewhere;
- e) Cost of maintaining dust control as outlined elsewhere;
- f) Cost of removing excess materials from the Owner's lands as outlined elsewhere;
- g) Cost of supplying, installing, and removing project signs (if required).

27.5 Documents Required

The Contractor shall maintain at the job site, one of each of the following in a clean, dry and legible condition:

- a) Contract Drawings
- b) Contract Specifications
- c) Addenda
- d) Reviewed Shop Drawings
- e) Change Orders
- f) Other Modifications to the Contract
- g) Field Test Reports
- h) Copy of Approved Work Schedule
- i) Manufacturer's Installation and Application Instructions for all Fabricated Items
- j) Copies of all work permits obtained for the project.

The Contractor shall make these documents available at all times for inspection and use by the Engineer.

27.6 Extra Work

Extra work is work which is required, but not described in the Contract Documents or on the Contract Drawings.

No work shall be regarded as extra work unless it is approved in writing by the Engineer, and with the agreed price and method or payment for it specified in the said approval, provided the said price is not otherwise determined by this Contract. The Engineer reserves the right to negotiate prices for extra work.

All notification of claims for extra work shall be made to the Engineer before the extra work is started. Notwithstanding anything contained in the General Conditions when it is necessary to perform work additional to the Tender items, unit prices to cover the cost of the work shall be negotiated whenever possible.

Where it is impractical, due to the nature of the work, to negotiate prices for extra work not included in the Tender, the cost of the additional work may be paid for by a force account, previously agreed upon and authorized by an order issued prior to carrying out the work, and for which payment is based on Form OPSS.MUNI 100 and the Ontario Provincial Standard Specifications "Schedule of Rental Rates," No. 127.

27.7 Claims

If a Contractor considers that he has a claim for compensation for costs which he had incurred or for loss he has suffered during the performance of the Contract, he should immediately advise the Engineer of his Intent to Claim on any specific portion of a Contract and he must also advise the Engineer in writing of his said Intent within seven (7) calendar days of the commencement of the work on which he intends to claim. He shall submit his claim no later than fifteen (15) days after the date of completion of the work.

When notice of claim is not given or the claim is not submitted within the periods prescribed by this Section, the Claim may be disallowed.

27.8 Employment Standards

The Contractor shall conform to the requirements of the current editions of the Industrial Standards Act, the Employment Standards Act and the Regulations proclaimed there under.

27.9 First Aid Equipment

The Contractor shall provide and maintain the necessary first aid items and equipment as called for under the First Aid Regulations of the Workers' Compensation Act and as required by all other applicable regulations.

27.10 Sanitary Measures

The Contractor shall either arrange for or provide and properly maintain in a clean and sanitary condition, suitable conveniences for his workers and for the Engineer's staff.

27.11 Construction Safety

The Contractor shall conform with the requirements of the current edition of the Occupational Health and Safety Act for Construction Projects and to the Regulations proclaimed thereunder, or any other applicable acts and regulations that may be in effect.

27.12 General Co-ordination

The General Contractor shall be responsible for the co-ordination between Contractors and/or working forces of other organizations and utility companies in connection with this work.

27.13 Progress Schedule

The Contractor shall be required to submit a Progress Schedule to the Engineer one week prior to commencement of the work. Such schedule shall be in a form acceptable to the Engineer, and shall indicate clearly the proposed order and time allowance for the various phases of the work in sufficient detail to show weekly progress.

The approval of the Progress Schedule will not cast any responsibility upon the Engineer or the Owner in seeing to it that the Progress Schedule is adhered to since timely execution of the work is the entire responsibility of the Contractor. As requested by the Engineer, the Contractor shall review the Progress Schedule and update as required. The Contractor shall make no changes to the Progress Schedule without prior written approval from the Engineer. The Engineer may, at his discretion, vary the Progress Schedule in whole or in part without relieving the Contractor from any of this responsibility to execute the Contract in a timely way, nor shall such variation cast any responsibility whatsoever upon either the Engineer or the Owner.

27.14 Supervision

The Contractor shall be responsible to monitor his own work on an ongoing basis and to provide adequate supervision to ensure a workmanlike job. He shall provide a qualified foreman to ensure that the job proceeds in a proper and efficient manner.

If in the opinion of the Engineer, such personnel are not competent to carry out their work, the Contractor shall replace these men immediately upon written request of the Engineer.

27.15 Lines and Grades

The Engineer will provide base lines, monuments and bench marks as shown on the Contract Drawings and will assist the Contractor in the use of these for establishing line and grade.

The Contractor shall immediately upon entering the site for the purpose of beginning work on this Contract, locate and mark all "key" bars and all general reference points, and take proper action necessary to prevent their disturbance. If disturbance of the general reference points occurs, the Contractor shall, at his sole expense, replace the monument within one (1) working day by qualified personnel.

The Contractor shall retain at his expense a certified survey company to properly lay out and establish secondary lines, grades and coordinates necessary for construction using total station equipment. He shall construct and maintain substantial batter boards, alignment markers and secondary bench marks as may be required for the proper execution of the Contract, for the duration of the Contract.

The Engineer shall be notified of any layout work carried out and shall check same if he so desires. Checking of layout or failure to do so in no way relieves the Contractor of the full responsibility for construction of the work to the proper alignment and grade. Any works not constructed to the lines and grades specified (except as approved by the Engineer) shall be corrected to the satisfaction of the Engineer and at the expense of the Contractor.

27.16 Preliminary Measurement

Before commencement of any excavation, fill or other work for which the basis of payment is volume in place, the Contractor will inform the Engineer sufficiently in advance to allow cross-section work (if required) to be carried out.

Any cross-sections taken by the Engineer will be available to the Contractor for checking. If the Contractor begins work without giving the Engineer sufficient notice to allow cross-section work to be carried out, or if the Contractor begins work without having checked the Engineer's cross-sections, he shall have forfeited all rights to dispute the accuracy of the Engineer's determination of the quantity in question.

27.17 Private Property

The Contractor shall confine work including temporary structures, plant, equipment and materials to established limits of the site.

The Contractor shall assume full responsibility for crossing or making use of private property outside the limits of the Contract. Before the Contractor or any of his sub-contractors shall make use of any private property for any purpose, he shall first submit to the Engineer, a copy of a written agreement granting permission by the Owner of the private lands. The Engineer assumes no responsibility in verifying that permission to enter private property is granted. Any costs associated with the above shall be at the Contractor's expense.

While on private property, the Contractor shall continuously maintain adequate protection of all work from damage and shall protect all private property and structures from damage or loss arising in connection with the Contractor's work. He shall make good any such damage, injury or loss. Replacement materials shall be of quality equal to or better than the existing materials that were damaged by the Contractor's work.

27.18 Property Bars

The Contractor shall be responsible for marking and protecting all property bars during construction. All property bars which are missing, or damaged (in the opinion of the Engineer) or unavoidably removed shall be replaced at the Contractor's sole expense upon completion by an Ontario Land Surveyor.

In addition, "key" bars for layout will be marked by the Contractor with a 2 inch x 4 inch x 4 feet (50mm x 100mm x 1200mm) wood stake. If these "key" bars are damaged or buried, the Engineer will not check layout work or provide any layout until the "key" bars have been replaced. The Contractor will have no claims against the Engineer or the Owner for hardships he may endure caused by delays in the replacement of these "key" bars.

27.19 Supply of Materials

The Contractor is required to supply all products, equipment and articles incorporated in the Work for the execution of this Contract to the satisfaction of the Engineer. All materials supplied shall be new products unless otherwise specified, and shall be free of defects or damage, and of the best grade (compatible with these Specifications) for the purpose intended.

The Contractor shall deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact. When material or equipment is specified by standard or performance specifications, the Contractor shall upon request of the Engineer, obtain from the

manufacturer an independent testing laboratory report stating that the material or equipment meets or exceeds specified requirements. The Contractor shall unless otherwise specified, comply with manufacturer's latest printed instructions for material and installation methods, any conflicts between manufacturer's instructions and these specifications should be reported to the Engineer for decision on which document is to be used.

Materials listed to be supplied by any Ministry specified in the Standard Specifications, shall be supplied by the Contractor and considered compensated for as herein outlined.

The Contractor shall provide samples of selected materials, assemblies or components as requested by the Engineer.

27.20 Traffic Control

The Contractor shall control traffic in accordance with the Ontario Traffic Manual (Book 7 - Temporary Conditions) as published by the Ministry of Transportation.

All signs shall be kept clean and in good condition, and shall meet or exceed the standard of reflectorization set out in the Ontario Traffic Manual. The Contractor shall review the placement of these signs with the Engineer in advance of any on-site construction.

Payment for signage and traffic control shall be made at the lump sum price bid and shall be compensation in full for all labour, equipment and materials required to carry out this work. This item shall be paid out incrementally, such that: 50% of the lump sum price bid shall be paid for the submission of an acceptable Traffic Control Plan and the satisfactory erection of the approved traffic control measures; 40% of the lump sum price bid shall be paid over the course of the project for adequate maintenance of the traffic control measures; and 10% of the lump sum price bid shall be paid out for removal of the traffic control measures upon completion of the project.

27.21 Pedestrian and Vehicular Access

The Contractor shall assume full responsibility for and be required to provide for and maintain pedestrian access and vehicular access to all private property and through the construction work as required or as directed by the Engineer. This may require the provision of adequate temporary board works, steps or ramps where necessary to allow pedestrian and/or vehicular traffic to pass due to new construction.

27.22 Daily Clean-up, Haul Routes, Restoration and Site Protection

The Contractor shall be required to keep the premises in a clean and orderly condition during construction, grade trenches daily, maintain project free from accumulated waste and rubbish, and remove excess and unusable materials as required and requested by the Engineer and authorities having jurisdiction. Mud tracked into the travelled roadway shall be removed immediately. Open trenches will not be allowed overnight.

The Contractor shall be responsible for removing all materials, earth or debris which falls out of trucks or from his own vehicles, his sub-contractors' vehicles, and supplier's vehicles on roadways,

sidewalks and bridges used as a route between disposal areas and the site. The Contractor shall employ workmen sufficient in number or shall use some other means necessary to keep such streets, sidewalks and bridges in a clean condition, free from materials, earth, debris and damage.

Haulage Routes to and from the site for the delivery of rock, concrete or materials and for the removal of materials off site shall meet the requirements of these specifications and shall conform to the requirements of authorities having jurisdiction. The Contractor shall be solely responsible for obtaining any required permits or approvals of haul routes, and shall submit the above to the Engineer as requested.

The Contractor may be required to construct a temporary gravel driveway or other structure exiting any wet area to minimize the material tracked onto the haul route if deemed necessary by the Engineer or authorities having jurisdiction. No claim for extra will be entertained for the above.

The Contractor shall provide protection to the site with necessary barriers, warning lights and signs as to protect the site from damage. Any damaged work shall be replaced at the Contractor's sole expense with matching material and to original finish.

27.23 Public Convenience

The Contractor shall appoint a competent representative to receive and deal with any complaints received from the public with regard to safety, protection of traffic, etc., condition of road surfaces and driveways within the Contract Limits or nuisance caused by the work and shall inform the Engineer and the Police of the name, address and telephone number of the representatives prior to commencement of work.

The Engineer will provide for a notice to householders and businesses in the vicinity of the work and include in the same, the name, address and telephone number of the above representative to be notified after working hours in case of complaints.

All complaints shall be properly dealt with and the representative shall take all such remedial action to prevent further complaints on the same matter.

27.24 Construction & Storage Area

The Contractor shall have full use of the site for the execution of work with accordance to Item 27.12 of this section. The Contractor shall confine work, including temporary structures, plant, equipment to established limits of the site. The location of temporary buildings, roads, drainage facilities, services shall be approved by the Engineer and be maintained in a clean, orderly manner.

The limits of the construction and storage yard will be designated by the Engineer prior to commencement of work unless otherwise stated. The Contractor shall be responsible for any additional storage and work areas in accordance with Item 27.17 of this section.

27.25 Quality Control

The following listing of tests, if required by the Engineer, will be paid for by the Owner:

- i) Compaction tests. (Note: Any re-testing of materials that do not meet the specified compaction requirements will be done at the Contractor's sole expense);
- ii) Visual inspection of the exposed subgrade;
- iii) Analysis of granular materials and approval of sources. Limit of one analysis per type of material.

If the Contractor backfills, or permits to be backfilled, any of the work that is subject to inspection or testing prior to approval by the Engineer or the Certified Testing Company, the Contractor shall be responsible for exposing the work (in order to have the required inspections or testing carried out and satisfactorily completed) and shall make good the work and any repairs at his own expense.

The Engineer may require documentary evidence to the effect that materials supplied by the Contractor comply with the terms of the Specifications. Such evidence must be in the form of a recognized certified testing company acceptable to the Engineer. **NO COSTS IN CONNECTION WITH THESE TESTS SHALL BE BORNE BY THE OWNER OR ENGINEER.**

Where a product name is mentioned in these Specifications, the Contractor may use an alternative or substitute product, provided that written permission is obtained from the Engineer after such product is proven to meet the terms of the Specifications as outlined in this Contract.

27.26 Defective Work

The Contractor shall, at any time when directed by the Engineer, make openings for inspection to any part of the work. Should the work be found, in the opinion of the Engineer, to be defective in any respect, the whole of the work shall be corrected to the satisfaction of the Engineer and at the expense of the Contractor. Should such work be found not faulty, the cost incurred shall be accepted by the Owner.

27.27 Compaction of Materials Where Working Space is Limited

When it is impossible to compact earth and granular materials immediately adjacent to footings, abutments, wingwalls, piers, pipe culverts, haunches of culverts, retaining walls, sewers, manholes, catch basins, etc., with ordinary compaction equipment, the Contractor shall provide and use mechanical hand compaction equipment as directed by the Engineer and shall perform the compaction to his satisfaction. No additional payment will be made for this work

27.28 Shop Drawings

OPSS.MUNI 100 shall apply and govern except as amended or extended herein.

Prior to submission of shop drawings and/or product data sheets, the Contractor shall check and certify as correct all submissions, any deviations from the Contract Documents shall be noted in writing with reasons for deviations. All submissions shall be made at least seven (7) days before the submission will be required. The Contractor shall not proceed with work until relevant submissions are reviewed by the Engineer.

The Contractor shall submit to the Engineer for review, five sets of any Shop Drawings or Working Drawings which have not been supplied in the Contract Documents but which are required for any part of the construction or the finished work. Three sets of Shop Drawings will be retained by the Engineer. The submission shall also include a reproducible transparency (mylar) of shop drawings for custom-made items. All dimensions shall be in metric units.

The Contractor shall have available for use by the Engineer one (1) copy of the product data sheets for all standard manufactured items on site.

The Engineer will only review submitted drawings for compliance with the Contract Documents and will return them stamped "No Comments", "See Comments", or "Amend and Resubmit". The Engineer may, at his discretion require a resubmission of Drawings noted "See Comments" to ensure that corrections have been made. Drawings resubmitted for further review will be checked for corrections of previous notations only, and the Contractor shall be solely responsible to ensure that by submitting such Drawings they contain no other alterations, additions or deletions unless the Contractor, indicates this to the Engineer in writing.

Review of any Shop Drawings submitted by the Contractor shall not relieve the Contractor from any responsibility for the adequacy or soundness of such Shop Drawings or such work.

27.29 Excavated Materials

All earth and rock excavation shall be managed on-site in accordance with the Special Provisions of this Contract Specification. If boulders, rock, broken concrete, debris or similar non earthen materials are encountered within the excavation limits shown on the Contract Drawings, and are deemed detrimental by the Engineer, the Contractor shall make further excavation as may be required and shall backfill the excavation with suitable compacted material. The Contractor may be required to dispose of these unsuitable materials off-site at his own expense, in compliance with applicable municipal regulations and the Provisions outlined in Environmental Protection Special Provisions of this Contract.

27.30 Maintenance of Flow in Sewers and Drains

The Contractor shall, at his own cost and expense permanently provide for and maintain the flow of all drains, ditches and water courses which may be encountered during the progress of the work.

27.31 Control of Water

The Contractor shall be solely responsible for ensuring that all work except as noted on the Contract Drawings is carried out in the dry and that partially completed work shall remain dry when specified. All costs and expenses associated to the above shall be the sole responsibility of the Contractor.

The Contractor shall refer to Item 27.39 and Items 27.41 through 27.44 of this Section for requirements on controlling runoff of water and environmental protection.

27.32 Water, Snow and Ice

The Contractor shall assume full responsibility for all damages done to the works through the influence of water, snow, frost and ice. He shall at his sole expense immediately make good any damage so caused by the above.

The prices shall include all costs which may be incurred as a result of carrying out work under winter conditions, or inclement weather. No claims due to hardship arising from winter work and/or inclement weather will be considered.

27.33 Overloading

No part of the work shall be loaded with a load which will endanger its safety or will cause permanent deformation. The Contractor shall at his sole expense repair to original condition any part of the work damaged due to overloading.

27.34 Site Meetings

Site meetings shall be held at regular intervals as directed by the Drainage Superintendent or Engineer. The Contractor shall provide a responsible representative for such meetings. Minutes for these meetings will be recorded and distributed by the Engineer.

27.35 Project Closeout

The Contractor and his Sub-Contractors shall conduct an inspection of the Work and correct all deficiencies. The Contractor shall notify the Engineer (in writing) of satisfactory completion of the "Contractor's Inspection" and request an "Engineer's Inspection." The Engineer's Inspection shall consist of the Engineering Team, the Owner and Contractor. During the "Engineer's Inspection" a list of all deficiencies shall be drawn up and signed by the Engineer. The Contractor shall correct all deficiencies in a satisfactory manner and as quickly as possible.

Upon completion of his work, the Contractor shall go over the entire site, remove all surplus and unusable materials and rubbish of every description incident to his work, leave the site neat and orderly and in complete satisfactory working condition, subject to the approval of the Owner.

27.36 Control of Quantities

In executing the scope of work described in the Contract Documents, the Contractor shall be solely responsible for monitoring and controlling the quantities of materials used. If over the course of construction, the quantities required to execute the scope of work for any particular tender item are found to deviate significantly from the corresponding quantity in the Form of Tender (i.e., $\pm 10\%$), the Contractor shall be obliged to notify the Engineer immediately so that measures can be taken to mitigate any potential cost overruns.

Where quantities for payment are to be determined by weigh bills for materials delivered to the site, the Contractor shall be solely responsible for collecting and providing the weigh bills to the Engineer within 24 hours of delivery. In the event that the weigh bills or tickets are provided more than 24

hours after the delivery of the subject materials to the site, the Engineer shall have sole discretion in determining whether the materials are eligible for payment.

27.37 Fires

Fires and burning of rubbish on site shall generally not be permitted, unless the Contractor obtains a burn permit from the municipality.

27.38 Disposal of Wastes

The Contractor shall not bury rubbish and waste materials on site unless approved by the Engineer and all applicable approving authorities. The site shall be maintained free of accumulated waste and rubbish. All waste materials should be disposed of in a legal manner at a site approved by all local approving authorities and the Engineer.

The Contractor shall not allow deleterious substances, waste or volatile materials such as mineral spirits, or paint thinner, to enter into waterways, storm or sanitary sewers.

27.39 Pollution Control

The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed.

The Contractor shall control emissions from equipment and plant to local authorities emission requirements.

The Contractor shall abide by local noise By-Laws for the duration of the Contract.

The Contractor shall not allow any debris, fill or other foreign matter to enter into the Detroit River or any other adjacent waterways.

Spills of deleterious substances into waterways and on land shall be immediately contained by the Contractor and the Contractor shall cleanup in accordance with Provincial regulatory requirements. All spills shall be reported to the Ontario Spills Action Centre (1-800-268-6060), local authorities having jurisdiction and the Engineer. To reduce the risk of fuel entering the waterway, refueling of machinery must take place a safe distance from the waterway. The Contractor shall note that the Engineer or the Owner takes no responsibility for spills, this shall be the sole responsibility of the Contractor.

27.40 WHMIS

The Contractor shall comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and regarding labelling and the provision of material safety data sheets acceptable to Labour Canada.

27.41 Drainage

The Contractor shall not pump water containing suspended materials into waterway, sewers or drainage systems. The Contractor shall be solely responsible for the control, disposal or runoff of water containing suspended materials or other harmful substances in accordance with these

specifications, and local authority requirements. The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and site free from water.

The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

27.42 Protection of Vegetation

The Contractor shall exercise the utmost caution to ensure that existing trees and plants on-site and on adjacent properties are not damaged or disturbed unless noted otherwise in the Removals Special Provisions of this Contract. The Contractor shall restrict tree removal to areas indicated on the Contract Drawings and/or designated on-site. No trees, shrubs or aquatic vegetation shall be removed without the approval of the Engineer.

27.43 Dust Control

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.

Water and chloride-based dust suppressants shall be applied to areas on or adjacent to the site as authorized by the Engineer as being necessary and unavoidable for the prevention of dust nuisance or hazard to the public. No payment will be made for dust control unless otherwise specified in the Special Provisions.

27.44 Restrictions on In-Water Works

The Contractor shall only perform in-water works during times when conditions permit reasonable production rates to be achieved. The Contractor shall be required to adopt good house-keeping practices that minimize disturbance to the site and the adjacent waterway.

The Contractor shall note that this Project is subject to approval from the Essex Region Conservation Authority, the Ontario Ministry of Natural Resources and Forestry, the Ontario Ministry of Environment, Conservation and Parks, and Fisheries and Oceans Canada. Turbidity caused by construction is of key importance. The Contractor shall be required to comply with the conditions of approvals of these agencies with regard to turbidity control and other habitat preservation matters.

The Contractor shall minimize the turbidity (sedimentation) produced by any in-water works, construction or operations. The Contractor will be ordered to cease operations if, in the opinion of the Engineer or authorities having jurisdiction, the in-water work is producing unacceptable amounts of turbidity in the waterway. Based on this, the Contractor shall either adjust his operation(s) to produce lower turbidity levels, wait for more favourable conditions before operations will be allowed to continue, or undertake approved mitigating measures (e.g. sediment control, etc.). All costs associated with the above will be the sole responsibility of the Contractor, and no claims for extras or delays will be considered.

APPENDIX F

Drawings

PLAN, PROFILES, SECTIONS & DETAILS
of the

McKEE CREEK IMPROVEMENTS

in the
CITY OF WINDSOR
in the
COUNTY OF ESSEX, ONTARIO

Daniel M. Krutusch
Daniel M. Krutusch, P. Eng.



2280 Ambassador Drive
Windsor, Ontario, Canada
N9G 4E4
Phone: (519) 972-9052
www.landmarkengineers.ca



DATE: FEBRUARY 2022

CITY OF WINDSOR:

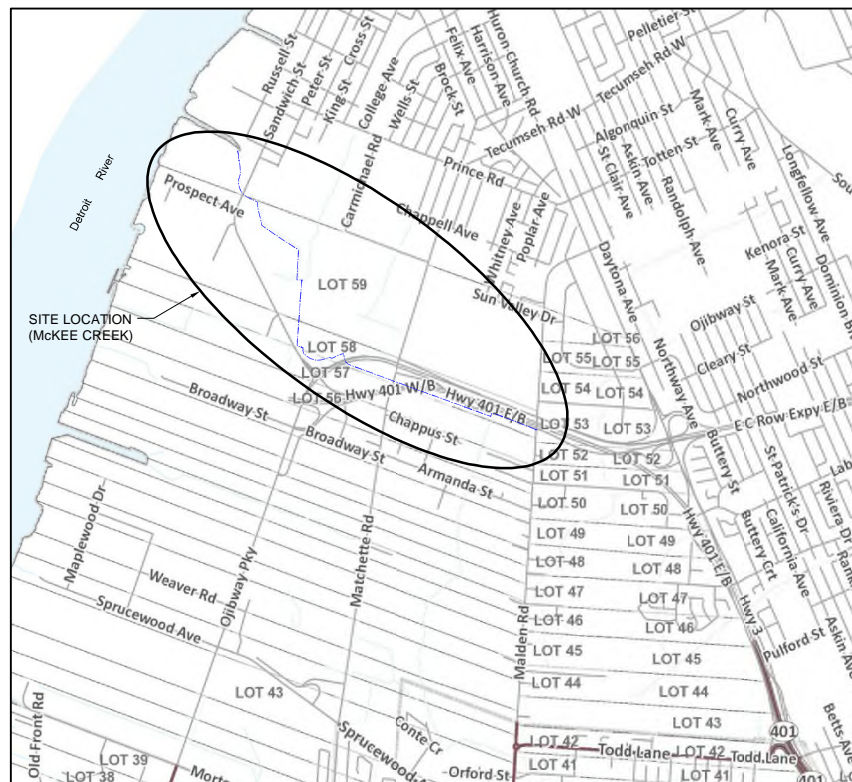
MAYOR: DREW DILKENS
CLERK: STEVEN VLAHOUDIMOS
DRAINAGE SUPERINTENDANT: ANDREW DOWIE, P. ENG.

BENCHMARKS:

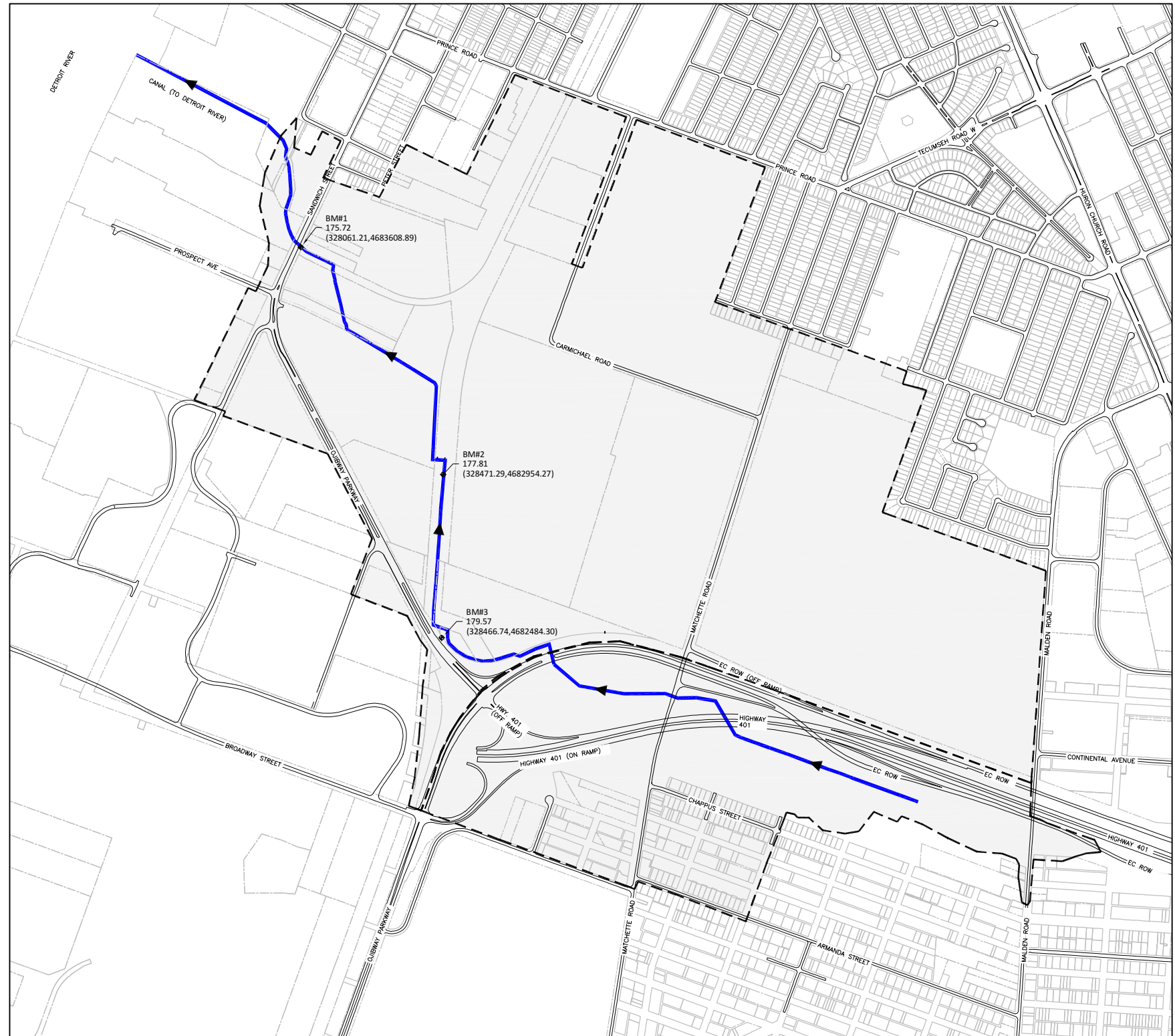
NO. 1 - TOP OF BOX CULVERT #5 UNDER SANDWICH STREET - SOUTH-EAST CORNER
ELEVATION = 175.72

NO. 2 - TOP OF SLUICE GATE FRAME AT CULVERT #12 - SOUTH-WEST CORNER (SEE PHOTOS)
ELEVATION = 177.81

NO. 3 - CENTER OF CUT IN TOP OF CONCRETE FOUNDATION AT BASE OF HYDRO POLE AT CUBWAY PARKWAY (SEE PHOTOS)
ELEVATION = 179.57



KEY PLAN
N.T.S.



LEGEND
 McKEE DRAIN
 McKEE TRIBUTARY AREA
 McKEE WATERSHED BOUNDARY

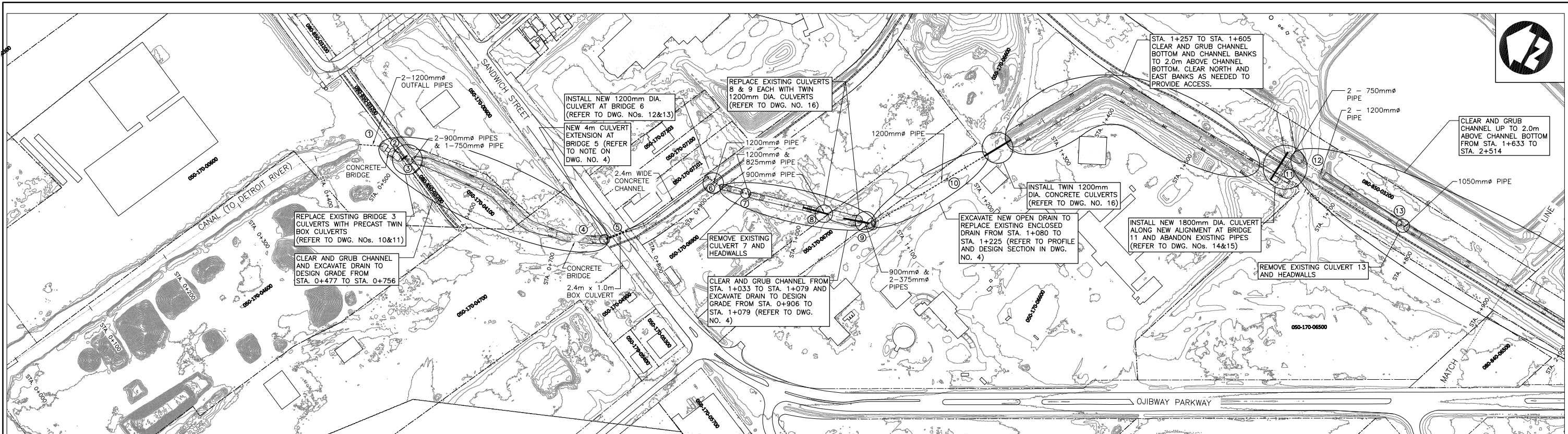
WATERSHED PLAN
N.T.S.

all dimensions are in
METRES
unless otherwise shown

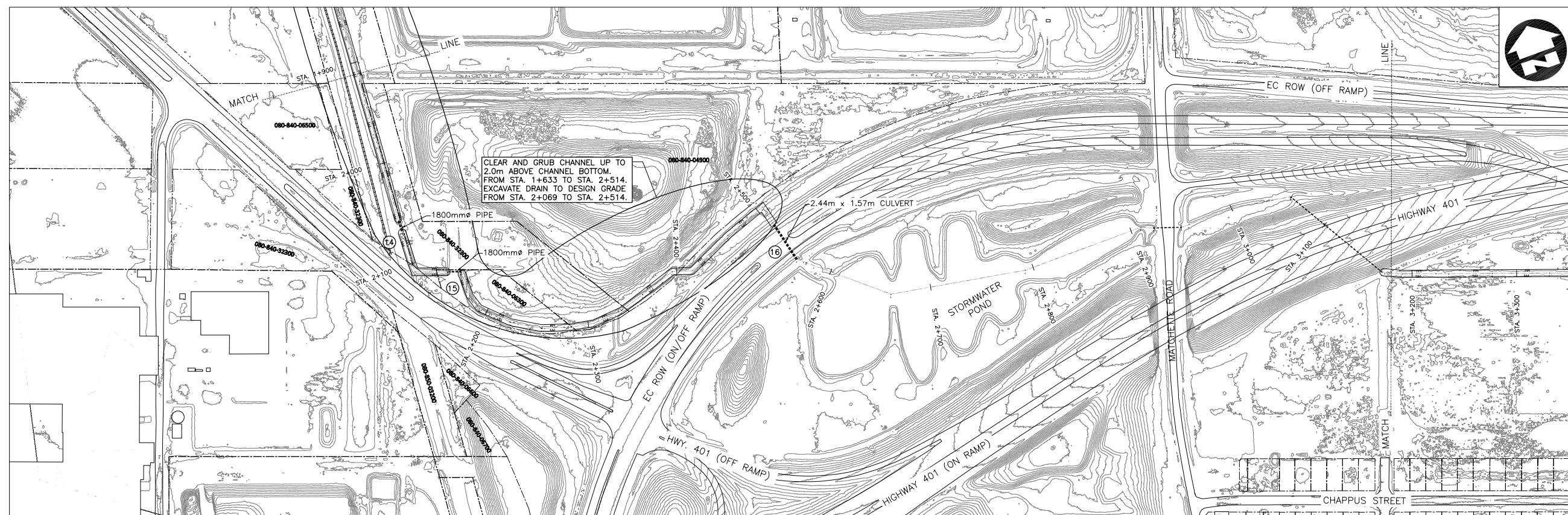


DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

Project Name: McKEE CREEK IMPROVEMENTS		date: FEBRUARY 2022	drawing no.: 1
drawing title: KEY AND WATERSHED PLANS		scale: AS SHOWN	
		project no.: 16-019	



PLAN - STA. 0+000 TO STA. 1+911



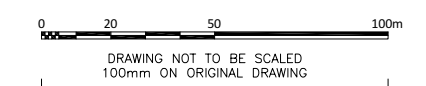
PLAN - STA. 1+911 TO STA. 3+180

- LEGEND**
- ① CULVERT/BRIDGE REFERENCE NUMBER
 - McKEE OPEN DRAIN
 - McKEE CULVERT/PIPE
 - - - PROPERTY LINE
 - SURFACE CONTOUR

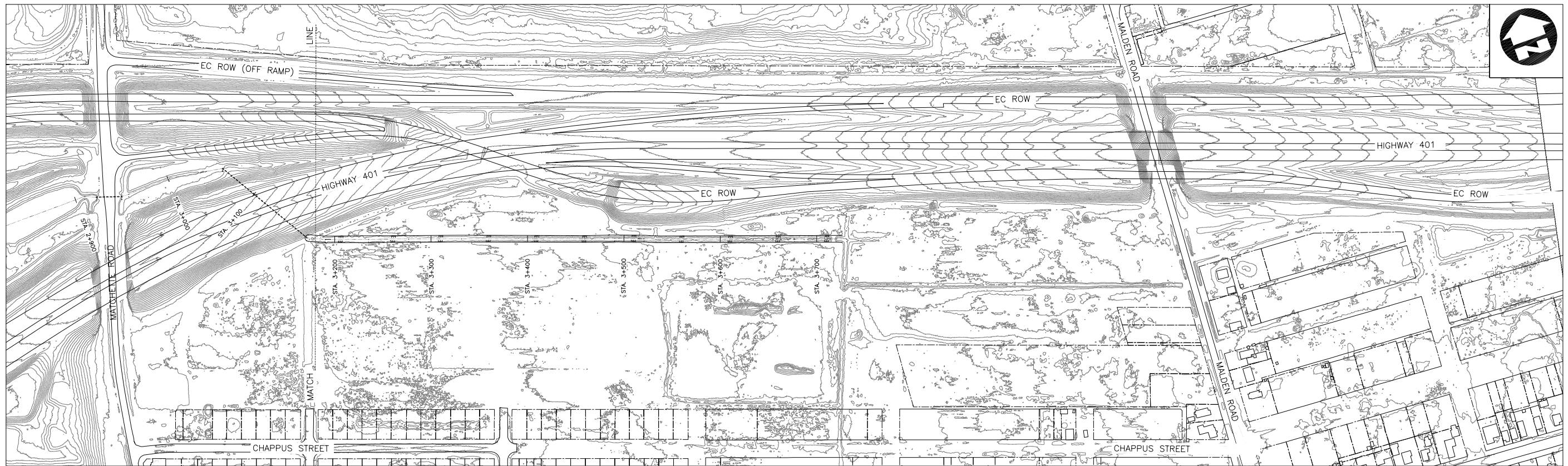
COORDINATE TABLE			
DESCRIPTION	NORTHING	EASTING	STATION
STA. 0+000	4684143.69	327623.51	0+000.00
BRIDGE 1 MIDPOINT	4683904.82	328015.10	0+463.72
BRIDGE 2 MIDPOINT	4683885.98	328019.30	0+483.61
NEW BRIDGE 3 MIDPOINT	4683866.04	328019.98	0+505.86
BRIDGE 4 MIDPOINT	4683655.41	328029.03	0+722.88

COORDINATE TABLE			
DESCRIPTION	NORTHING	EASTING	STATION
BRIDGE 5 MIDPOINT	4683618.06	328052.85	0+768.05
NEW BRIDGE 6 MIDPOINT	4683549.78	328154.48	0+896.56
NEW BRIDGE 8 MIDPOINT	4683435.22	328177.97	1+014.10
NEW BRIDGE 9 MIDPOINT	4683390.08	328189.00	1+060.67
NEW BRIDGE 10 MIDPOINT	4683288.40	328332.86	1+241.62

COORDINATE TABLE			
DESCRIPTION	NORTHING	EASTING	STATION
NEW BRIDGE 11 MIDPOINT	4683002.92	328459.08	1+608.68
BRIDGE 12 MIDPOINT	4682969.42	328474.29	1+659.00
BRIDGE 14 MIDPOINT	4682567.50	328444.32	2+062.06
BRIDGE 15 MIDPOINT	4682508.37	328478.64	2+146.54
BRIDGE 16 MIDPOINT	4682426.99	328785.47	2+545.59



Project Name: McKee Drain Improvements		Drawing No.: 2
Drawing Title: PLAN 1		
Date: FEBRUARY 2022	Scale: 1:2000	Project No.: 16-019

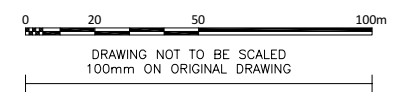


PLAN - STA. 3+180 TO STA. 3+729

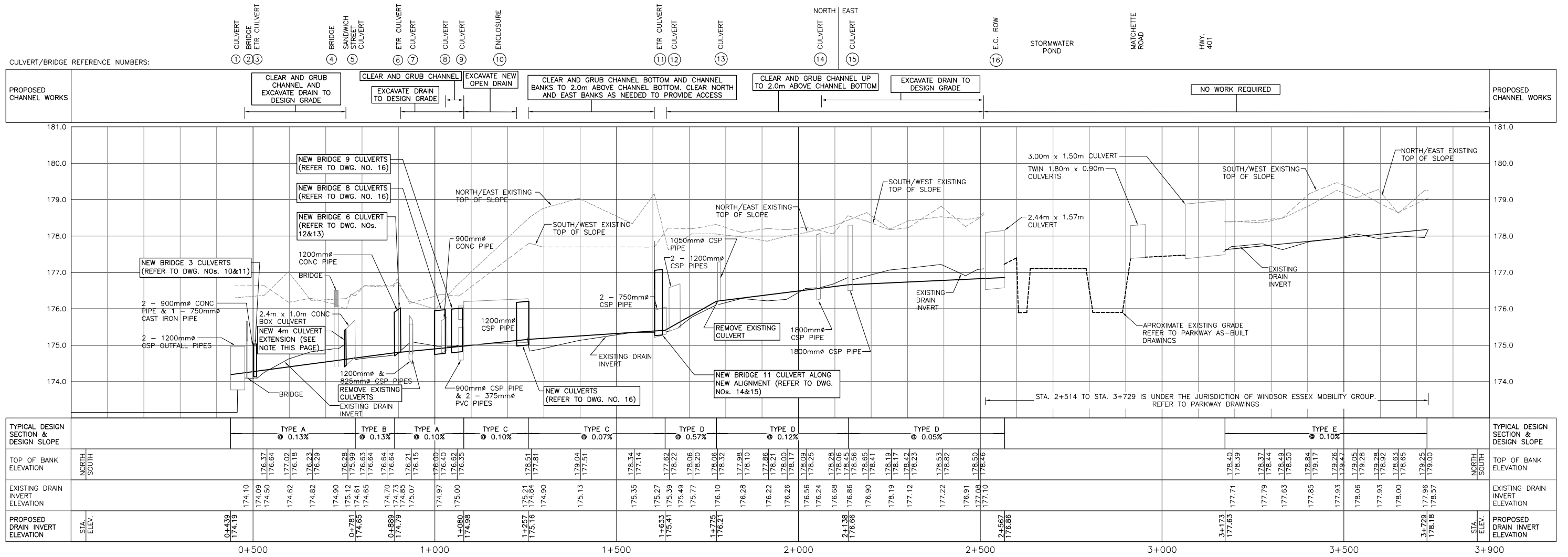
LEGEND

- ① CULVERT/BRIDGE REFERENCE NUMBER
- ==== MCKEE OPEN DRAIN
- MCKEE CULVERT/PIPE
- PROPERTY LINE
- SURFACE CONTOUR

all dimensions are in METRES unless otherwise shown

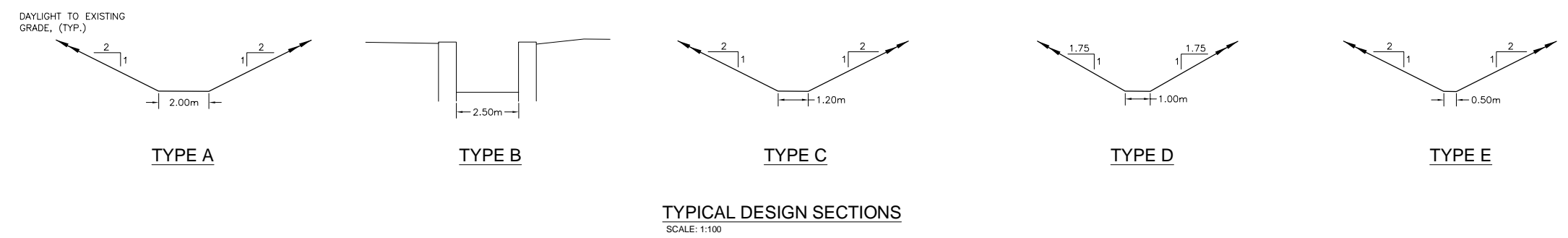


Project Name		McKee Drain Improvements	
Drawing Title		PLAN 2	
	Date:	FEBRUARY 2022	Drawing no.: 3
	Scale:	1:2000	
	Project no.:	16-019	



NOTE: FOR CULVERT 5 EXTENSION, REFER TO CITY OF WINDSOR DRAWINGS ENTITLED "SANDWICH STREET AT ETR PROPOSED PAVEMENT UPGRADES"

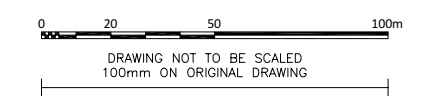
PROFILE - McKEE DRAIN
SCALE: 1:5000H
1:50V

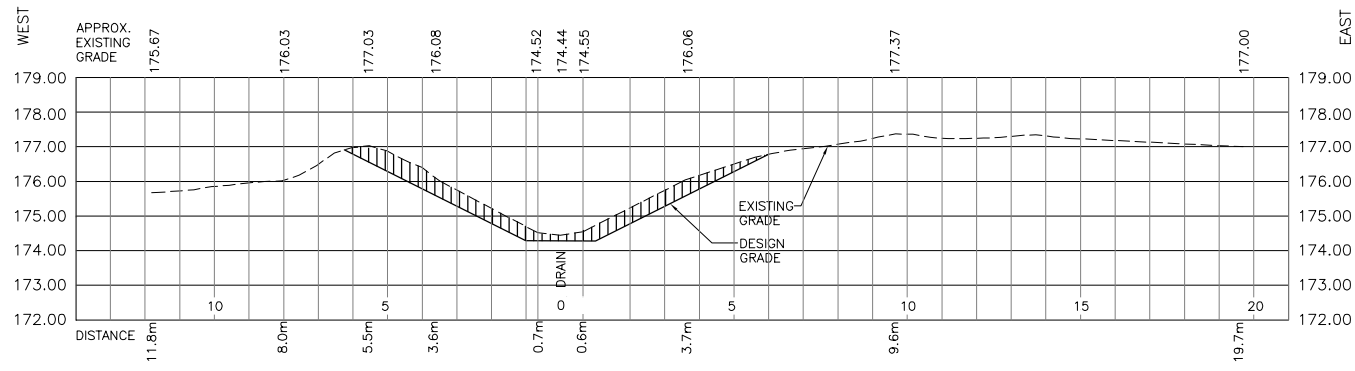


all dimensions are in METRES unless otherwise shown

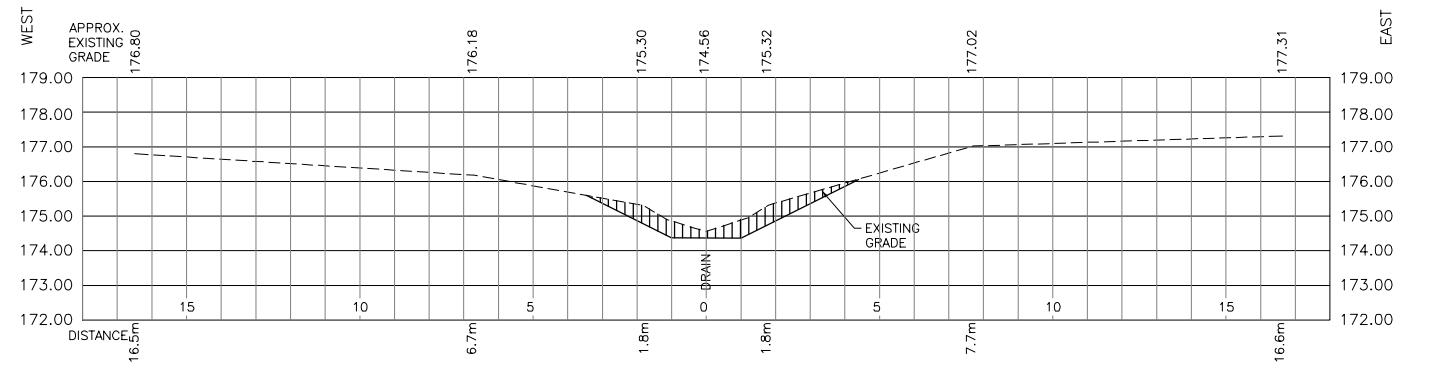


Project Name: McKEE DRAIN IMPROVEMENTS	
Drawing Title: PROFILE & TYPICAL DESIGN SECTIONS	
Date: FEBRUARY 2022	Drawing No.:
Scale: AS SHOWN	4
Project No.: 16-019	

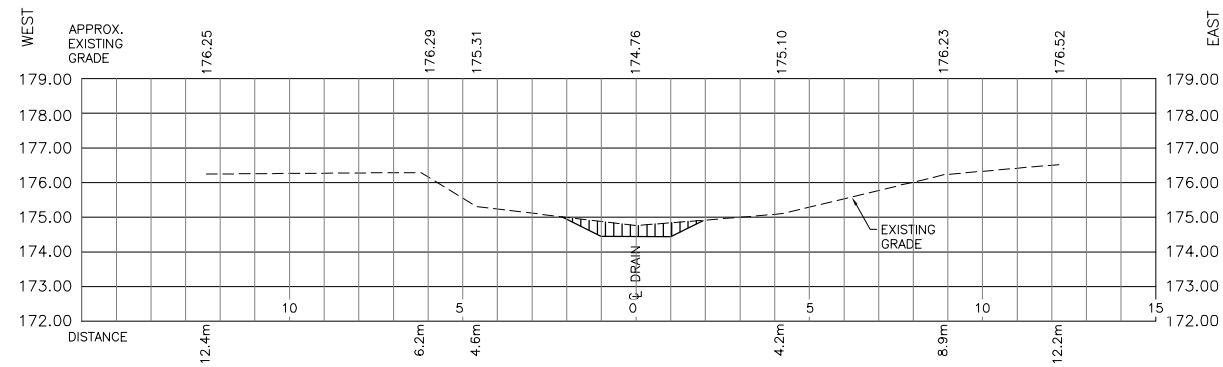




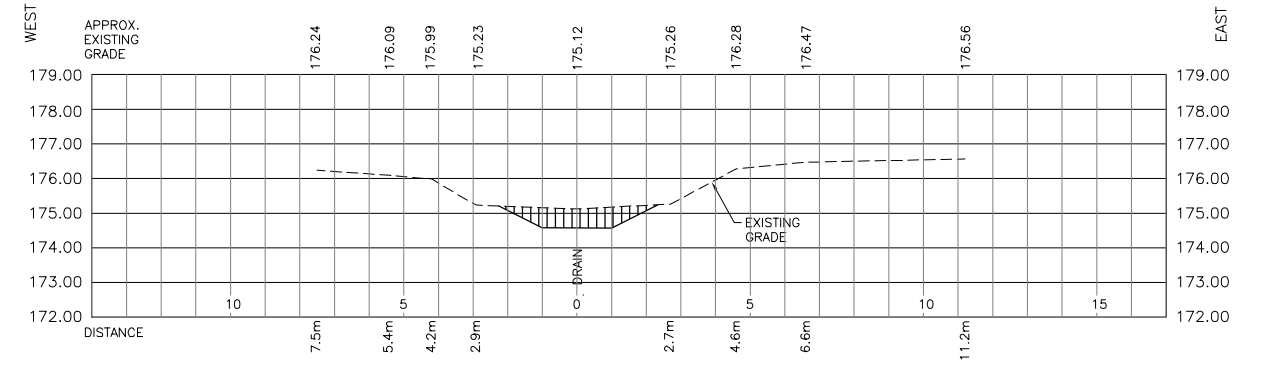
STA. 0+532



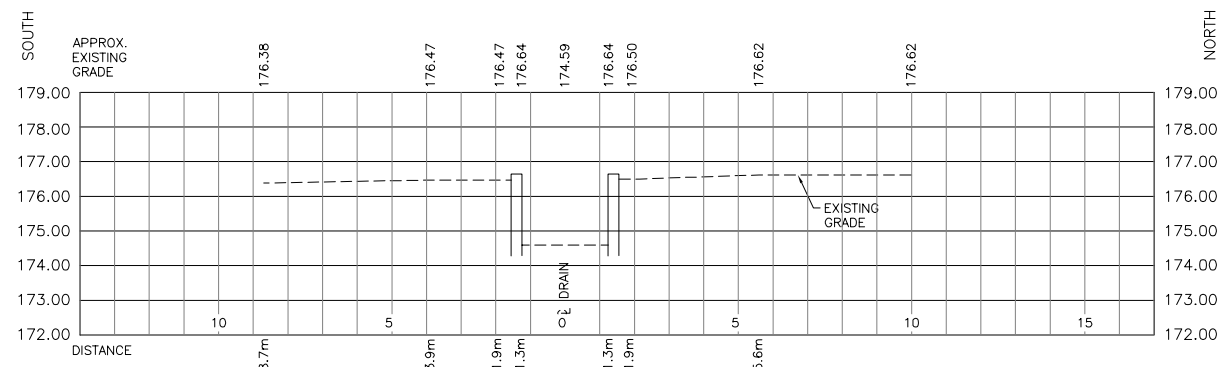
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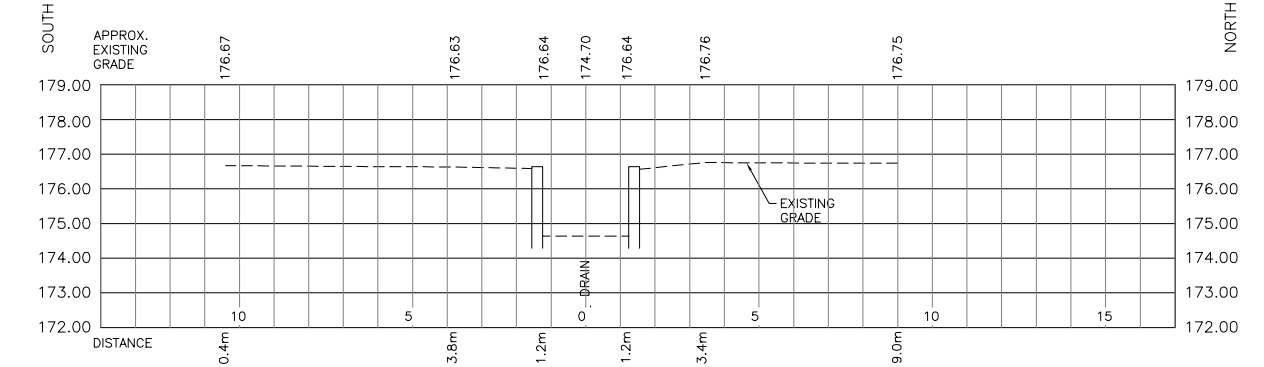
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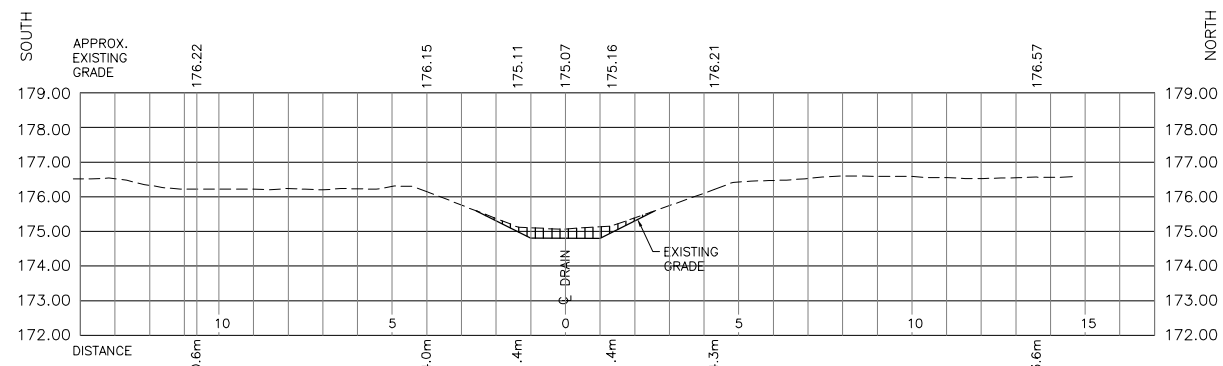
STA. 0+755



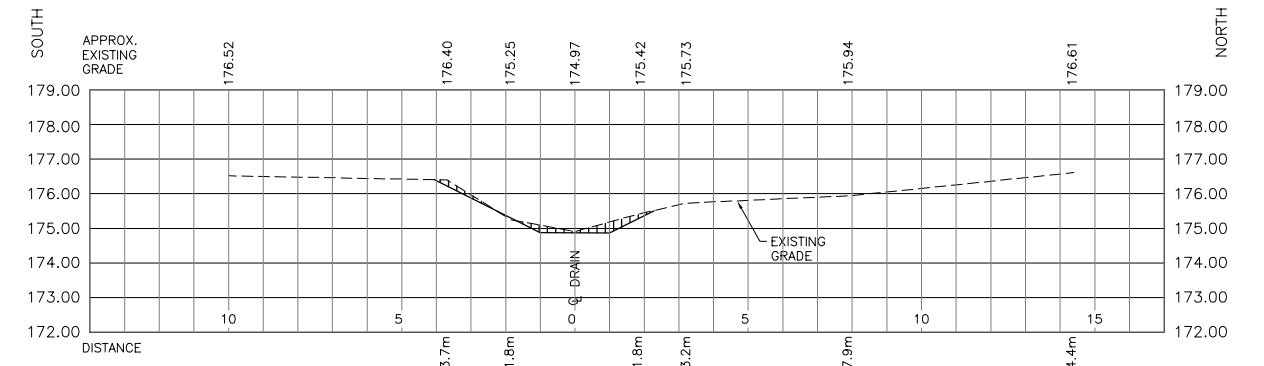
STA. 0+808



STA. 0+866

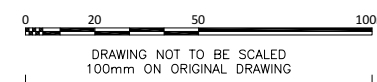


STA. 0+931



STA. 1+008

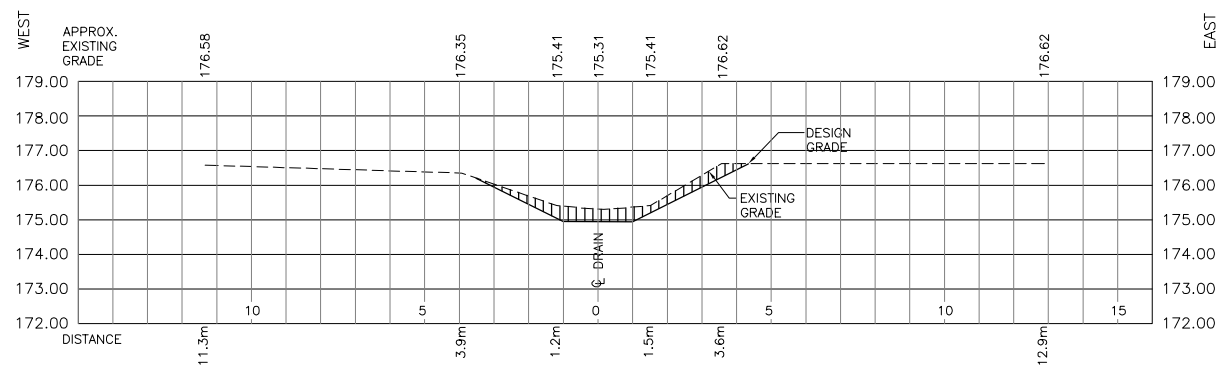
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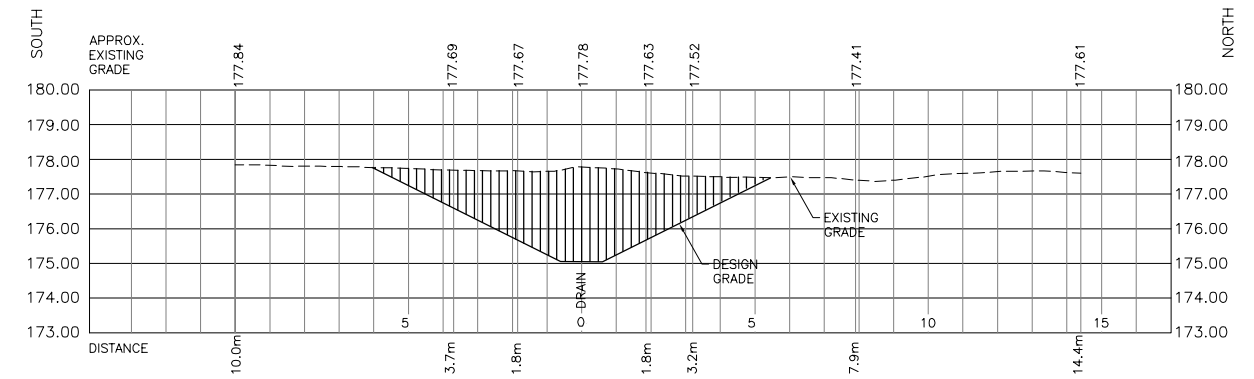
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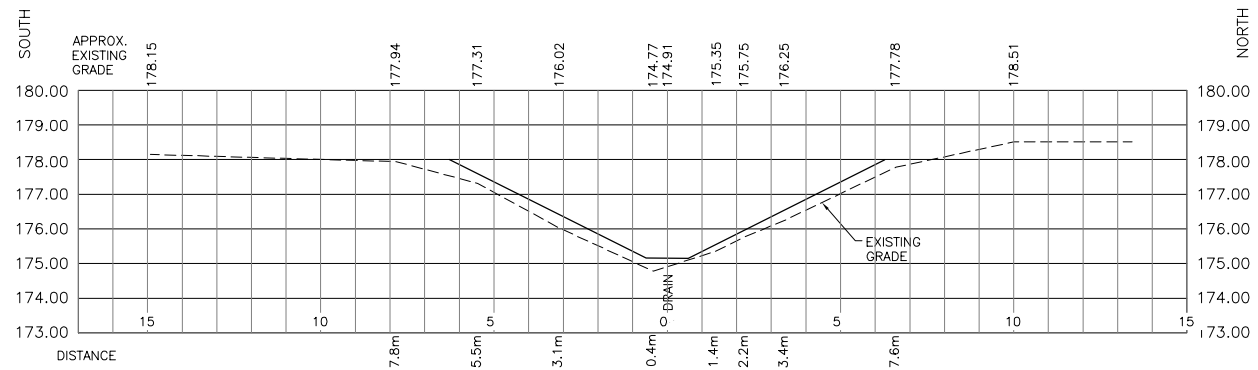
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Drawing Title SECTIONS 1	
Date FEBRUARY 2022	Drawing No. 5
Scale 1:100	
Project No. 16-019	



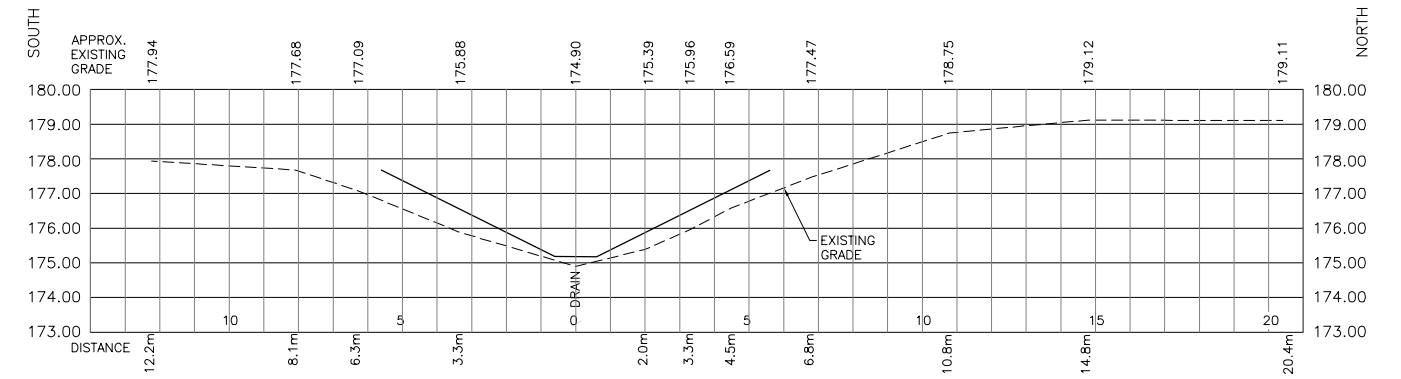
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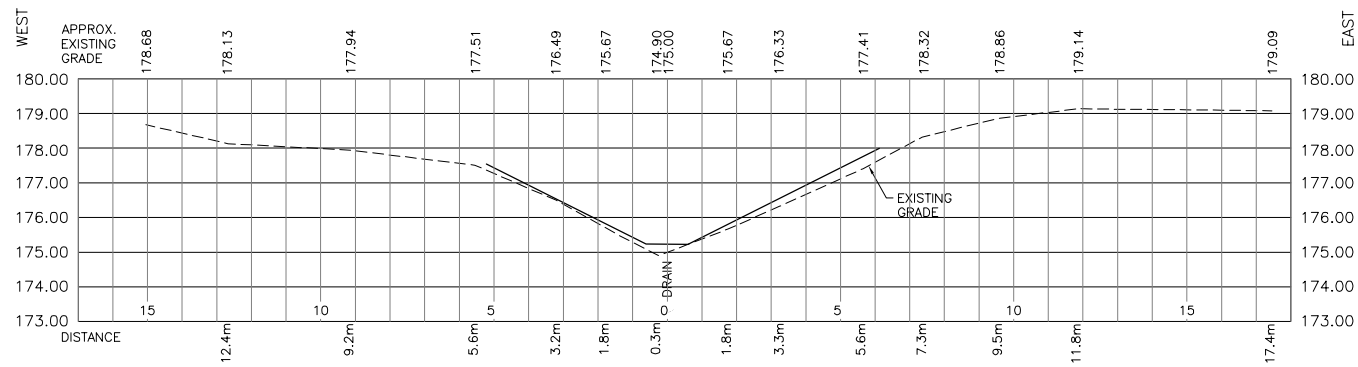
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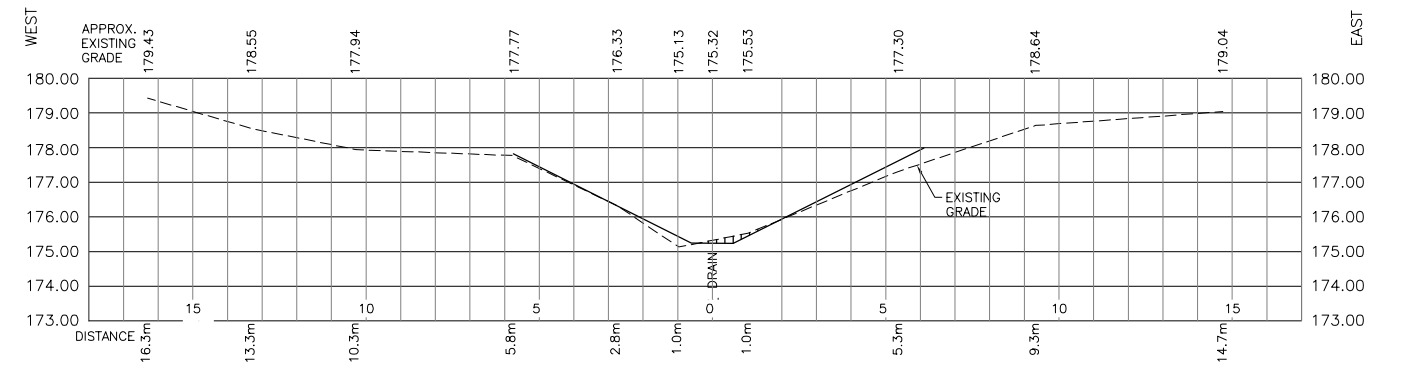
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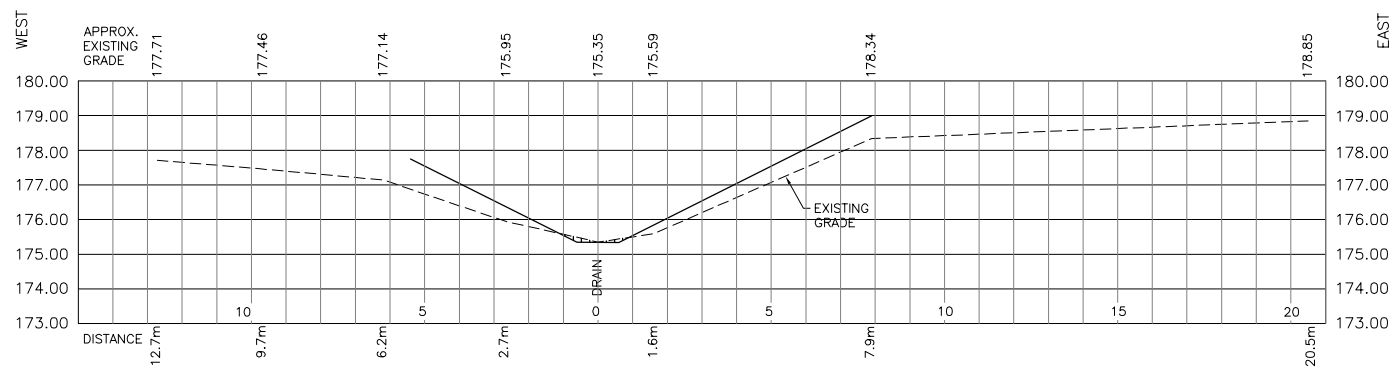
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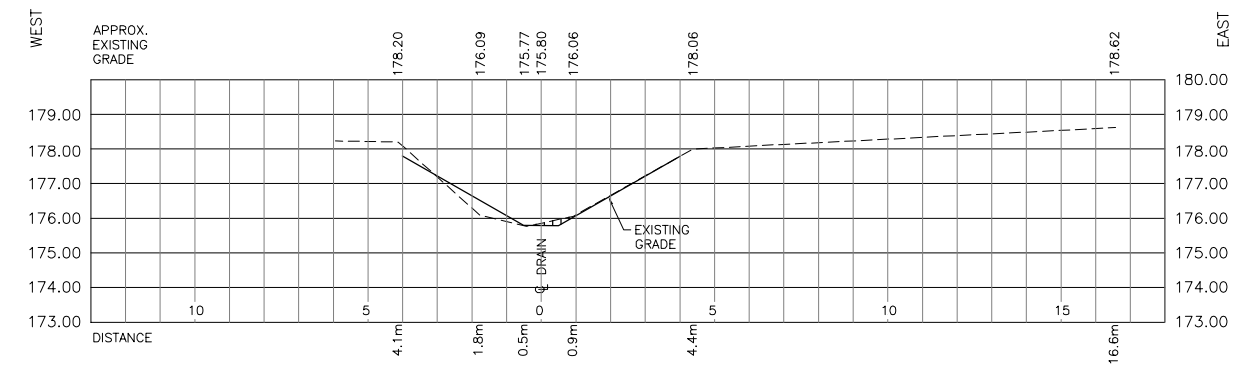
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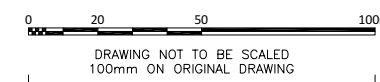
STA. 1+401



STA. 1+548

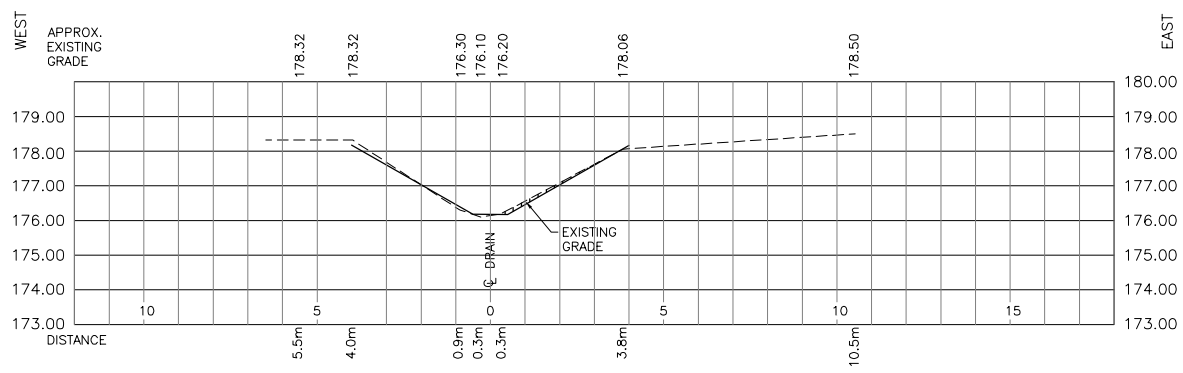


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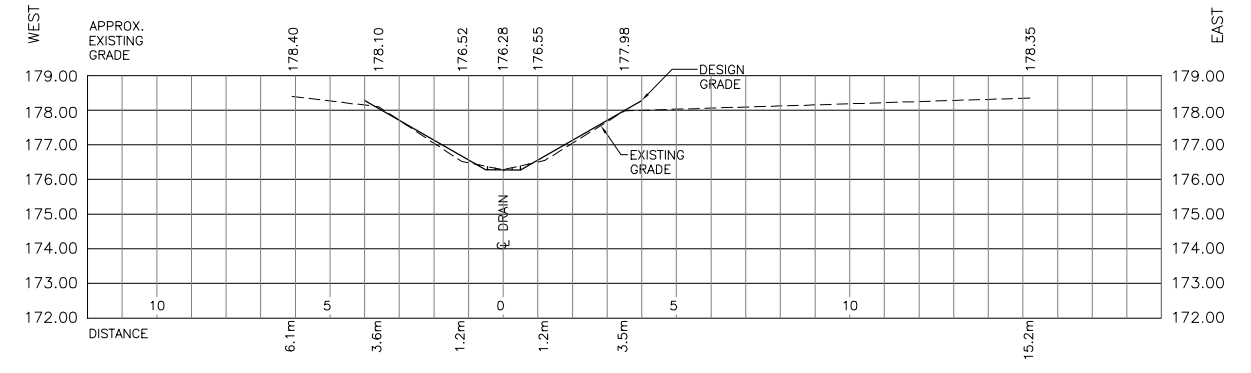


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Drawing Title SECTIONS 2	
Date FEBRUARY 2022	Drawing No. 6
Scale 1:100	Project No. 16-019

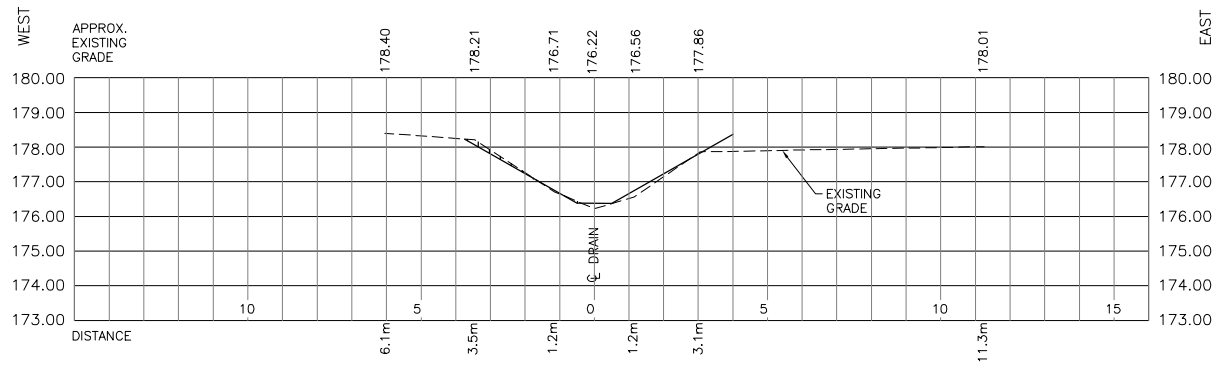
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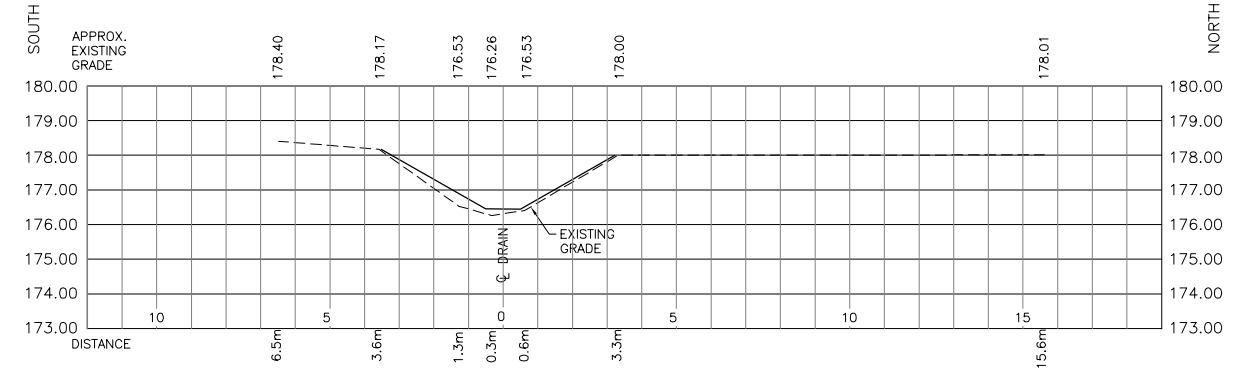
STA. 1+778



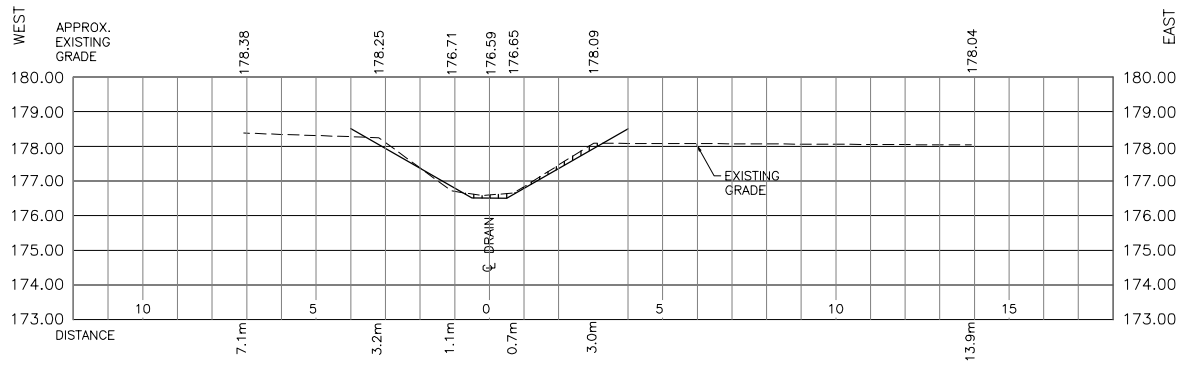
STA. 1+845



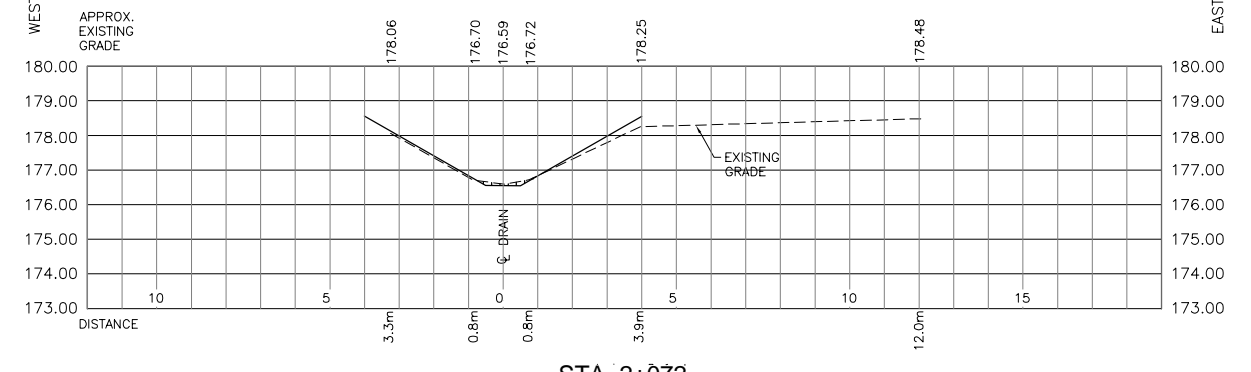
STA. 1+918



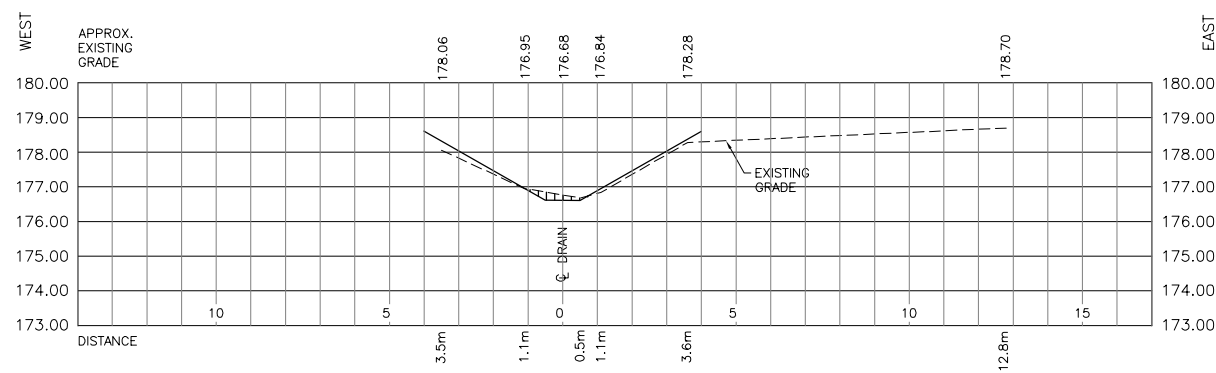
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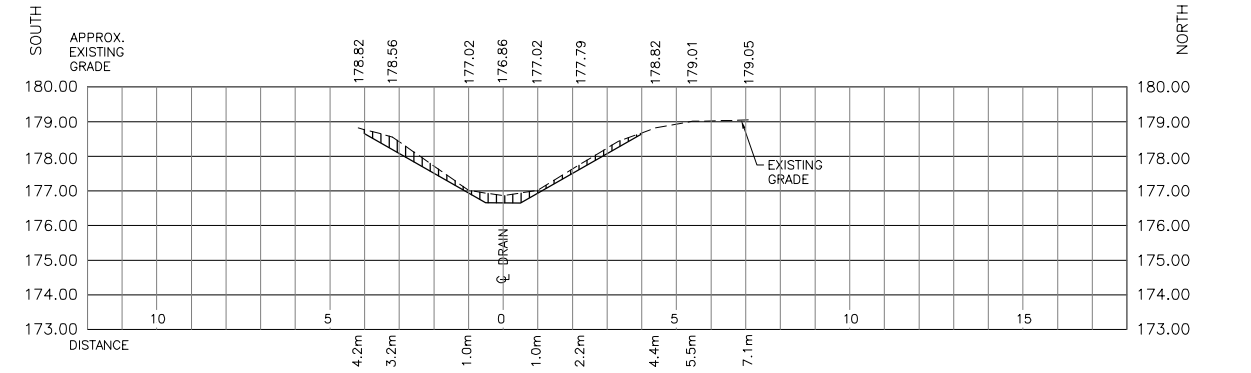
STA. 2+024



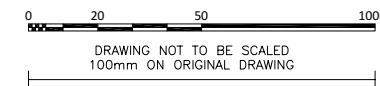
STA. 2+072



STA. 2+100

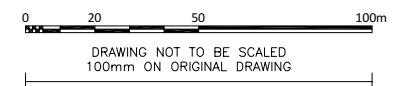
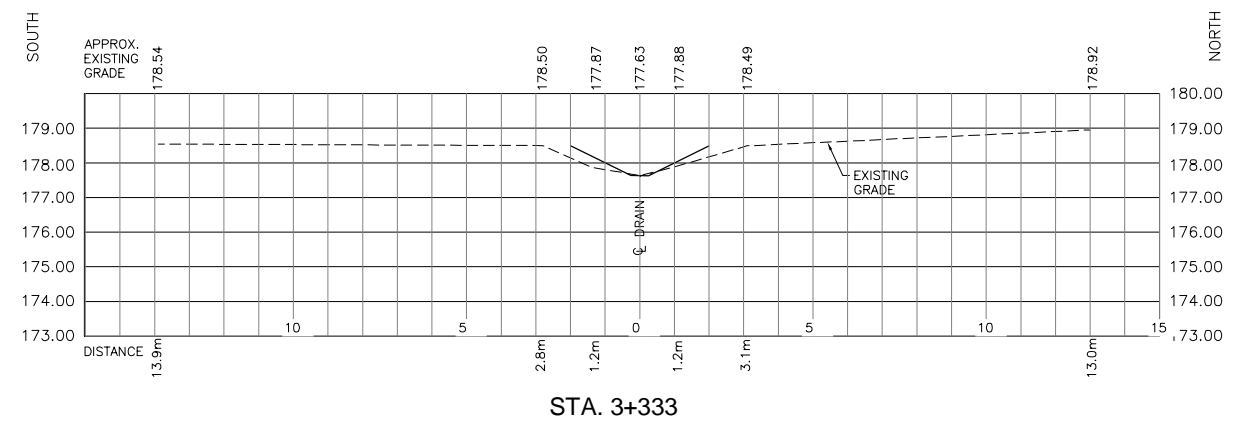
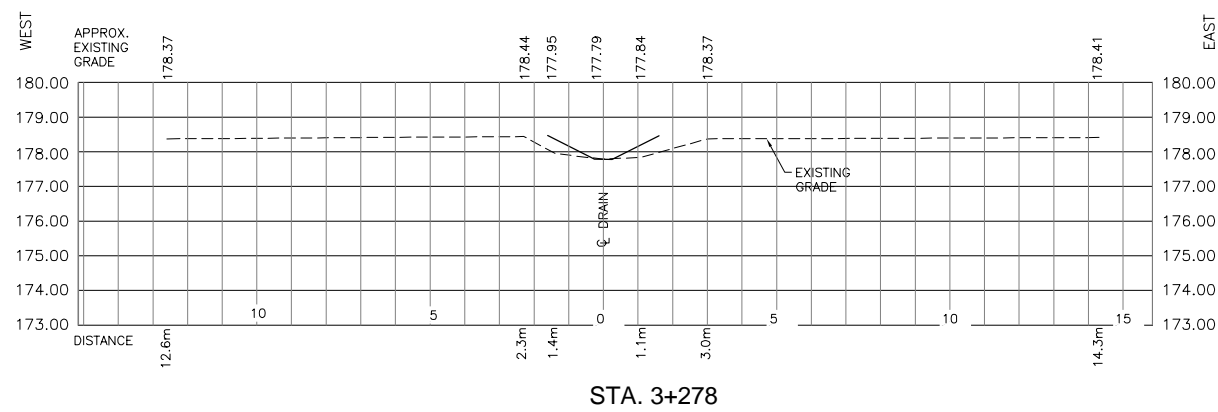
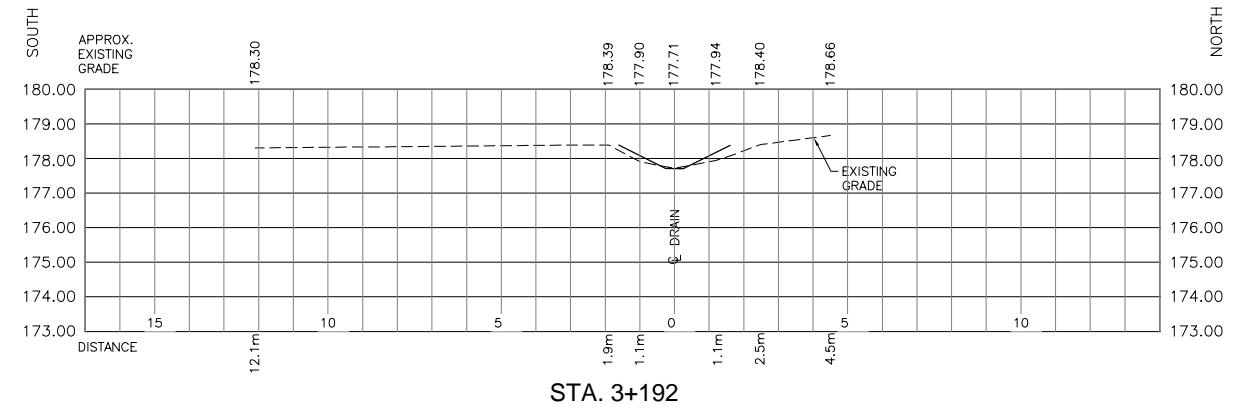
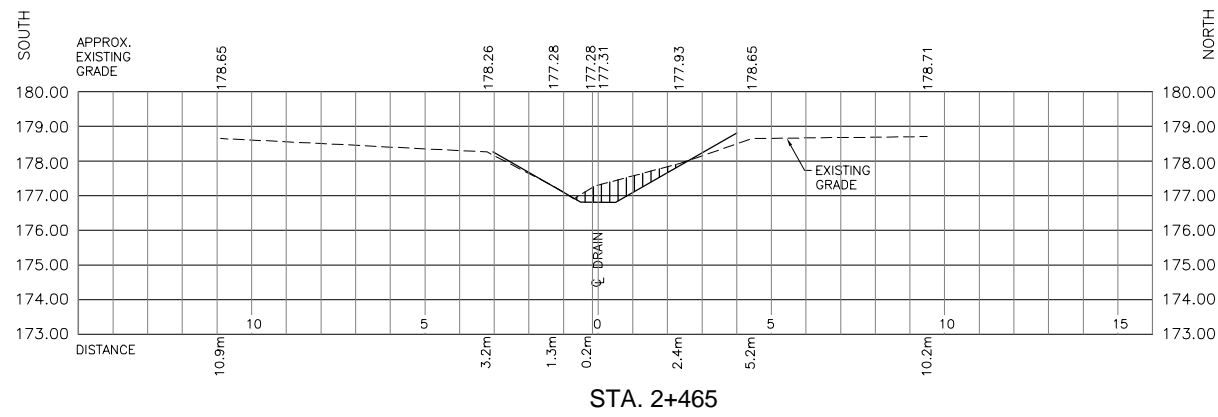
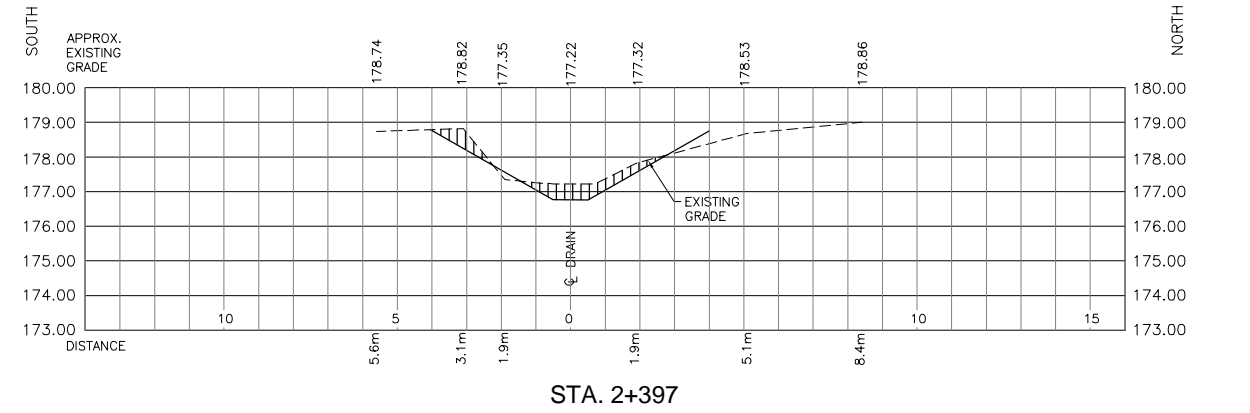
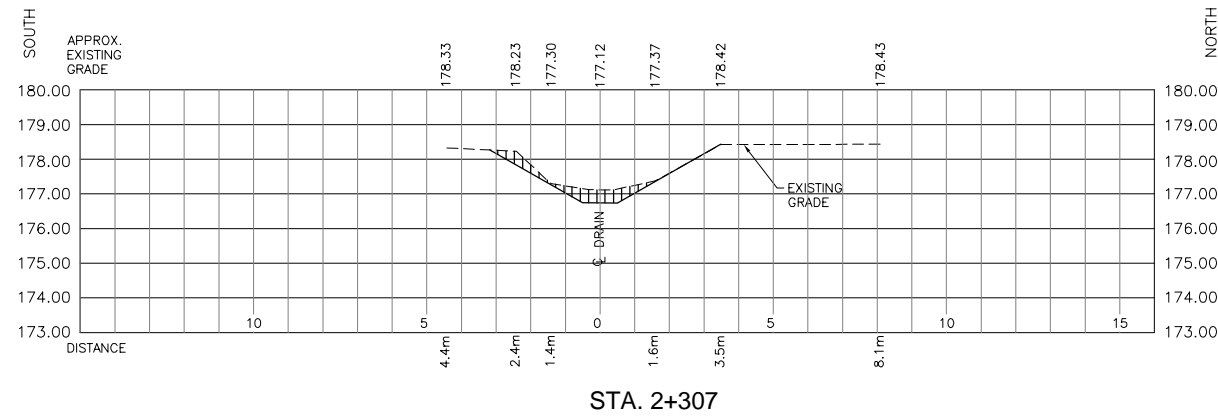
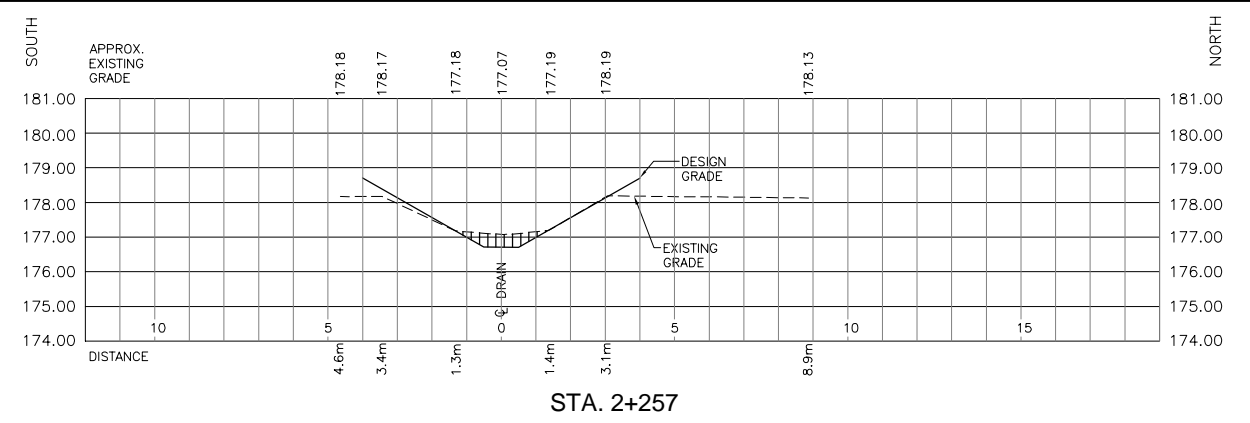
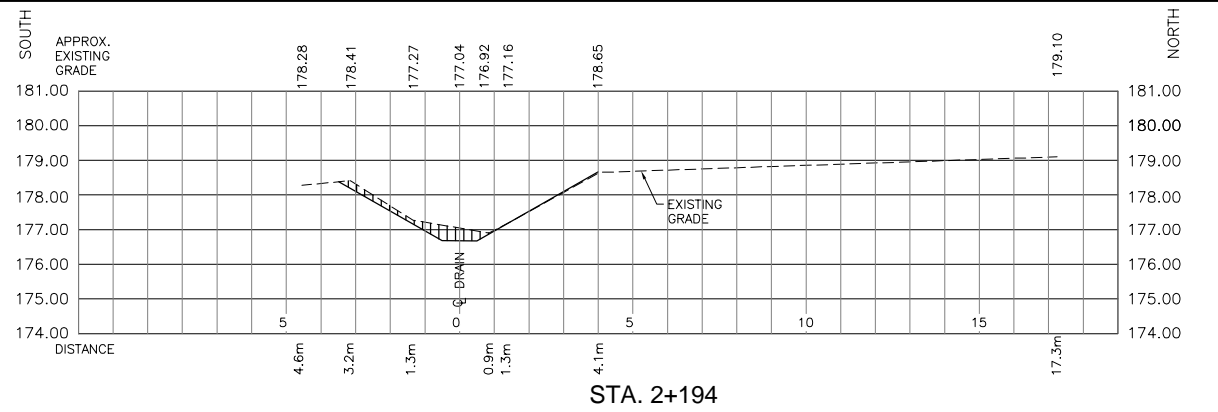


STA. 2+141



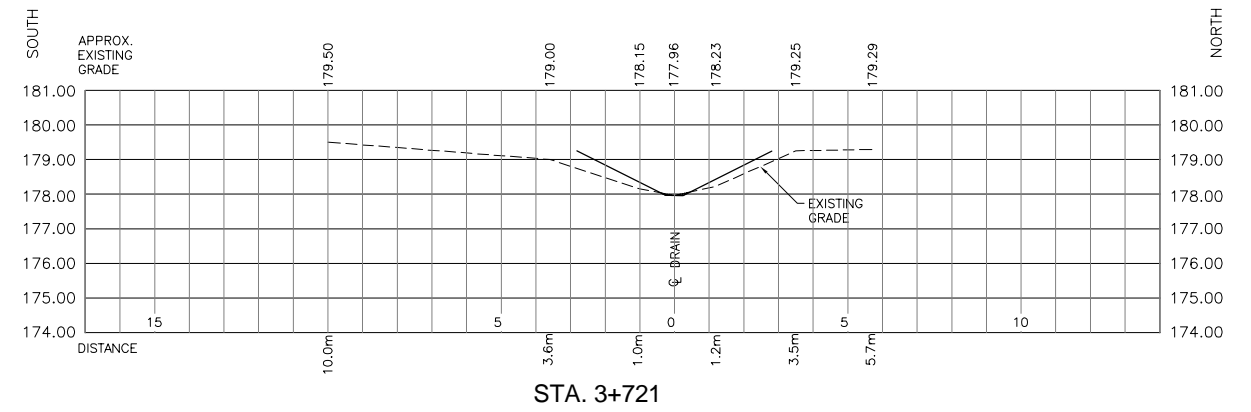
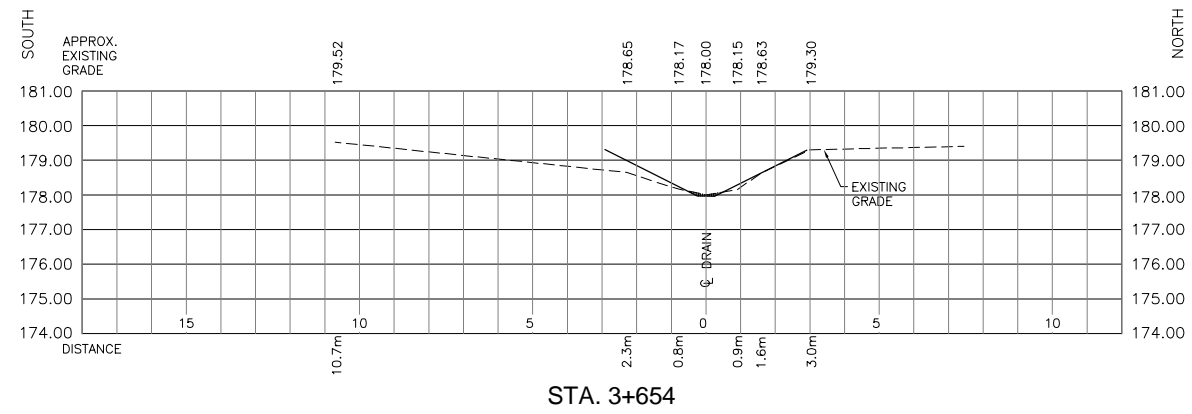
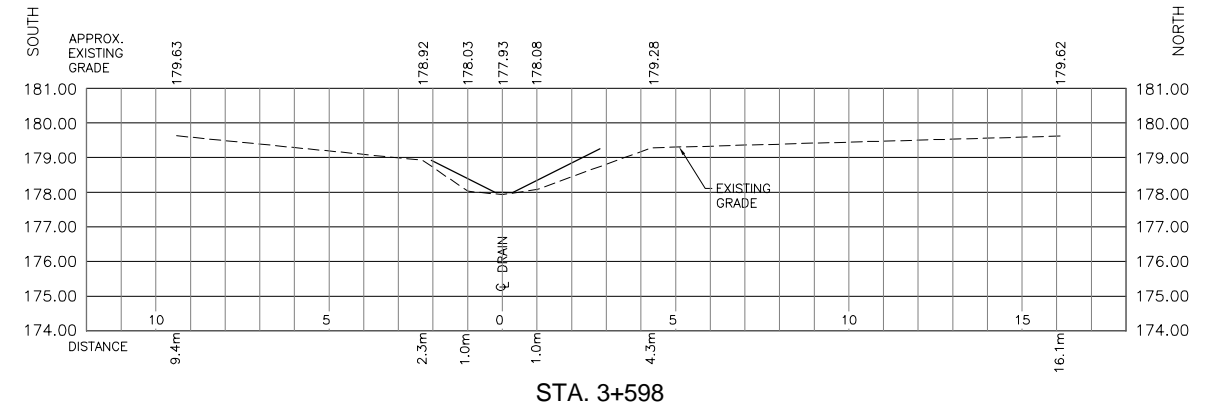
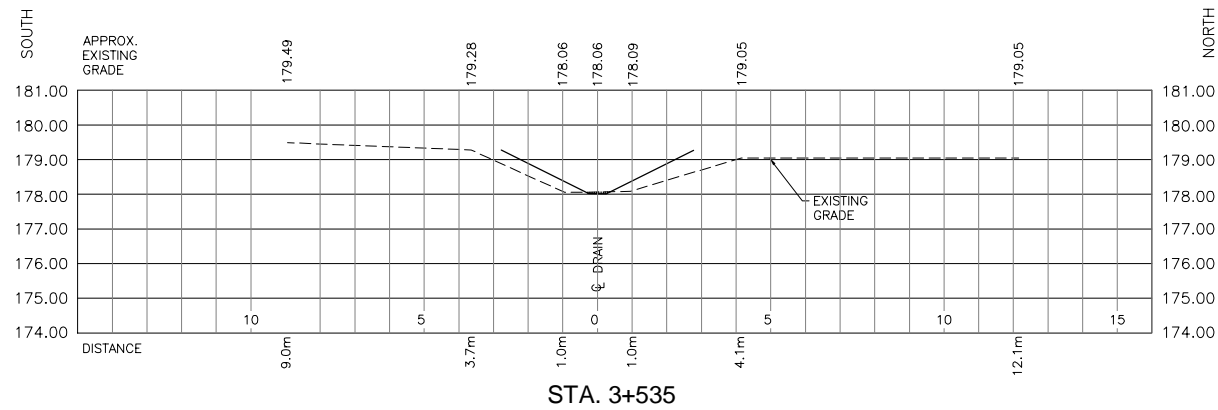
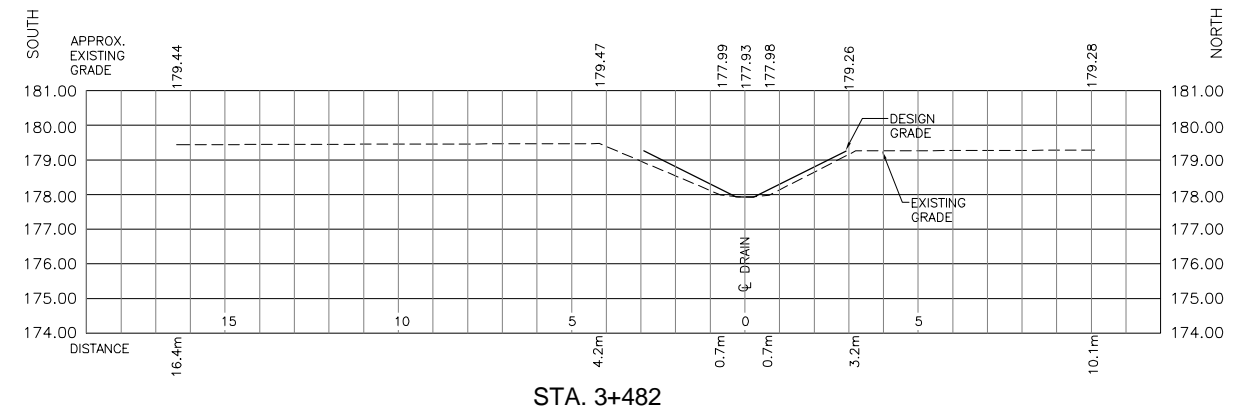
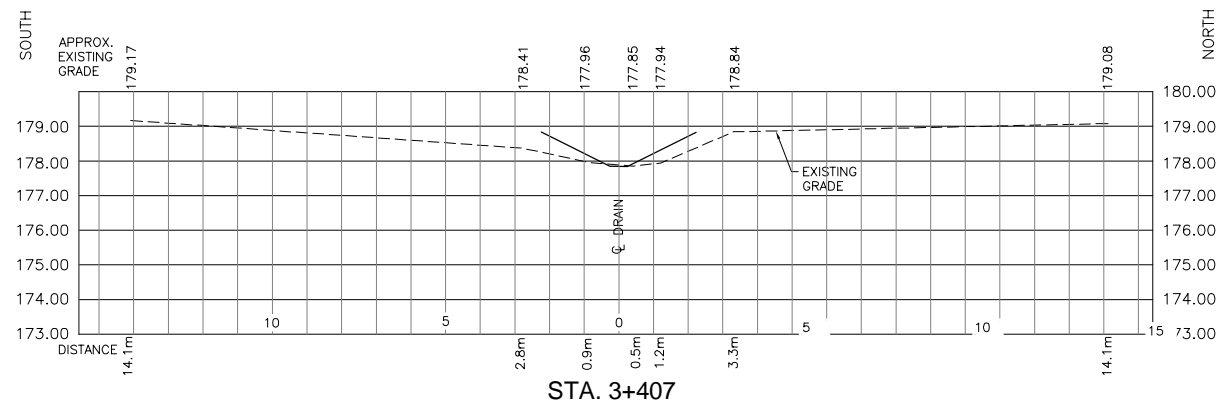
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METRES
unless otherwise shown

Project Name: McKee Drain Improvements		
Drawing Title: SECTIONS 3		
Date: FEBRUARY 2022	Drawing No.:	7
Scale: 1:100		
Project No.: 16-019		

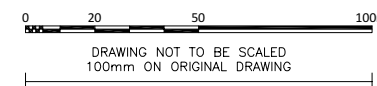



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Drawing Title: SECTIONS 4	
Date: FEBRUARY 2022	Drawing No.: 8
Scale: 1:100	
Project No.: 16-019	

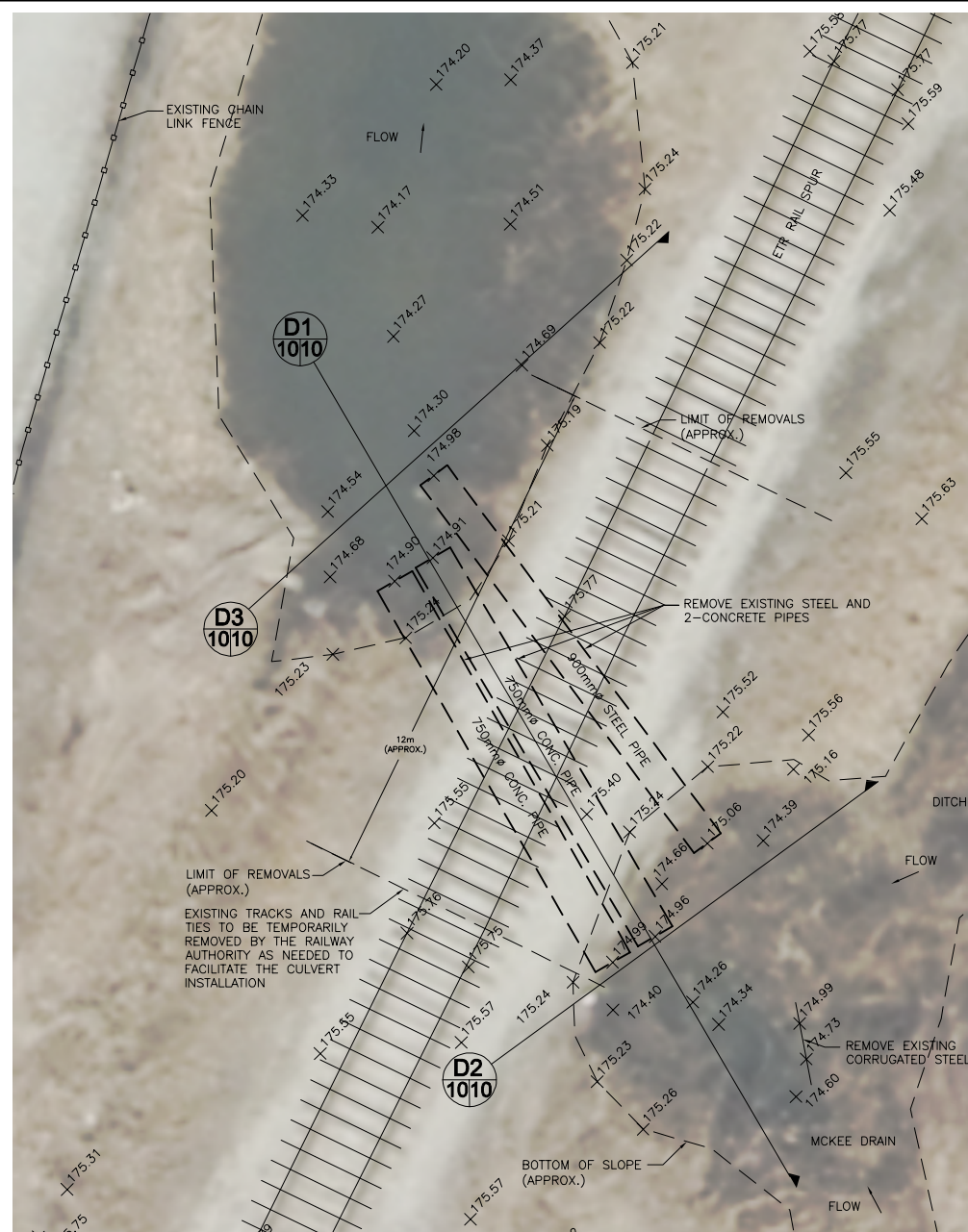
all dimensions are in METRES unless otherwise shown



all dimensions are in
METRES
unless otherwise shown



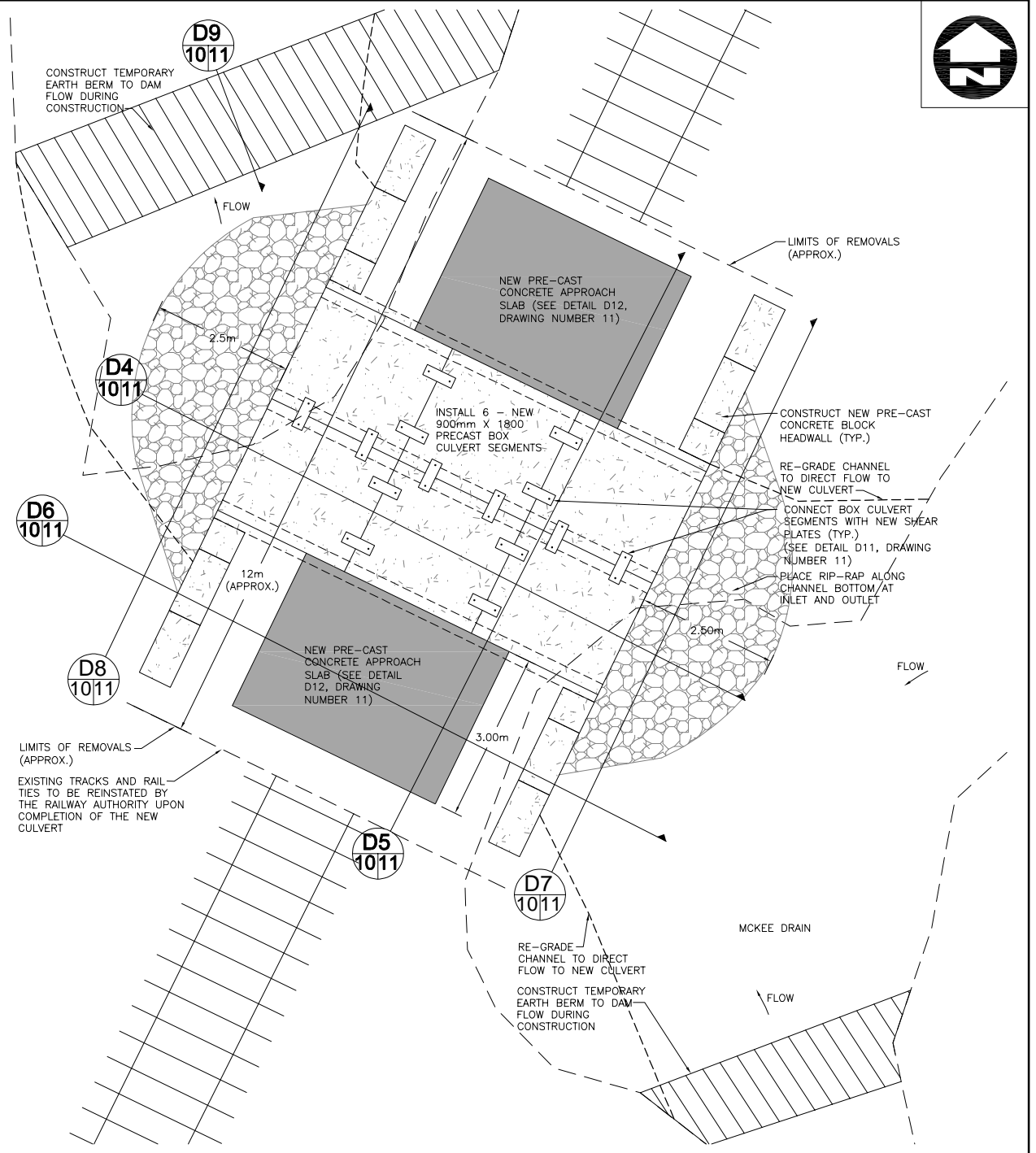
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Drawing Title: SECTIONS 5		
	Date: FEBRUARY 2022	Scale: 1:100
Project No.: 16-019		



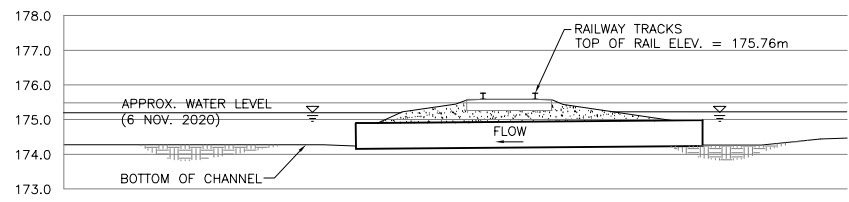
PLAN - EXISTING CONDITIONS
SCALE: 1:75

- GENERAL NOTES:**
1. THE TOPOGRAPHICAL INFORMATION SHOWN ON THESE PLANS ARE BASED ON SURVEYS AND SITE RECONNAISSANCE BY LANDMARK ENGINEERS. LANDMARK ENGINEERS DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION.
 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS RELEVANT TO THE PROPOSED WORK AND TO REPORT ANY DISCREPANCIES TO THE ENGINEER (IN WRITING) PRIOR TO CONSTRUCTION.
 3. ALL WORK SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND THE ASSOCIATED REGULATIONS FOR CONSTRUCTION PROJECTS.
 4. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE THE PROTECTION OF ANY UTILITIES AFFECTED BY THE PROPOSED WORKS UNLESS OTHERWISE SPECIFIED.
 5. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY THE NEW CONSTRUCTION TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER, USING TOPSOIL AND SEED AND MULCH, AS SPECIFIED.
 6. ALL EXTRANEOUS MATERIALS SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED LOCATION.

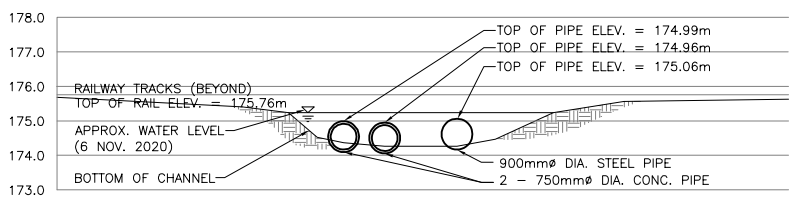
- CONSTRUCTION NOTES:**
1. THE PRECAST CONCRETE SLABS DEPICTED HEREIN HAVE BEEN DESIGNED TO MINIMIZE THE POTENTIAL FOR DIFFERENTIAL SETTLEMENT UNDER THE RAIL LINE DUE TO VARIABLE FOUNDATION CONDITIONS.
 2. AS PART OF THE SCOPE OF WORK FOR THIS PROJECT, THE CONTRACTOR SHALL PREPARE AND SUBMIT ENGINEERED SHOP DRAWINGS FOR THE PRECAST CONCRETE CULVERT SEGMENTS DEPICTED HEREIN. THE CULVERT SEGMENTS SHALL BE DESIGNED TO CARRY A STANDARD COOPER E80 TRAIN LOAD (AS PER THE AREMA MANUAL FOR RAILWAY ENGINEERING), IN GENERAL ACCORDANCE WITH OPSS 1821 AND CSA 56. THE DESIGN SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO.
 3. THE CONTRACTOR SHALL ALSO PREPARE AND SUBMIT ENGINEERED SHOP DRAWINGS FOR THE PRECAST CONCRETE HEADWALLS DEPICTED HEREIN.
 4. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN FOR APPROVAL BY THE ENGINEER NO LESS THAN 10 WORKING DAYS PRIOR TO CONSTRUCTION. THE DEWATERING PLAN SHALL INCLUDE A LIST OF PUMPING EQUIPMENT (INCLUDING BACKUPS), COMPLETE WITH MODEL NUMBERS AND PUMPING CAPACITIES.



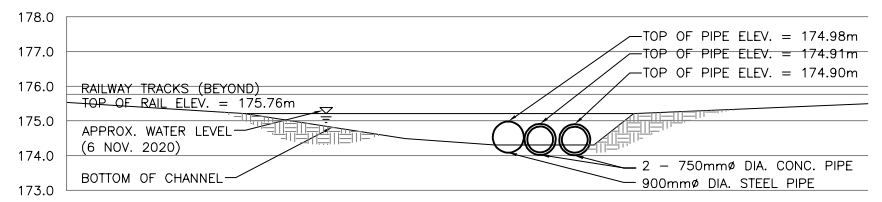
PLAN - PROPOSED WORKS (BELOW RAILS)
SCALE: 1:50



D1 SECTION - EXISTING CONCRETE PIPE UNDER RAILWAY
SCALE: 1:100



D2 SECTION DETAIL - PIPE INLET (EAST OF RAILWAY)
SCALE: 1:100

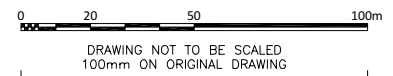


D3 SECTION DETAIL - PIPE OUTLET (WEST OF RAILWAY)
SCALE: 1:100

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detail legend
A
B
C

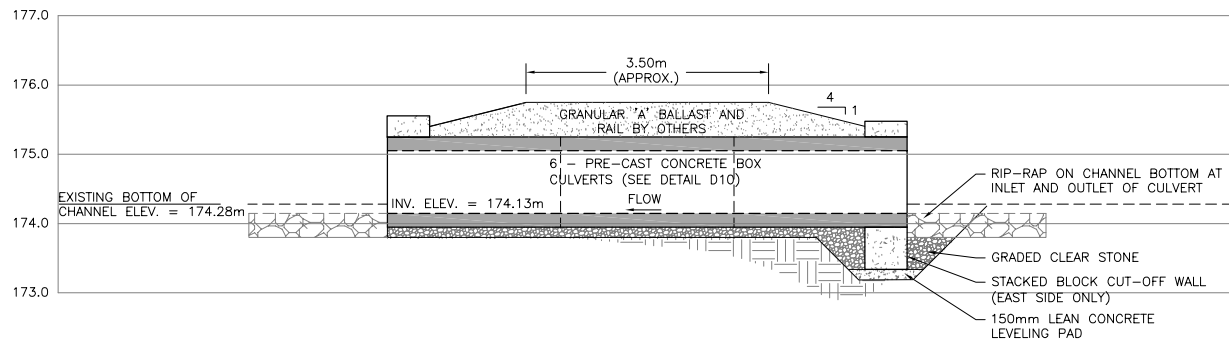
A DETAIL NO.
B SHEET WHERE DETAIL REQ'D
C SHEET DETAIL DRAWN ON



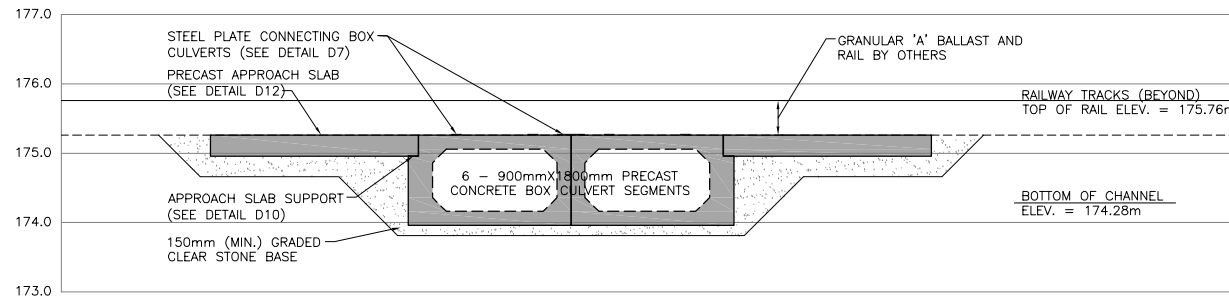
Project name McKee Drain Improvements	
Drawing title CULVERT NO. 3 - EXISTING CONDITIONS & PROPOSED WORKS	
Date: FEBRUARY 2022	Drawing no.:
Scale: AS SHOWN	10
Project no.:	16-019



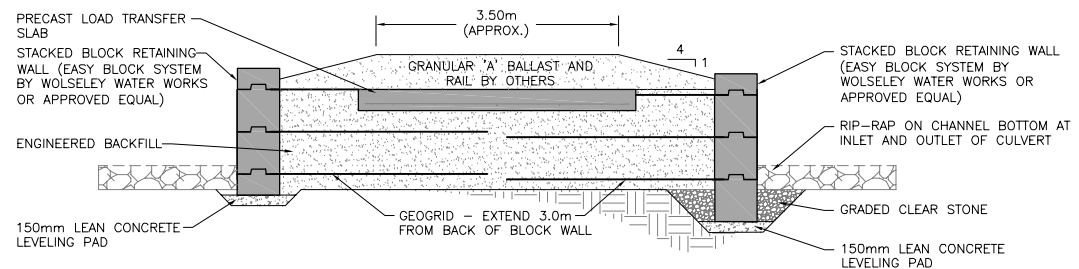
all dimensions are in METRES unless otherwise shown



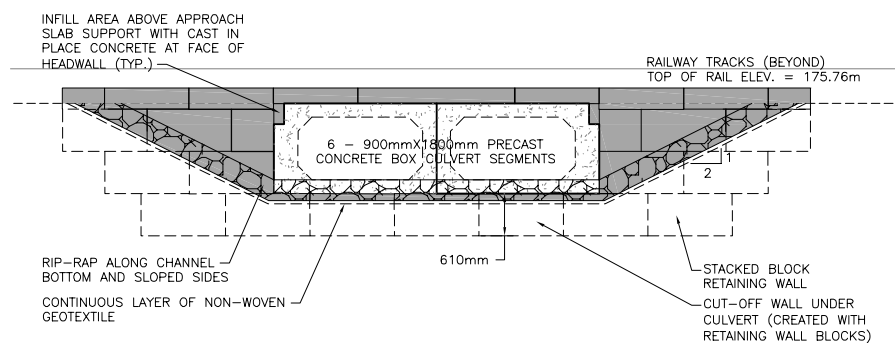
D4 SECTION - NEW CONCRETE BOX CULVERTS
1011 SCALE: 1:50



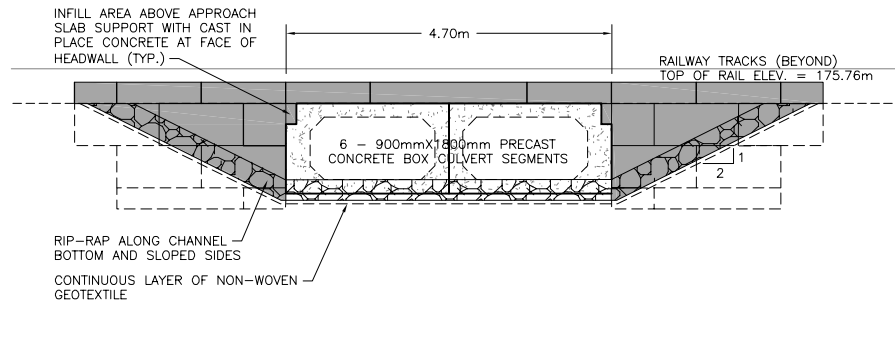
D5 SECTION - NEW CONCRETE BOX CULVERTS
1011 SCALE: 1:50



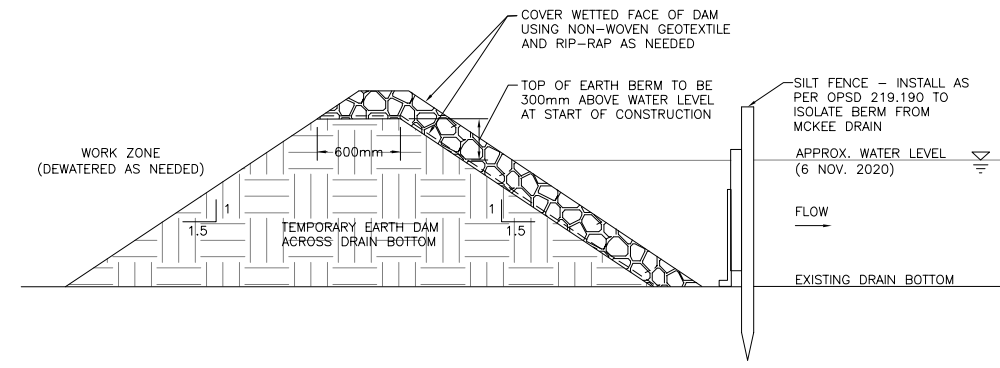
D6 SECTION - STACKED BLOCK RETAINING WALL
1011 SCALE: 1:50



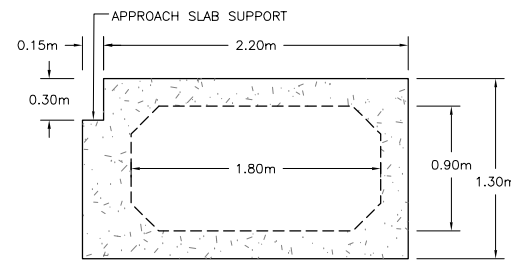
D7 PROFILE - INLET HEADWALL, CUT-OFF WALL & EROSION PROTECTION
1011 SCALE: 1:50



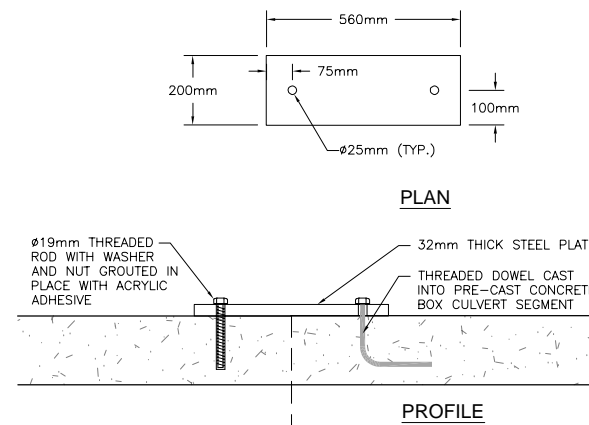
D8 PROFILE - OUTLET HEADWALL AND EROSION PROTECTION
1011 SCALE: 1:50



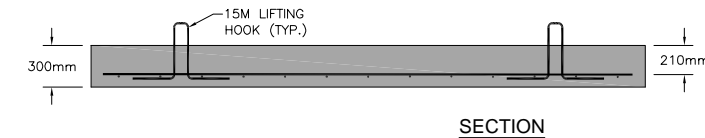
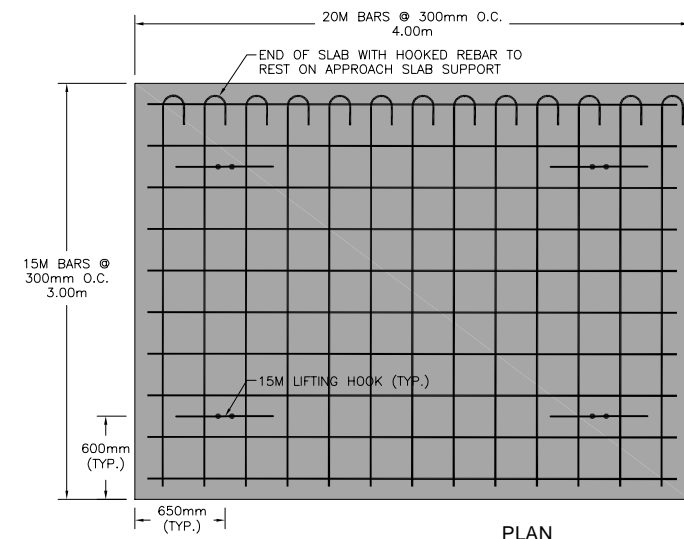
D9 SECTION DETAIL - TEMPORARY EARTH BERM / DAM
1011 SCALE: 1:25



D10 SECTION DETAIL - BOX CULVERT DIMENSIONS
1011 SCALE: 1:25



D11 DETAIL - TYPICAL SHEAR PLATE CONNECTION
1011 SCALE: 1:10



D12 DETAIL - APPROACH SLAB PLAN
1011 SCALE: 1:25

all dimensions are in METRES unless otherwise shown

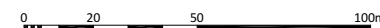
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detail legend



A DETAIL NO.
B SHEET WHERE DETAIL REQ'D
C SHEET DETAIL DRAWN ON

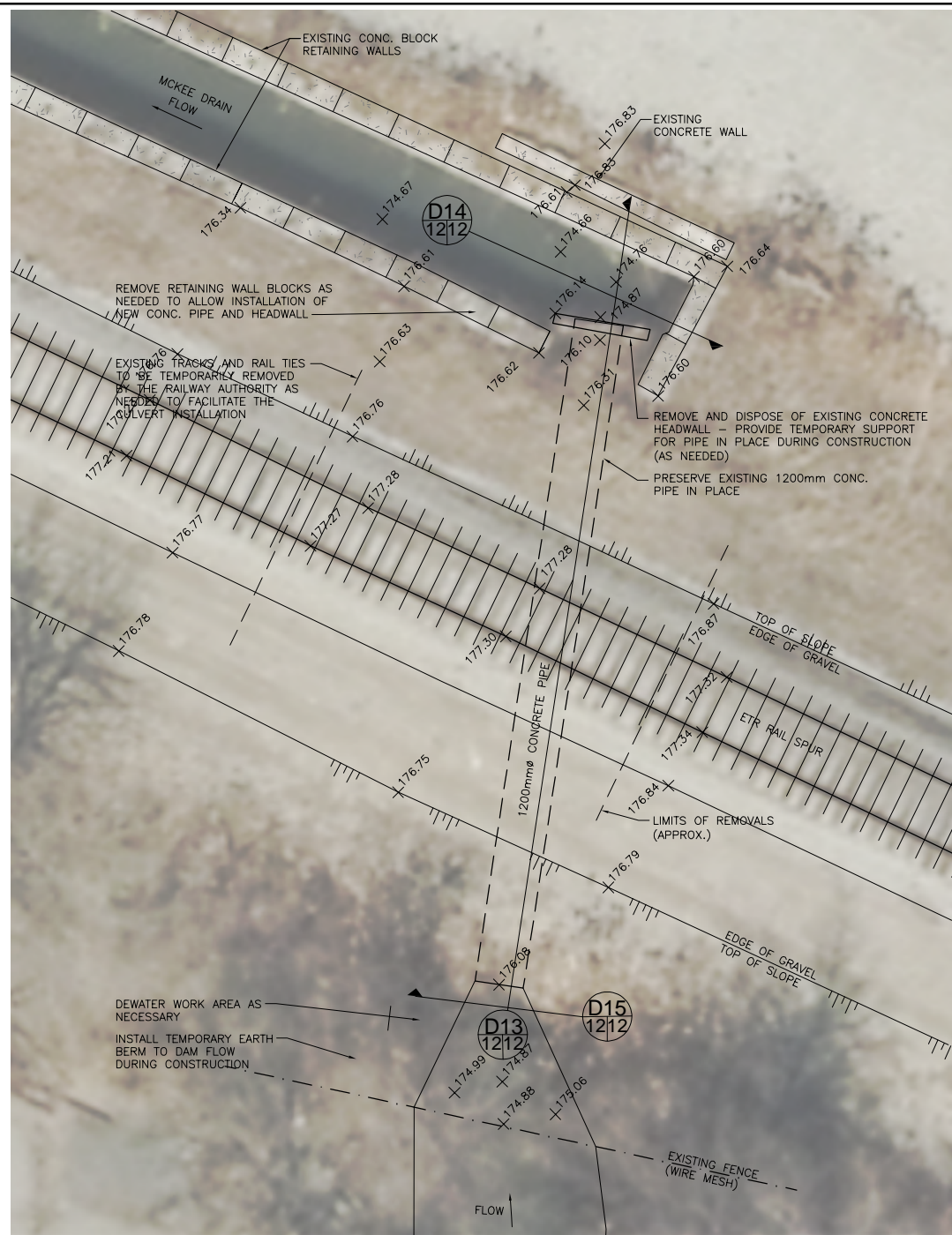
NOTE: THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THIS DRAWING AND WHERE DISCREPANCIES OCCUR HE SHALL REPORT TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH ANY PORTION OF THE WORK IN THE CONTRACT.



DRAWING NOT TO BE SCALED 100mm ON ORIGINAL DRAWING



Project Name McKee Drain Improvements	
Drawing Title CULVERT NO. 3 - PROPOSED WORKS	
Date: FEBRUARY 2022	Drawing No.:
Scale: AS SHOWN	11
Project No.:	16-019



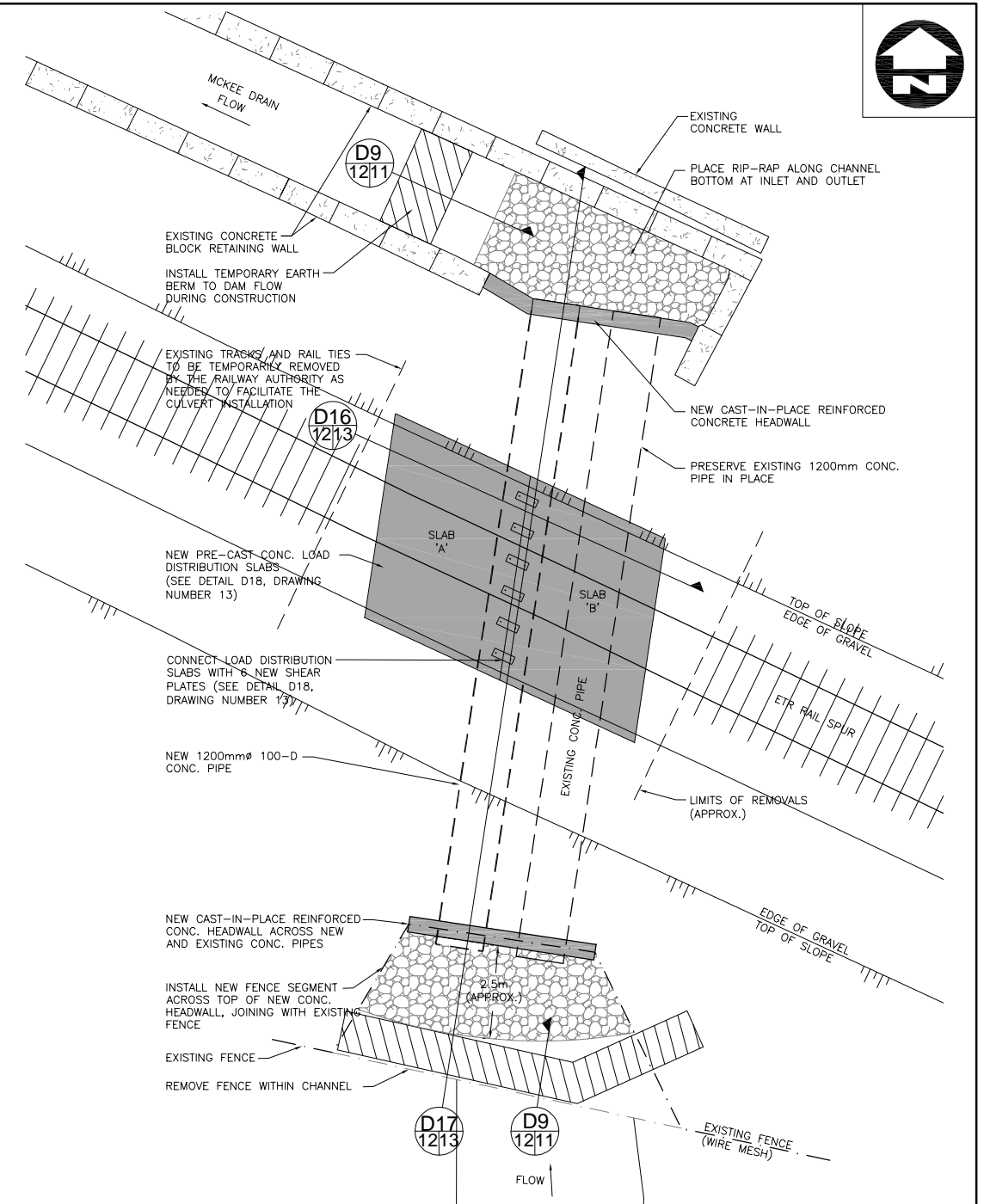
PLAN - EXISTING CONDITIONS
SCALE: 1:75

GENERAL NOTES:

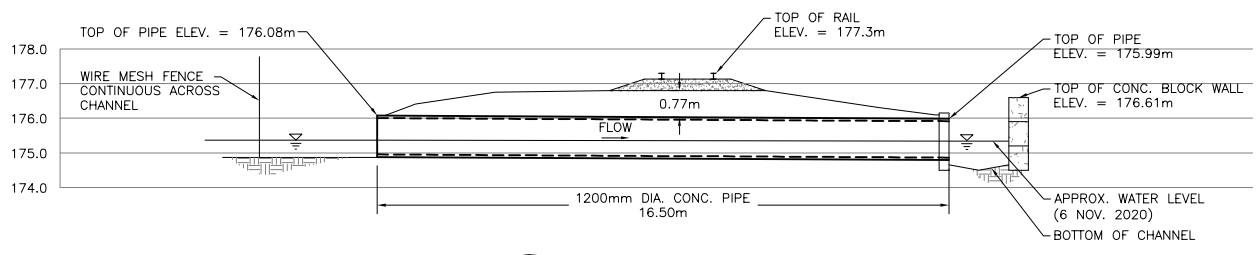
1. THE TOPOGRAPHICAL INFORMATION SHOWN ON THESE PLANS ARE BASED ON SURVEYS AND SITE RECONNAISSANCE BY LANDMARK ENGINEERS. LANDMARK ENGINEERS DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS RELEVANT TO THE PROPOSED WORK AND TO REPORT ANY DISCREPANCIES TO THE ENGINEER (IN WRITING) PRIOR TO CONSTRUCTION.
3. ALL WORK SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND THE ASSOCIATED REGULATIONS FOR CONSTRUCTION PROJECTS.
4. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE THE PROTECTION OF ANY UTILITIES AFFECTED BY THE PROPOSED WORKS UNLESS OTHERWISE SPECIFIED.
5. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY THE NEW CONSTRUCTION TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER, USING TOPSOIL AND SEED AND MULCH, AS SPECIFIED.
6. ALL EXTRANEIOUS MATERIALS SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED LOCATION.

CONSTRUCTION NOTES:

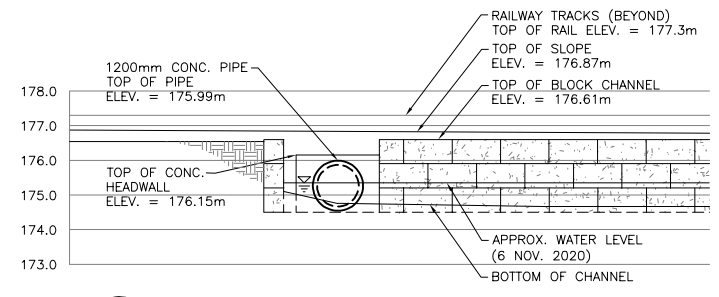
1. THE PRECAST CONCRETE SLABS DEPICTED HEREIN HAVE BEEN DESIGNED TO MINIMIZE THE POTENTIAL FOR DIFFERENTIAL SETTLEMENT UNDER THE RAIL LINE DUE TO VARIABLE FOUNDATION CONDITIONS.
2. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN FOR APPROVAL BY THE ENGINEER NO LESS THAN 10 WORKING DAYS PRIOR TO CONSTRUCTION. THE DEWATERING PLAN SHALL INCLUDE A LIST OF PUMPING EQUIPMENT (INCLUDING BACKUPS), COMPLETE WITH MODEL NUMBERS AND PUMPING CAPACITIES.



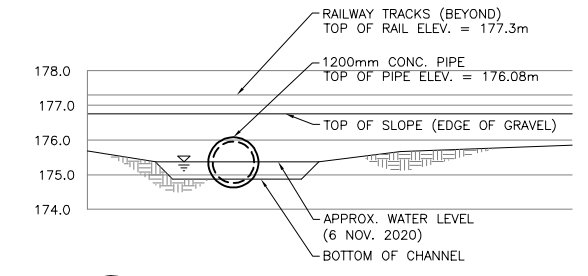
PLAN - PROPOSED WORKS (BELOW RAILS)
SCALE: 1:75



D13 SECTION - EXISTING CONCRETE PIPE
SCALE: 1:100



D14 PROFILE - EXISTING PIPE OUTLET
SCALE: 1:100



D15 PROFILE - EXISTING PIPE INLET
SCALE: 1:100

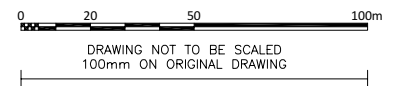
all dimensions are in METRES unless otherwise shown

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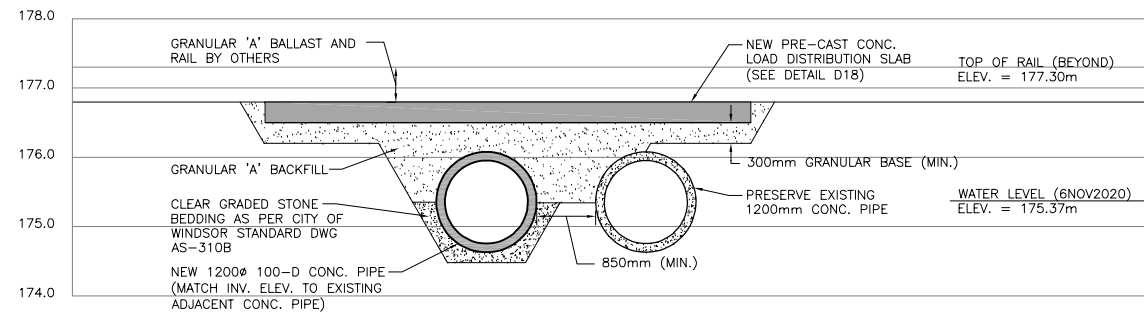
detail legend
A
B
C

NOTE: THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THIS DRAWING AND WHERE DISCREPANCIES OCCUR HE SHALL REPORT TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH ANY PORTION OF THE WORK IN THE CONTRACT.

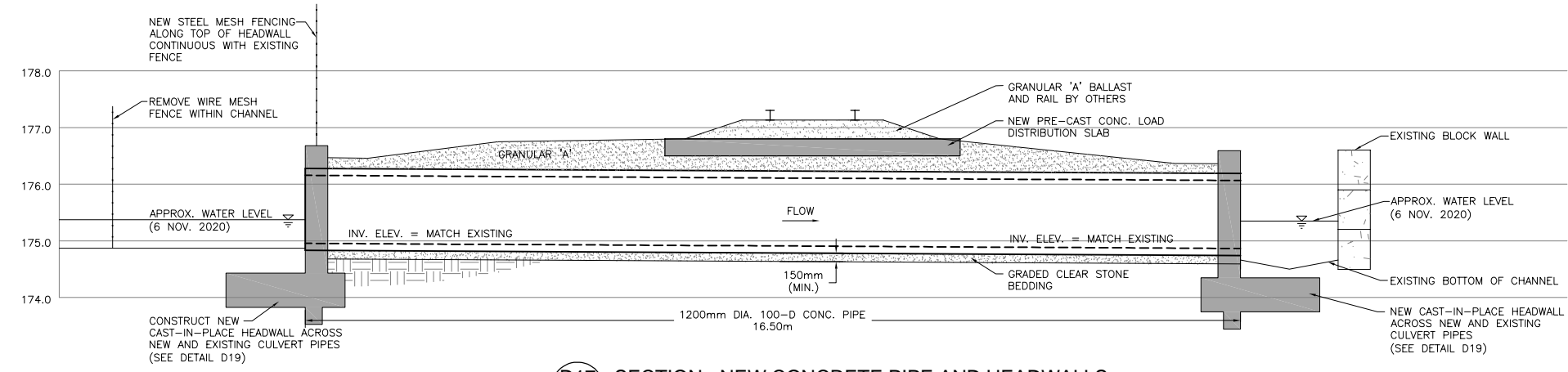
A. DETAIL NO.
B. SHEET WHERE DETAIL REQ'D
C. SHEET DETAIL DRAWN ON



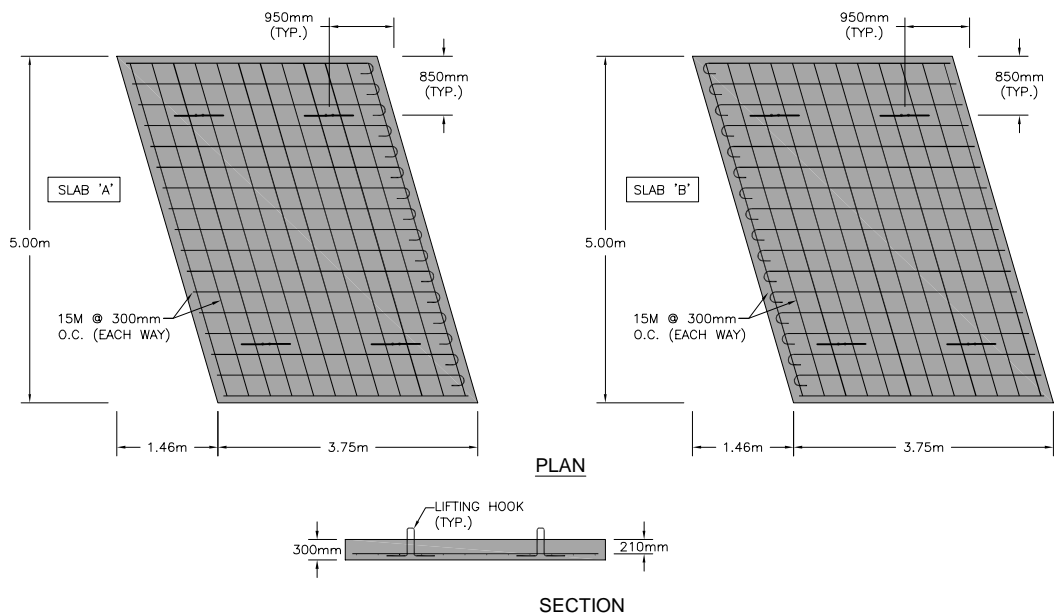
project name McKEE DRAIN IMPROVEMENTS		drawing no.: 12	
drawing title CULVERT NO. 6 - EXISTING CONDITIONS & PROPOSED WORKS		date: FEBRUARY 2022	drawing no.:
scale: AS SHOWN		project no.:	16-019



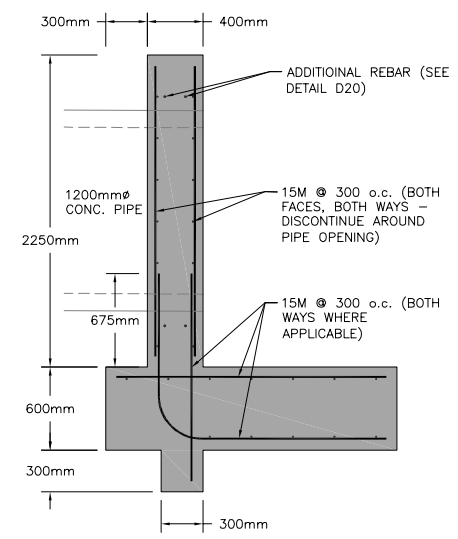
D16 SECTION - NEW CONCRETE PIPE
 1213 SCALE: 1:50



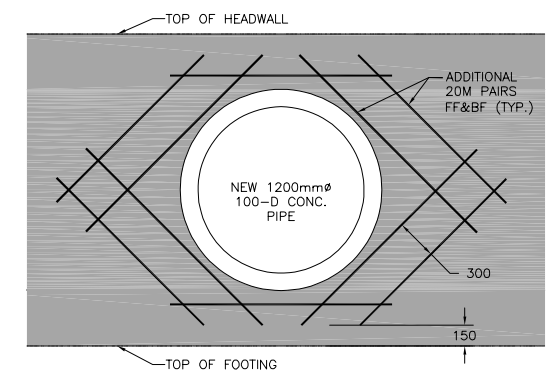
D17 SECTION - NEW CONCRETE PIPE AND HEADWALLS
 1213 SCALE: 1:50



D18 DETAIL - TYPICAL LOAD DISTRIBUTION SLAB
 1213 SCALE: 1:50



D19 SECTION DETAIL - TYPICAL CONCRETE HEADWALL
 1213 SCALE: 1:50



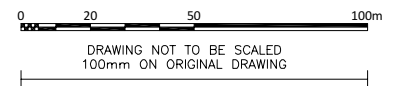
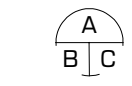
ADDITIONAL REINFORCING AROUND PIPE OPENINGS

D20 PROFILE - REBAR AROUND PIPE OPENING
 1213 SCALE: 1:50

all dimensions are in METRES unless otherwise shown

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detail legend
 A
 B | C
 A. DETAIL NO.
 B. SHEET WHERE DETAIL REID'D
 C. SHEET DETAIL DRAWN ON



Project name McKEE DRAIN IMPROVEMENTS	
Drawing title CULVERT NO. 6 - PROPOSED WORKS	
Date: FEBRUARY 2022	Drawing no.:
Scale: AS SHOWN	13
Project no.:	16-019



GENERAL NOTES:

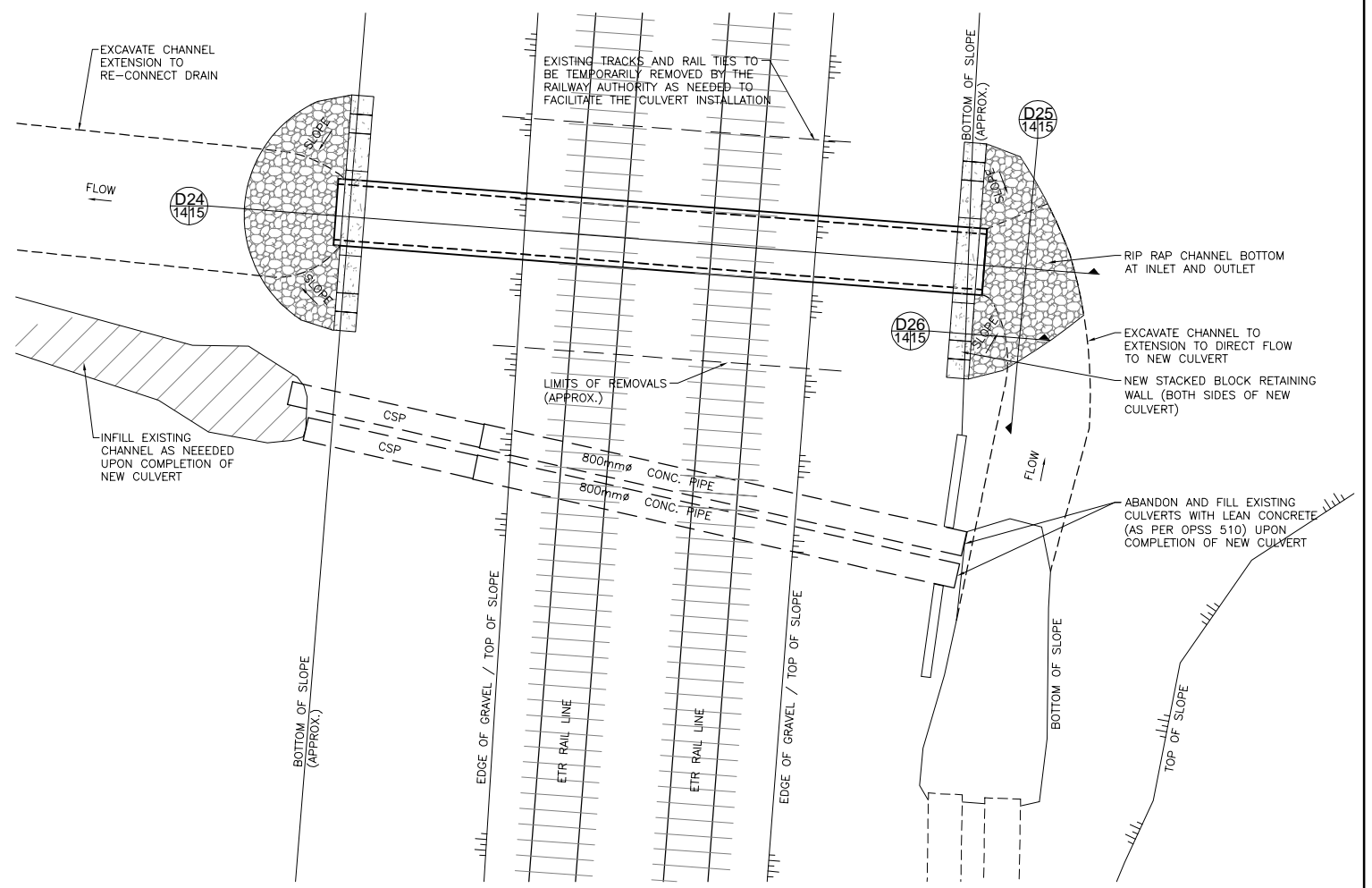
1. THE TOPOGRAPHICAL INFORMATION SHOWN ON THESE PLANS ARE BASED ON SURVEYS AND SITE RECONNAISSANCE BY LANDMARK ENGINEERS. LANDMARK ENGINEERS DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION.
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CONSTRUCTION NOTES:

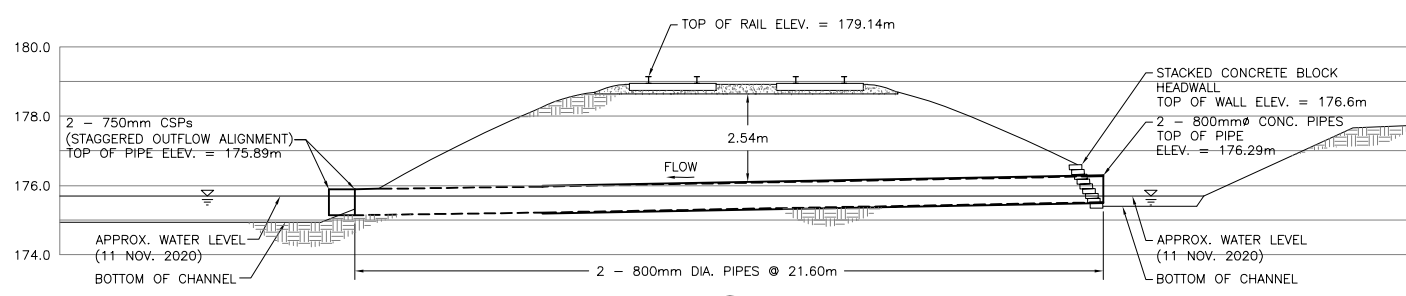
1. THE CONTRACTOR SHALL PREPARE AND SUBMIT ENGINEERED SHOP DRAWINGS FOR THE PRECAST CONCRETE HEADWALLS DEPICTED HEREIN.



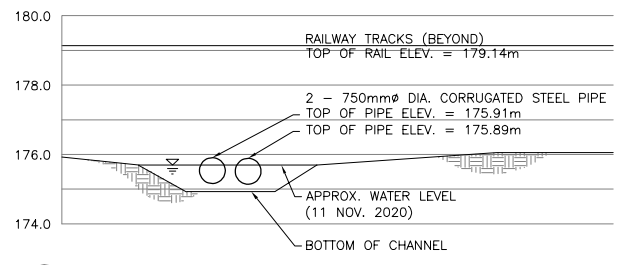
PLAN - EXISTING CONDITIONS
SCALE: 1:100



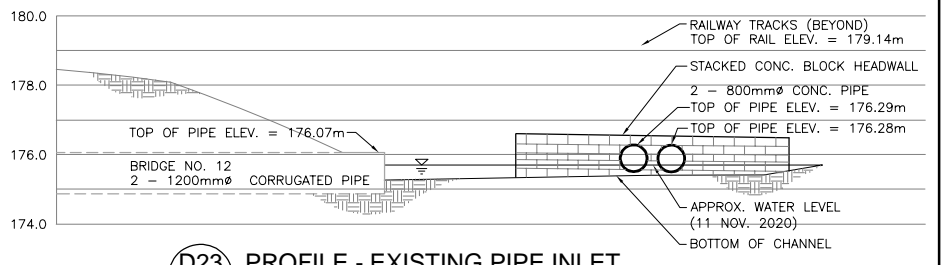
PLAN - PROPOSED WORKS
SCALE: 1:100



D21 1414 SECTION - CONCRETE AND CORRUGATED PIPE UNDER RAIL TRACKS
SCALE: 1:100

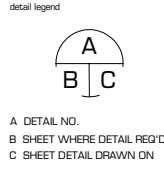


D22 1414 PROFILE - EXISTING PIPE OUTLET (WEST SIDE OF RAILWAY)
SCALE: 1:100



D23 1414 PROFILE - EXISTING PIPE INLET (EAST SIDE OF RAILWAY)
SCALE: 1:100

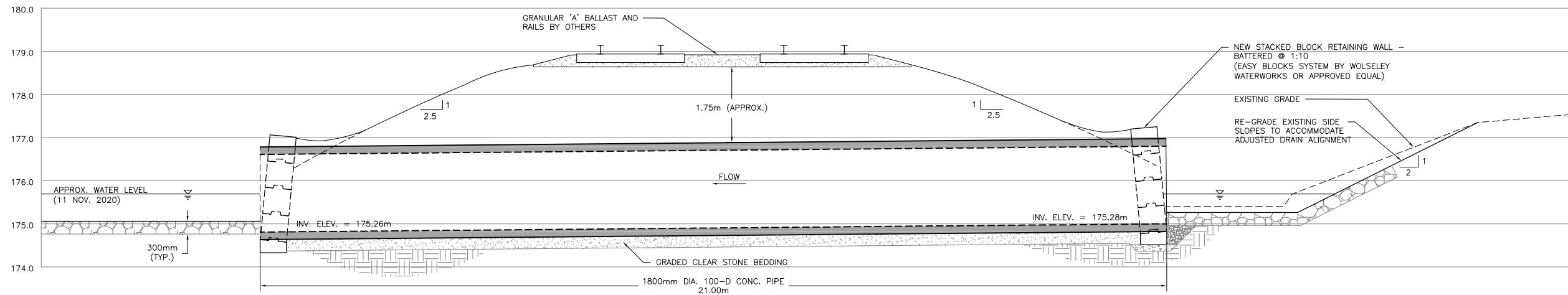
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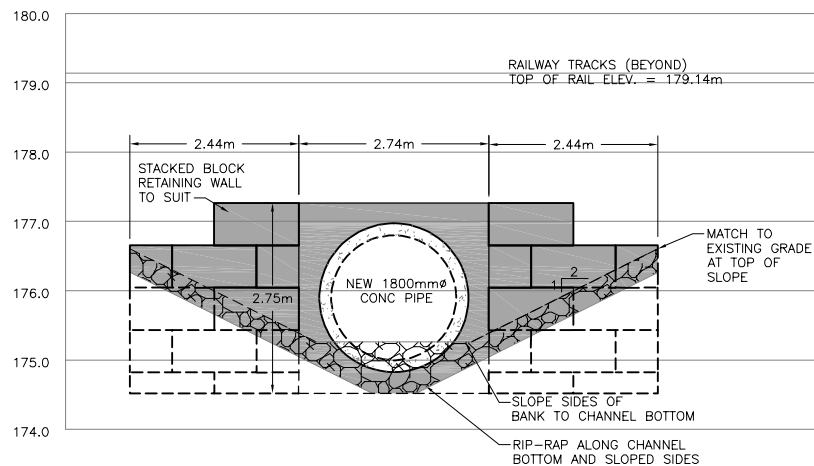
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B. SHEET WHERE DETAIL REQ'D
C. SHEET DETAIL DRAWN ON



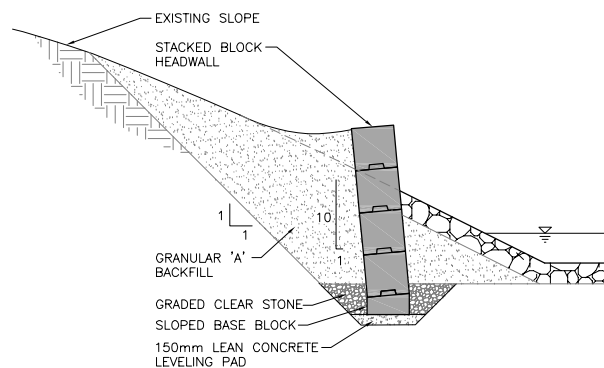
Project name McKEE DRAIN IMPROVEMENTS	
Drawing title CULVERT NO. 11 - EXISTING CONDITIONS & PROPOSED WORKS	
Date: FEBRUARY 2022	Drawing no.:
Scale: AS SHOWN	14
Project no.:	16-019



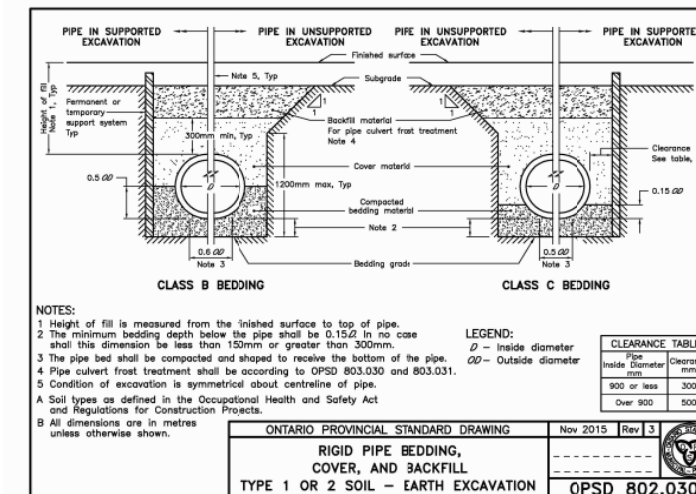
D24
1415 SECTION - NEW CONCRETE CULVERT
SCALE: 1:50



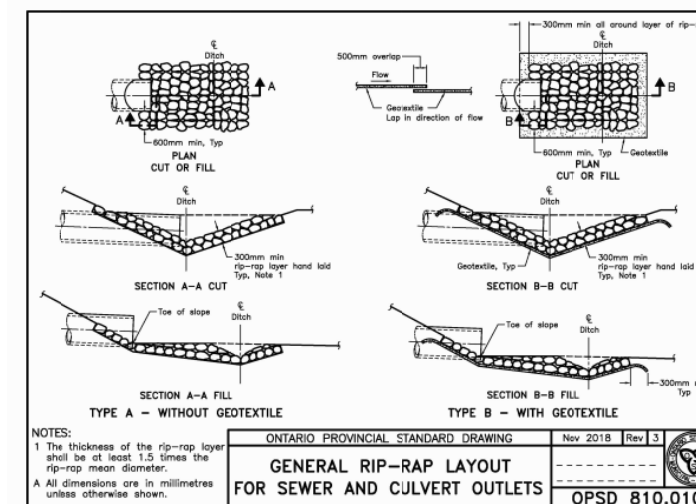
D25
1415 EAST PROFILE - STACKED BLOCK HEADWALL
SCALE: 1:50



D26
1415 SECTION DETAIL - STACKED BLOCK HEADWALL (TYP.)
SCALE: 1:50



ONTARIO PROVINCIAL STANDARD DRAWING Nov 2015 Rev 3
RIGID PIPE BEDDING, COVER, AND BACKFILL
TYPE 1 OR 2 SOIL - EARTH EXCAVATION
OPSD 802.030



ONTARIO PROVINCIAL STANDARD DRAWING Nov 2018 Rev 3
GENERAL RIP-RAP LAYOUT FOR SEWER AND CULVERT OUTLETS
OPSD 810.010

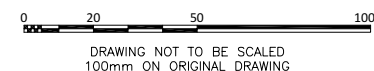
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detail legend



A. DETAIL NO.
B. SHEET WHERE DETAIL REQ'D
C. SHEET DETAIL DRAWN ON

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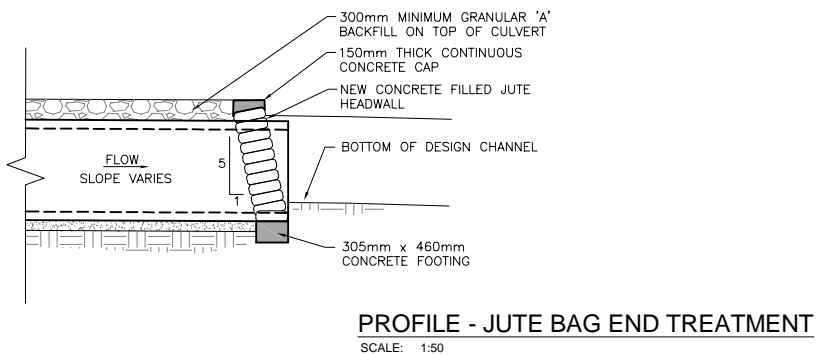
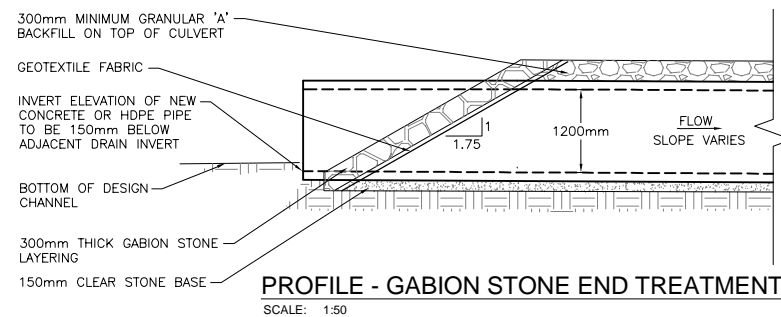
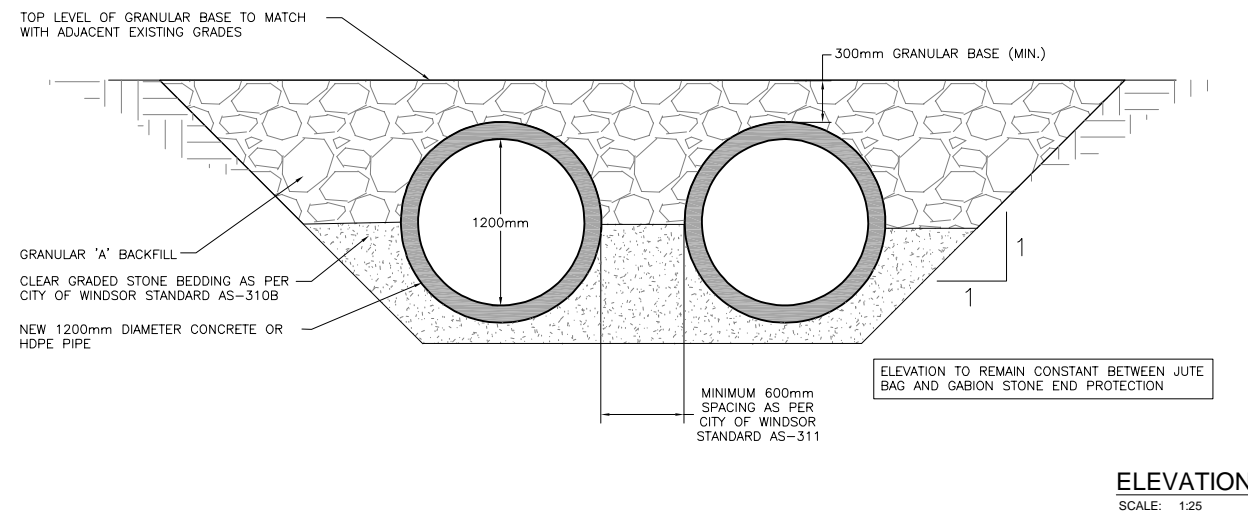
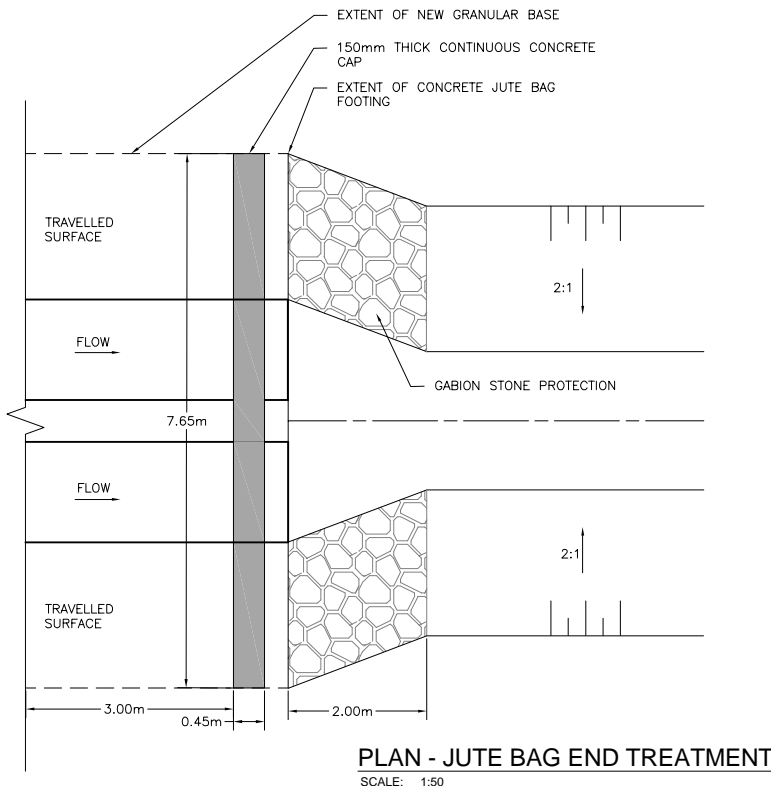
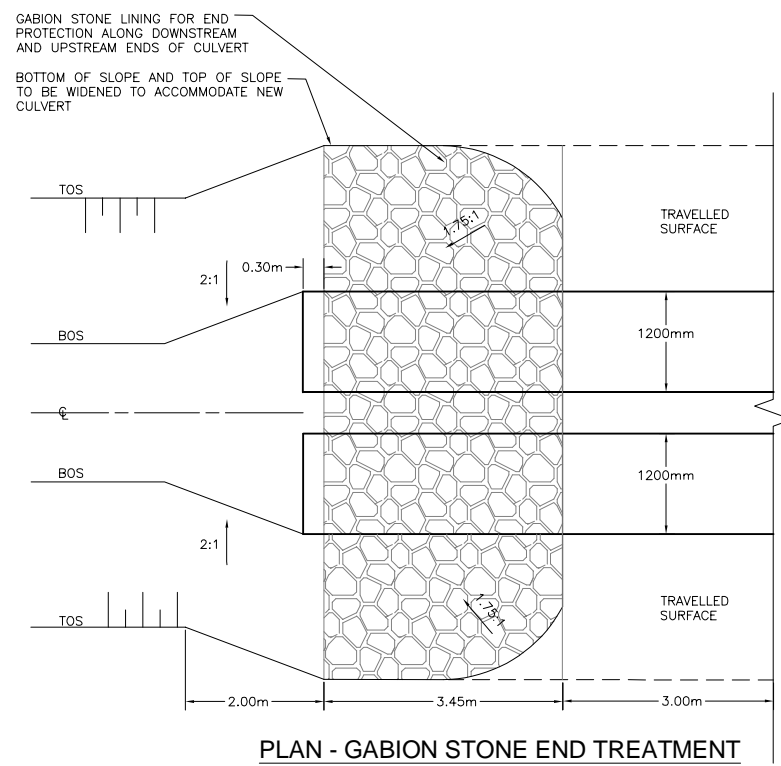


DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING



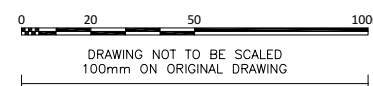
project name McKEE DRAIN IMPROVEMENTS	
drawing title CULVERT NO. 11 - PROPOSED WORKS	
date: FEBRUARY 2022	drawing no.:
scale: AS SHOWN	15
project no.:	16-019

all dimensions are in METRES unless otherwise shown



CULVERT SUMMARY TABLE											
BRIDGE NO.	BRIDGE LOCATION	BRIDGE MIDPOINT COORDINATES	PIPE INVERT ELEVATION (m) UPSTREAM	PIPE INVERT ELEVATION (m) DOWNSTREAM	TOP ELEVATION OF DRIVEWAY AT ℓ (m)	MINIMUM TOP WIDTH OF DRIVEWAY (m)	MINIMUM CULVERT GRADE (%)	CULVERT TYPE	PIPE SIZE	CULVERT LENGTH (m)	END TREATMENT
8	0+999 TO 1+029	4683435.22N, 328177.97E	174.78	174.75	176.50	6.0	0.1	CON. OR HDPE	2-1200mm ϕ	29.3	S.E.P
9	1+046 TO 1+075	4683390.08N, 328189.00E	174.82	174.79	176.50	6.0	0.1	CON. OR HDPE	2-1200mm ϕ	29.3	S.E.P
10	1+225 TO 1+259	4683288.40N, 328332.86E	175.01	174.98	178.00	6.0	0.1	CON.	2-1200mm ϕ	34.2	S.E.P

NOTE:
S.E.P DENOTES STONE EROSION PROTECTION



Project Name: McKEE DRAIN IMPROVEMENTS	
Drawing Title: STANDARD TWIN CULVERT	
Date: FEBRUARY 2022	Drawing No.: 16
Scale: AS SHOWN	Project No.: 16-019

NOTES

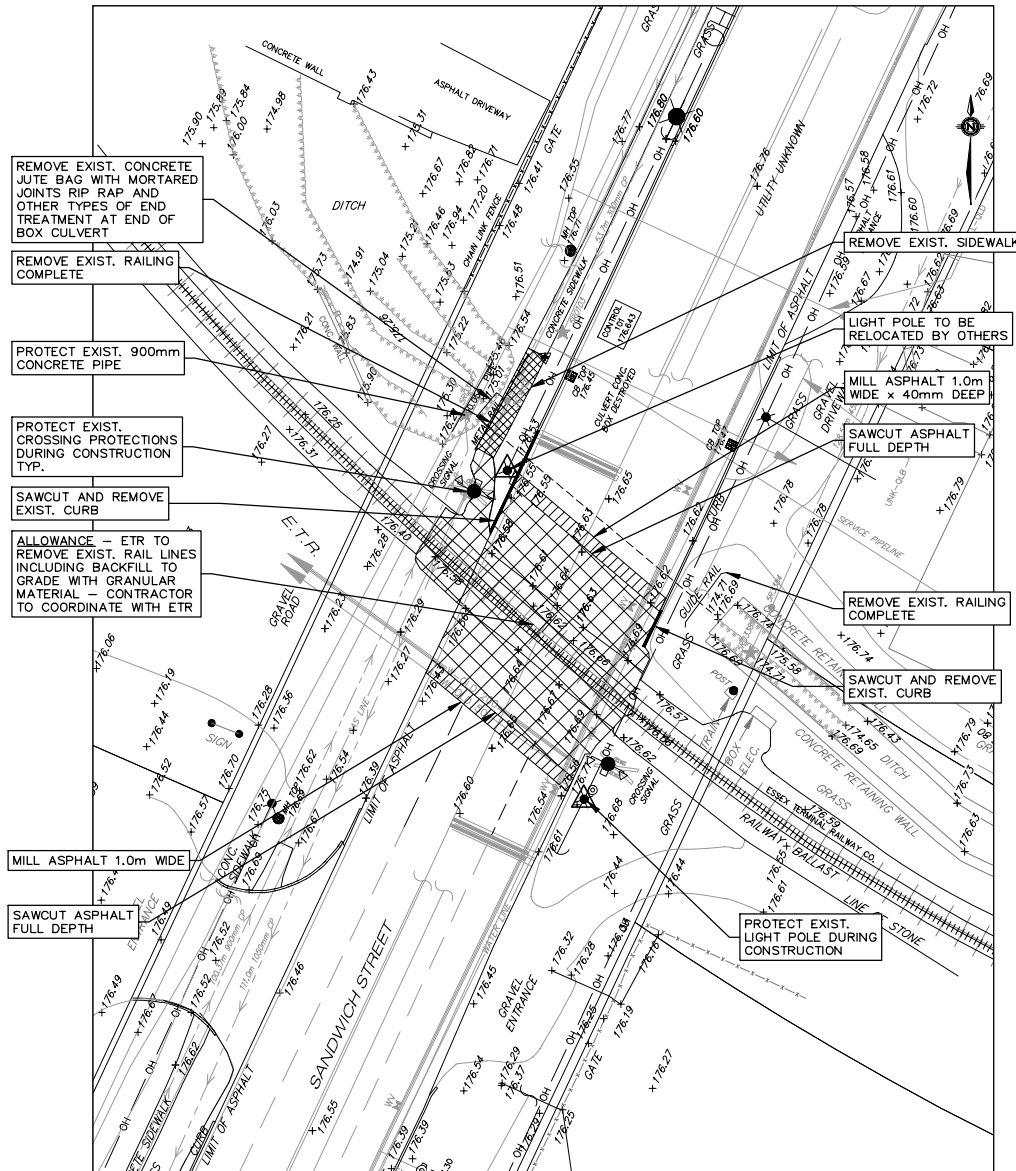
1. PROVIDE SILT FENCE FOR SEDIMENT AND EROSION CONTROL ALONG EXISTING ROADSIDE DITCHES AND MUNICIPAL DRAIN DURING CONSTRUCTION. CONTRACTOR TO MONITOR DAILY.
2. CONTRACTOR SHALL PROTECT EXISTING CATCH BASINS AND PIPE END SECTIONS FROM SEDIMENT WITH FILTER CLOTH OR OTHER APPROVED METHOD. ALL SUMP TO BE KEPT CLEAN DURING CONSTRUCTION.
3. NO WORKS TO BE UNDERTAKEN WITHIN THE MUNICIPAL DRAIN UNLESS OTHERWISE SHOWN ON THE CONTRACT DOCUMENTS OR AS PER PRIOR APPROVAL BY OWNER.
4. ALL DISTURBED AREAS SHALL BE FINE GRADED WITH TOPSOIL, HYDRO SEED AND EROSION CONTROL BLANKETS
5. ALL DIMENSIONS SHOWN ON PLANS ARE MINIMUM REQUIREMENTS FOR TENDER.
6. REFER TO ALL CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
7. CONTRACTOR TO COORDINATE ALL WORKS WITH ETR WHEN WORKING WITHIN 4.6m OF THE RAIL LINES. REFER TO ALLOWANCE - ESSEX TERMINAL RAILWAY FLAGMEN FOR ALL WORK WITHIN THE ETR RIGHT OF WAY
8. CONTRACTOR TO COORDINATE UPGRADES TO CROSSING PROTECTION "BY OTHERS" DURING CONSTRUCTION.
9. CONTRACTOR TO CONFIRM LAYOUTS WITH THE CITY BEFORE NEW WORKS COMMENCE.

PAVING NOTES:

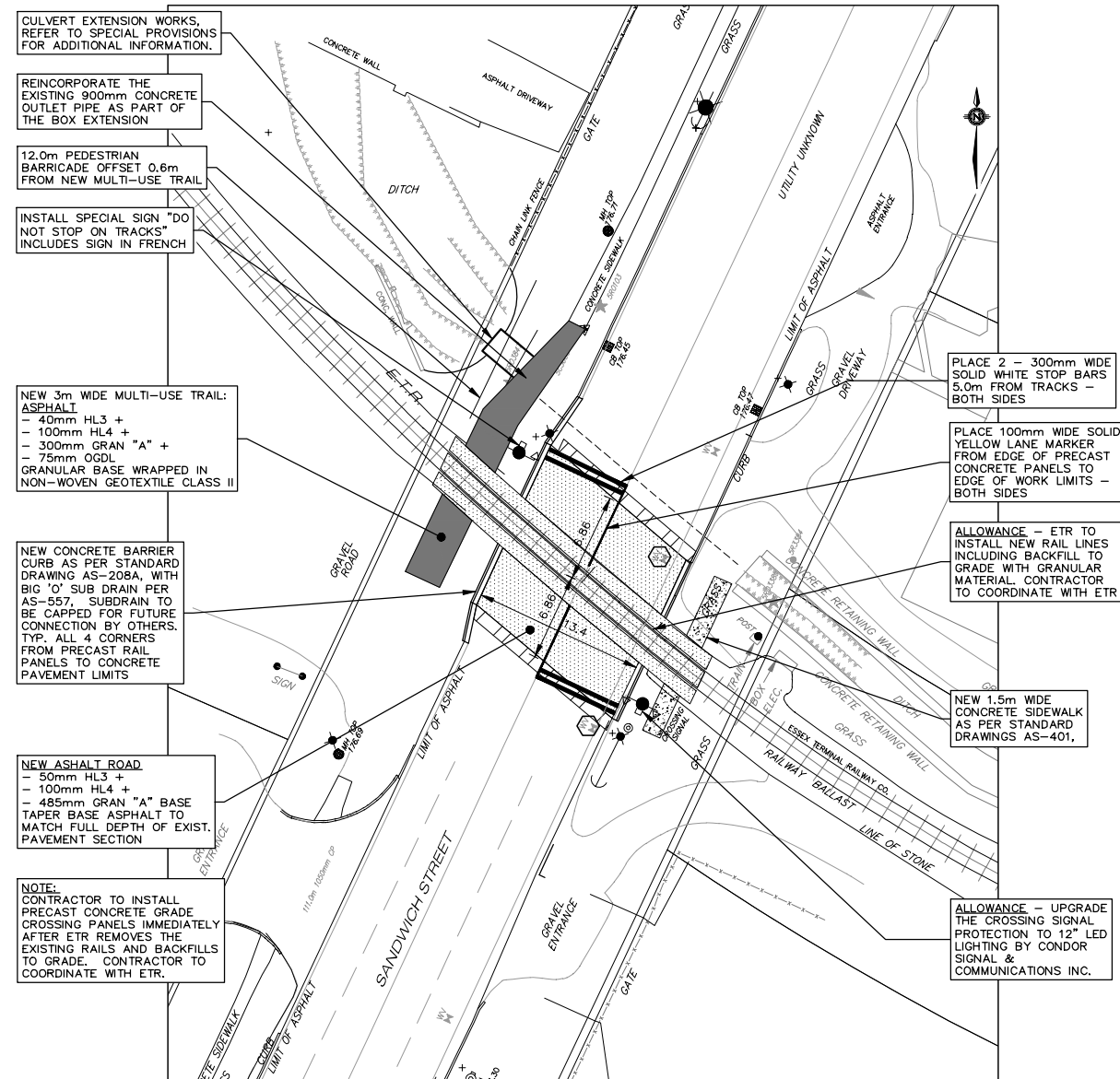
- CONTRACTOR TO PROTECT/ADJUST EXISTING APPURTENANCE DURING CONSTRUCTION
- CONTRACTOR TO PROTECT/SUPPORT EXISTING HYDRO/LIGHT/BELL FACILITIES DURING CONSTRUCTION
- EXISTING ETR CROSSING PROTECTION
- REMOVE EXISTING CURB AND GUTTER
- REMOVE EXISTING ASPHALT (FULL DEPTH)
- REMOVE EXISTING CONCRETE SIDEWALK
- MILL 50mm OF EXISTING ASPHALT
- NEW CONCRETE ROAD (230mm CONCRETE, 100mm OGD, 300mm GRANULAR "A")
- NEW ASPHALT MULTI USE TRAIL (40mm HL3 SURFACE, 60mm HL4 BASE, 300mm GRANULAR "A")
- NEW ASPHALT ROAD (50mm HL3 SURFACE, 100mm HL4 BASE, 485mm GRANULAR "A")
- NEW 50mm HL3 SURFACE COURSE ASPHALT FOR COLD MILLING
- NEW CONCRETE SIDEWALK (AS-401) (LIMITS TO BE APPROVED BY THE CITY ENGINEER)
- NEW CONCRETE GRADE CROSSING PANELS

LEGEND

DESCRIPTION	EXISTING	PROPOSED
UNDERGROUND BELL	— BELL —	
UNDERGROUND HYDRO	— HYD —	
UNDERGROUND TRAFFIC	— T —	
STORM SEWER	— S —	
SANITARY SEWER	— SS —	
DUAL SEWER	— DS —	
WATERMAIN	— WM —	
GASMAIN	— G —	
SEWER MANHOLE	○ SMH	
WATER VALVE	○ W	
FIRE HYDRANT	● FH	
GAS VALVE	○ GV	
LIGHT STANDARD	○ LS	
TRAFFIC LIGHT	○ TL	
HYDRO POLE	○ H	
BELL POLE	○ B	
ROAD SIGN	○ S	
CATCH BASIN	■ CB	
SURVEY BAR	■	



EXISTING CONDITIONS & REMOVALS
SCALE 1: 250



PROPOSED NEW CONSTRUCTION
SCALE 1: 250

ATTENTION:
CONTRACTOR IS RESPONSIBLE FOR THE EXACT LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION.

No.	REVISIONS	DATE	INIT.	DATE :
				MAY ??, 2021
				ISSUED FOR CONSTRUCTION DATE :
				AS CONSTRUCTED DATE :



DATE DRAWN: JAN. 2021
DRAWN BY: J. MUEGGE/D. BAUGHAN
CHECKED: P. UBENE
DESIGN: J. DATTILO

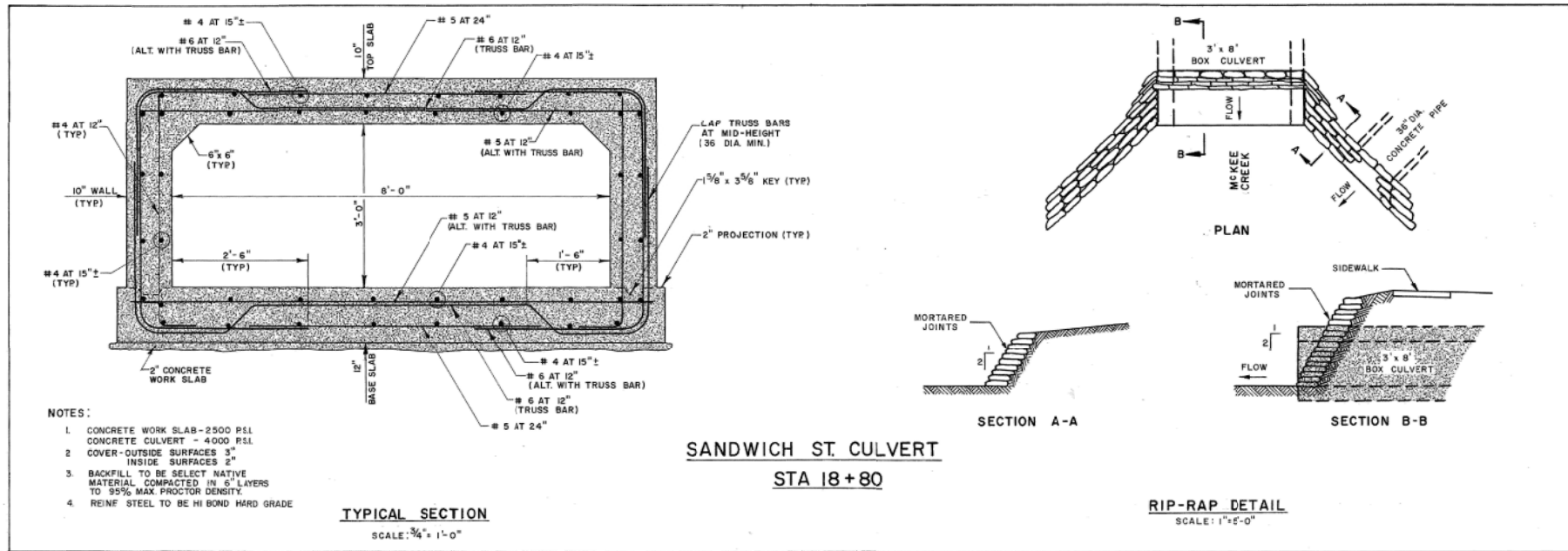
APPROVED: J. BELLETTI, P.Eng.
CITY ENGINEER



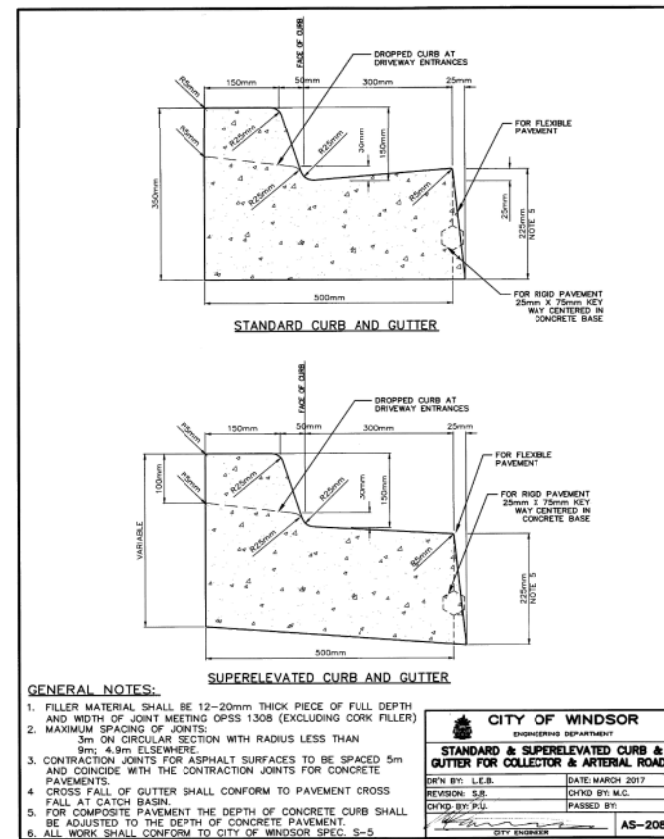
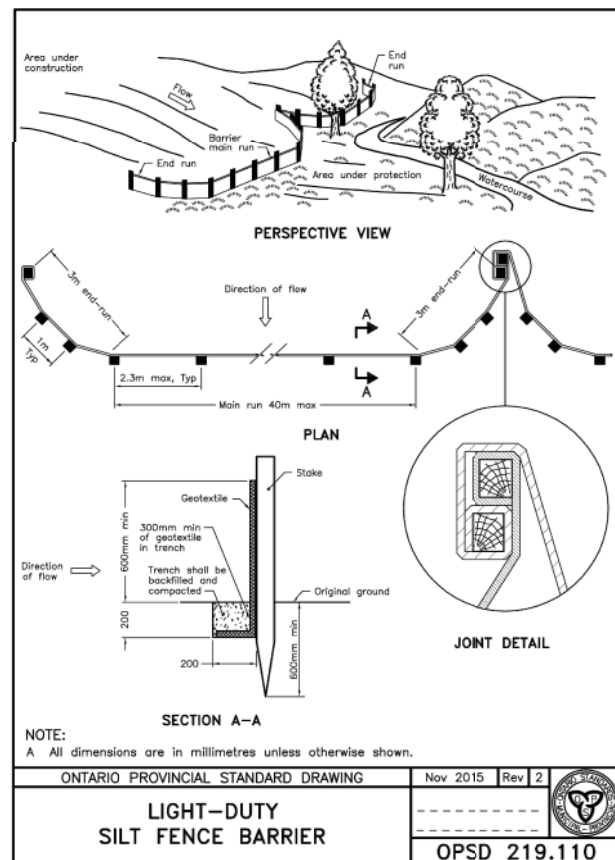
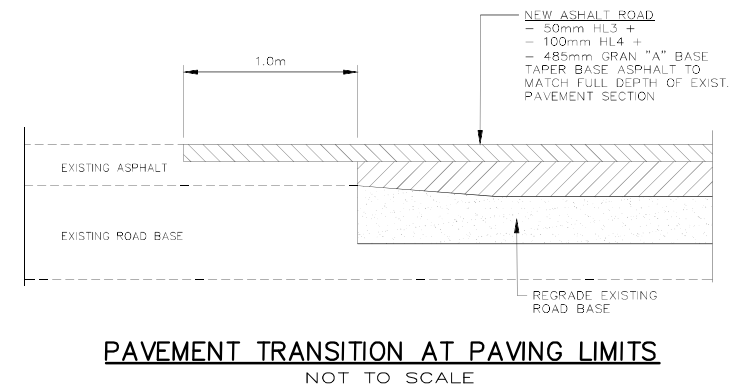
THE CORPORATION OF THE CITY OF WINDSOR
ENGINEERING DEPARTMENT

2021 ROAD REHABILITATION PROGRAMME
SANDWICH STREET AT ETR
PROPOSED PAVEMENT UPGRADES
EXISTING CONDITIONS AND REMOVALS
AND PROPOSED NEW CONSTRUCTION

TENDER No.	??-21
ACCOUNT No.	????
DRAWING No.	P-2009
SHEET	1
OF	6



EXISTING CULVERT DETAILS FROM P-1497
NOT TO SCALE

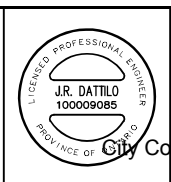


No.	REVISIONS	DATE	INIT.	ISSUED FOR TENDER DATE :
				MAY ??, 2021
				ISSUED FOR CONSTRUCTION DATE :
				AS CONSTRUCTED DATE :

ISSUED FOR TENDER DATE :	ISSUED FOR CONSTRUCTION DATE :	AS CONSTRUCTED DATE :
MAY ??, 2021		

SCALES
N.T.S.

DATE DRAWN:
JAN. 2021
DRAWN BY:
J. MUEGGE/D. BAUGHAN
CHECKED:
P. UBENE
DESIGN:
L. DATILO
CHECKED BY:
F. [Signature]



DATE DRAWN: JAN. 2021
DRAWN BY: J. MUEGGE/D. BAUGHAN
CHECKED: P. UBENE
DESIGN: L. DATILO
CHECKED BY: F. [Signature]

W. [Signature] CITY ENGINEER



THE CORPORATION OF THE CITY OF WINDSOR
ENGINEERING DEPARTMENT

2021 ROAD REHABILITATION PROGRAMME

CROSSING DETAILS

TENDER No.	ACCOUNT No.	DRAWING No.	SHEET	OF
??-21	????	P-2009	2	6



Committee Matters: SCM 43/2022

Subject: RICBL Exemption 2021-4 - Dillon Consulting Limited - 0 Tecumseh Road East - Ward 7

Moved by: Councillor Gill

Seconded by: Councillor Sleiman

Decision Number: **DHSC 366**

- 1) THAT Council **APPROVE** the request of Dillon Consulting Limited, on behalf of Sfera Architectural Associated Inc. / The D'Amore Group, for an exemption from the provisions of Interim Control By-law 103-2020 for the property known municipally as 0 Tecumseh Road East (Roll No. 070-880-00200; southwest corner of Tecumseh Road East and Robinet Road).

- 2) THAT Council **AMEND** Interim Control By-law 103-2020 by adding to Section 5 the following clause using the next sequential clause number:

(?) **0 Tecumseh Road East (southwest corner of Tecumseh Road East and Robinet Road)**

N Part Lot 5, Registered Plan 62; Roll No. 070-880-00200

Carried.

Report Number: S 3/2022

Clerk's File: Z/14231

Clerk's Note:

1. The recommendation of the Standing Committee and Administration are the same.

2. Please refer to Item 7.2. from the Development & Heritage Standing Committee Meeting held February 7, 2022.

3. To view the stream of this Standing Committee meeting, please refer to:
<http://csg001-harmony.sliq.net/00310/Harmony/en/PowerBrowser/PowerBrowserV2/20220209/-1/7304>

**Subject: RICBL Exemption 2021-4 - Dillon Consulting Limited - 0
Tecumseh Road East - Ward 7**

Reference:

Date to Council: February 7, 2022
Author: Adam Szymczak, MCIP, RPP
Senior Planner
519-255-6543 ext 6250
aszymczak@citywindsor.ca
Planning & Building Services
Report Date: January 17, 2022
Clerk's File #: Z/14231

To: Mayor and Members of City Council

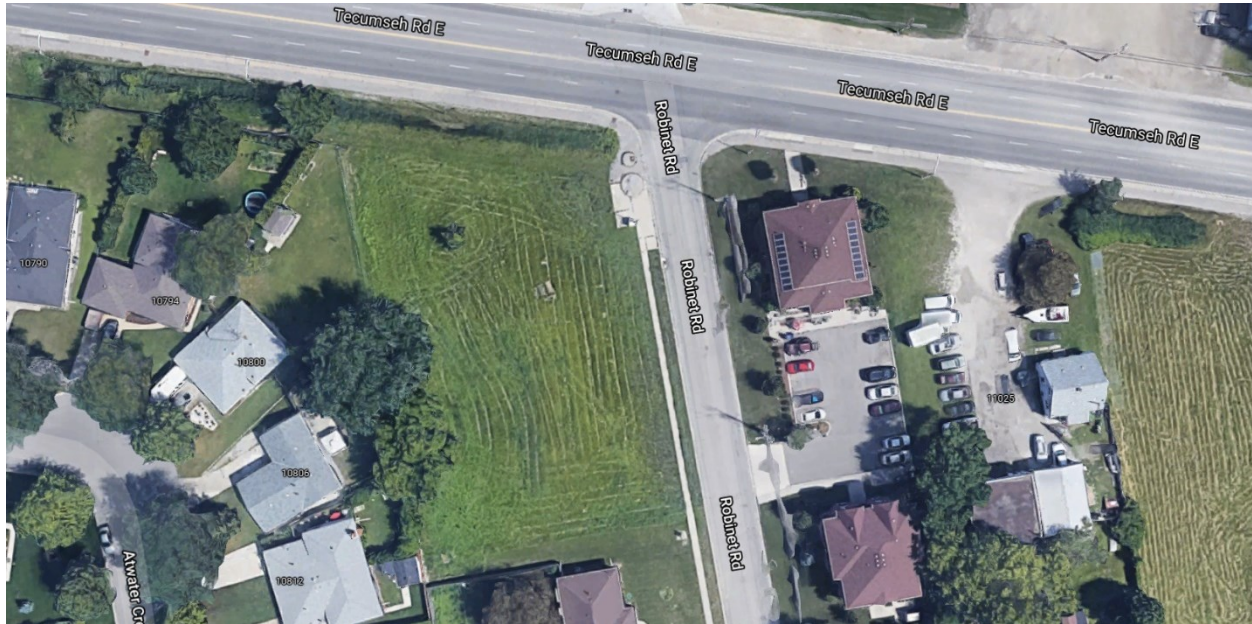
Recommendation:

- 1) That Council **APPROVE** the request of Dillon Consulting Limited, on behalf of Sfera Architectural Associated Inc. / The D'Amore Group, for an exemption from the provisions of Interim Control By-law 103-2020 for the property known municipally as 0 Tecumseh Road East (Roll No. 070-880-00200; southwest corner of Tecumseh Road East and Robinet Road).
- 2) That Council **AMEND** Interim Control By-law 103-2020 by adding to Section 5 the following clause using the next sequential clause number:
 - (?) **0 Tecumseh Road East (southwest corner of Tecumseh Road East and Robinet Road)**
N Part Lot 5, Registered Plan 62; Roll No. 070-880-00200

Executive Summary:

N/A

Neighbourhood Map:



Background:

Timeline

- | | |
|-----------------|---|
| 2020 July 13 | Council approves Interim Control By-law 103-2020 (RICBL) |
| 2021 June 7 | Council approves By-law 99-2021 which extends RICBL by one additional year, expiring on July 13, 2022. |
| 2021 October 29 | Dillion Consulting Limited, agent for Sfera Architectural Associated Inc. / The D'Amore Group, submits a request for an exemption from RICBL. |

Interim Control By-law 103-2019

Section 38(1) of the *Planning Act* permits a municipality to pass an interim control by-law (ICBL) that prohibits the use of land, buildings or structures for such purposes as set out in the by-law. This “freezes” development on the specified lands for a period not to exceed one year. An ICBL is an important planning tool that allows the municipality to rethink its land use policies by suspending development that may conflict with any new policy.

On July 13, 2020, Council approved Interim Control By-law 103-2020 that prohibits “*the use on all lands, buildings, and structures for a Group Home, Shelter, Lodging House, and a Dwelling with five or more dwelling units*” in the City of Windsor. This will allow Administration to study the extent of the challenges, propose possible solutions and provide revised policies and provisions that aim to balance the housing needs of the community and the concerns of businesses, institutions, and residents.

Council Resolution 364/2020, which approved Interim Control By-law 103-2020, states:

That Council MAY REVIEW, on a case-by-case basis, any requested amendment to the Interim Control By-law where there is a determination that the requested amendment will not conflict with the general purpose and intent of the Interim Control By-law,

Proposed Development

The applicant proposes to construct a multiple dwelling with 21 dwelling units over 3 floors with 26 parking spaces that will have access from Robinet Road. No vehicular access is proposed from Tecumseh Road East.

Request for Exemption from ICBL

Dillion Consulting Limited, agent for Sfera Architectural Associated Inc. / The D'Amore Group submits a request (see Appendix A) for an exemption from the RICBL to allow the processing of an application for Site Plan Control for the proposed development. The applicant is currently in discussions with the Site Plan Approval Officer.

Discussion:

This exemption request will be evaluated against the following criteria:

Consistency with the Official Plan – Whether the proposed development is consistent with the land use designation and general policy direction of the Official Plan.

Compliance with the Zoning By-law – Whether the proposed development is a permitted use and complies with the provisions, including any approval from the Committee of Adjustment.

Distance to Nearby Services and Amenities – Whether residents have access to services and amenities such as a grocery store, a community or recreational facility, or other uses that meet their daily needs within a 1 km or less walk.

Distance to Public Transit – Whether residents have access to current and future public transit within an approximate 1 km or less walk.

Potential impact on the Land Use Study – This criterion considers if approval of the exemption may prejudice the Land Use Study. Typically, if the proposed development is consistent with the Official Plan, complies with the Zoning By-law, is within an acceptable distance of nearby services and amenities, and is, or will be, within an acceptable distance of public transit, there should be no impact on the study.

Analysis of Evaluation Criteria

Consistency with the Official Plan - The subject parcel is designated Residential on Schedule D: Land Use in the City of Windsor Official Plan. The proposed development is consistent with the general policy direction, including permitted uses, locational criteria, evaluation criteria, and design guidelines, of the Residential land use designation.

The proposed development IS consistent with the direction of the Official Plan.

Compliance with the Zoning By-law - The parcel is zoned Residential 3.1 (RD3.1) with a holding symbol in Zoning By-law 8600. The RD3.1 zoning permits a Multiple Dwelling subject to the provisions in RD3.1. The agent indicates that the proposed development complies with the RD3.1 provisions.

The proposed development IS a permitted use and CAN COMPLY with the provisions of Zoning By-law 8600 when the holding symbol is removed.

Distance to Nearby Services and Amenities – Restaurants, a grocery store, retail stores, pharmacy, places of worship, parks, a high school, and elementary schools are within a 1 km or less walk.

The proposed development IS within an acceptable distance to nearby services and amenities.

Distance to Public Transit - Transit Windsor operates two bus routes within a 1 km or less walk. The Lauzon 10 is accessible at Tecumseh Road and Banwell, about 560 m to the east, and at Clover and McHugh, about 880 m to the northwest. The Transway 1C bus is approximately 890 m to the east. The Transit Master Plan proposes a local bus route that will run along this portion of Robinet Road that will connect with other bus routes at the East End Terminal currently located at Tecumseh Mall.

The proposed development IS within an acceptable distance to public transit.

Potential for impact on the Land Use Study - The proposed development is consistent with the Official Plan, complies with the Zoning By-law, and is within an acceptable distance of nearby services, amenities and public transit. These lands have been zoned for this type of housing for several years. The proposed development is consistent with existing dwellings and uses. Planning does not anticipate any impact on the Land Use Study.

The proposed development WILL NOT have any impact on the Land Use Study.

Risk Analysis:

N/A

Climate Change Risks

Climate Change Mitigation:

N/A

Climate Change Adaptation:

N/A

Financial Matters:

N/A

Consultations:

Jason Campigotto, Site Plan Approval Officer; Neil Robertson, Manager of Urban Design;

Conclusion:

The Planning Department concurs with the Residential Interim Control By-law Addendum submitted by the Agent. The proposed development satisfies the criteria listed in this report. Planning recommends that the parcel be exempt from Interim Control By-law 103-2020. Approval of the exemption will allow the applicant to proceed with site plan approval for the proposed multiple dwelling development.

Planning Act Matters:

I concur with the above comments and opinion of the Registered Professional Planner.

Thom Hunt, MCIP, RPP
City Planner

I am not a registered Planner and have reviewed as a Corporate Team Leader

SAH JR

Approvals:

Name	Title
Neil Robertson	Manager, Urban Design
Thom Hunt	City Planner
Wira Vendrasco	Deputy City Solicitor
Shelby Askin Hager	City Solicitor
Jason Reynar	Chief Administrative Officer

Notifications:

Name	Address	Email
Dillon Consulting Limited Zoe Sotirakos	3200 Deziel Drive, Suite 608, Windsor, ON N8W 5K8	zsotirakos@dillon.ca
Councillor Gill		

Appendices:

- 1 Appendix A - Residential Interim Control By-law Addendum
- 2 Appendix B - Proposed Site Plan
- 3 Appendix C - Design Data Table

Memo



To: Jason Campigotto, Site Plan Approval Officer, City of Windsor
From: Zoe Sotirakos and Theresa O'Neill, Dillon Consulting Limited
cc: Scott D'Amore, The D'Amore Group
John Bortolotti, Sfera Architectural Associates Inc.
Kyle Edmunds, Dillon Consulting Limited
Date: October 29, 2021
Subject: Robinet Lane Apartment, Residential Interim Control By-law Addendum
Our File: 15-2513

This addendum has been prepared to request an exemption from Residential Interim Control By-law (RICBL) 103-2020. Clause 2(1) in RICBL will automatically exempt any lands where an amending by-law comes into force on or after January 1, 2017. Notwithstanding that automatic exemption, the Planning Division is requesting that applicants submit a formal request for an exemption from B/L 103-2020 with rationale for the exemption.

Dillon Consulting Limited (Dillon) has been retained by The D'Amore Group to assist Sfera Architectural Associated Inc. (Sfera) in obtaining the necessary engineering and planning approvals associated with a proposed residential development located at 0 Robinet Road, on the southwest corner of Tecumseh Road East and Robinet Road (subject site). An application for Site Plan Control has been filed by Sfera to facilitate and support the proposed multiple dwelling development.

We understand this exemption request will be evaluated against the following criteria and have provided our rationale for each:

Consistency with the Official Plan

The subject site is designated Residential in the City of Windsor Official Plan. The Residential land use policies are designed to promote compact neighbourhoods through development of a broad range of housing forms and tenures, and complementary services and amenities which enhance the quality of residential areas. The proposed Low Profile (3 storey) development is intended to contribute to the range of housing forms and tenures in the surrounding area.

The proposed development is consistent with the direction of the Official Plan.

Compliance with the Zoning By-law

The subject site is currently zoned Residential District 3.1, with a Holding Zone (HRD3.1) in the City of Windsor Zoning By-law 8600. The RD3.1 Zone permits a range of dwelling types including: Double Duplex Dwelling; Duplex Dwelling; Lodging House; Multiple Dwelling; Religious Residence; Residential Care Facility; Semi-Detached Dwelling; Single Unit Dwelling (Existing); Townhome Dwelling; and any use accessory to any of the preceding uses.

The Holding Zone provision (H) is in place to defer development until the specified conditions have been satisfied. The H symbol may be removed when the following conditions are satisfied: the property is on a registered Plan of Subdivision or Condominium; municipal services are available or the street is paved to the municipality's standard; full compliance with remediation/mitigation recommendations is achieved; a Site Plan Control agreement is registered on title to the property; or, any other holding zone conditions contained in an amending zoning by-law are satisfied.

The current zoning permits the proposed Multiple Dwelling residential use. The proposed residential use is designed in a manner compatible with the surrounding area. The subject site's accessibility by transit and active transportation facilities may encourage future residents to utilize the surrounding area for day to day needs. The proposed Site Plan and Design Data Table dated August 23, 2021, prepared by Sfera is in compliance with the all zoning provisions of the RD3.1 zone.

The proposed development will comply with the provisions of Zoning By-law 8600, subject to the Removal of H Symbol.

Distance to Nearby Services and Amenities

The subject site is located within 1.0km or less walking distance to:

- Grocery stores (Metro, Food Basics);
- Restaurants (various dine in and take-out);
- Recreational facilities (Bowling Alley, Tecumseh Arena); and
- Parks (Palmetto Park, Wildwood Park, and Stillmeadow Park).

Additionally, the Forest Glade Public Library, Eastwood Public School and Forest Glade Arena are approximately 2km southwest of the subject site. Parkview Public Elementary School is approximately 1.0km southwest of the subject site and St. Joseph's Catholic High School is approximately 900m northwest of the subject site. A variety of fitness centres (gyms and yoga studios) are located approximately 1.5km east and 2km west of the site. A number of churches are also located within a 2km radius of the subject site.

The proposed development is within an acceptable distance to nearby services and amenities.

Distance to Public Transit

The subject site is currently serviced by existing public transit services and some cycling infrastructure. Future residents will have access to current and future public transit within 1 km or less walking distance. The subject site is in close proximity to bus stops for the Lauzon 10 and Transway 1C bus routes. These bus routes stop at the Transit Windsor Terminal located at Tecumseh Mall, which is a boarding point for the Crosstown 2 and Ottawa 4 bus routes as well. Both the Transway 1C and Crosstown 2 have a service frequency of 10-15 minutes. Tecumseh Mall is also a destination and departure point for Tecumseh Transit. Bus stops near the site are located on Tecumseh Road East, Forest Glade Drive, and on Banwell Road. The proposed implementation of additional facilities and services nearby will further strengthen the site's ability to be accessed by alternative modes of transportation.

The proposed development is within an acceptable distance to public transit.

Potential Impact on the Land Use Study

The proposed development is consistent with the Official Plan. Subject to the Removal of H Symbol, the proposed development will comply with the Zoning By-law. The proposed development is within an acceptable distance of nearby services, amenities and public transit. These lands are strategically located to host this form of medium density housing and the proposed multiple dwelling development is a permitted use on the subject site.

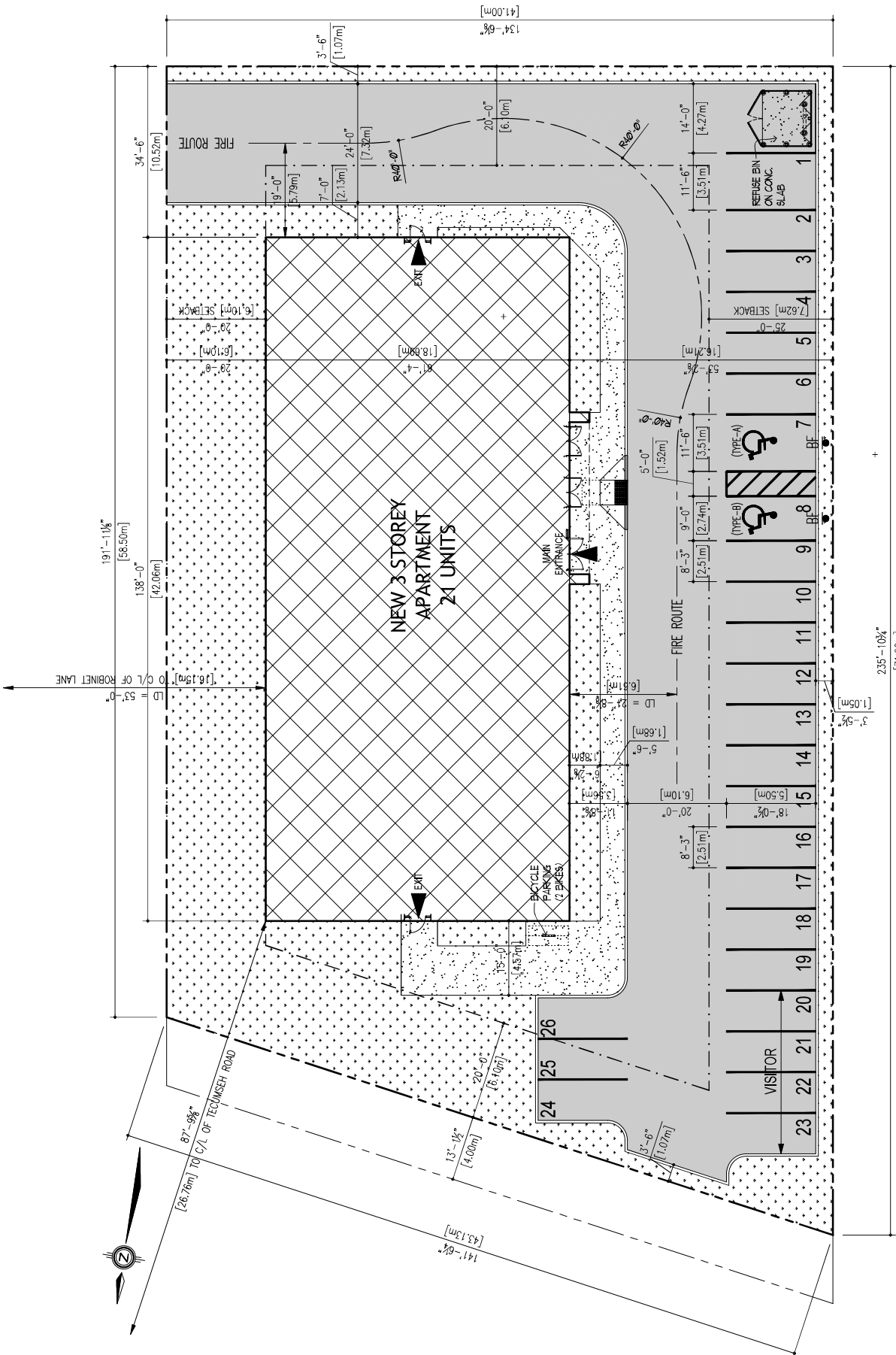
The proposed development is not anticipated to have any impact on the Land Use Study.

Conclusion

The proposed development is supported by the Official Plan and Zoning By-law, subject to the Removal of H Symbol, and as such will satisfy the criteria listed above. We are of the opinion that the parcel be exempt from Interim Control By-law 103-2020. Approval of the exemption will allow the applicant to proceed with Site Plan Control Approval for the proposed multiple dwelling development.



Zoe Sotirakos, MES, LEED GA
Planner



SITE PLAN
SCALE: 1/16" = 1'-0"

DESIGN DATA TABLE

DESCRIPTION/REGULATION	REQUIRED	PROPOSED
INTENDED USE		
LOT AREA	<p>Minimum</p> <p>For corner lot having 30.0 m on each of the exterior lot lines:</p> <p>First 5 dwelling units 540.0 s.m. Each additional dwelling unit 67.0 s.m./unit</p> <p>540.0 + (67.0 x 16 units) =1,612.0 s.m (17,351.42 s.f.)</p>	<p>Lot Area 30,859 s.f. (2,866.89 s.m.) 0.708 acres (0.2865 ha.)</p>
LOT FRONTAGE	Minimum 59.05 l.f. (18.0 m)	Robinet Lane 191'-8" (58.5 m)
BUILDING AREA		New Apartment 8,464 s.f. (786.33 s.m.)
LOT COVERAGE	Maximum 35%	Total Building 27.42%
PAVED AREA		Paving 10,965.90 s.f. (1,018.76 s.m.)
LENGTH OF CURB		703'-6" (214.42 m)
LANDSCAPE AREA OPEN SPACE	Minimum 35%	<p>Plantings 9,696.69 s.f. (900.85 s.m.) Concrete walks 1,732.41 s.f. (160.94 s.m.) Total 11,429.10 s.f. (1,061.79 s.m.) 37.03%</p>
GROSS BUILDING AREA		<p>First Floor 8,464 s.f. (786.33 s.m.) Second Floor 8,464 s.f. (786.33 s.m.) Third Floor 8,464 s.f. (786.33 s.m.) Total 25,392.00 s.f. (2,358.99 s.m.)</p>
NUMBER OF FLOORS		3 Floors
MAX. BUILDING HEIGHT	45'-11" (14.0 m)	31'-6" (9.60 m)
SETBACKS	<p>Front Yard 19'-8" (6.0 m) Rear Yard 24'-7" (7.5 m) Northern Side Yard 19'-8" (6.0 m) Southern Side Yard 19'-8" (6.0 m)</p>	See Site Plan
PARKING SPACES	<p>Regular (MIN. SIZE: 8'-3" X 18'-0" 5.5m X 2.5m) Barrier Free Type A (MIN. SIZE: 11'-6" X 18'-0" 3.5m X 5.5m) Barrier Free Type B (MIN. SIZE: 8'-3" X 18'-0" 5.5m X 2.5m)</p> <p>Number Of Parking Spaces Req'd 21 Apartment units x 1.25 spaces per unit = 26.25 spaces</p> <p>Number Of B.F. Spaces Req'd For 26 to 99 2% of Type A 26 x 0.02 = 0.52 2% of Type B 26 x 0.02 = 0.52</p> <p>= 2 (1 Type A and 1 Type B)</p> <p>Total Required = 24 Regular + 2 B.F. = 26 spaces</p>	<p>Number of Regular Spaces Proposed = 24 spaces</p> <p>Number Of B.F. Spaces Proposed = 2 (1 Type A and 1 Type B)</p> <p>Total Proposed = 24 Regular + 2 B.F. = 26 spaces</p>
BICYCLE PARKING	<p>Regular (MIN. SIZE: 2'-0" X 8'-3" 0.6m X 2.5m)</p> <p>Min. req'd bicycle spaces for 20 or more parking spaces: 2 for the first 19 spaces + 1 for each additional 20 parking spaces</p> <p>Total Required = 2 spaces</p>	Total bicycle parking provided 2
LOADING AREA	<p>Loading Area (MIN. SIZE: 9'-10" X 24'-7" 3.0m X 7.5m)</p> <p>Gross floor area over 1,000 sq. m to 7,500 sq. m requires 1 loading space</p>	<p>Loading spaces provided</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">0</div>



Committee Matters: SCM 44/2022

Subject: Rezoning - 2776557 Ontario Ltd - 1153-1159 Riverside Drive East - Z-037/21 ZNG/6588 - Ward 4

Moved by: Councillor Holt
 Seconded by: Councillor Sleiman

Decision Number: **DHSC 367**

I. THAT Zoning By-law 8600 **BE AMENDED** by changing the zoning of Lot 1, Plan 433 (Roll No: 030-020-10200), situated on the south side of Riverside Drive East, west of Pierre Avenue and known municipally as 1153-1159 Riverside Drive East by adding a site specific exception to Section 20(1) as follows:

434. SOUTH SIDE OF RIVERSIDE DRIVE EAST, WEST OF PIERRE AVENUE

For the lands comprising of Lot 1, Registered Plan 433, a *multiple dwelling* containing a maximum of 8 *dwelling units* shall be an additional permitted *main use* and shall be subject to the following additional provisions:

- a) Lot Width – minimum 15.0 m
 - b) Lot Coverage – maximum 52.5 %
 - c) Side Yard Width – minimum 1.50 m
 - d) Required Parking – minimum 1 space per *dwelling unit*
 - e) Required Visitor Parking – minimum 0
 - f) Parking Area Separation – minimum 0.60 m
 From an *interior lot line* or alley
- [ZDM 6; ZNG/6588]

- II. THAT the Site Plan Approval Officer **BE DIRECTED** to:
- a) Circulate any application to the Essex Region Conservation Authority for their review and comment;
 - b) Enhance the landscaped area along the Riverside Drive frontage per the comments of the Landscape Architect; and
 - c) Consider maximizing the number of bicycle parking spaces to mitigate the reduction in motor vehicle parking spaces.

Carried.

Report Number: S 5/2022
 Clerk's File: ZB/14253

Clerk's Note:

1. The recommendation of the Standing Committee and Administration are the same.

2. Please refer to Item 7.3. from the Development & Heritage Standing Committee Meeting held February 7, 2022.
3. To view the stream of this Standing Committee meeting, please refer to:
<http://csg001-harmony.sliq.net/00310/Harmony/en/PowerBrowser/PowerBrowserV2/20220209/-1/7304>

Subject: Rezoning - 2776557 Ontario Ltd - 1153-1159 Riverside Drive East - Z-037/21 ZNG/6588 - Ward 4

Reference:

Date to Council: February 7, 2022
Author: Adam Szymczak, MCIP, RPP
Senior Planner
519-255-6543 x 6250
aszymczak@citywindsor.ca

Planning & Building Services
Report Date: January 18, 2022
Clerk's File #: ZB/14253

To: Mayor and Members of City Council

Recommendation:

I. THAT Zoning By-law 8600 **BE AMENDED** by changing the zoning of Lot 1, Plan 433 (Roll No: 030-020-10200), situated on the south side of Riverside Drive East, west of Pierre Avenue and known municipally as 1153-1159 Riverside Drive East by adding a site specific exception to Section 20(1) as follows:

434. SOUTH SIDE OF RIVERSIDE DRIVE EAST, WEST OF PIERRE AVENUE

For the lands comprising of Lot 1, Registered Plan 433, a *multiple dwelling* containing a maximum of 8 *dwelling units* shall be an additional permitted *main use* and shall be subject to the following additional provisions:

- | | |
|---|----------------------------------|
| a) Lot Width – minimum | 15.0 m |
| b) Lot Coverage – maximum | 52.5 % |
| c) Side Yard Width – minimum | 1.50 m |
| d) Required Parking – minimum | 1 space per <i>dwelling unit</i> |
| e) Required Visitor Parking – minimum | 0 |
| f) Parking Area Separation – minimum | |
| From an <i>interior lot line</i> or alley | 0.60 m |

[ZDM 6; ZNG/6588]

II. THAT the Site Plan Approval Officer **BE DIRECTED** to:

- a) Circulate any application to the Essex Region Conservation Authority for their review and comment;
- a) Enhance the landscaped area along the Riverside Drive frontage per the comments of the Landscape Architect; and
- b) Consider maximizing the number of bicycle parking spaces to mitigate the reduction in motor vehicle parking spaces;

Executive Summary:

N/A

Background:

Application Information

Location: 1153-1159 Riverside Drive East
(Lot 1, Registered Plan 433; South side of Riverside Drive East, west of Pierre Avenue; Roll No: 030-020-10200)

Ward: 4 **Planning District:** Walkerville **Zoning District Map:** 6

Applicant: 2776557 Ontario Ltd (Adrian Lai)

Owner: Same as Applicant

Agent: Pillon Abbs Inc., Tracey Pillon-Abbs, MCIP, RPP

Submitted Documents

Application Form, Conceptual Site Plan (attached as Appendix A), Elevations, Topographic Survey, Planning Rationale Report (attached as Appendix B), Archaeological Assessment Report, Ontario Public Register of Archaeological Reports Record

Proposal

The applicant is requesting an amendment to Zoning By-law 8600 by adding a site specific exception to allow a multiple dwelling consisting of three floors, 8 dwelling units and 8 parking spaces as an additional permitted use. Relief from minimum lot width (from 18 m to 15.16 m), maximum lot coverage (from 45% to 52.5%), minimum side yard width (from 1.8 m to 1.5 m), required parking (from 1.25 spaces per unit to 1 space per unit – total of 10 spaces to 8 spaces) and minimum parking area separation from an interior lot line (from 0.90 m to 0.60 m) are also being requested.

Dwelling units are accessed from external entrances via external corridors. The parking spaces are located under and at the rear of the building with access from the alley. The proposed development is subject to site plan control. The applicant is also requesting an exemption from Interim Control By-law 103-2020.

Site Information

OFFICIAL PLAN	ZONING	CURRENT USE	PREVIOUS USE
Residential	Residential District 2.2 (RD2.2)	Multiple Dwelling with 3 dwelling units (triplex)	Unknown
LOT FRONTAGE	LOT DEPTH	LOT AREA	LOT SHAPE
15.16 m	37.3 m	562.5 m ²	Rectangular
49.7 ft	122.3 ft	6,054.6 sq. ft	
<i>All measurements are provided by the applicant and are approximate.</i>			

Neighbourhood Description:

The subject parcel is located on the south side of Riverside Drive East, west of Pierre Avenue. Site images are provided in Appendix C. The Planning Rational Report attached as Appendix B also contains site images.

Riverside Drive in this neighbourhood serves as the dividing line between the Central Riverfront park system on the north side and the developed area to the south. The developed area to the east, south and west consists mostly of low-profile residential dwellings. There are some multiple dwellings along Riverside Drive, including the adjacent property next west at 1139 Riverside Drive East, which contains 7 dwelling units and Riverside Heights about 100 m to the west at 1070 Chatham Street.

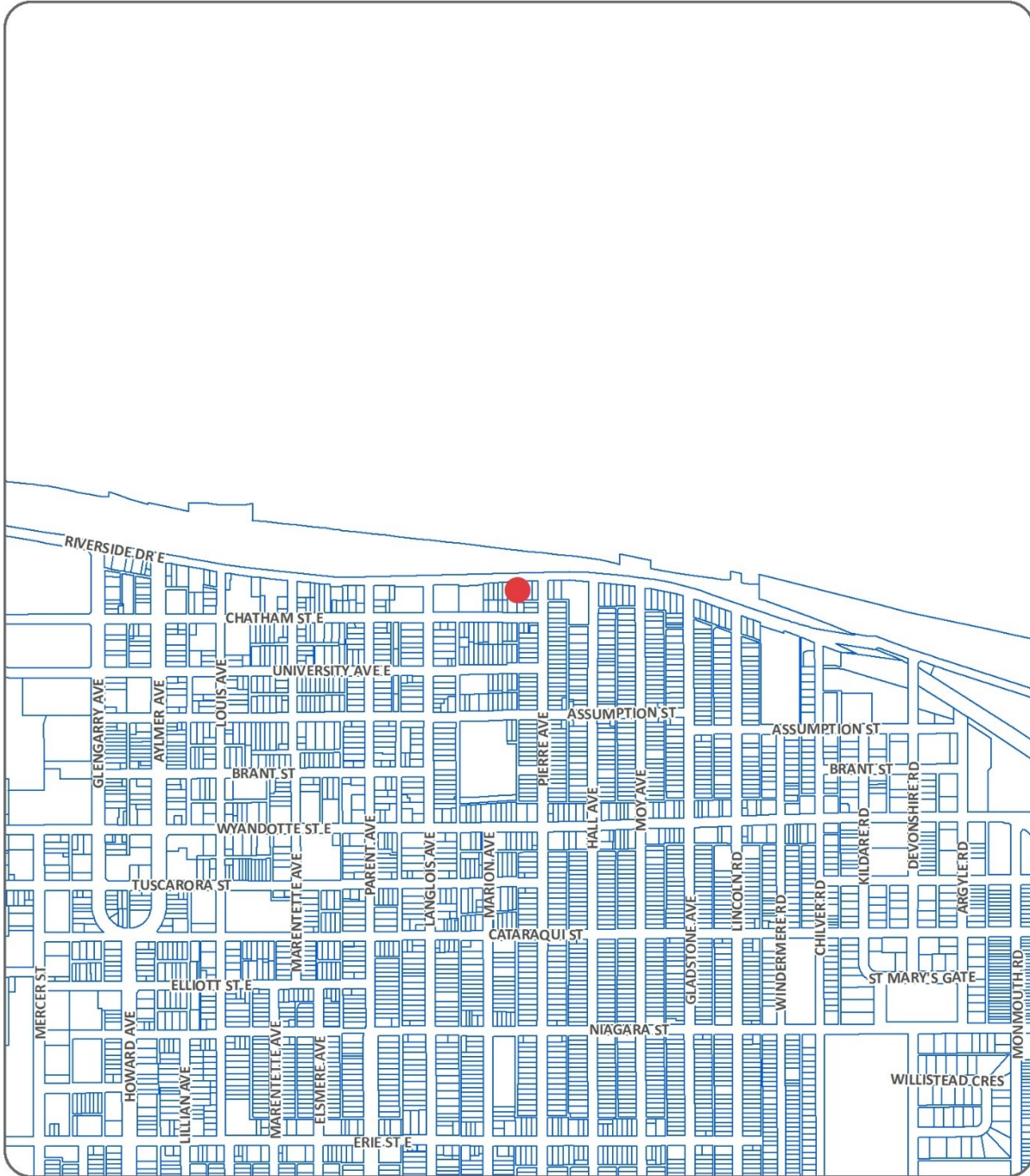
An established industrial use, Hiram Walker, is located about 800 m to the east. Wyandotte Street East provides various commercial uses including restaurants, take-out restaurants and food and retail stores almost 500 m to the south. Downtown Windsor, which includes facilities of the University of Windsor and St. Clair College, Caesars Windsor and various municipal, provincial and federal offices, is 1.5 km to the west. An elementary school (Frank W. Begley Public School) is located about 380 m to the south.

Per Schedule F: Roads and Bikeways in the City of Windsor Official Plan, Riverside Drive is a Scenic Drive consisting of four lanes, a sidewalk along the south side and a multi-use trail on the north side. The parcel is adjacent to an open and travelled east-west alley.

Sanitary and storm sewers are available to service the subject lands.

Public Transit is available on the Walkerville 8 bus route located on Riverside Drive. The closest existing bus stops are located on Riverside at Langlois SE Corner and Riverside at Hall SW Corner. Both of these bus stops are approximately 140 metres away from this property. Additional public transit is available along Wyandotte Street to the south. The 2019 Transit Master Plan maintains similar access to public transit.

Figure 1: Key Map

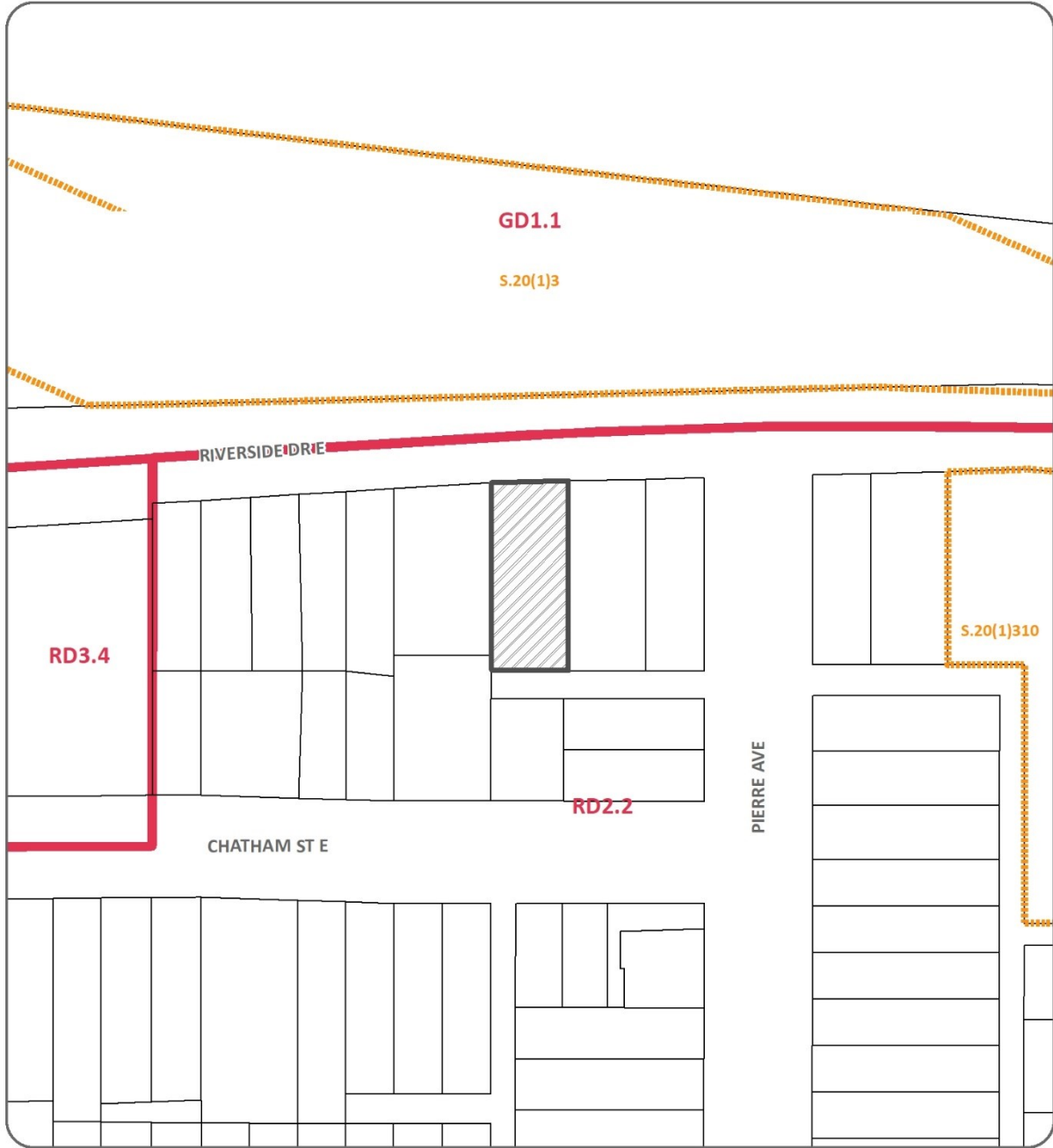


KEY MAP - Z-037/21, ZNG-6588



● SUBJECT LANDS

Figure 2: Subject Parcel - Rezoning



PART OF ZONING DISTRICT MAP 6

N.T.S.

REZONING

Applicant: 2776557 Ontario Ltd



SUBJECT LANDS

PLANNING & BUILDING DEPARTMENT

DATE : NOVEMBER, 2021
FILE NO. : Z-037/21, ZNG/6588

Figure 3: Neighborhood Map



NEIGHBOURHOOD MAP - Z-037/21, ZNG-6588



SUBJECT LANDS

Discussion:

Provincial Policy Statement 2020:

The Provincial Policy Statement (PPS) provides direction on matters of provincial interest related to land use planning and development and sets the policy foundation for regulating the development and use of land in Ontario.

Policy 1.1.1 of the PPS states:

“Healthy, liveable and safe communities are sustained by:

- a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term;*
- b) accommodating an appropriate affordable and market-based range and mix of residential types (including single-detached, additional residential units, multi-unit housing, affordable housing and housing for older persons), employment (including industrial and commercial), institutional (including places of worship, cemeteries and long-term care homes), recreation, park and open space, and other uses to meet long-term needs;*
- e) promoting the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns, optimization of transit investments, and standards to minimize land consumption and servicing costs;”*

The proposed multiple dwelling with a maximum of eight dwelling units represents an efficient development and land use pattern that will have no adverse impact on the financial well-being of the City of Windsor, land consumption, and servicing costs, accommodates an appropriate range of residential uses, and optimizes investments in transit and infrastructure. The requested zoning amendment is consistent with Policy 1.1.1 of the PPS.

Policy 1.1.3.1 of the PPS states *“Settlement areas shall be the focus of growth and development”* and Policy 1.1.3.2 of the PPS states:

“Land use patterns within settlement areas shall be based on densities and a mix of land uses which:

- a) efficiently use land and resources;*
- b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion;*
- e) support active transportation;*
- f) are transit-supportive, where transit is planned, exists or may be developed;”*

The parcel is located within the settlement area. The proposed zoning amendment promotes a land use that makes efficient use of land and existing infrastructure. Active transportation options and transit services are located near the parcel. The zoning amendment is consistent with PPS Policies 1.1.3.1 and 1.1.3.2.

The proposed amendment to Zoning By-law 8600 is consistent with the PPS. The Planning Division concurs with the PPS analysis in section 5.1.1 of the Planning Rational Report submitted by the Applicant.

Official Plan:

The subject property is located within the Walkerville Planning District and is designated Residential on Schedule D: Land Use of the City of Windsor Official Plan.

Objective 6.3.1.1 supports a complementary range of housing forms and tenures in all neighbourhoods. Objective 6.3.1.2 seeks to promote compact neighbourhoods and balanced transportation systems. Objective 6.3.1.3 seeks to promote selective residential redevelopment, infill and intensification initiatives. The proposed multiple dwelling containing a maximum of 8 dwelling units represents a complementary and compact form of housing, redevelopment, and intensification that is near sources of transportation. The zoning amendment satisfies the objectives set out in Section 6.5.1 of the Official Plan.

The proposed dwelling is classified as a small-scale Low Profile housing development under Section 6.3.2.3 (a), a permitted use in the Residential land use designation (Section 6.3.2.1). The proposed development is compatible with the surrounding land uses (Section 6.3.2.5 (c)) and no deficiencies in municipal physical services and emergency services have been identified (Section 6.3.2.5 (e)). The zoning amendment conforms to the policies in Sections 6.3.2.1 and 6.3.2.5 of the Official Plan.

The parcel is located in an area of high Archaeological Potential. Per Section 9.3.7.1(a), the applicant submitted an Archaeological Assessment Report dated August 30, 2021. The report recommends no further archaeological assessment is required. A copy of the report was filed with the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries. The Heritage Planner has no concerns from an archaeological perspective. The proposed development satisfies the policy to “integrate heritage conservation into the development and infrastructure approval process” in Section 9.3.7.1.

The zoning amendment conforms to the Zoning Amendment Policies, Section 11.6.3.1 and 11.6.3.3, of the Official Plan.

The proposed change to Zoning By-law 8600 conforms to the general policy direction of the Official Plan.

The Planning Division concurs with the Official Plan analysis in section 5.1.2 of the Planning Rational Report submitted by the Applicant.

Zoning By-Law:

The parcel is zoned Residential District 2.2 (RCD2.2) which permits a range of low-profile residential uses. Excerpts from Zoning By-law 8600 are attached as Appendix D.

The applicant is requesting an amendment to Zoning By-law 8600 by adding a site-specific exception that will permit a multiple dwelling containing a maximum of 8 dwelling units and site specific provisions to accommodate the proposed development. The RD2.2 zoning will remain.

The applicant is requesting or requires the following site specific exceptions:

1. Reduction in minimum lot width from 18 m to 15.16 m – This recognizes the existing width of the lot and will have no adverse impact on adjacent parcels or the proposed development.
2. Increase in maximum lot coverage from 45% to 52.5% - The proposed development has a unique design in that the units are accessible from the exterior using external staircases and balconies. This will allow the applicant to maximize the gross floor area of the 8 dwelling units. Further, the balconies are much larger than typical balconies found in recent multiple dwelling developments. The downward projection of the balconies is included in lot coverage.
3. Reduction in minimum side yard width from 1.8 m to 1.5 m – The Planning Department has been standardizing the minimum side yard width for low-profile dwellings at 1.2 m. The proposed reduction is above this standard and will have no adverse impact on adjacent properties.
4. Reduction in required parking from 1.25 spaces per unit to 1 space per unit – 10 spaces required to 8 spaces proposed – No concerns have been raised regarding the reduction in parking. At least 3 bicycle parking spaces will be provided and public transit is available along Riverside Drive and on Wyandotte Street to the south.
5. Reduction in required visitor parking space – The Planning Department recommends that no visitor parking space be required to maximize parking available to tenants.
6. Reduction in minimum parking area separation from an interior lot line (from 0.90 m to 0.60 m) – The Landscape Architect has a concern in that a reduction in minimum parking area separation reduces the amount of surface available for landscaping. Recommendation II includes direction to the Site Plan Approval to enhance landscaping along Riverside Drive.

No other changes to the provisions have been requested. The maximum building height remains at 10 m and the front yard and rear yard setbacks remain unchanged at 6.0 m and 7.5 m respectively. All vehicular access is from the east-west alley at the rear of the parcel. A pedestrian walkway to Riverside Drive is proposed.

Any reference to storey identifies the number of floors at and above grade in a building. Storey is not a measurement of building height and the number of storeys is subject to change. Per the Building Height definition in Zoning By-law 8600, for a building with a flat roof, building height is the vertical distance in metres between the grade and the highest point of the roof.

Site Plan Control:

Site Plan Control (SPC) is the primary planning tool to implement the policies of the PPS and the Official Plan, the provisions of Zoning By-law 8600, and the requirements and recommendations of municipal departments and external agencies. Recommendation II provides additional direction concerning the circulation of any SPC application, the enhancing of landscaping, and the maximization of on-site bicycle parking.

Interim Control By-law 103-2020 (RICBL):

The parcel is subject to Residential Interim Control By-law 103-2020 (RICBL) which prohibits a Group Home, Lodging House, a Shelter, and a dwelling with five or more dwelling units throughout the City of Windsor to allow a land use study to be conducted. The criteria below are used to evaluate the exemption:

Consistency with the Official Plan – Whether the proposed development is consistent with the land use designation and general policy direction of the Official Plan. The proposed development is consistent with the Residential land use designation.

Compliance with the Zoning By-law – Whether the proposed development is a permitted use and complies with the provisions. Once the amending by-law permitting a multiple dwelling is in force, the proposed development will comply with Zoning By-law 8600.

Distance to Nearby Services and Amenities – Whether residents have access to services and amenities such as a grocery store, a community or recreational facility, or other uses that meet their daily needs within a 1 km or less walk. Numerous services and amenities are located along Wyandotte Street within a 1 km walk of the proposed development.

Distance to Public Transit – Whether residents have access to current and future public transit within an approximate 1 km or less walk. Transit Windsor operates bus routes on Riverside Drive and Wyandotte Street, all within 1 km or less.

Potential impact on the Land Use Study – This criterion considers if approval of the exemption may prejudice the Land Use Study. Typically, if the proposed development is consistent with the Official Plan, complies with the Zoning By-law, is within an acceptable distance of nearby services and amenities, and is, or will be, within an acceptable distance of public transit, there should be no impact on the Land Use Study. The proposed development will be consistent with the Official Plan, will comply to Zoning By-law 8600, and is within an acceptable distance of services, amenities, and public transit. The proposed development will not prejudice the Land Use Study.

Section 2(1) of B/L 103-2020 exempts a parcel from the provisions of RICBL where an amending by-law to Zoning By-law 8600 to permit a dwelling with five or more dwelling units comes into force on or after January 1, 2017. Should Council approve this application and an amending by-law comes into force, the proposed development will be automatically exempt from Interim Control By-law 103-2020.

Risk Analysis:

N/A

Climate Change Risks

Climate Change Mitigation:

In general, residential intensification minimizes the impact on the Community greenhouse gas emissions as these developments create complete communities and neighbourhoods while using currently available infrastructure such as sewers, sidewalks, and public transit.

Climate Change Adaptation:

The proposed construction of a new dwelling provides an opportunity to increase resiliency for the development and surrounding area.

Financial Matters:

N/A

Consultations:

Comments received from municipal departments and external agencies are attached as Appendix E. The various requirements of municipal departments and external agencies will be considered and/or incorporated during the Site Plan review process.

Public Notice: Statutory notice was advertised in the Windsor Star, a local daily newspaper. A courtesy notice was mailed to property owners and tenants within 120m of the subject lands.

Planner's Opinion:

The *Planning Act* requires that a decision of Council in respect of the exercise of any authority that affects a planning matter, "*shall be consistent with*" Provincial Policy Statement 2020. The requested zoning amendment has been evaluated for consistency with the Provincial Policy Statement 2020 and conformity with the policies of the City of Windsor Official Plan.

Based on the information presented in this report, it is my opinion that the requested amendment to Zoning By-law is consistent with the PPS 2020 and is in conformity with the City of Windsor Official Plan.

The proposed site specific exception permits a use – a multiple dwelling containing a maximum of 8 dwelling units – that is compatible with existing and permitted uses in the surrounding neighbourhood. The proposed development represents a gentle or incremental increase in density and provides an opportunity for the construction of modern and safe housing stock.

Site plan control is also the appropriate tool to incorporate the requirements of municipal departments and external agencies.

The recommendation to amend Zoning By-law 8600 constitutes good planning.

Conclusion:

Staff recommend approval of an amendment to Zoning By-law 8600, adding a site specific exception that allows a multiple dwelling containing a maximum of 8 dwelling units as an additional permitted use subject to additional lot and parking provisions. Direction is also provided to the Site Plan Approval Officer in Recommendation II for matters raised from consultations with municipal departments and external agencies.

Planning Act Matters:

I concur with the above comments and opinion of the Registered Professional Planner.

*Neil Robertson, MCIP, RPP
Manager of Urban Design*

*Thom Hunt, MCIP, RPP
City Planner*

I am not a registered Planner and have reviewed as a Corporate Team Leader

SAH JR

Approvals:

Name	Title
Neil Robertson	Manager, Urban Design
Thom Hunt	City Planner
Wira Vendrasco	Deputy City Solicitor
Shelby Askin Hager	City Solicitor
Jason Reynar	Chief Administrative Officer

Notifications:

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Tracey Pillon-Abbs Pillon Abbs Inc.	23699 Prince Albert Road Chatham, ON N7M 5J7	tpillonabbs@gmail.com
Councillor Holt		
Property owners and tenants within 120 m of the subject lands		

Appendices:

- 1 Appendix A - Site Plan Conceptual
- 2 Appendix B - Planning Rationale Report
- 3 Appendix C - Site Images
- 4 Appendix D - Excerpts from Zoning By-law 8600
- 5 Appendix E - Results of Circulation
- 6 Draft Amending By-law

SITE INFORMATION

SITE AREA:
562.5 m² (6054 SF)

BUILDING AREA:
295.5 m² (3181 SF)
TOTAL FOOTPRINT INCL. BALCONIES & STAIRS

PARKING SPACES:
8 SPACES (1 / UNIT) 7 + 1 BARRIER FREE

LOT COVERAGE:
52.5%

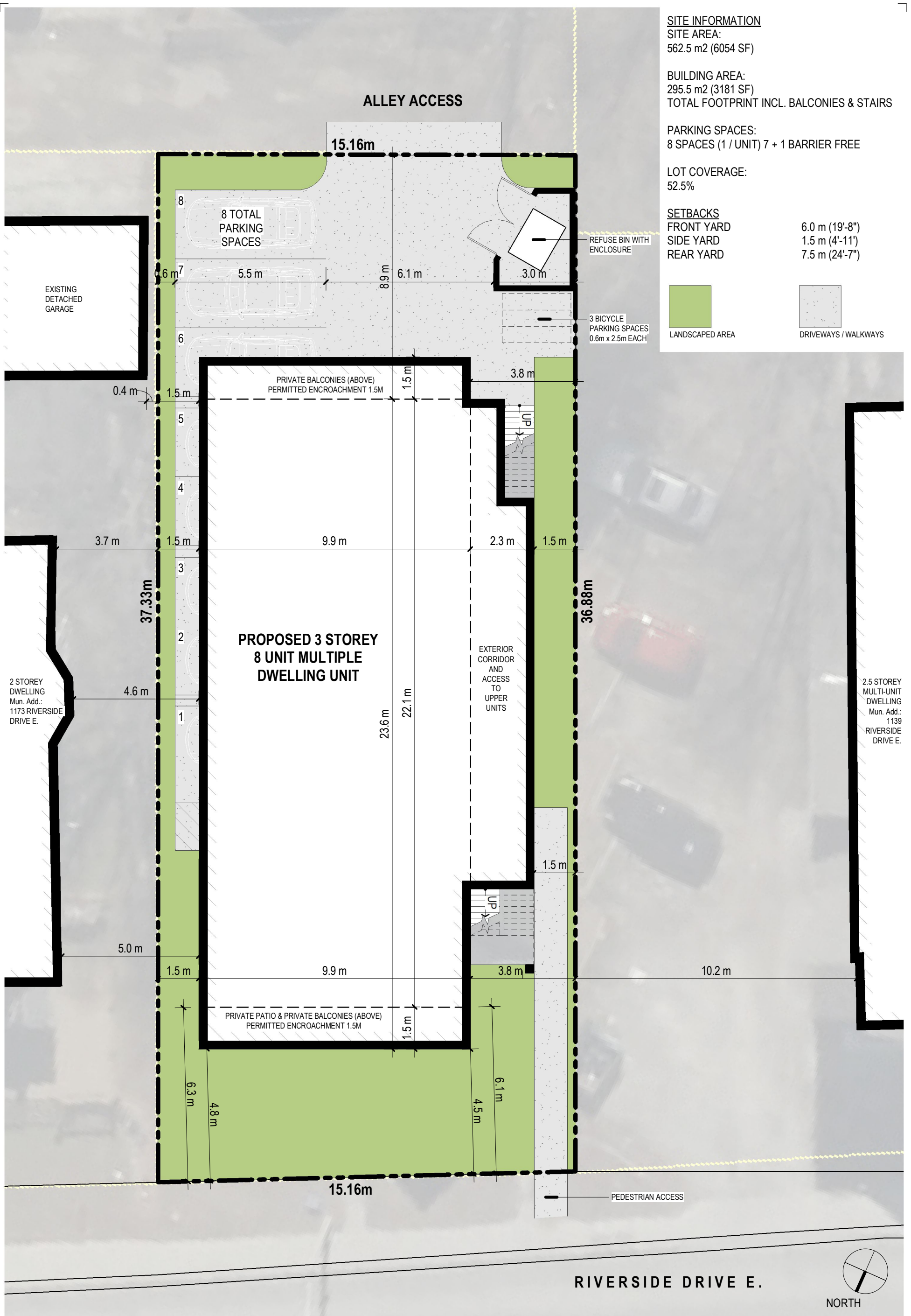
SETBACKS

FRONT YARD 6.0 m (19'-8")
SIDE YARD 1.5 m (4'-11")
REAR YARD 7.5 m (24'-7")

LANDSCAPED AREA

DRIVEWAYS / WALKWAYS

ALLEY ACCESS



NOT FOR CONSTRUCTION

PRELIMINARY SITE PLAN - 1153 RIVERSIDE DR. E.

NOVEMBER 11, 2021



PLANNING RATIONALE REPORT

ZONING BY-LAW AMENDMENT for RESIDENTIAL DEVELOPMENT

1153-1159 Riverside Drive East
City of Windsor, Ontario

November 21, 2021

Prepared by:



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1.0 INTRODUCTION

I have been retained by 2776557 Ontario Ltd, the applicant/owner, to provide a land use Planning Rationale Report (PRR) in support of a proposed residential development for property located at 1153-1159 Riverside Drive East (herein the “Site”) in the City of Windsor, Ontario.

There is presently a triplex dwelling on the Site that the owner intends to demolish in order to accommodate for the proposed development. The applicant is proposing to construct one multiple dwelling unit that is three (3) storey’s with eight (8) dwellings units, as well as parking on-site for eight (8) vehicles.

A site-specific Zoning By-law Amendment (ZBA) is required in support of the proposed development, as the current zoning allows for a maximum of four dwelling units. Council for the City of Windsor is the approval authority.

This application will require approval by Council and an exemption from the current Residential Interim Control By-law (RICBL) for the prohibition on any group homes, lodging home or development with five or more dwelling units.

The purpose of this report is to review the relevant land use documents including Provincial Policy Statement (PPS) 2020, the City of Windsor Official Plan (OP) and the City of Windsor Zoning By-law (ZBL) as it pertains to the ZBA application.

Pre-submission was completed by the applicant/owner (City File #PS-068/21). Comments dated June 21, 2021, were received and have been incorporated into the proposed application.

This PRR will show that the proposed development represents good planning addressing the need for the City to provide residential infilling development in the form of multiple dwelling units, which contributes to affordability and intensification requirements.

2.0 SITE AND SURROUNDING LAND USES

2.1 Legal Description and Ownership

The Site is made up of one (1) parcel located on the south side of Riverside Dr E, between Pierre Ave and Langlois Ave.

The Site is legally described as Plan 433, Lot 1, City of Windsor and locally known as 1153-1159 Riverside Dr E, Windsor, Ontario.

The ARN of the property is 030-020-10200-0000 and is owned by 2776557 Ontario Ltd.

The Site currently has an existing triplex dwelling.

Parking is located at the rear of the property near an alley way, entering off Pierre Ave. (see Figure 1a – Air Photo and Figure 1b – Street View).



Figure 1a – Air Photo



Figure 1b – Street View (Riverside Dr E)

2.2 Physical Features of the Site

2.2.1 Size and Site Dimension

The Site consists of a total area of approximately 562.5 square metres (6,054 square feet). It has approximately 15.16 m (49.75 ft) of frontage on Riverside Drive East and is rectangular in shape, with a depth of 37.33 m (122.47 ft).

The Site currently has a triplex dwelling on site and no accessory structures. The parking area can be accessed from an alley off Pierre Ave to the rear of the dwelling. There is a separate sidewalk entrance off Riverside Dr E for each dwelling unit.

2.2.2 Vegetation

There are mature trees at the rear of the property, as well as a hedge separating the neighbour to the west. There are also a few shrubs at the front of the property near the western property line.

2.2.3 Topography

The Site is flat and is within the regulated area of the Essex Region Conservation Authority (ERCA).

2.2.4 Other Physical Features

The property is currently fenced for separation between the western neighbour. The eastern property line is delineated by a parking area for the neighbouring multiple dwelling unit at 1139 Riverside Dr E. There is a sidewalk on the west side of Riverside Dr E, running along the front of the property.

There is an alley along the rear of the property separating residential properties off Pierre Ave.

2.2.5 Municipal Services

The property has access to municipal water, storm and sanitary services.

2.2.6 Nearby Amenities

There are several schools within a 5 km radius including: Dougall Avenue Public School, Centre of the Arts Campus, Frank W. Begley Public School, Giles Campus French Immersion and Prince Edward Public School.

There are many parks and recreation opportunities in proximity of the Site including: Centennial Park, Gateway Public Park, Dieppe Gardens, Fred Thomas Park, Wigle Park and University Ave Park.

There are nearby commercial uses, such as food service, personal service shops, and retail. There is also nearby employment lands, places of worship, and local/regional amenities.

The Site has access to transit, with the nearest 3 bus stops near the Site at Langlois Ave, Hall Ave and Parent Ave, on the Walkerville 8 bus line.

2.3 Surrounding Land Uses

North – The lands to the north of the subject property along Riverside Dr E are open space along the Detroit River (see Photo 1 - North).



Photo 1 – North (along Riverside Dr E)

East – The lands to the east of the site are a mix of single detached dwellings, duplex dwellings and multiple dwelling units (see Photo 2 – East).



Photo 2 – East (Riverside Dr E)

South – South of the subject site, to the rear of the property, are a mix of single detached dwellings and duplex dwellings off Pierre Ave and Chatham St E (see Photo 3a and 3b - South).



Photo 3a – South



Photo 3b– South

West – The lands directly west of the Site are a mix of single detached dwellings, duplex dwellings and multiple dwelling units (see Photo 4a – West).



Photo 4– West-Riverside Dr E

3.0 DEVELOPMENT PROPOSAL

3.1 Proposal

The applicant is proposing to demolish the current triplex dwelling to accommodate for the proposed three (3) storey, eight (8) unit multiple dwelling unit.

The proposed development will be a raised multiple dwelling unit to accommodate a total of eight (8) parking spaces located under the building and to the rear of the development.

The three units at the front of the building will have patios and balconies fronting on Riverside Dr E.

There will be stairway and covered walkway entrances to the side and rear units, as well as balconies for the rear units.

All units are accessible from the exterior of the building.

The units are proposed to range in size from 54.44 square metres (586 sq ft) to 72.55 square metres (781 sq ft) (See Figure 2-Site Plan and Figure 3-Elevations).

There is a pedestrian connection to Riverside Drive East.

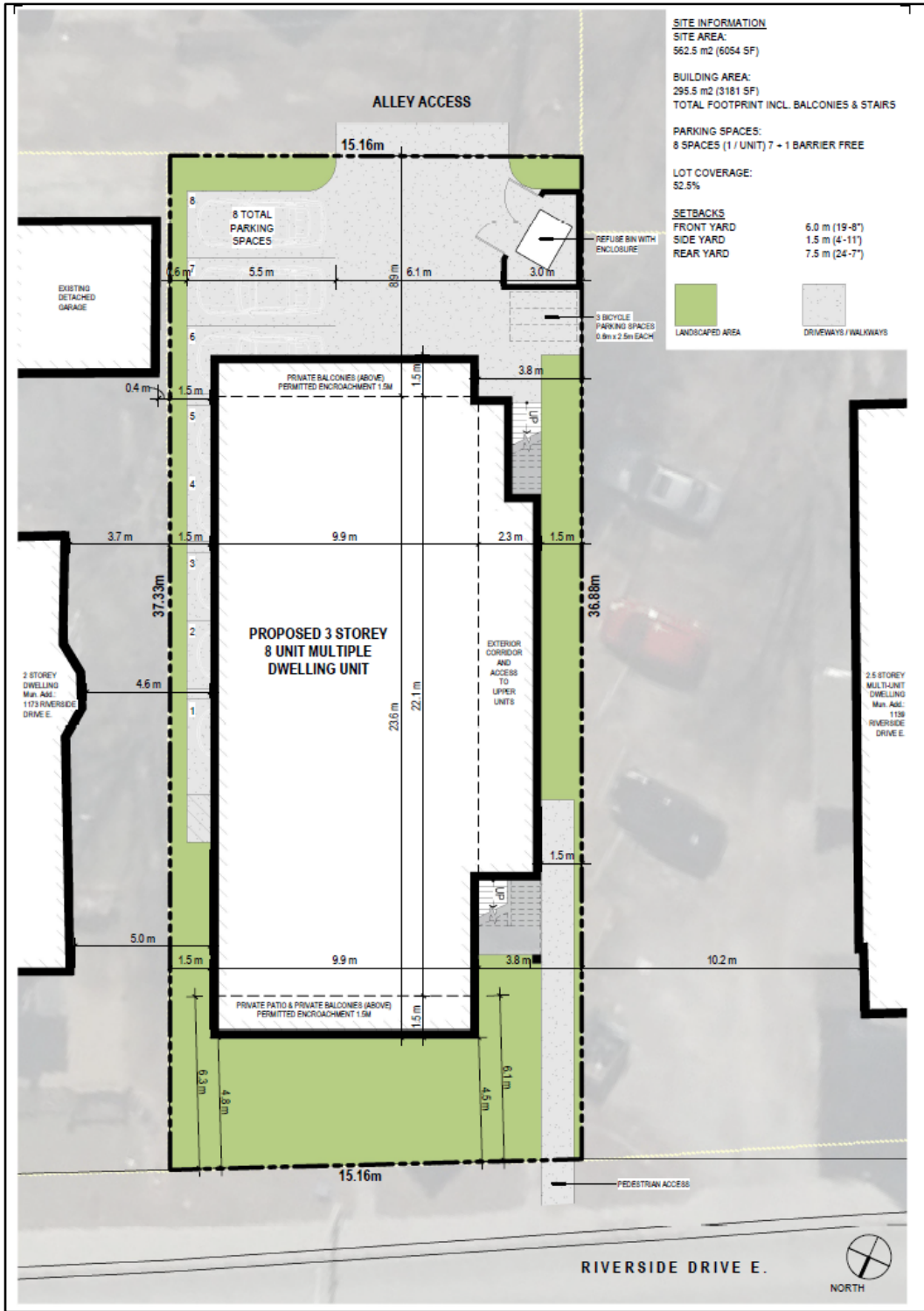


Figure 2 – Site Plan

1153-1159 Riverside Dr E, Windsor, Ontario





Figure 3– Elevations

3.2 Public Consultation Strategy

The Planning Act requires that the applicant submit a proposed strategy for public consultation with respect to an application, as part of the complete application requirements.

As part of a public consultation strategy, the applicant proposes that the required public meeting will be sufficient as the size of development is small scale.

At this time, no informal public open house is proposed to be held by the applicant.

4.0 PROPOSED APPLICATION

4.1 Zoning By-Law Amendment (ZBA)

A site-specific Zoning By-law Amendment (ZBA) is required to permit the proposed residential development.

The Site is currently zoned “Residential District 2.2 (RD2.2)” on Map 6 of the City of Windsor Zoning By-Law.

A site-specific zoning is required for the Site to allow for eight (8) units within a multiple dwelling unit.

It is proposed to change the zoning of the Site from the existing “Residential District 2.2(RD2.2)” zoning to a site specific “Residential District 2.2 (RD2.2– S.20(1) (XXX))” and to provide relief from zone provisions set out in Section 11.2.

Further analysis is provided in Section 5.1.3 of this PRR.

4.2 Other Application

This application will require approval by Council and an exemption from the current Residential Interim Control By-law (RICBL) for the prohibition on any group homes, lodging home or development with five or more dwelling units. As per the RICBL:

Council MAY REVIEW, on a case-by-case basis, any requested amendment to the Interim Control By-law where there is a determination that the requested amendment will not conflict with the general purpose and intent of the Interim Control By-law.

Once the ZBA has been approved, the applicant will proceed with a Site Plan Control (SPC) Application, prior to the issuance of a building permit.

The proposed development will be subject to a Development Agreement, which will include any required fees or securities, lighting, buffering, landscaping, signage, etc.

4.3 Supporting Studies

The following studies have been completed as part of this PRR in support of the application for zoning amendment.

4.3.1 Archeological

A Stage 1 and 2 Archaeological Property Assessment was prepared by AMICK Consultants Limited dated August 26, 2021.

The purpose of the assessment was to review any potentially affected lands by the proposed development.

The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Assessment by high intensity test pit methodology at a five-metre interval between individual test pits and by test pit survey at a ten metre interval to confirm disturbance,

As a result of the Assessment of the study area, no archaeological resources were encountered.

The following recommendations are made:

- No further archaeological assessment of the study area is warranted;
- The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed; and
- The proposed undertaking is clear of any archaeological concern.

The Assessment has been filed with the Ministry.

5.0 PLANNING ANALYSIS

5.1 Policy and Regulatory Overview

5.1.1 Provincial Policy Statement (PPS), 2020

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development providing for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environments.

The PPS is issued under Section 3 of the Planning Act and came into effect on May 1, 2020. It applies to all land use planning matters considered after this date.

The PPS supports improved land use planning and management, which contributes to a more effective and efficient land use planning system.

The following provides a summary of the key policy considerations of the PPS as it relates to the proposed development.

PPS Policy #	Policy	Response
1.0Ontario's long-term prosperity, environmental health and social well-being depend on wisely managing change and promoting efficient land use and development patterns.....	The surrounding area has similar uses and provides a mix of housing choices for residents near amenities.
1.1.1	Healthy, liveable and safe communities are sustained by: a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term; b) accommodating an appropriate affordable and market-based range and mix of residential types, employment, institutional, recreation, park and open space, and other uses to meet long-term needs;	The proposed development is consistent with the policy to build strong, healthy and livable communities as it provides for a range and mix of residential in the form of multiple dwelling units. There are no environmental or public health and safety concerns as the area is well established. The development pattern does not require expansion of the settlement area as it is

PPS Policy #	Policy	Response
	<p>c) avoiding development and land use patterns which may cause environmental or public health and safety concerns;</p> <p>d) avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas;</p> <p>e) promoting.....cost-effective development patterns and standards to minimize land consumption and servicing costs;</p> <p>f) improving accessibility for persons with disabilities and older persons by addressing land use barriers which restrict their full participation in society;</p> <p>h) promoting development and land use patterns that conserve biodiversity.</p>	<p>intensification of a developed site.</p> <p>The Site has access to full municipal services and is close to existing local parks, places of worship, trails and schools.</p> <p>Accessibility of units will be addressed at the time of the building permit application.</p> <p>Public service facilities are available, such as local schools.</p> <p>The development pattern is proposed to be an efficient use of the Site.</p>
1.1.2	<p>Sufficient land shall be made available to accommodate an appropriate range and mix of land uses to meet projected needs for a time horizon of up to 25 years.</p> <p>Within settlement areas, sufficient land shall be made available through intensification and redevelopment and, if necessary, designated growth areas.</p>	<p>The proposed development will help the City meet the full range of current and future residential needs through intensification.</p> <p>The intensification can be accommodated for the proposed development as it is a redevelopment opportunity within an existing land use pattern.</p> <p>The Site will provide for residential infilling within an existing settlement area in the form of a multiple unit dwelling.</p>
1.1.3.1	Settlement areas shall be the focus of growth and development.	The proposal enhances the vitality of the municipality, as

PPS Policy #	Policy	Response
		<p>the proposal is within the City's settlement area.</p> <p>The Site will provide for a range of housing choices consistent with developments in the area.</p>
1.1.3.2	<p>Land use patterns within settlement areas shall be based on densities and a mix of land uses which:</p> <ul style="list-style-type: none"> a) efficiently use land and resources; b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion; c) minimize negative impacts to air quality and climate change, and promote energy efficiency; d) prepare for the impacts of a changing climate; e) support active transportation; f) are transit-supportive, where transit is planned, exists or may be developed; and g) are freight-supportive. 	<p>The total density of the proposed development is considered appropriate as most of the existing area is a mix of low to medium profile residential in the form of single unit dwellings, duplexes, and multiple dwelling units from the intersections of Riverside Dr E from Gladstone Ave to Parent Ave.</p> <p>The Site offers an opportunity for intensification by creating new residential units in an underutilized site.</p> <p>The intensification can be accommodated for the proposed development as it is an infilling opportunity within an existing land use pattern.</p> <p>The existing design and style of the building will blend with the dwellings in the area. It is a similar scale and massing of the existing residential developments in the surrounding area.</p> <p>Residents will have immediate access to shopping, employment, trails, transit, active</p>

PPS Policy #	Policy	Response
		<p>transportation, recreational areas and institutional uses.</p> <p>Transit is available for the area.</p>
1.1.3.3	<p>Planning authorities shall identify appropriate locations and promote opportunities for transit-supportive development, accommodating a significant supply and range of housing options through intensification and redevelopment where this can be accommodated taking into account existing building stock or areas, including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs.</p>	<p>The intensification can be accommodated for the proposed residential development as it is an appropriate redevelopment of the site.</p>
1.1.3.4	<p>Appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety.</p>	<p>The intensification can be accommodated for the proposed development as it is a redevelopment opportunity within an existing land use pattern.</p> <p>There will be no risks to the public.</p>
1.1.3.5	<p>Planning authorities shall establish and implement minimum targets for intensification and redevelopment within built-up areas, based on local conditions.</p>	<p>The City has established targets for intensification and redevelopment.</p> <p>The proposed development will assist in meeting those targets as the Site is located in an existing built-up area and will add new residential units.</p>

PPS Policy #	Policy	Response
1.1.3.6	New development taking place in designated growth areas should occur adjacent to the existing built-up area and should have a compact form, mix of uses and densities that allow for the efficient use of land, infrastructure and public service facilities.	<p>The proposed development does have a compact form.</p> <p>The low-profile density will allow for the efficient use of land, infrastructure and public services.</p>
1.4.1	<p>To provide for an appropriate range and mix of housing options and densities required to meet projected requirements of current and future residents of the regional market area, planning authorities shall:</p> <p>a) maintain at all times the ability to accommodate residential growth for a minimum of 15 years through residential intensification and redevelopment and, if necessary, lands which are designated and available for residential development; and</p> <p>b) maintain at all times where new development is to occur, land with servicing capacity sufficient to provide at least a three-year supply of residential units available through lands suitably zoned to facilitate residential intensification and redevelopment, and land in draft approved and registered plans.</p>	<p>The proposed development will provide for a mix of housing options and density in the existing built-up area.</p> <p>The intensification can be accommodated for the proposed development as it is a redevelopment opportunity within an existing land use pattern.</p> <p>The area is pedestrian friendly allowing people to access nearby amenities, such as public spaces, commercial nodes, and recreational activities. The proposed density offers an opportunity to efficiently use municipal infrastructure.</p> <p>Existing municipal services are available.</p>
1.4.3	Planning authorities shall provide for an appropriate range and mix of housing	The proposed low-profile density is compatible with the surrounding area and will provide affordable intensification and infilling

PPS Policy #	Policy	Response
	options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area.	through the efficient use of previously developed site. The Site is close to amenities. There is suitable existing infrastructure.
1.6.1	Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs.	The development is already on full municipal services. Access to public transit is available.
1.6.6.2	Municipal sewage services and municipal water services are the preferred form of servicing for settlement areas to support protection of the environment and minimize potential risks to human health and safety. Within settlement areas with existing municipal sewage services and municipal water services, intensification and redevelopment shall be promoted wherever feasible to optimize the use of the services.	The proposed development will be serviced by municipal sewer, water and storm, which is the preferred form of serving for settlement areas. There will be no anticipated impacts on the municipal system and will not add to the capacity in a significant way.
1.6.6.7	Planning for stormwater management shall: a) be integrated with planning for sewage and water services and ensure that systems are optimized, feasible and financially viable over the long term; b) minimize, or, where possible, prevent increases in contaminant loads;	There will be no risk to health and safety. Existing hard surfaces will be used and new hard surfaces created will have appropriate storm water management built into the design.

PPS Policy #	Policy	Response
	<p>c) minimize erosion and changes in water balance, and prepare for the impacts of a changing climate through the effective management of stormwater, including the use of green infrastructure;</p> <p>d) mitigate risks to human health, safety, property and the environment;</p> <p>e) maximize the extent and function of vegetative and pervious surfaces; and</p> <p>f) promote stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development.</p>	
1.6.7.1	Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.	The subject property is near major roadways and has access to transit.
1.6.7.2	Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.	<p>The proposed development contributes to the City's requirements for development within a built-up area.</p> <p>The area is serviced by transit.</p>
1.6.7.4	A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation.	<p>The proposed development contributes to the City's requirement for infilling within a built-up area.</p> <p>Parking is provided on-site.</p>

PPS Policy #	Policy	Response
		<p>The area is pedestrian friendly allowing people to access nearby amenities, such as public spaces, commercial nodes, and recreational activities.</p> <p>The proposed density offers an opportunity to efficiently use municipal infrastructure.</p>
1.8	<p>Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns.</p>	<p>The proposed development supports compact form within an existing built-up area of the City.</p> <p>The Site has access to transit and local amenities.</p>
2.1.1	<p>Natural features and areas shall be protected for the long term.</p>	<p>There are no natural features that apply to this Site.</p>
2.2.1	<p>Planning authorities shall protect, improve or restore the quality and quantity of water.</p>	<p>Existing services are already in place on this site.</p>
2.6.1	<p>Significant built heritage resources and significant cultural heritage landscapes shall be conserved.</p>	<p>A Stage 1 and 2 Property Assessment was completed.</p> <p>No resources were found.</p>
3.0	<p>Development shall be directed away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards.</p>	<p>There are no natural or human-made hazards that apply to this Site.</p>

Therefore, the proposed development is consistent with the PPS.

5.1.2 Official Plan (OP)

The City of Windsor Official Plan (OP) was adopted by Council on October 25, 1999, approved in part by the Ministry of Municipal Affairs and Housing (MMAH) on March 28, 2000 and the remainder approved by the Ontario Municipal Board (OMB) on November 1, 2002. Office consolidation version is dated September 7, 2012.

The OP implements the PPS and establishes a policy framework to guide land use planning decisions related to development and the provision of infrastructure and community services throughout the City.

The lands are designated “Residential” according to Schedule “D – “Land Use” attached to the OP for the City of Windsor (see Figure 4 – City of Windsor OP, Schedule “D”).

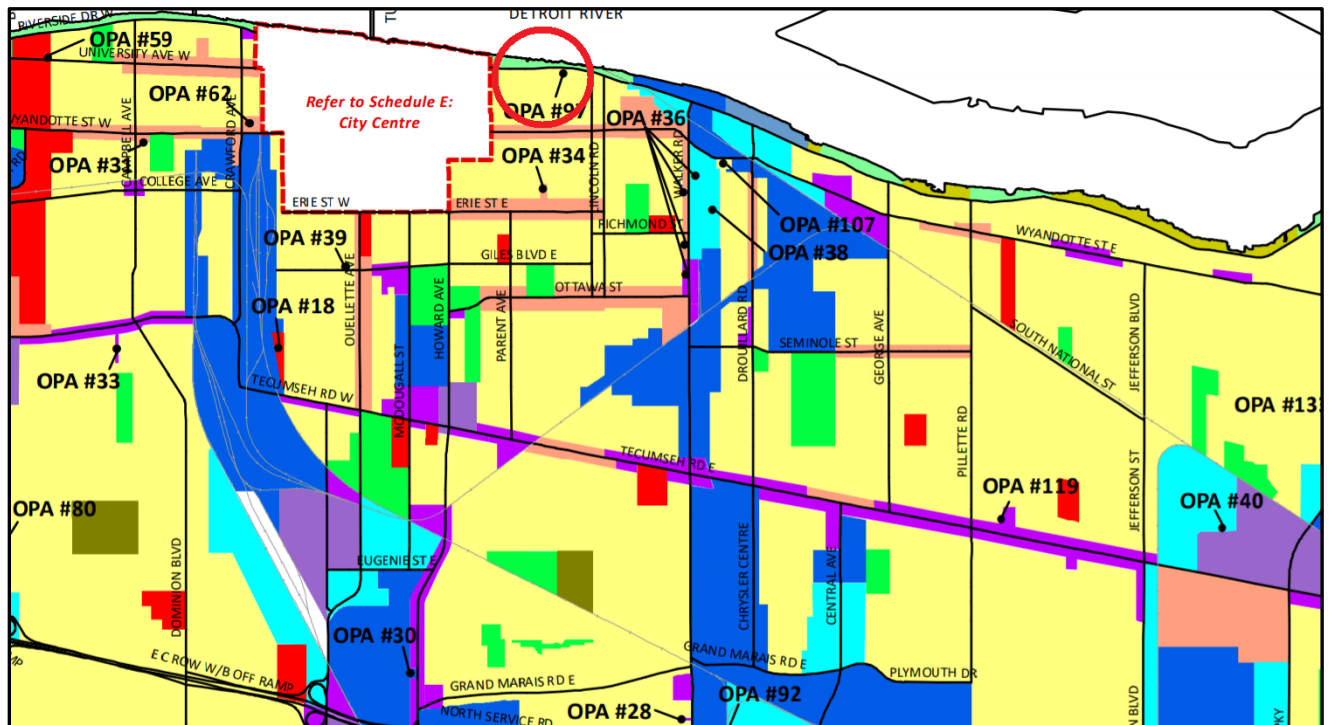


Figure 4 – City of Windsor OP, Schedule “D”

The following provides a summary of the key policy considerations of the OP as it relates to the proposed development.

OP Policy #	Policy	Response
3.2.1.2	Encouraging a range of housing types will ensure that people have an opportunity to live in their neighbourhoods as	The proposed residential development supports one of the City’s overall development strategies of providing for a range of housing types.

OP Policy #	Policy	Response
	<p>they pass through the various stages of their lives.</p>	<p>It is proposed to demolish the existing triplex dwelling to allow for a redevelopment of the site.</p> <p>The new unit will be rental units, close to transit and local amenities.</p>
<p>3.3.3</p>	<p>Neighbourhoods are the most basic component of Windsor’s urban structure and occupy the greatest proportion of the City. Neighbourhoods are stable, low-to-medium-density residential areas and are comprised of local streets, parks, open spaces, schools, minor institutions and neighbourhood and convenience scale retail services.</p> <p>The three dominant types of dwellings in Windsor’s neighbourhoods are single detached, semi-detached and townhouses.</p> <p>The density range for Windsor’s neighbourhoods is between 20 to 35 units per net hectare.</p> <p>This density range provides for low and some medium-density intensification to occur in existing neighbourhoods. Multiple dwelling buildings with medium and high-densities are encouraged at nodes identified in the Urban Structure Plan.</p>	<p>The proposed residential development is in an existing built-up area.</p> <p>The new structure will blend into the current design along Riverside Dr E, as there is already a multiple dwelling unit to the east of the site and an existing duplex to the west of the site.</p> <p>The Site is not in a node, however, offers appropriate infilling in the existing neighbourhood.</p> <p>The area is pedestrian friendly allowing people to access nearby amenities, such as public spaces, commercial nodes, and recreational activities. The proposed density offers an opportunity to efficiently use municipal infrastructure.</p> <p>The Site will provide for a range of housing options.</p>

OP Policy #	Policy	Response
4.0	The implementing healthy community policies are interwoven throughout the remainder of the Plan, particularly within the Environment, Land Use, Infrastructure and Urban Design chapters, to ensure their consideration and application as a part of the planning process.	<p>The proposed development will support the City's goal of promoting a healthy community (live, work and play).</p> <p>The proposed development is close to nearby transit, employment, shopping, local/regional amenities and parks/trails.</p>
5.0	A healthy and sustainable environment represents a balance between human activities and natural features and functions. In order to attain this balance, Council will enhance the quality of Windsor's natural environment and manage development in a manner that recognizes the environment as the basis of a safe, caring and diverse community and a vibrant economy.	<p>The proposed development will support the City's goal of a healthy and sustainable environment.</p> <p>The Site is pedestrian friendly as there are sidewalks which link to the surrounding amenities.</p> <p>The Site is level which is conducive to easy vehicular movements.</p> <p>There are no anticipated traffic concerns, no environmental concerns, and no expected hazards.</p>
6.0 - Preamble	A healthy and livable city is one in which people can enjoy a vibrant economy and a sustainable healthy environment in safe, caring and diverse neighbourhoods. In order to ensure that Windsor is such a city, Council will manage development through an approach which balances environmental, social and economic considerations.	<p>The proposed development supports the policy set out in the OP as it is suited for the residential needs of the City.</p> <p>The Site will provide for a mix of residential housing options.</p>
6.1 - Goals	In keeping with the Strategic Directions, Council's land use goals are to achieve:	The proposed development supports the goals set out in the OP as it provides for

OP Policy #	Policy	Response
	<p>6.1.1 Safe, caring and diverse neighbourhoods.</p> <p>6.1.3 Housing suited to the needs of Windsor's residents.</p> <p>6.1.10 Pedestrian oriented clusters of residential, commercial, employment and institutional uses.</p>	<p>housing that is suited to residents in this area of Windsor, is pedestrian oriented, close to employment and schooling opportunities.</p>
6.2.1.2 – General Policies	<p>For the purpose of this Plan, Development Profile refers to the height of a building or structure. Accordingly, the following Development Profiles apply to all land use designations on Schedule D: Land Use unless specifically provided elsewhere in this Plan:</p> <p>(a) Low Profile developments are buildings or structures generally no greater than three (3) storeys in height;</p> <p>(b) Medium Profile developments are buildings or structures generally no greater than six (6) storeys in height; and</p> <p>(c) High Profile developments are buildings or structures generally, no greater than fourteen (14) storeys in height.</p>	<p>The structure is considered a low-profile building.</p>
6.3.2.5	<p>At the time of submission, the proponent shall demonstrate to the satisfaction of the Municipality that a proposed residential development within an area having a</p>	<p>This PRR has addressed these requirements.</p> <p>Relief is requested from the required parking provisions. Each unit will have 1 parking</p>

OP Policy #	Policy	Response
	<p>Neighbourhood development pattern is:</p> <p>(a) feasible having regard to the other provisions of this Plan, provincial legislation, policies and appropriate guidelines and support studies for uses: (i) within or adjacent to any area identified on Schedule C: Development Constraint Areas and described in the Environment chapter of this Plan; (ii) adjacent to sources of nuisance, such as noise, odour, vibration and dust; (iii) within a site of potential or known contamination; (iv) where traffic generation and distribution is a provincial or municipal concern; and (v) adjacent to heritage resources. (b) in keeping with the goals, objectives and policies of any secondary plan or guideline plan affecting the surrounding area; (c) compatible with the surrounding area in terms of scale, massing, height, siting, orientation, setbacks, parking and amenity areas; (d) provided with adequate off street parking; (e) capable of being provided with full municipal physical services and emergency services; and (f) facilitating a gradual transition from Low Profile residential development to Medium and/or High profile development and vice versa, where appropriate.</p>	<p>space. Bicycle parking is provided. Electric Vehicle (EV) stations will be available for scooters and bikes. The Site has access to transit.</p> <p>Relief is requested to increase lot coverage to accommodate the protruding balconies. Open space will be landscaped to provide additional amenities for residents.</p>

OP Policy #	Policy	Response
6.3.1.1 (Residential)	To support a complementary range of housing forms and tenures in all neighbourhoods.	The proposed development provides for a new housing choice in an existing built up area.
6.3.1.2	To promote compact neighbourhoods which encourage a balanced transportation system.	The design is compact. Relief is requested to increase the maximum lot coverage slightly.
6.3.1.3	To promote selective residential redevelopment, infill and intensification initiatives.	The intensification can be accommodated for the proposed development as it is a redevelopment opportunity within an existing land use pattern.
6.3.2.3	For the purposes of this Plan, Low Profile housing development is further classified as follows: (a) small scale forms: single detached, semi-detached, duplex and row and multiplexes with up to 8 units; and (b) large scale forms: buildings with more than 8 units.	The proposed development is considered small scale low profile with a total of 8 units proposed.
6.3.2.4	Residential development shall be located where: (a) there is access to a collector or arterial road; (b) full municipal physical services can be provided; (c) adequate community services and open spaces are available or are planned; and (d) public transportation service can be provided.	The Site has access to Riverside Drive East. Full municipal services are available. Access to transit is available.
7.0 - Infrastructure	The provision of proper infrastructure provides a safe, healthy and efficient living environment. In order to accommodate transportation	The Site is close to nearby transit, off a major roadway and has access to full municipal services.

OP Policy #	Policy	Response
	and physical service needs in Windsor, Council is committed to ensuring that infrastructure is provided in a sustainable, orderly and coordinated fashion.	There will be no negative impacts on the municipal system as the dwelling is limited to low profile and will not add to the capacity in a significant way.
8 – Urban Design	A memorable, attractive and liveable city is one where people feel comfortable and are inspired by their surroundings. The physical systems and built form of the city are also designed to protect, maintain and improve the quality of life for present and future generations by integrating the principles of sustainability and place making. In order for Windsor to be such a city, Council is committed to urban design principles that enhance the enjoyment and image of Windsor and its people	<p>The design of the multiple dwelling unit blends with the surrounding area.</p> <p>The proposed building will be limited to 3 storeys in the zoning by-law regulations, is pedestrian friendly, has a clean façade and is a safe place for people to live.</p> <p>The Site is compatible with the surrounding area in terms of scale, massing, height and siting and the conversion of the dwelling will integrate well with the area.</p>

Therefore, the proposed development conforms to the City of Windsor OP.

5.1.3 Zoning By-law (ZBL)

The City of Windsor Zoning By-Law (ZBL) #8600 was passed by Council on July 8, 2002 and then a further Ontario Municipal Board (OMB) decision issued on January 14, 2003.

A ZBL implements the PPS and the City OP by regulating the specific use of property and provide for its day-to-day administration.

According to Map 6 attached to the ZBL the Site is currently zoned “Residential District 2.2 (RD2.2)” category (see Figures 5 – City of Windsor Zoning Map 6).

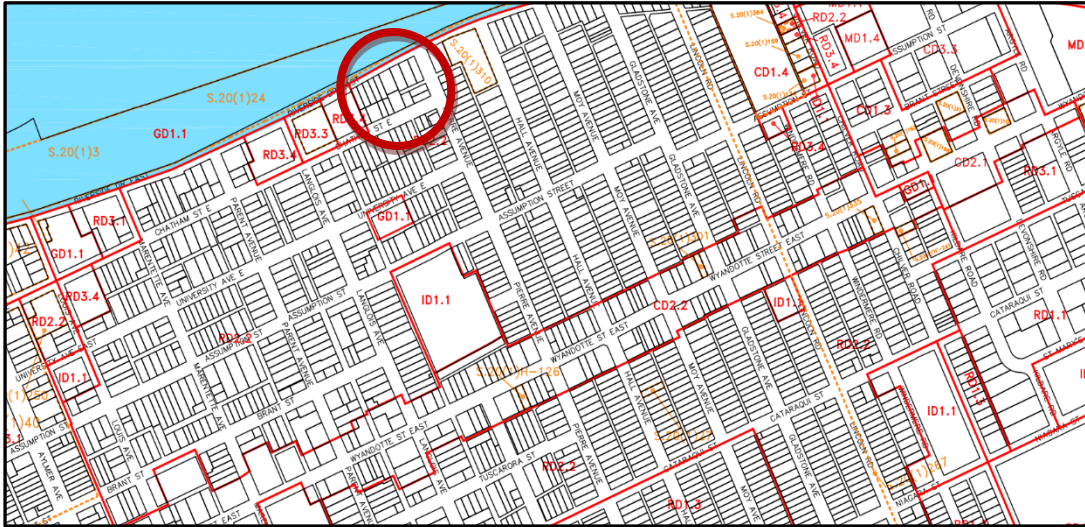


Figure 5 – City of Windsor Zoning Map 6

Permitted RD2.2 use under Section 11.2.1 of the Zoning By-law, includes the following:

- One Double Duplex Dwelling*
- One Duplex Dwelling*
- One Multiple Dwelling containing a maximum of four dwelling units*
- One Semi-detached dwelling*
- One Single Unit Dwelling*
- Townhouse Dwelling*
- Any use accessory to any of the preceding uses*

A site-specific zoning is required for the Site as the proposed residential use is permitted under the RD2.2 zone, however relief is required to allow for the eight dwelling units (multiple dwelling unit).

It is proposed to change the zoning of the Site from the existing “Residential District 2.2 (RD2.2)” zoning to a site specific “Residential District 2.2 (RD2.2 - S.20(1)(XXX))”.

A review of the RD2.2 zone provisions, as set out in Section 11.2 of the ZBL are as follows:

Zone Regulations	Required Sec 11.2 RD2.2	Proposed	Compliance and/or Relief Requested with Justification
Permitted Uses 11.2.1	One Multiple Dwelling unit, max 4 units	One Multiple Dwelling unit, max 8 units	Relief requested to permit the multiple dwelling unit with a total of 8 units.
Minimum Lot Width 11.2.5.4.1	18m	15.16m	Relief required of 2.84m. The lot is existing.
Minimum Lot Area- 11.2.5.4.2	540 sq m	565.95 sq m	Complies The lot is existing and offers an infilling opportunity. It is requested that the RD2.2 minimum lot area be used. The Site is large enough to allow for 8 units.
Maximum Lot Coverage 11.2.5.4.3	45%	52.5%	Relief requested. The design of the proposed development is compact. Relief is minor in nature. There is 24.1% landscape open space in addition to the balconies are provided as amenity space, which will enhance the resident's experience. The majority of the exceeded lot coverage area is due to the protruding balconies. These balconies would greatly enhance the residents' experience, and we believe the resulting benefit justifies the greater lot coverage.

			The open space will be landscaped to ensure residents have plenty of outdoor space to enjoy.
Main Building Height-Maximum 11.2.5.4.4	10m	10m	Complies
Front Yard Depth Min 11.2.5.4.5	6m	6.0 m	Complies
Minimum Rear Yard Depth 11.2.5.4.6	7.5m	7.5 m	Complies
Side Yard Width-Minimum 11.2.5.4.7	1.8m	1.5 m (both sides)	Relief requested. Relief is minor in nature.
Parking Requirements 24.20.5.1	1.25 spaces per dwelling unit =10 spaces	8 spaces	Relief required for 2 spaces. Each unit will have 1 parking space. Bicycle parking is provided. Electric Vehicle (EV) stations will be available for scooters and bikes. The Site has access to transit.
Accessible Parking Spaces 24.24.1	1 to 25 = 1 space (type A)	1	Complies
Bicycle Parking Spaces 24.30.1.1	1 to 9 = 0	3	Complies

Parking Area Separation 25.5.20.4	0.90 m An interior lot line or alley	0.60 m	Relief requested. Parking is located under the main floor, however a small portion is located along the interior side yard
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Therefore, the proposed development will require a site-specific zoning RD2.2 - S.20(1)(XXX) with the above noted requested relief.

6.0 SUMMARY AND CONCLUSION

6.1 Context and Site Suitability Summary

6.1.1 Site Suitability

The Site is ideally suited for further residential development for the following reasons:

- The land area is sufficient to accommodate the existing development with adequate existing buffering from abutting land uses,
- The Site is generally level, which is conducive to easy vehicular movements,
- The Site already accommodates municipal water, storm and sewer systems,
- There are no anticipated traffic concerns,
- There are no environmental concerns,
- There are no hazards, and
- The location of the proposed development is appropriate in that it will blend well with the residential and commercial uses in the surrounding area.

6.1.2 Compatibility of Design

The proposed development provides efficient ease of access into the existing parking areas from the alley.

The Site is compatible with the surrounding area in terms of scale, massing, existing height and siting.

6.1.3 Good Planning

The proposal represents good planning as it addresses the need for the City to provide residential infilling development.

The additional units will contribute toward affordability and intensification requirements.

Continued residential use on the Site represents an efficient development pattern that optimizes the use of land in an existing built-up area which has a mix of residential uses in the neighbourhood.

The Site already accommodates a triplex dwelling on municipal services that is not an over development of the site. The additional units will not put any additional stress on municipal infrastructure or the current Site.

6.1.4 Natural Environment Impacts

The proposal does not have any negative natural environment impacts, as there are no natural heritage features on the Site.

6.1.5 Municipal Services Impacts

There will be no negative impacts on the municipal system as the residential development is limited to low profile and will not add to the capacity in a significant way.

6.1.6 Social and/or Economic Conditions

The proposed development does not negatively affect the social environment as the Site is in close proximity to major transportation corridors, transit, open space and community amenities.

Adding additional residential units on an underutilized site in an area with similar residential uses contributes toward the goal of 'live, work and play' where citizens share a strong sense of belonging and a collective pride of place.

The proposed development promotes efficient development and land use pattern which sustains the financial well-being of the municipality.

The proposal does not cause any public health and safety concerns. The proposal represents a cost-effective development pattern that minimizes land consumption and servicing costs.

There will be no urban sprawl as the proposed development is within the existing settlement area and is an ideal re-development opportunity.

6.2 Conclusion

The proposal to add a Multiple Dwelling Unit on the Site is appropriate and should be approved by the City of Windsor.

This PRR has shown that the proposed development is suitable intensification of affordable residential use, is consistent with the PPS, conforms with the intent and purpose of the City of Windsor OP and represents good planning.

The report components for this PRR have set out the following, as required under the City of Windsor OP:

10.2.13.2 Where a Planning Rationale Report is required, such a study should:

- (a) Include a description of the proposal and the approvals required;*
- (b) Describe the site's previous development approval history;*

- (c) Describe major physical features or attributes of the site including current land uses(s) and surrounding land uses, built form and contextual considerations;*
- (d) Describe whether the proposal is consistent with the provincial policy statements issued under the Planning Act.*
- (e) Describe the way in which relevant Official Plan policies will be addressed, including both general policies and site-specific land use designations and policies;*
- (f) Describe whether the proposal addresses the Community Strategic Plan;*
- (g) Describe the suitability of the site and indicate reasons why the proposal is appropriate for this site and will function well to meet the needs of the intended future users;*
- (h) Provide an analysis of the compatibility of the design and massing of the proposed developments and land use designations;*
- (i) Provide an analysis and opinion as to why the proposal represents good planning, including the details of any methods that are used to mitigate potential negative impacts;*
- (j) Describe the impact on the natural environment;*
- (k) Describe the impact on municipal services;*
- (l) Describe how the proposal will affect the social and/or economic conditions using demographic information and current trends; and,*
- (m) Describe areas of compliance and non-compliance with the Zoning By-law.*

Planner's Certificate:

I hereby certify that this report was prepared by Tracey Pillon-Abbs, a Registered Professional Planner, within the meaning of the Ontario Professional Planners Institute Act, 1994.



**Tracey Pillon-Abbs, RPP
Principal Planner**



APPENDIX C - SITE IMAGES (GOOGLE STREET VIEW)



IMAGE 1

Subject Parcel – 1153-1159 Riverside Drive East – Looking south



IMAGE 2

**Subject Parcel in centre of image
Looking east from Riverside Drive East towards Pierre Avenue**

IMAGE 3



Looking west along Riverside Drive East

IMAGE 4



East-west Alley – Looking west from Pierre Avenue

APPENDIX D - Excerpts from Zoning By-law 8600

SECTION 3 – DEFINITIONS

BUILDING means a *structure*, consisting of a wall, roof and floor, or any one or more of them, or a structural system serving the function thereof, including all the works, fixtures and service systems appurtenant thereto, but does not include the following: access area, collector aisle, driveway, parking aisle or parking space not in a parking garage; fence; patio; sign as defined by the Windsor Sign By-law.

DWELLING means a *building* or *structure* that is occupied for the purpose of human habitation. A *correctional institution, hotel, motor home, recreational vehicle, tent trailer or travel trailer* is not a *dwelling*.

MULTIPLE DWELLING means one *dwelling* containing a *minimum* of three *dwelling units*. A *double duplex dwelling, semi-detached dwelling, stacked dwelling or townhome dwelling* is not a *multiple dwelling*.

DWELLING UNIT means a unit that consists of a self-contained set of rooms located in a *building* or *structure*, that is used or intended for use as residential premises, and that contains kitchen and bathroom facilities that are intended for the use of the unit only.

SECTION 11 - RESIDENTIAL DISTRICTS 2. (RD2.)

11.2 RESIDENTIAL DISTRICT 2.2 (RD2.2)

11.2.1 PERMITTED USES

One Double Duplex Dwelling

One Duplex Dwelling

One Multiple Dwelling containing a maximum of four *dwelling units*

One Semi-Detached Dwelling

One Single Unit Dwelling

Townhome Dwelling

Any use accessory to any of the preceding uses

11.2.5 PROVISIONS

.1 Duplex Dwelling

.1	Lot Width – minimum	12.0 m
.2	Lot Area – minimum	360.0 m ²
.3	Lot Coverage – maximum	45.0%
.4	Main Building Height – maximum	10.0 m
.5	Front Yard Depth – minimum	6.0 m
.6	Rear Yard Depth – minimum	7.50 m
.7	Side Yard Width – minimum	1.20 m

.2 Semi-Detached Dwelling		
.1	Lot Width – minimum	15.0 m
.2	Lot Area – minimum	450.0 m ²
.3	Lot Coverage – maximum	45.0%
.4	Main Building Height – maximum	10.0 m
.5	Front Yard Depth – minimum	6.0 m
.6	Rear Yard Depth – minimum	7.50 m
.7	Side Yard Width – minimum	1.20 m
.3 Single Unit Dwelling		
.1	Lot Width – minimum	9.0 m
.2	Lot Area – minimum	270.0 m ²
.3	Lot Coverage – maximum	45.0%
.4	Main Building Height – maximum	10.0 m
.5	Front Yard Depth – minimum	6.0 m
.6	Rear Yard Depth – minimum	7.50 m
.7	Side Yard Width – minimum	1.20 m
.4 Double Duplex Dwelling or Multiple Dwelling		
.1	Lot Width – minimum	18.0 m
.2	Lot Area – minimum	540.0 m ²
.3	Lot Coverage – maximum	45.0%
.4	Main Building Height – maximum	10.0 m
.5	Front Yard Depth – minimum	6.0 m
.6	Rear Yard Depth – minimum	7.50 m
.7	Side Yard Width – minimum	1.80 m
.5 Townhome Dwelling		
.1	Lot Width – minimum	20.0 m
.2	Lot Area – per <i>dwelling unit</i> – minimum	200.0 m ²
.3	Lot Coverage – maximum	45.0%
.4	Main Building Height – maximum	10.0 m
.5	Front Yard Depth – minimum	6.0 m
.6	Rear Yard Depth – minimum	7.50 m
.7	Side Yard Width – minimum	1.50 m

APPENDIX E – RESULTS OF CIRCULATION

ENBRIDGE GAS INC.

Enbridge Gas Inc, (formerly Union Gas Ltd.), does have service lines running within the area which may or may not be affected by the proposed Site Plan.

Should the proposed site plan impact these services, it may be necessary to terminate the gas service and relocate the line according to the new property boundaries. Any Service relocation required would be at the cost of the property owner.

If there is any work (i.e. underground infrastructure rebuild or grading changes...) at our easement and on/near any of our existing facilities, please contact us as early as possible (1 month in advance at least) so we can exercise engineering assessment of your work. The purpose is to ensure the integrity of our main is maintained and protected.

Confirmation of the location of our natural gas pipeline should be made through Ontario One Call 1-800-400-2255 for locates prior to any activity.

After reviewing the provided drawing at 1159 Riverside Dr E. and consulting our mapping system, please note that Enbridge Gas has active infrastructure in the proposed area.

Please Note:

1. The shown piping locations are approximate and for information purposes only
2. The drawings are not to scale
3. This drawing does not replace field locates. Please contact Ontario One Call for onsite locates prior to excavating, digging, etc

Enbridge Gas requires a minimum separation of 0.6m horizontal and 0.3m vertical from all of our plant less than NPS 16 and a minimum separation 1.0m horizontal and 0.6m vertical between any CER-regulated and vital pipelines. For all pipelines (including vital pipelines), when drilling parallel to the pipeline, a minimum horizontal clearance measured from the edge of the pipeline to the edge of the final bore hole of 1 m (3.3 ft) is required. Please ensure that this minimum separation requirement is maintained, and that the contractor obtains locates prior to performing any work and utilizes safe excavation practices while performing any work in the vicinity.

Also, please note the following should you find any abandoned infrastructure in the area:

- Any pipe that is excavated, please assume that it is live
- If during the course of any job, any pipe is found that is not on the locate sheet and is in conflict with your work, please call our emergency number (1-877-969-0999), and one of our Union Gas representatives will respond to determine if that plant is in fact live or dead
- Please note that our Enbridge Gas representative will respond to the live or dead call within 1-4 hours, so please plan your work accordingly

Please contact me if you have any further questions or concerns.

TRANSIT WINDSOR

Transit Windsor has no objections to this development. The closest existing transit route to this property is the Walkerville 8. The closest existing bus stops to this property are located on Riverside at Langlois SE Corner and Riverside at Hall SW Corner. Both of these bus stops are approximately 140 metres away from this property falling well within our 400 metre walking distance guideline to a bus stop. This will be maintained with our Council approved Transit Master Plan.

ESSEX REGION CONSERVATION AUTHORITY

The following is provided as a result of our review of Zoning By-Law Amendment Z-037-21 ZNG 6588.

DELEGATED RESPONSIBILITY TO REPRESENT THE PROVINCIAL INTEREST IN NATURAL HAZARDS AND REGULATORY RESPONSIBILITIES ASSOCIATED WITH THE CONSERVATION AUTHORITIES ACT

The following comments reflect our role as representing the provincial interest in natural hazards as outlined by Section 3.1 of the Provincial Policy Statement of the *Planning Act* as well as our regulatory role as defined by Section 28 of the *Conservation Authorities Act*.

We have reviewed our floodline mapping for this area and it has been determined this site is not located within a regulated area that is under the jurisdiction of the ERCA (Section 28 of the *Conservation Authorities Act*). As a result, a permit is not required from ERCA for issues related to Section 28 of the *Conservation Authorities Act*, Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation under the *Conservations Authorities Act*, (Ontario Regulation No. 158/06).

WATERSHED BASED RESOURCE MANAGEMENT AGENCY

The following comments are provided in an advisory capacity as a public commenting body on matters related to watershed management.

SECTION 1.6.6.7 Stormwater Management (PPS, 2020)

If this property is subject to Site Plan Control, we request to be included in the circulation of the Site Plan Control application. We reserve to comment further on storm water management concerns until we have had an opportunity to review the specific details of the proposal through the site plan approval stage.

PLANNING ADVISORY SERVICE TO PLANNING AUTHORITIES - NATURAL HERITAGE POLICIES OF THE PPS, 2020

The following comments are provided from our perspective as an advisory service provider to the Planning Authority on matters related to natural heritage and natural heritage systems as outlined in Section 2.1 of the Provincial Policy Statement of the *Planning Act*. The comments in this section do not necessarily represent the provincial position and are advisory in nature for the consideration of the Planning Authority.

The subject property is not within or adjacent to any natural heritage feature that may meet the criteria for significance as defined by the PPS. Based on our review, we have no objection to the application with respect to the natural heritage policies of the PPS.

FINAL RECOMMENDATION

With the review of background information and aerial photograph, ERCA has no objection to this application for zoning by-law amendment and are requesting circulation of the related Site Plan Application and defer comment on Stormwater Management, until that time.

CITY OF WINDSOR - BUILDING DEPARTMENT - Barbara Rusan

The Building Code Act, Section 8.(1) requires that a building permit be issued by the Chief Building Official for any construction or demolition of a building. It is strongly recommended that the owner and/or applicant contact the Building Division to determine building permit needs for the proposed project. The City of Windsor Building Division can be reached by phone at 519-255-6267 or through email at buildingdept@citywindsor.ca

CITY OF WINDSOR - PLANNING DEPARTMENT – HERITAGE PLANNER - Kristina Tang

Archaeological Assessment Report Entitled, " ORIGINAL 30 August 2021 Stage 1-2 Archaeological Property Assessment of a Proposed Site Plan at 1153 Riverside Drive East, Part of Lot 91, Con. 1 (Geographic Township of Sandwich), Part of Lot 1, Registered Plan 433, City of Windsor, County of Essex (AMICK File #2021-

481/MHSTCI File #P058-2041-2021)", Dated Aug 30, 2021, Filed with MHSTCI Toronto Office on Aug 31, 2021, MHSTCI Project Information Form Number P058- 2041-2021, MHSTCI File Number 0014859", has been entered into the Ontario Public Register of Archaeological Reports. Although the report recommends that no further archaeological assessment of the property is recommended, the applicant is still to note the following archaeological precautions:

1. Should archaeological resources be found during grading, construction or soil removal activities, all work in the area must stop immediately and the City's Planning & Building Department, the City's Manager of Culture and Events, and the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries must be notified and confirm satisfaction of any archaeological requirements before work can recommence.
2. In the event that human remains are encountered during grading, construction or soil removal activities, all work in that area must be stopped immediately and the site secured. The local police or coroner must be contacted to determine whether or not the skeletal remains are human, and whether the remains constitute a part of a crime scene. The Local police or coroner will then notify the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries and the Registrar at the Ministry of Government and Consumer Services if needed, and notification and satisfactory confirmation be given by the Ministry of Heritage, Sport, Tourism and Culture Industries.

Contacts:

Windsor Planning & Building Department:

519-255-6543 x6179, ktang@citywindsor.ca, planningdept@citywindsor.ca

Windsor Manager of Culture and Events:

Michelle Staadegaard, (O) 519-253-2300x2726, (C) 519-816-0711, mstaadegaard@citywindsor.ca

Ontario Ministry of Heritage, Sport, Tourism and Culture Industries

Archaeology Programs Unit, 1-416-212-8886, Archaeology@ontario.ca

Windsor Police: 911

Ontario Ministry of Government & Consumer Services

A/Registrar of Burial Sites, War Graves, Abandoned Cemeteries and Cemetery Closures, 1-416-212-7499, Crystal.Forrest@ontario.ca

CITY OF WINDSOR – ENGINEERING - Amy Kurek

The subject lands are located at 1153-1159 Riverside Dr E, designated Residential on Schedule D by the City of Windsor Official Plan and zoned Residential District 2.2 (RD2.2) by Zoning By-Law 8600. The applicant is requesting a site specific provision to Zoning By-law 8600 to allow for a Multi Dwelling with 8 parking spaces on the subject parcel.

The site may be serviced by a 375mm brick combined sewer and an 825 VC sanitary sewer within the Riverside Dr E right-of-way. If possible existing connections should be utilized. Any redundant connections shall be located and abandoned in accordance with the City of Windsor Engineering Best Practice B.P 1.3.3. The applicant will be required to submit site servicing drawings and storm detention calculations restricting storm water runoff to pre-development levels.

The Official Plan classifies Riverside Dr E as a Scenic Drive with a required right-of-way width of 24 meters. The current right-of-way width is 17.4 meters however, no conveyance is required at this time as per the Riverside Drive Vista Improvements Environmental Assessment.

The proposed alley access and rear yard parking is supported, however it should be noted that the alley is gravel and does not receive snow removal services. All storm water runoff is to be contained on the property and drainage to the alley will not be permitted. The owner will be required to pave the alley along the rear property line. A lot grading plan for the paving of the alley to the satisfaction of the City Engineer will be required. The alley paving must provide positive drainage to Pierre Ave; if overland flow cannot be achieved a catch basin will be required.

There are 2 existing leadwalks at the front of the property within the right-of-way that are to be removed and reinstated to grass if they no longer lead to front entrances. Right-of-Way permits are to be obtained to remove the leadwalks, construct new leadwalks and for work to be complete in the alley.

In summary we have no objection to the proposed rezoning, subject to the following requirements (Requirements can be enforced during Building and Right-of-Way permitting):

Site Plan Control Agreement – The applicant enters into an agreement with the City of Windsor for all requirements under the General Provisions of the Site Plan Control Agreement for the Engineering Department.

Alley Paving – The owner shall agree to drain and pave at his entire expense, the alley abutting the subject lands. The minimum acceptable cross-section will be 12” Granular “A” and 4” surface course asphalt in accordance with Standard City of Windsor Specifications, Selected Granular Base Course (S4) and Hot Mix, Hot Laid Asphaltic Concrete (S-10). The geometrics of the pavement shall comply with City of Windsor Standard Drawing AS-201. All work shall be to the satisfaction of the City Engineer.

Storm Detention –

1. Prior to the issuance of a construction permit, the owner shall agree to retain a Consulting Engineer for the design and preparation of drawings, satisfactory to the City Engineer and Chief Building Official, for an internal stormwater detention scheme to service the subject lands. The purposes of the said scheme will be to ensure that storm drainage being directed to the Corporation's storm, combined sewer or ditch as the case may be, from the subject lands in their improved state, be restricted to no greater than the present flow from the subject lands.
2. Upon approval of the drawings by the City Engineer and the Chief Building Official, the owner further agrees to construct at its entire expense the said storm detention scheme, in accordance with the approved drawings and to the satisfaction of the Chief Building Official.

CITY OF WINDSOR – PLANNING DEPARTMENT – LANDSCAPE ARCHITECT - Stefan Fediuk

No extensive comments for this development outside of Parkland Dedication and Site Plan review comments.

Pursuant to the application for a zoning amendment (Z 034-21) to permit a multiple dwelling consisting of three floors, 8 dwelling units and 8 parking spaces on the subject, please note no objections. Please also note the following comments:

Zoning Provisions for Parking Setback:

All comments will be provided through the Site Plan Review process.

Tree Preservation:

N/A

Urban Design:

Extensive shrub planting along the Riverside Drive frontage would be required as part of site plan control, in order to compensate for the position of the building relative to the roadway, and lack of tree planting areas, without obstructing the views from the proposed development and the adjacent properties. Where possible trees should be planted on the south side of the property to help reduce the urban heat island effect and climate change that will result from the extensive amount of paving/building covering the site.

Parkland Dedication:

Require a parkland dedication representing 5% of the subject lands, to the satisfaction of the Executive Director of Parks, as per By-law 12780 and the Planning Act.

CITY OF WINDSOR – TRANSPORTATION PLANNING SERVICES - Rania Toufeili

- Riverside Drive is classified as a Scenic Drive by the Official Plan with a required right-of-way width of 24 meters. No conveyance is required per the Riverside Drive Vista Improvements Environmental Assessment.
- It is recommended that additional bicycle parking be provided on site to mitigate the parking deficiency.
- All accesses shall conform to the TAC Geometric Design Guide for Canadian Roads and the City of Windsor Standard Engineering Drawings
- All exterior paths of travel must meet the requirements of the Accessibility for Ontarians with Disabilities Act (AODA).

B Y - L A W N U M B E R -2022

A BY-LAW TO FURTHER AMEND BY-LAW NUMBER 8600
CITED AS THE "CITY OF WINDSOR ZONING BY-LAW"

Passed the day of , 2022.

WHEREAS it is deemed expedient to further amend By-law Number 8600 of the Council of The Corporation of the City of Windsor, cited as the "City of Windsor Zoning By-law" passed the 31st day of March, 1986, as heretofore amended:

THEREFORE the Council of The Corporation of the City of Windsor enacts as follows:

1. That subsection 1 of Section 20, of said by-law, is amended by adding the following clause:

434. SOUTH SIDE OF RIVERSIDE DRIVE EAST, WEST OF PIERRE AVENUE

For the lands comprising of Lot 1, Registered Plan 433, a *multiple dwelling* containing a maximum of 8 *dwelling units* shall be an additional permitted *main use* and shall be subject to the following additional provisions:

- a) Lot Width – minimum 15.0 m
- b) Lot Coverage – maximum 52.5 %
- c) Side Yard Width – minimum 1.50 m
- d) Required Parking – minimum 1 space per dwelling unit
- e) Required Visitor Parking – minimum 0
- f) Parking Area Separation – minimum
From an interior lot line or alley 0.60 m

[ZDM 6; ZNG/6588]

2. The said by-law is further amended by changing the Zoning District Maps or parts thereof referred to in Section 1, of said by-law and made part thereof, so that the lands described in Column 3 are delineated by a broken line and further identified by the zoning symbol shown in Column 5:

1. Item Number	2. Zoning District Map Part	3. Lands Affected	4. Official Plan Amendment Number	5. Zoning Symbol
1	6	Lot 1, Registered Plan 433 (1153-1159 Riverside Drive East; Roll No. 030-020-10200; south side of Riverside Drive East, west of Pierre Avenue)	- -	S.20(1)434

DREW DILKENS, MAYOR

CLERK

First Reading - , 2022
Second Reading - , 2022
Third Reading - , 2022

SCHEDULE 2

1. By-law _____ has the following purpose and effect:

To amend the zoning of Lot 1, Plan 433 (Roll No: 030-020-10200), situated on the south side of Riverside Drive East, west of Pierre Avenue and known municipally as 1153-1159 Riverside Drive East by adding a site specific exception to Section 20(1) in Zoning By-law 8600 to allow the construction of a multiple dwelling containing a maximum of 9 dwelling units and 9 parking spaces subject to the provisions of the RD2.2 zoning district, the additional provisions in the site specific exception, and any other application provisions in Zoning By-law 8600.

2. Key map showing the location of the lands to which By-law _____ applies.



PART OF ZONING DISTRICT MAP 6

N.T.S.

SCHEDULE 2

Applicant: 2776557 Ontario Ltd



SUBJECT LANDS

PLANNING & BUILDING DEPARTMENT



DATE : NOVEMBER, 2021
FILE NO. : Z-037/21, ZNG/6588



Committee Matters: SCM 45/2022

Subject: Rezoning - 2156567 Ontario Ltd. – 1092-1096 Dougall Avenue - Z-041/21 ZNG/6624 - Ward 3

Moved by: Councillor Holt
Seconded by: Councillor Sleiman

Decision Number: **DHSC 368**

THAT the application of 2156567 Ontario Ltd. for an amendment to Zoning By-law 8600 for Lot 328 and Part Lot 327, Registered Plan 581, (known municipally as 1092-1096 Dougall Avenue; Roll No. 040-370-07800; PIN 00187-0245), situated at the northeast corner at Dougall Avenue and Pine Street, to allow a multiple dwelling containing a maximum of five dwelling units as an additional permitted use subject to additional provisions **BE DENIED**; and,

THAT the request for an exemption from Interim Control By-law 103-2020 **BE DENIED**.
Carried.

Member Rondot voting nay.

Report Number: S 6/2022
Clerk's File: ZB/14265

Clerk's Note:

1. The recommendation of the Standing Committee and Administration are the same.
2. Please refer to Item 7.4. from the Development & Heritage Standing Committee Meeting held February 7, 2022.
3. To view the stream of this Standing Committee meeting, please refer to:
<http://csg001-harmony.sliq.net/00310/Harmony/en/PowerBrowser/PowerBrowserV2/20220209/-1/7304>

Subject: Rezoning - 2156567 Ontario Ltd. – 1092-1096 Dougall Avenue - Z-041/21 ZNG/6624 - Ward 3

Reference:

Date to Council: February 7, 2022
Author: Adam Szymczak, MCIP, RPP
Senior Planner
519-255-6543 x6250
aszymczak@citywindsor.ca

Planning & Building Services
Report Date: January 20, 2022
Clerk's File #: ZB/14265

To: Mayor and Members of City Council

Recommendation:

THAT the application of 2156567 Ontario Ltd. for an amendment to Zoning By-law 8600 for Lot 328 and Part Lot 327, Registered Plan 581, (known municipally as 1092-1096 Dougall Avenue; Roll No. 040-370-07800; PIN 00187-0245), situated at the northeast corner at Dougall Avenue and Pine Street, to allow a multiple dwelling containing a maximum of five dwelling units as an additional permitted use subject to additional provisions **BE DENIED**; and

THAT the request for an exemption from Interim Control By-law 103-2020 **BE DENIED**.

Executive Summary:

N/A.

Background:

Application Information:

Location: 1092-1096 Dougall Avenue
Northeast corner at Dougall Avenue and Pine Street
Roll No. 040-370-07800

Ward: 3 **Planning District:** South Central **Zoning District Map:** 7

Applicant: 2156567 Ontario Ltd. (Principal - Kyle McDonald)
(Kyle McDonald is an employee of the City of Windsor)

Owner: 2156567 Ontario Ltd.

Agent: Pillon Abbs Inc., Tracey Pillon-Abbs, MCIP, RPP

Proposal:

The parcel is occupied by a semi-detached dwelling with a total of four dwelling units (two semi-detached dwelling units and two additional dwelling units [one ADU in each semi-detached dwelling unit]). The parcel has no on-site parking.

The Applicant is requesting an amendment to Zoning By-law 8600 by adding a site specific exception to add a fifth dwelling unit in the attic, converting the building into a multiple dwelling with five dwelling units. Relief is being requested from minimum lot width, minimum lot area, maximum lot coverage, minimum front yard depth, minimum rear yard depth and minimum side yard width – these recognize the dwelling “as existing”. Further details of the proposal are contained herein. Maximum building height of 10 m remains unchanged. Relief is also requested from required parking by not providing any on-site parking (zero parking spaces).

The proposed development is subject to site plan control. The applicant is also requesting an exemption from Interim Control By-law 103-2020.

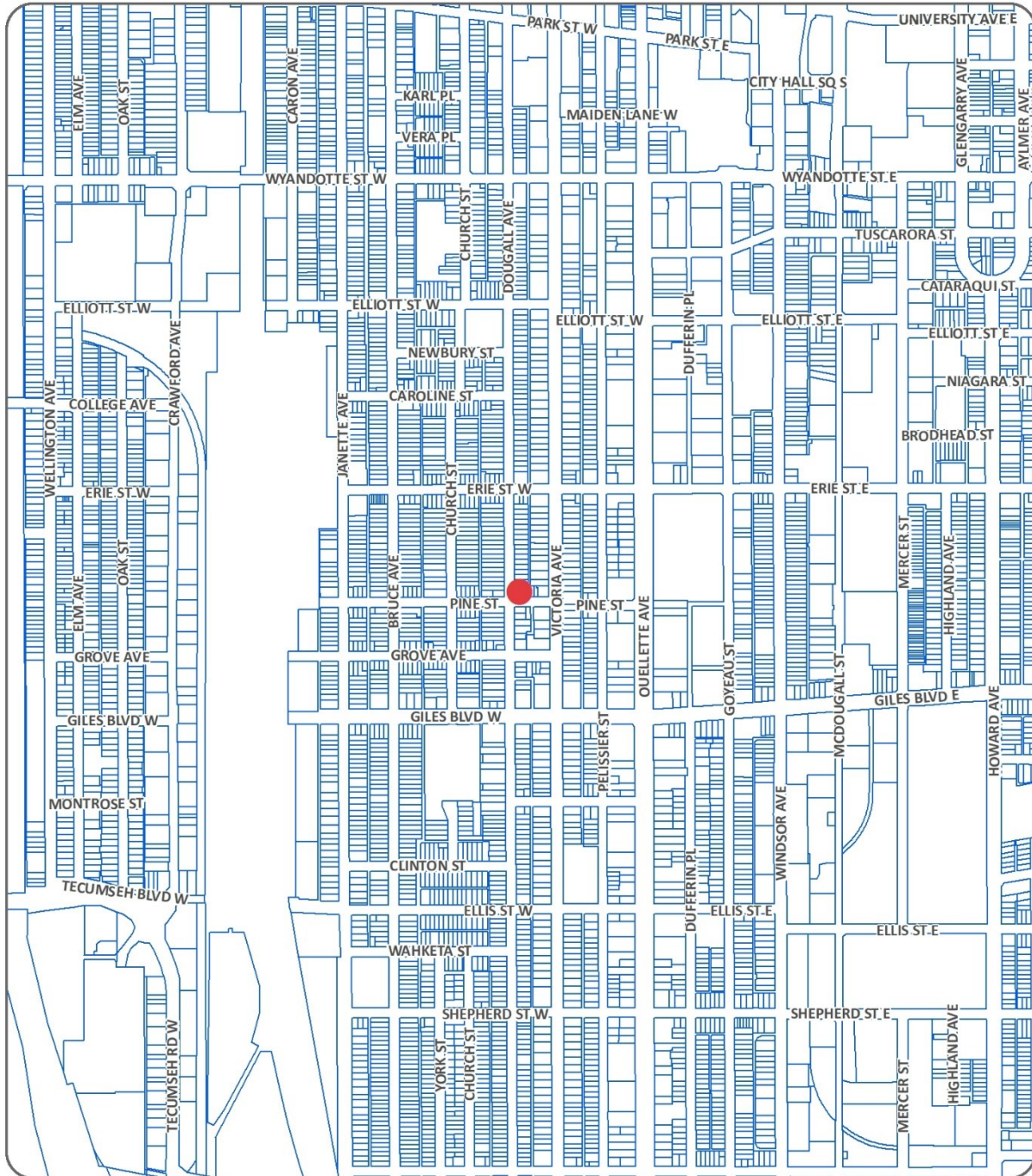
Submitted Material: Zoning By-law Amendment Application Form; Site Plan (attached as Appendix A); Planning Rationale Report (attached as Appendix B)

Site Information:

OFFICIAL PLAN	ZONING	CURRENT USE	PREVIOUS USE
Residential	Residential District 1.3 (RD1.3)	Semi-detached Dwelling (4 units total)	N/A
LOT WIDTH	LOT DEPTH	LOT AREA	LOT SHAPE
14.3 m	28.3 m	406.8 sq. m	Rectangular (Corner)
47.0 ft	93.0 ft	4,371.0 sq. ft.	

Metric measurements are provided by applicant.

Figure 1: Key Map

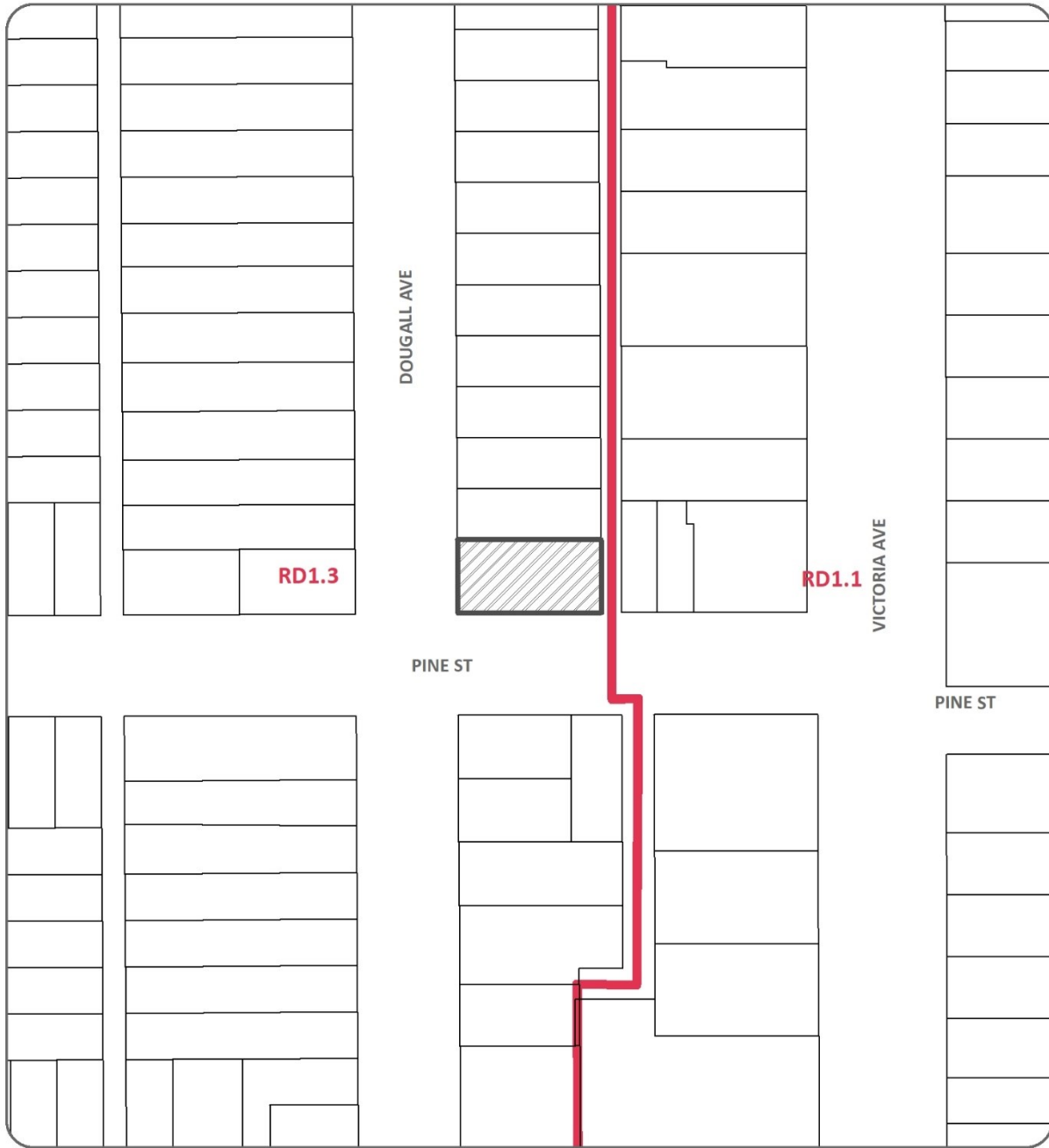


KEY MAP - Z-041/21, ZNG-6624



● SUBJECT LANDS

Figure 2: Subject Parcel - Rezoning



PART OF ZONING DISTRICT MAP 7

N.T.S.

REZONING

Applicant: 2156567 Ontario Ltd (Kyle McDonald)



SUBJECT LANDS

PLANNING & BUILDING DEPARTMENT



DATE : NOVEMBER, 2021
FILE NO. : Z-041/21, ZNG/6624

Figure 3: Neighborhood Map



NEIGHBOURHOOD MAP - Z-041/21, ZNG-6624



SUBJECT LANDS

Neighbourhood Characteristics:

The subject parcel is located within an established residential area consisting primarily of low profile housing with a small scale form. See Appendix C for site images.

Low density residential uses consisting primarily of dwellings with one to four dwelling units are located along Dougall Avenue. Victoria Avenue to the east, and Church Street to the west. Medium density multiple dwelling with 5 or more dwelling units are located along Giles Boulevard to the south and Erie Street to the north. Various commercial uses are located along Ouellette Avenue.

The Ouellette Campus of the Windsor Regional Hospital is located to the east on Ouellette Avenue, approximately 330 m walking distance. Mitchell Park, a large neighbourhood park with playground equipment, soccer field, basketball and tennis courts are just over 300 m to the south. Dougall Avenue Public School is located just over 500 m to the north at Dougall Avenue and Elliot Street and Queen Victoria Public School is about 600 m to the south at Victoria Avenue and Ellis Street.

This portion of Dougall Avenue is classified as a Local Road, is one-way southbound with alternate side parking, and has sidewalks on both sides. Pine Street is also a Local Road, with alternate side parking and sidewalks on both sides. Ouellette Avenue east is a Class II Arterial Road. Bruce Avenue and Janette Avenue to the west and Erie Street to the north are Class I Collector Roads with existing or proposed biking facilities.

Transit Windsor operates the Dougall 6 (southbound) along this portion of Dougall Avenue with a bus stop southwest of the subject parcel. The northbound part of the Dougall 6 operates along Bruce Avenue, with a bus stop at the northeast corner of Bruce and Pine. Multiple bus routes operate along Ouellette Avenue, approximately 270 m to the east. The Transit Master Plan indicates similar routes.

Storm and sanitary sewers are available. No municipal infrastructure or service deficiencies have been identified.

Discussion:

Provincial Policy Statement, 2020

The Provincial Policy Statement (PPS) provides direction on matters of provincial interest related to land use planning and development and sets the policy foundation for regulating the development and use of land in Ontario.

Policy 1.1.1 of the PPS states:

“Healthy, liveable and safe communities are sustained by:

- a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term;*
- b) accommodating an appropriate affordable and market-based range and mix of residential types (including single-detached, additional residential units, multi-unit housing, affordable housing and housing for older persons), employment (including industrial and commercial), institutional (including places of worship, cemeteries and*

long-term care homes), recreation, park and open space, and other uses to meet long-term needs;

- e) promoting the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns, optimization of transit investments, and standards to minimize land consumption and servicing costs;”*

The proposed multiple dwelling containing a maximum of five dwelling units represents an efficient development and land use pattern that will have no adverse impact on the financial well-being of the City of Windsor, land consumption, and servicing costs, and optimizes investments in transit. The requested zoning amendment is consistent with Policy 1.1.1 of the PPS.

Policy 1.1.3.1 of the PPS states:

“Settlement areas shall be the focus of growth and development.”

Policy 1.1.3.2 of the PPS states:

“Land use patterns within settlement areas shall be based on densities and a mix of land uses which:

- a) efficiently use land and resources;*
- b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion;*
- e) support active transportation;*
- f) are transit-supportive, where transit is planned, exists or may be developed;”*

The subject parcel is located within the settlement area. The proposed zoning amendment promotes land uses that make efficient use of land and existing infrastructure. Active transportation options and transit services are located adjacent and near the parcel. The zoning amendment is consistent with PPS Policies 1.1.3.1 and 1.1.3.2.

The proposed amendment to Zoning By-law 8600 is generally consistent with the PPS.

Official Plan:

Relevant excerpts from the Official Plan are attached as Appendix D. The subject property is located within the University Planning District and is designated Residential on Schedule D: Land Use of the City of Windsor Official Plan.

Objective 6.3.1.1 supports a complementary range of housing forms and tenures in all neighbourhoods. Objective 6.3.1.2 seeks to promote compact neighbourhoods and balanced transportation systems. Objective 6.3.1.3 seeks to promote selective residential redevelopment, infill and intensification initiatives. While the proposed development represents a compact form of housing and is located near sources of transportation, the subject lands have been subject to intensification via the Additional Dwelling Unit policies and provisions. The fifth dwelling unit represents intensification beyond that initiative. This is not complementary with housing forms in the area. The zoning amendment does NOT satisfy the objectives set out in Section 6.3.1 of the Official Plan.

A multiple dwelling containing a maximum of five dwelling units is classified as a small-scale Low Profile housing development under Section 6.3.2.3 (a), a permitted use in the Residential land use designation (Section 6.3.2.1).

Section 6.3.2.5 lists evaluation criteria to be considered when reviewing a proposed development with an existing developed area. Section 6.3.2.5 (c) and (d) state that a proposed development shall be compatible with the surrounding area in terms of parking and amenity areas, and be provided with adequate off-street parking.

With a lot coverage of almost 52%, the amount of landscaped open space yard available to residents is less than that for a single unit dwelling permitted by the RD1.3 zoning. The addition of a fifth dwelling unit reduces the amount of landscaped open space yard per dwelling unit available for the enjoyment of residents.

The parking rate for a multiple dwelling with five or more dwelling units is 1.25 parking spaces per dwelling unit. A multiple dwelling with five units requires a total of six parking spaces. The two semi-detached dwelling units have an existing deficiency of two spaces and the two additional dwelling units do not require parking. Two additional parking spaces are required for the fifth dwelling unit.

The majority of dwellings in this area have parking from the alley or in the front yard. The subject parcel does not currently have any on-site parking and there is no viable option for on-site parking. Any parking, either resident or visitor, will be on-street. The development is not being provided with adequate off-street parking.

The proposed development is NOT compatible with the surrounding land uses (Section 6.3.2.5 (c)) in terms of parking and amenity area.

The proposed change to Zoning By-law 8600 does NOT conform to the general policy direction of the Official Plan.

Zoning By-Law:

Relevant excerpts from Zoning By-law 8600 are attached as Appendix E.

The applicant is requesting a site specific exception to allow a multiple dwelling containing a maximum of five dwelling units and recognize the existing lot and building in terms of minimum lot width, minimum lot area, maximum lot coverage, minimum front yard depth, minimum rear yard depth, minimum side yard width and required parking.

The RD1.3 zoning district permits one single unit dwelling on a lot with a minimum width of 9.0 m and a minimum area of 270 m², a minimum front yard depth of 6.0, a minimum rear yard depth of 7.50 m and a minimum side yard width of 1.20 m. The minimum building height is 10.0 m and maximum lot coverage is 45%. An existing semi-detached dwelling and an existing duplex dwelling are also permitted uses subject to the provisions in RD1.3.

The addition of the fifth dwelling unit within the existing building changes the dwelling type from a semi-detached dwelling to a multiple dwelling. The existing lot width and area are less than that required for a semi-detached dwelling, and much less than typically required for a multiple dwelling with at least four dwelling units. For example, the RD2.2 zoning district requires a minimum lot width of 18 m and minimum lot area of

540 m² for a multiple dwelling with four dwelling units. The existing lot has a width of 14.33 m and an area of 406.08 m².

The reduction in minimum lot width, minimum lot area, minimum front yard depth, and minimum rear yard depth, the increase in maximum lot coverage, and the lack of any on-site parking indicate that the proposed development is an over intensification of the subject parcel.

Site Plan Control:

Typically, a multiple dwelling with five dwelling units is subject to site plan control. However, since no on-site parking is being proposed and no additions or significant exterior alterations are being proposed, the need for site plan approval is at the discretion of the Site Plan Approval Officer. All changes to the building are subject to the Ontario Building Code.

Interim Control By-law 103-2020 (RICBL):

The parcel is subject to Residential Interim Control By-law 103-2020 (RICBL) which prohibits a Group Home, Lodging House, a Shelter, and a dwelling with five or more dwelling units throughout the City of Windsor to allow a land use study to be conducted. The criteria below are used to evaluate the exemption:

Consistency with the Official Plan – Whether the proposed development is consistent with the land use designation and general policy direction of the Official Plan. For the reasons discussed in the analysis of the Official Plan above, the proposed development is not consistent with the Residential land use designation.

Compliance with the Zoning By-law – Whether the proposed development is a permitted use and complies with the provisions. The proposed multiple dwelling does not comply with Zoning By-law 8600 and requires several site specific exceptions to permit the fifth dwelling unit.

Distance to Nearby Services and Amenities – Whether residents have access to services and amenities such as a grocery store, a community or recreational facility, or other uses that meet their daily needs within a 1 km or less walk. Numerous services and amenities are located along Ouellette Avenue and Erie Street Street, all within a 1 km walk of the subject parcel.

Distance to Public Transit – Whether residents have access to current and future public transit within an approximate 1 km or less walk. Transit Windsor operates bus routes on Bruce Avenue, Dougall Avenue and Ouellette Avenue, all within 1 km or less.

Potential impact on the Land Use Study – This criterion considers if approval of the exemption may prejudice the Land Use Study. Typically, if the proposed development is consistent with the Official Plan, complies with the Zoning By-law, is within an acceptable distance of nearby services and amenities, and is, or will be, within an acceptable distance of public transit, there should be no impact on the Land Use Study.

The parcel is within an acceptable distance of services, amenities, and public transit; however, it is not consistent with the Official Plan and does not comply with Zoning By-law 8600. The proposed development may prejudice the Land Use Study.

Section 2(1) of B/L 103-2020 exempts a parcel from the provisions of RICBL where an amending by-law to Zoning By-law 8600 to permit a dwelling with five or more dwelling

units comes into force on or after January 1, 2017. Should Council approve this application and an amending by-law comes into force, the proposed development will be automatically exempt from Interim Control By-law 103-2020.

Risk Analysis:

N/A

Climate Change Risks

Climate Change Mitigation:

In general, the intensification of existing buildings will minimize the impacts on the Community greenhouse gas emissions as these developments create complete communities and neighbourhoods while using currently available infrastructure such as sewers, sidewalks, and public transit.

Climate Change Adaptation:

The proposed addition of a dwelling unit will provide minimal opportunity to increase resiliency for the development and surrounding area,

Financial Matters:

N/A

Consultations:

Comments received from municipal departments and external agencies are attached as Appendix F.

Public Notice: Statutory notice was advertised in the Windsor Star, a local daily newspaper. A courtesy notice was mailed to property owners and residents within 120m of the subject parcel.

Planner's Opinion:

The *Planning Act* requires that a decision of Council in respect of the exercise of any authority that affects a planning matter, "shall be consistent with" Provincial Policy Statement 2020. The requested zoning amendment has been evaluated for consistency with the Provincial Policy Statement 2020 and conformity with the Official Plan.

Based on the information presented in this report, it is my opinion that an amendment to Zoning By-law 8600 to allow a multiple dwelling containing a maximum of five dwelling units as an additional permitted use is consistent with the PPS 2020, but is not in conformity with the City of Windsor Official Plan, and does not constitute good planning.

Notwithstanding the Planner's Opinion, if the Development & Heritage Standing Committee and/or City Council want to approve the application, a site specific exception is required to allow a multiple dwelling containing a maximum of five dwelling units as an additional permitted use. Appendix G contains a site specific exception that would allow the multiple dwelling subject to additional provisions. Appendix G does not represent the opinion of the Planner or the position of the Planning Department on the application.

Conclusion:

The application for an amendment to Zoning By-law 8600 to allow a multiple dwelling containing a maximum of five dwelling units as an additional permitted use should be denied as the fifth unit represents an over-intensification of the subject parcel.

Planning Act Matters:

I concur with the above comments and opinion of the Registered Professional Planner.

Neil Robertson, MCIP, RPP
Manager, Urban Design

Thom Hunt, MCIP, RPP
City Planner

I am not a registered Planner and have reviewed as a Corporate Team Leader

SAH OC

Approvals:

Name	Title
Neil Robertson	Manager, Urban Design
Thom Hunt	City Planner
Wira Vendrasco	Deputy City Solicitor
Shelby Askin Hager	City Solicitor
Jason Reynar	Chief Administrative Officer

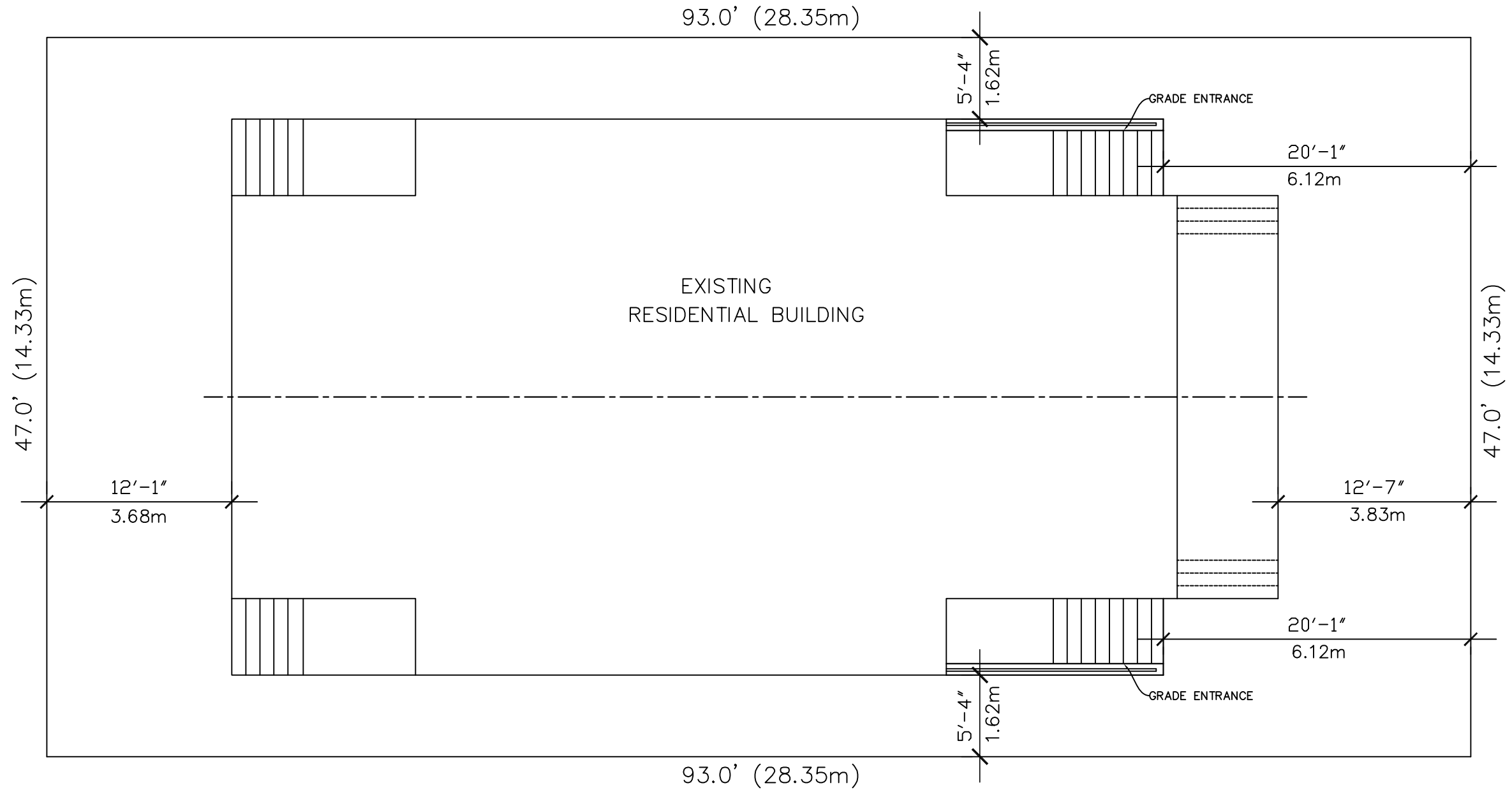
Notifications:

Name	Address	Email
2156567 Ontario Ltd. (Kyle McDonald)	1145 Croydon Road LaSalle, ON N9H 1B3	Kyle_j_mcdonald@yahoo.ca
Pier De Simone		p.desimone@hotmail.com
Pillon Abbs Inc. Tracey Pillon-Abbs	23699 Prince Albert Road Chatham, ON N7M 5J7	tpillonabbs@gmail.com
Councillor Bortolin		
Property owners and tenants within 120 m of the subject parcel		

Appendices:

- 1 Appendix A - Site Plan
- 2 Appendix B - Planning Rationale Report
- 3 Appendix C - Site Images
- 4 Appendix D - Extracts from Official Plan
- 5 Appendix E - Extracts from Zoning By-law 8600
- 6 Appendix F - Results of Circulation
- 7 Appendix G - Site Specific Exception

DOUGALL AVENUE



PINE STREET

NOTES:

DOWNSPOUTS MUST NOT BE CONNECTED TO MUNICIPAL SEWER AND SPLASHED TO GRADE.

FOUNDATION DRAINS MUST NOT BE CONNECTED TO MUNICIPAL SEWER, AND MUST BE CONNECTED TO SUMP PUMP.

SANITARY BACK-FLOW VALVES MUST BE INSTALLED IN BASEMENT.

LOT AREA	4,371.0 SF (406.08 SM)
BUILDING AREA	2,257.1 SF (209.69 SM)
LOT COVERAGE	51.64%

NOTE:
NO PARKING ON PROPERTY

MAY 16, 2021

SITE PLAN

1092 DOUGALL AVENUE

SCALE: 1/8" = 1'-0"

PLANNING RATIONALE REPORT

ZONING BY-LAW AMENDMENT

**1092 Dougall Ave
City of Windsor, Ontario**

October 19, 2021

Prepared by:



Tracey Pillon-Abbs, RPP
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1.0 INTRODUCTION

I have been retained by 2156567 Ontario Ltd, the applicant and owner, to provide a land use Planning Rationale Report (PRR) in support of a proposed residential renovation for property located at 1092 Dougall Avenue (herein the "Site") in the City of Windsor, Ontario.

There is presently a residential dwelling on the subject lands. The dwelling is an existing semi-detached dwelling with two (2) units and two (2) Additional Dwelling Units (ADUs) for a total of four (4) units.

The Site is a large corner lot with access from Dougall Avenue, Pine Street and an alley.

The applicant intends to convert the attic of the existing structure into an additional one (1) unit for a total of five (5) units, which will be considered a multiple dwelling unit.

The Site will provide for an affordable housing option in an existing neighbourhood.

There is currently no existing parking on the property. However, the site is located near transit, has on-street parking and will offer bicycle and electric bike storage.

A site specific Zoning By-law Amendment (ZBA) is required in support of the proposed development. Council for the City of Windsor is the approval authority.

Exemption from the provisions of Interim Control By-law 103/2020 is also requested.

The purpose of this report is to review the relevant land use documents, including Provincial Policy Statement (PPS) 2020, the City of Windsor Official Plan (OP) and the City of Windsor Zoning By-law (ZBL) as it pertains to the ZBA application.

Pre-submission was completed (City File #PS-020/21). Comments dated March 17, 2021, were received and have been incorporated into the proposed application.

This PRR will show that the proposed development represents good planning addressing the need for the City to provide residential infilling development in the form of a multiple dwelling unit, which contributes to affordability and intensification requirements.

2.0 SITE AND SURROUNDING LAND USES

2.1 Legal Description and Ownership

The Site is a corner lot, made up of one (1) parcel located on the east side of Dougall Avenue and the north side of Pine Street (see Figure 1a – Air Photo).

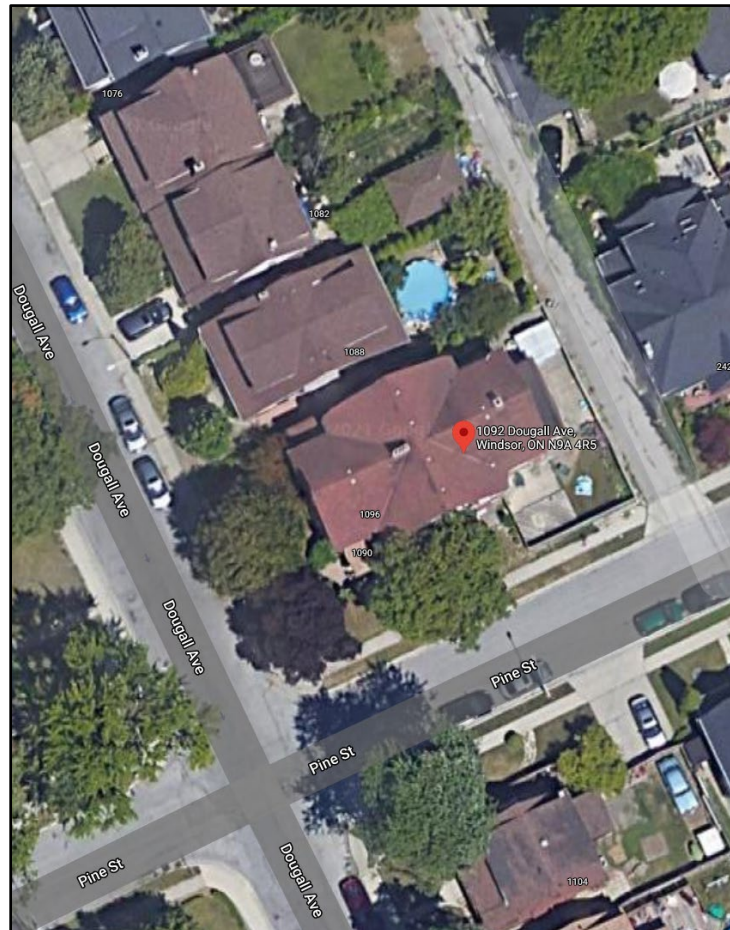


Figure 1a – Air Photo (Source: Google Mapping)

The Site is legally described as Plan 581, Lot 328 N PT; 327 CORNER, City of Windsor and locally known as 1092 Dougall Avenue, Windsor, Ontario.

The Site currently has an existing residential dwelling.

There is an alley way at the rear of the Site. There is no parking on-site (see Figures 1b, 1c and 1d – Street Views).

1092 Dougall Ave, Windsor, Ontario

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Figure 1b – Street View – Dougall Ave (Source: Pillon Abbs Inc)



Figure 1c – Street View – Pine St (Source: Pillon Abbs Inc)

1092 Dougall Ave, Windsor, Ontario

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Figure 1d – Street View – Alley (Source: Pillon Abbs Inc)

2.2 Physical Features of the Site

2.2.1 Size and Site Dimension

The Site consists of a total area of approximately 406.08 square metres (4,371 square feet). It has 14.33 m (47.0 ft) of frontage along Dougall Ave and a 28.35 m (93.0 ft) of depth along Pine Street.

2.2.2 Vegetation

There are existing mature trees along Dougall Avenue and Pine Street.

2.2.3 Topography

The Site is flat and is outside the regulated area of the Essex Region Conservation Authority (ERCA).

2.2.4 Other Physical Features

The property is currently fenced for separation between the neighbors.

2.2.5 Municipal Services

The property has access to municipal water, storm and sanitary services.

The subject property is in close proximity to major transportation corridors including Erie Street West, Giles Blvd W and Ouellette Ave. Dougall Ave is a one-way street going southbound and Pine Street is a two-way street.

There are streetlights and sidewalks along Dougall Avenue and Pine Street.

The nearest fire hydrant is located on the northwest corner of Dougall Avenue and Pine Street, directly across the Site.

2.2.6 Nearby Amenities

There are several schools located nearby the Site including Dougall Ave Public School and Queen Victoria Public School.

There are parks and recreation opportunities in close proximity of the Site including the Mitchell Park, Wigle Park and Bruce Avenue Park.

There are nearby commercial nodes, such as food service, personal service shops, and retail. There is also nearby employment lands, churches, and local/regional amenities.

The Site has access to transit, with the nearest bus stop located at the corner of Erie Street East and Church Street (Stop ID 1744) and Bruce Avenue and Pine Street (Stop ID 1747), which are part of City of Windsor Bus Route 6.

2.3 Surrounding Land Uses

Overall, the Site is located within an existing low profile residential neighbourhood (Photos taken by Pillon Abbs Inc on September 22, 2020).

North – The lands to the north of the Site are used for residential with frontage on Dougall Ave (see Photo 1 – North).



Photo 1 – North (along Dougall Ave)

East – The lands east of the Site are used for residential with frontage on Pine Street (see Photo 3 - East).



Photo 3 – East (along Pine St)

South – the lands to the south of the Site are used for residential with frontage on Dougall Avenue and Pine Street (see Photo 3 - South).



Photo 3 – South (corner of Dougall Ave and Pine St)

West – The lands to the west of the Site are used for residential with frontage on Dougall Avenue (see Photo 4 – West).

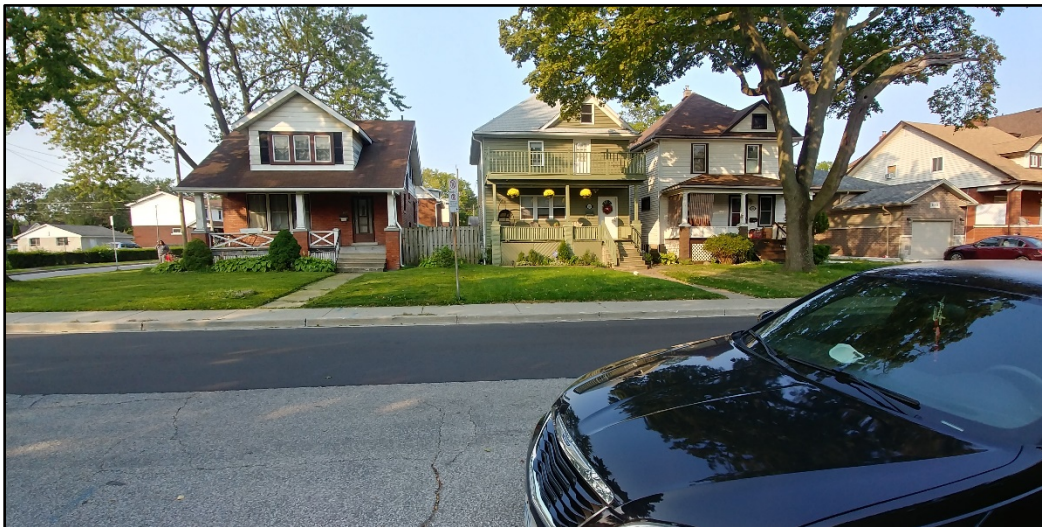


Photo 4 – West (along Dougall Ave)

3.0 DEVELOPMENT PROPOSAL

3.1 Proposal

There is presently a residential dwelling on the subject lands. The dwelling is an existing semi-detached dwelling with two (2) units and two (2) Additional Dwelling Units (ADUs) for a total of four (4) units.

The applicant intends to convert the attic of the existing structure into an additional one (1) unit for a total of five (5) units, which will be considered a multiple dwelling unit (see Figure 2 – Site Plan).

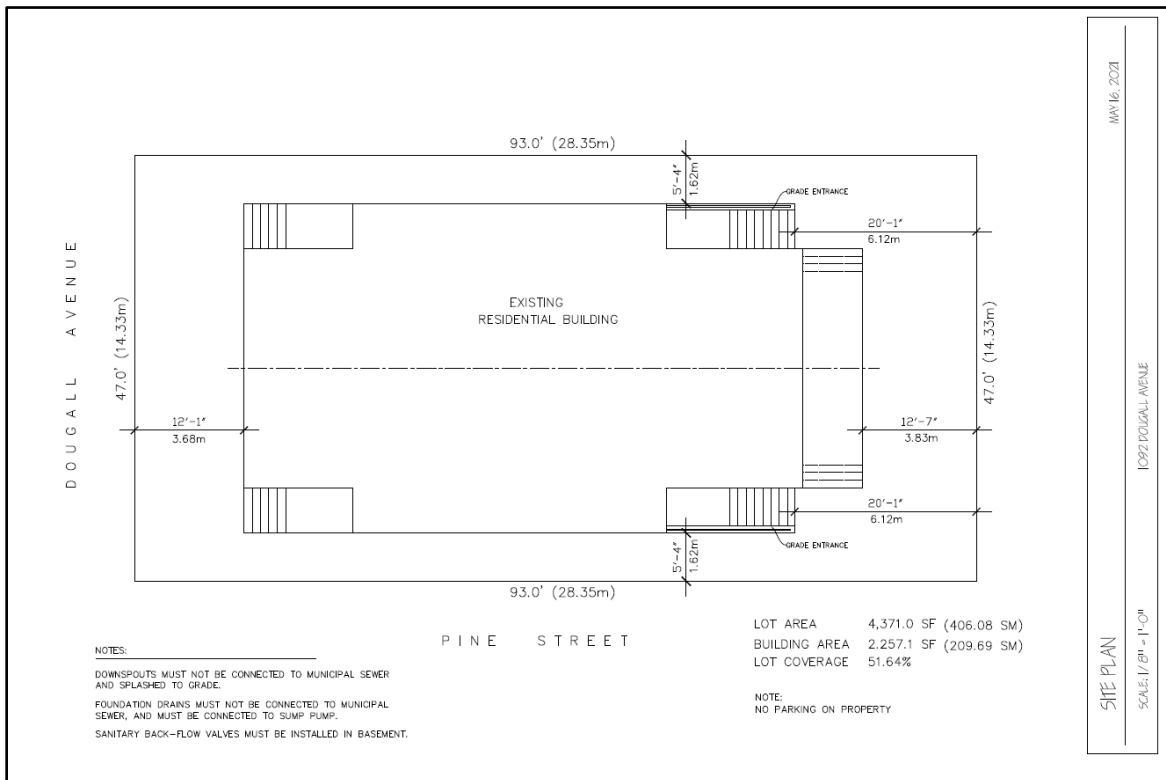


Figure 2 – Site Plan

The attic is an existing space in the residential dwelling and will have direct access from the exterior of the building.

Renovations will only be required in the interior of the existing building. There will be no required or proposed alterations to the exterior of the dwelling.

The current building is 209.69 sq m (2,257.1 sq ft) in size., which represents an existing lot coverage of 51.64%.

The existing and proposed units will all have separate entrances.

There are no parking spaces located on the Site currently, however, the site is located near transit, has on-street parking and will offer bicycle and electric bike storage within the fenced area with access from the alley.

3.2 Support Studies

No support studies are required.

3.3 Public Consultation Strategy

The Planning Act requires that the applicant submit a proposed strategy for public consultation with respect to an application, as part of the complete application requirements.

As part of a public consultation strategy, the applicant proposes that the required public meeting will be sufficient as the size of development is small scale.

At this time, no informal public open house is proposed to be held by the applicant.

4.0 PROPOSED APPLICATION

4.1 Zoning By-Law Amendment (ZBA)

A site specific Zoning By-law Amendment (ZBA) is required in order to permit the proposed residential renovation.

The Site is currently zoned “Residential District 1.3 (RD1.3)” on Map 7 of the City of Windsor Zoning By-Law.

It is proposed to change the zoning of the Site from the existing “Residential District 1.3(RD1.3)” zoning to a site specific “Residential District 1.3 (RD1.3 –(20)(1) (XXX)” to permit a multiple dwelling with up to 5 dwelling units and to allow relief for the reduction in parking and acknowledge the existing building and lot.

Further analysis is provided in Section 5.1.3 of this PRR.

4.2 Interim Control

Exemption from the provisions of Interim Control By-law 103/2020 is also requested.

4.3 Other

Prior to renovation, a building permit will be obtained.

5.0 PLANNING ANALYSIS

5.1 Policy and Regulatory Overview

5.1.1 Provincial Policy Statement (PPS), 2020

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development providing for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environments.

The PPS is issued under Section 3 of the Planning Act and came into effect on May 1, 2020. It applies to all land use planning matters considered after this date.

The PPS supports improved land use planning and management, which contributes to a more effective and efficient land use planning system.

The following provides a summary of the key policy considerations of the PPS as it relates to the proposed development.

PPS Policy #	Policy	Response
1.0Ontario's long-term prosperity, environmental health and social well-being depend on wisely managing change and promoting efficient land use and development patterns.....	The City has directed growth where the Site is located which will contribute positively to promoting efficient land use and development patterns.
1.1.1	Healthy, liveable and safe communities are sustained by: a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term; b) accommodating an appropriate affordable and market-based range and mix of residential types, employment, institutional, recreation, park and open space, and other uses to meet long-term needs;	The proposed development is consistent with the policy to build strong, healthy and livable communities as it provides for a range and mix of residential in the form of affordable development. There are no environmental or public health and safety concerns as the area is well established. The development pattern does not require expansion of the settlement area as it is

PPS Policy #	Policy	Response
	<p>c) avoiding development and land use patterns which may cause environmental or public health and safety concerns;</p> <p>d) avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas;</p> <p>e) promoting.....cost-effective development patterns and standards to minimize land consumption and servicing costs;</p> <p>f) improving accessibility for persons with disabilities and older persons by addressing land use barriers which restrict their full participation in society;</p> <p>h) promoting development and land use patterns that conserve biodiversity.</p>	<p>development of an existing structure.</p> <p>The Site has access to full municipal services and is close to existing local parks, churches, trails and schools.</p> <p>Accessibility of the attic unit will be addressed at the time of the building permit application.</p> <p>Public service facilities are available, such as local schools.</p> <p>The development pattern is proposed to be an efficient use of the Site.</p>
1.1.2	<p>Sufficient land shall be made available to accommodate an appropriate range and mix of land uses to meet projected needs for a time horizon of up to 25 years.</p> <p>Within settlement areas, sufficient land shall be made available through intensification and redevelopment and, if necessary, designated growth areas.</p>	<p>The proposed development will help the City meet the full range of current and future residential needs through intensification.</p> <p>The intensification can be accommodated for the proposed development as it is a development opportunity within an existing neighbourhood.</p> <p>The Site will provide for affordable residential infilling within an existing settlement area in the form of a multiple unit dwelling.</p>
1.1.3.1	Settlement areas shall be the focus of growth and development.	The proposal enhances the vitality of the municipality, as

PPS Policy #	Policy	Response
		<p>the proposal is within the City's settlement area.</p> <p>The Site will provide for affordable housing.</p>
1.1.3.2	<p>Land use patterns within settlement areas shall be based on densities and a mix of land uses which:</p> <ul style="list-style-type: none"> a) efficiently use land and resources; b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion; c) minimize negative impacts to air quality and climate change, and promote energy efficiency; d) prepare for the impacts of a changing climate; e) support active transportation; f) are transit-supportive, where transit is planned, exists or may be developed; and g) are freight-supportive. 	<p>The total density of the proposed development is considered appropriate as most of the existing neighborhood is made up of low profile residential in the form of single unit and multiple dwellings.</p> <p>The Site offers an opportunity for intensification by creating a new residential unit in an existing structure.</p> <p>The intensification can be accommodated for the proposed development as it is an infilling opportunity within an existing neighbourhood.</p> <p>The existing design and style of the residential dwelling will be unchanged.</p> <p>The existing building blends with the dwellings in the area and is a similar scale and massing of the existing dwellings in the neighborhood.</p> <p>The land area is sufficient to accommodate the proposed development with adequate existing buffering from abutting land uses.</p>

PPS Policy #	Policy	Response
		<p>Residents will have immediate access to shopping, employment, trails, transit, active transportation, recreational areas and institutional uses.</p> <p>Transit is available for the area.</p>
1.1.3.3	<p>Planning authorities shall identify appropriate locations and promote opportunities for transit-supportive development, accommodating a significant supply and range of housing options through intensification and redevelopment where this can be accommodated taking into account existing building stock or areas, including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs.</p>	<p>The intensification can be accommodated for the proposed residential renovation as it is an appropriate use of the existing attic.</p>
1.1.3.4	<p>Appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety.</p>	<p>The intensification can be accommodated for the proposed development as it is a development opportunity within an existing building.</p> <p>There will be no risks to the public. The Site is outside of the ERCA regulated area.</p>
1.1.3.5	<p>Planning authorities shall establish and implement minimum targets for intensification and redevelopment within built-up areas, based on local conditions.</p>	<p>The City has established targets for intensification and redevelopment.</p> <p>The proposed development will assist in meeting those targets as the Site is located in an existing built-up area</p>

PPS Policy #	Policy	Response
		<p>and will add a new residential unit.</p> <p>The Site will provide for affordable housing.</p>
1.1.3.6	<p>New development taking place in designated growth areas should occur adjacent to the existing built-up area and should have a compact form, mix of uses and densities that allow for the efficient use of land, infrastructure and public service facilities.</p>	<p>The proposed development does have a compact form.</p> <p>The low profile density will allow for the efficient use of land, infrastructure and public services.</p>
1.4.1	<p>To provide for an appropriate range and mix of housing options and densities required to meet projected requirements of current and future residents of the regional market area, planning authorities shall:</p> <p>a) maintain at all times the ability to accommodate residential growth for a minimum of 15 years through residential intensification and redevelopment and, if necessary, lands which are designated and available for residential development; and</p> <p>b) maintain at all times where new development is to occur, land with servicing capacity sufficient to provide at least a three-year supply of residential units available through lands suitably zoned to facilitate residential intensification and redevelopment, and land in draft approved and registered plans.</p>	<p>The proposed development will provide for a mix of housing options in the existing built-up area.</p> <p>The intensification can be accommodated for the proposed development as it is a development opportunity within an existing neighbourhood.</p> <p>The area is pedestrian friendly, allowing people to access nearby amenities, such as public spaces, commercial nodes, and recreational activities.</p> <p>Existing municipal services are available.</p> <p>The proposed density offers an opportunity to efficiently use municipal infrastructure.</p>

PPS Policy #	Policy	Response
1.4.3	Planning authorities shall provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area.	<p>The proposed low profile density is compatible with the surrounding area and will provide affordable intensification and infilling through the efficient use of an existing dwelling.</p> <p>The Site will provide for affordable housing.</p> <p>The Site is close to amenities.</p> <p>There is suitable existing infrastructure.</p>
1.6.1	Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs.	<p>The development is on existing full municipal services.</p> <p>Access to public transit is available.</p>
1.6.6.2	Municipal sewage services and municipal water services are the preferred form of servicing for settlement areas to support protection of the environment and minimize potential risks to human health and safety. Within settlement areas with existing municipal sewage services and municipal water services, intensification and redevelopment shall be promoted wherever feasible to optimize the use of the services.	<p>The proposed development will be serviced by municipal sewer, water and storm, which is the preferred form of serving for existing settlement areas.</p> <p>There will be no negative impacts on the municipal system and will not add to the capacity in a significant way.</p>
1.6.6.7	<p>Planning for stormwater management shall:</p> <p>a) be integrated with planning for sewage and water services and ensure that</p>	<p>There will be no risk to health and safety.</p> <p>The area is outside ERCA regulated areas.</p>

PPS Policy #	Policy	Response
	<p>systems are optimized, feasible and financially viable over the long term;</p> <p>b) minimize, or, where possible, prevent increases in contaminant loads;</p> <p>c) minimize erosion and changes in water balance, and prepare for the impacts of a changing climate through the effective management of stormwater, including the use of green infrastructure;</p> <p>d) mitigate risks to human health, safety, property and the environment;</p> <p>e) maximize the extent and function of vegetative and pervious surfaces; and</p> <p>f) promote stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development.</p>	<p>Renovations will only be required in the interior of the existing building.</p> <p>There will be no required or proposed alterations to the exterior of the dwelling.</p> <p>The Site is a large corner lot with access from Dougall Avenue, Pine Street and an alley.</p>
1.6.7.1	Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.	The subject property is in close proximity to major transportation corridors and has access to transit.
1.6.7.2	Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.	<p>The proposed development contributes to the City's requirements for development within an existing built-up area.</p> <p>The area is serviced by transit.</p>
1.6.7.4	A land use pattern, density and mix of uses should be promoted that minimize the	The proposed development contributes to the City's

PPS Policy #	Policy	Response
	length and number of vehicle trips and support current and future use of transit and active transportation.	<p>requirement for affordable infilling within a built-up area.</p> <p>There are no parking spaces located on the Site; however, the Site is located near transit, has on-street parking and will offer bicycle and electric bike storage.</p> <p>The area is pedestrian friendly allowing people to access nearby amenities, such as public spaces, commercial nodes, and recreational activities.</p> <p>The proposed density offers an opportunity to efficiently use existing municipal infrastructure.</p>
1.8	Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns.	<p>The proposed development supports compact form within an existing built-up area of the City.</p> <p>The Site has access to transit and local amenities.</p>
2.1.1	Natural features and areas shall be protected for the long term.	There are no natural features that apply to this Site.
2.2.1	Planning authorities shall protect, improve or restore the quality and quantity of water.	Existing services are already in place on this site.
2.6.1	Significant built heritage resources and significant cultural heritage landscapes shall be conserved.	There are no heritage resources that apply to this Site.
3.0	Development shall be directed away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of	There are no natural or human-made hazards that apply to this Site.

PPS Policy #	Policy	Response
	property damage, and not create new or aggravate existing hazards.	

Therefore, the proposed development is consistent with the PPS.

5.1.2 Official Plan (OP)

The City of Windsor Official Plan (OP) was adopted by Council on October 25, 1999, approved in part by the Ministry of Municipal Affairs and Housing (MMAH) on March 28, 2000 and the remainder approved by the Ontario Municipal Board (OMB) on November 1, 2002. Office consolidation version is dated September 7, 2012.

The OP implements the PPS and establishes a policy framework to guide land use planning decisions related to development and the provision of infrastructure and community services throughout the City.

The lands are designated “Residential” according to Schedule “D – “Land Use” attached to the OP for the City of Windsor (see Figure 3 – City of Windsor OP, Schedule “D”).

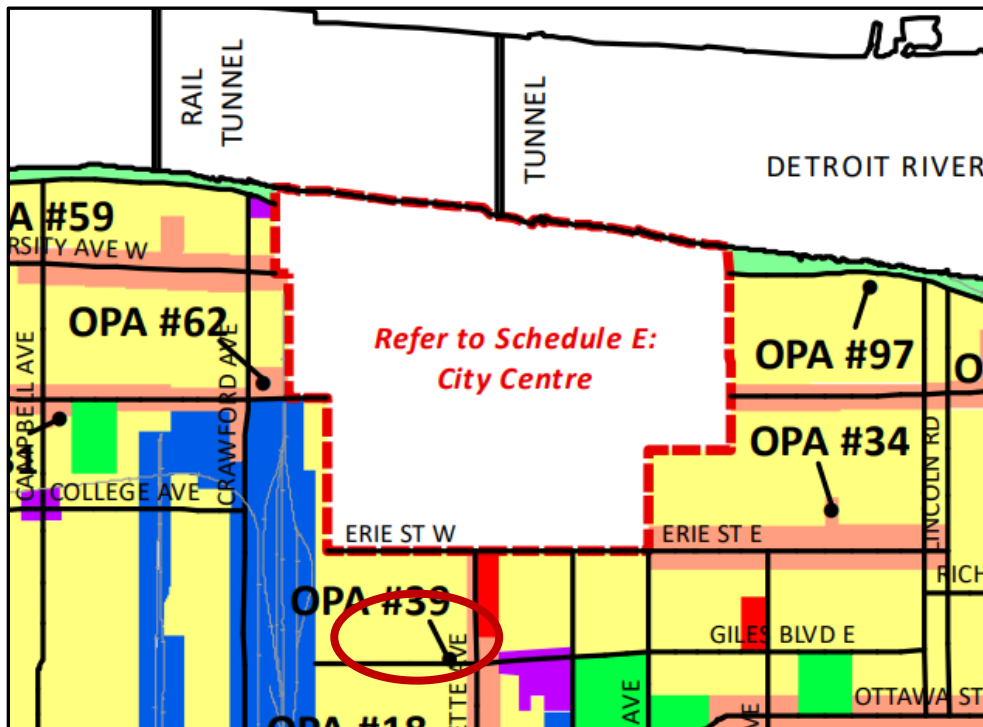


Figure 3 – City of Windsor OP, Schedule “D”

The following provides a summary of the key policy considerations of the OP as it relates to the proposed development.

OP Policy #	Policy	Response
3.2.1.2	Encouraging a range of housing types will ensure that people have an opportunity to live in their neighbourhoods as they pass through the various stages of their lives.	<p>The proposed residential renovation supports one of the City's overall development strategies of providing for a range of housing types.</p> <p>It is proposed to convert the existing attic into an additional dwelling unit in an existing residential dwelling.</p> <p>The new unit will be an affordable rental unit with access from the exterior of the building.</p> <p>The Site is close to transit and local amenities.</p>
3.3.3	<p>Neighbourhoods are the most basic component of Windsor's urban structure and occupy the greatest proportion of the City. Neighbourhoods are stable, low-to-medium-density residential areas and are comprised of local streets, parks, open spaces, schools, minor institutions and neighbourhood and convenience scale retail services.</p> <p>The three dominant types of dwellings in Windsor's neighbourhoods are single detached, semi-detached and townhouses.</p> <p>The density range for Windsor's neighbourhoods is</p>	<p>The proposed residential renovation is in an existing built-up area.</p> <p>There will be no change to the exterior of the structure, which allows the multiple dwelling to blend with the surrounding area.</p> <p>The land area is sufficient to accommodate the proposed development with adequate existing buffering from abutting land uses.</p> <p>The Site is not in a node; however, it offers appropriate infilling in the existing neighbourhood.</p> <p>The area is pedestrian friendly allowing people to access</p>

OP Policy #	Policy	Response
	<p>between 20 to 35 units per net hectare.</p> <p>This density range provides for low and some medium-density intensification to occur in existing neighbourhoods. Multiple dwelling buildings with medium and high-densities are encouraged at nodes identified in the Urban Structure Plan.</p>	<p>nearby amenities, such as public spaces, commercial nodes, and recreational activities.</p> <p>The proposed density offers an opportunity to efficiently use municipal infrastructure.</p> <p>The Site will provide for affordable housing.</p>
4.0	<p>The implementing healthy community policies are interwoven throughout the remainder of the Plan, particularly within the Environment, Land Use, Infrastructure and Urban Design chapters, to ensure their consideration and application as a part of the planning process.</p>	<p>The proposed development will support the City's goal of promoting a healthy community (live, work and play).</p> <p>The proposed development is close to nearby transit, employment, shopping, local/regional amenities and parks/trails.</p>
5.0	<p>A healthy and sustainable environment represents a balance between human activities and natural features and functions. In order to attain this balance, Council will enhance the quality of Windsor's natural environment and manage development in a manner that recognizes the environment as the basis of a safe, caring and diverse community and a vibrant economy.</p>	<p>The proposed development will support the City's goal of a healthy and sustainable environment.</p> <p>The Site is pedestrian friendly as there are sidewalks along the roadway which link to the surrounding amenities.</p> <p>There are no anticipated traffic concerns, no environmental concerns, and no expected hazards.</p>
6.0 - Preamble	<p>A healthy and livable city is one in which people can enjoy a vibrant economy and a sustainable healthy environment in safe, caring and diverse neighbourhoods. In order to ensure that Windsor is such a city, Council</p>	<p>The proposed development supports the policy set out in the OP as it is suited for the residential needs of the City.</p> <p>The Site will provide for affordable housing.</p>

OP Policy #	Policy	Response
	will manage development through an approach which balances environmental, social and economic considerations.	
6.1 - Goals	<p>In keeping with the Strategic Directions, Council's land use goals are to achieve:</p> <p>6.1.1 Safe, caring and diverse neighbourhoods.</p> <p>6.1.3 Housing suited to the needs of Windsor's residents.</p> <p>6.1.10 Pedestrian oriented clusters of residential, commercial, employment and institutional uses.</p>	The proposed development supports the goals set out in the OP as it provides for housing that is suited to residents in this area of Windsor, is pedestrian oriented, close to employment and schooling opportunities.
6.2.1.2 – General Policies	<p>For the purpose of this Plan, Development Profile refers to the height of a building or structure. Accordingly, the following Development Profiles apply to all land use designations on Schedule D: Land Use unless specifically provided elsewhere in this Plan:</p> <p>(a) Low Profile developments are buildings or structures generally no greater than three (3) storeys in height;</p> <p>(b) Medium Profile developments are buildings or structures generally no greater than six (6) storeys in height; and</p> <p>(c) High Profile developments are buildings or structures</p>	<p>The current structure is considered a low profile building.</p> <p>The Site is a large corner lot with access from Dougall Avenue, Pine Street and an alley.</p>

OP Policy #	Policy	Response
	generally, no greater than fourteen (14) storeys in height.	
6.3.2.1 – Permitted uses	Uses permitted in the Residential land use designation identified on Schedule D: Land Use include Low, Medium and High Profile dwelling units.	Residential is a permitted use.
6.3.2.2 – Ancillary Uses	<p>In addition to the uses permitted above, Council will encourage the achievement of diverse and self-sufficient neighbourhoods by permitting the following ancillary uses in areas designated Residential on Schedule D: Land Use without requiring an amendment to this Plan:</p> <p>(a) community services including libraries, emergency services, community centres and similar public agency uses; (Amended by OPA #106 – November 6, 2015, B/L 143-2015) (b) home based occupations subject to the provisions of policy 6.3.2.7; (c) Neighbourhood Commercial uses subject to the provisions of policy 6.3.2.9; (d) Open Space uses subject to the provisions of section 6.7; and (e) Minor Institutional uses subject to the provisions of section 6.6.</p>	No Ancillary Uses are proposed.
6.3.2.5	At the time of submission, the proponent shall demonstrate to the satisfaction of the Municipality that a proposed residential development within an area having a Neighbourhood development pattern is:	This PRR has addressed these requirements.

OP Policy #	Policy	Response
	<p>(a) feasible having regard to the other provisions of this Plan, provincial legislation, policies and appropriate guidelines and support studies for uses: (i) within or adjacent to any area identified on Schedule C: Development Constraint Areas and described in the Environment chapter of this Plan; (ii) adjacent to sources of nuisance, such as noise, odour, vibration and dust; (iii) within a site of potential or known contamination; (iv) where traffic generation and distribution is a provincial or municipal concern; and (v) adjacent to heritage resources. (b) in keeping with the goals, objectives and policies of any secondary plan or guideline plan affecting the surrounding area; (c) compatible with the surrounding area in terms of scale, massing, height, siting, orientation, setbacks, parking and amenity areas; (d) provided with adequate off street parking; (e) capable of being provided with full municipal physical services and emergency services; and (f) facilitating a gradual transition from Low Profile residential development to Medium and/or High profile development and vice versa, where appropriate.</p>	
7.0 - Infrastructure	The provision of proper infrastructure provides a safe, healthy and efficient living environment. In order to	The Site is close to nearby transit, off major transportation corridors and has access to full municipal services.

OP Policy #	Policy	Response
	<p>accommodate transportation and physical service needs in Windsor, Council is committed to ensuring that infrastructure is provided in a sustainable, orderly and coordinated fashion.</p>	<p>There will be no negative impacts on the municipal system as the existing residential dwelling is limited to low profile and will not add to the capacity in a significant way.</p>
<p>8 – Urban Design</p>	<p>A memorable, attractive and liveable city is one where people feel comfortable and are inspired by their surroundings. The physical systems and built form of the city are also designed to protect, maintain and improve the quality of life for present and future generations by integrating the principles of sustainability and place making. In order for Windsor to be such a city, Council is committed to urban design principles that enhance the enjoyment and image of Windsor and its people</p>	<p>The existing design of the dwelling blends with the surrounding area as there will be no exterior changes.</p> <p>The land area is sufficient to accommodate the proposed development with adequate existing buffering from abutting land uses.</p> <p>The Site is a large corner lot with access from Dougall Avenue, Pine Street and an alley.</p> <p>The Site is pedestrian friendly, has a clean façade and is a safe place for people to live.</p> <p>There are no parking spaces located on the Site, however, the Site is located near transit, has on-street parking and will offer bicycle and electric bike storage.</p> <p>The Site will provide for affordable housing.</p> <p>The Site is compatible with the surrounding area in terms of scale, massing, height and siting and the conversion of the dwelling will integrate well with the area.</p>

OP Policy #	Policy	Response
		There are no changes to the existing exterior of the residential dwelling.

Therefore, the proposed development conforms to the City of Windsor OP.

5.1.3 Zoning By-law (ZBL)

The City of Windsor Zoning By-Law (ZBL) #8600 was passed by Council on July 8, 2002 and then a further Ontario Municipal Board (OMB) decision issued on January 14, 2003.

A ZBL implements the PPS and the City OP by regulating the specific use of property and provide for its day-to-day administration.

According to Map 7 attached to the ZBL the Site is currently zoned “Residential District 1.3 (RD1.3)” category (see Figures 4 – City of Windsor Zoning Map 7).

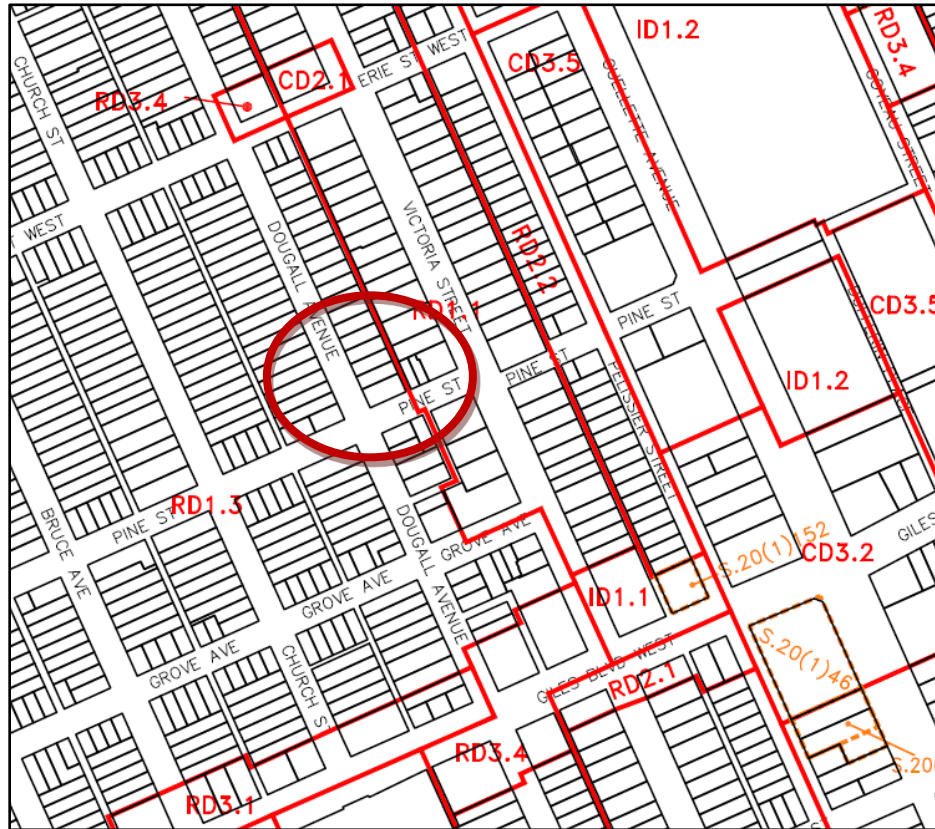


Figure 4 – City of Windsor Zoning Map 7

It is proposed to change the zoning of the Site from the existing “Residential District 1.3(RD1.3)” zoning to a site specific “Residential District 1.3 (RD1.3 –(20)(1) (XXX)” to permit a multiple dwelling with 5 dwelling units and to allow relief for the existing building and lot.

Multiple Dwelling is defined in the City of Windsor ZBL as:

MULTIPLE DWELLING means one dwelling containing a minimum of three dwelling units. A double duplex dwelling, semi-detached dwelling, stacked dwelling, or townhome dwelling is not a multiple dwelling.

A review of the RD1.3 zone provisions, as set out in Section 10.3 of the ZBL are as follows:

Zone Regulations	Required RD1.3 (Existing semi with 2 ADUs)	Proposed	Compliance and/or Relief Requested with Justification
Permitted Uses	Existing Duplex Dwelling Existing Semi-Detached Dwelling One Single Unit Dwelling Any use accessory to the preceding uses	Multiple Dwelling with up to 5 dwelling units	Complies, subject to the ZBL amendment.
Minimum Lot Width	15.0 m	14.33 m	The lot is existing.
Minimum Lot Area	450 m ²	406.08 m ²	The lot is existing.
Maximum Lot Coverage	45.0 %	51.64 %	The lot and building are existing.
Maximum Main Building Height	10.0 m	10.0 m	No change to the building exterior.
Minimum Front Yard Depth	6.0 m	3.68 m	The building is existing.
Minimum Rear Yard Depth	7.5 m	3.83 m	The building is existing.
Minimum Side Yard Width	2.5 m	1.62 m	The building is existing.
Parking 24.20.5.1	1 per dwelling (5 total)	0	Relief required. There is currently no existing parking on the property. However, the site is located near transit, has on-street parking and will offer bicycle and electric bike storage.

Therefore, the proposed development will require a site specific zoning RD1.3 - S.20(1)(XXX) with the above noted requested relief to permit a multiple dwelling with up to 5 dwelling units and to allow relief for the reduction in parking and acknowledge the existing building and lot.

6.0 SUMMARY AND CONCLUSION

6.1 Context and Site Suitability Summary

6.1.1 Site Suitability

The Site is ideally suited for further residential renovation for the following reasons:

- The land area is sufficient to accommodate the existing development with adequate existing buffering from abutting land uses,
- The Site already accommodates municipal water, storm and sewer systems,
- There are no anticipated traffic concerns,
- There are no environmental concerns,
- There are no hazards, and
- The location of the proposed development is appropriate in that it will blend well with the residential uses in the surrounding area.

6.1.2 Compatibility of Design

The Site is compatible with the surrounding area in terms of scale, massing, existing height and siting.

The Site is a large corner lot with access from Dougall Avenue, Pine Street and an alley.

There are no parking spaces located on the Site; however, the site is located near transit, has on-street parking and will offer bicycle and electric bike storage.

6.1.3 Good Planning

The proposal represents good planning as it addresses the need for the City to provide residential infilling development.

The additional unit will contribute toward affordability and intensification requirements.

Continued residential use on the Site represents an efficient development pattern that optimizes the use of land in an existing neighbourhood which has a low profile residential use.

The Site currently accommodates a dwelling with 4 units on municipal services. The additional unit will not put any additional stress on municipal infrastructure.

6.1.4 Natural Environment Impacts

The proposal does not have any negative natural environment impacts, as there are no natural heritage features on the Site.

6.1.5 Municipal Services Impacts

There will be no negative impacts on the municipal system as the residential renovation is limited to low profile and will not add to the capacity in a significant way.

6.1.6 Social and/or Economic Conditions

The proposed development does not negatively affect the social environment as the Site is in close proximity to major transportation corridors, transit, open space and community amenities.

Adding an additional residential unit in an existing residential dwelling in an area with similar residential uses contributes toward the goal of 'live, work and play' where citizens share a strong sense of belonging and a collective pride of place.

The proposed development promotes efficient development and land use pattern which sustains the financial well-being of the municipality.

The proposal does not cause any public health and safety concerns. The proposal represents a cost effective development pattern that minimizes land consumption and servicing costs.

There will be no urban sprawl as the proposed development is within the existing settlement area and is an ideal development opportunity.

6.2 Conclusion

The proposal to add an additional residential unit on the Site is appropriate and should be approved by the City of Windsor.

This PRR has shown that the proposed development is suitable intensification of affordable residential use, is consistent with the PPS, conforms with the intent and purpose of the City of Windsor OP and represents good planning.

The report components for this PRR have set out the following, as required under the City of Windsor OP:

10.2.13.2 Where a Planning Rationale Report is required, such a study should:

- (a) Include a description of the proposal and the approvals required;*
- (b) Describe the site's previous development approval history;*
- (c) Describe major physical features or attributes of the site including current land uses(s) and surrounding land uses, built form and contextual considerations;*
- (d) Describe whether the proposal is consistent with the provincial policy statements issued under the Planning Act.*

- (e) Describe the way in which relevant Official Plan policies will be addressed, including both general policies and site-specific land use designations and policies;*
- (f) Describe whether the proposal addresses the Community Strategic Plan;*
- (g) Describe the suitability of the site and indicate reasons why the proposal is appropriate for this site and will function well to meet the needs of the intended future users;*
- (h) Provide an analysis of the compatibility of the design and massing of the proposed developments and land use designations;*
- (i) Provide an analysis and opinion as to why the proposal represents good planning, including the details of any methods that are used to mitigate potential negative impacts;*
- (j) Describe the impact on the natural environment;*
- (k) Describe the impact on municipal services;*
- (l) Describe how the proposal will affect the social and/or economic conditions using demographic information and current trends; and,*
- (m) Describe areas of compliance and non-compliance with the Zoning By-law.*

Planner's Certificate:

I hereby certify that this report was prepared by Tracey Pillon-Abbs, a Registered Professional Planner, within the meaning of the Ontario Professional Planners Institute Act, 1994.



**Tracey Pillon-Abbs, RPP
Principal Planner**



APPENDIX C - SITE IMAGES



IMAGE 1

**Subject Parcel – 1092-1096 Dougall Avenue –
Looking east (Northeast corner Dougall & Pine Street)**



IMAGE 2

**Looking south on Dougal Avenue towards Pine Street
Subject parcel is on the left side of the image**



IMAGE 3

Looking northwest from intersection of Dougall and Pine



IMAGE 4

Looking north on Dougall Avenue

Subject parcel is on the right side of the image (north of Pine Street)

IMAGE 5



**Looking north on Pine Street
Dougall Avenue on left side; North-south alley on right side**

IMAGE 6



**Looking east on Dougall Avenue
Subject Parcel in middle of image**

APPENDIX D - Extracts from City of Windsor Official Plan

VOLUME I – LAND USE

6.3 Residential

The lands designated as “Residential” on Schedule D: Land Use provide the main locations for housing in Windsor outside of the City Centre Planning District. In order to develop safe, caring and diverse neighbourhoods, opportunities for a broad range of housing types and complementary services and amenities are provided.

The following objectives and policies establish the framework for development decisions in Residential areas.

6.3.1 Objectives

<i>RANGE OF FORMS & TENURES</i>	6.3.1.1	To support a complementary range of housing forms and tenures in all neighbourhoods.
<i>NEIGHBOURHOODS</i>	6.3.1.2	To promote compact neighbourhoods which encourage a balanced transportation system.
<i>INTENSIFICATION, INFILL & REDEVELOPMENT</i>	6.3.1.3	To promote selective residential redevelopment, infill and intensification initiatives.

6.3.2 Policies

In order to facilitate the orderly development and integration of housing in Windsor, the following policies shall apply.

<i>PERMITTED USES</i>	6.3.2.1	Uses permitted in the Residential land use designation identified on Schedule D: Land Use include Low, Medium and High Profile dwelling units.
<i>TYPES OF LOW PROFILE HOUSING</i>	6.3.2.3	For the purposes of this Plan, Low Profile housing development is further classified as follows: <ul style="list-style-type: none"> (a) small scale forms: single detached, semi-detached, duplex and row and multiplexes with up to 8 units; and (b) large scale forms: buildings with more than 8 units.

EVALUATION 6.3.2.5
CRITERIA FOR A
NEIGHBOURHOOD
DEVELOPMENT
PATTERN

At the time of submission, the proponent shall demonstrate to the satisfaction of the Municipality that a proposed residential development within an area having a Neighbourhood development pattern is:

- (a) feasible having regard to the other provisions of this Plan, provincial legislation, policies and appropriate guidelines and support studies for uses:
 - (i) within or adjacent to any area identified on Schedule C: Development Constraint Areas and described in the Environment chapter of this Plan;
 - (ii) adjacent to sources of nuisance, such as noise, odour, vibration and dust;
 - (iii) within a site of potential or known contamination;
 - (iv) where traffic generation and distribution is a provincial or municipal concern; and
 - (v) adjacent to heritage resources.
- (b) in keeping with the goals, objectives and policies of any secondary plan or guideline plan affecting the surrounding area;
- (c) compatible with the surrounding area in terms of scale, massing, height, siting, orientation, setbacks, parking and amenity areas;
- (d) provided with adequate off street parking;
- (e) capable of being provided with full municipal physical services and emergency services; and
- (f) facilitating a gradual transition from Low Profile residential development to Medium and/or High profile development and vice versa, where appropriate.

VOLUME I – TOOLS**11.6.3 Zoning By-law Amendment Policies***AMENDMENTS
MUST CONFORM*

11.6.3.1 All amendments to the Zoning By-law(s) shall conform with this Plan. The Municipality will, on each occasion of approval of a change to the zoning by-law(s), specify that conformity with the Official Plan is maintained or that the change will be in conformity upon the coming into effect of an amendment to the Official Plan.

*EVALUATION
CRITERIA*

11.6.3.3 When considering applications for Zoning By-law amendments, Council shall consider the policies of this Plan and will, without limiting the generality of the foregoing, consider such matters as the following:

- (a) The relevant evaluation criteria contained in the Land Use Chapter of this Plan, Volume II: Secondary Plans & Special Policy Areas and other relevant standards and guidelines;
- (b) Relevant support studies;
- (c) The comments and recommendations from municipal staff and circularized agencies;
- (d) Relevant provincial legislation, policies and appropriate guidelines; and
- (e) The ramifications of the decision on the use of adjacent or similar lands.

APPENDIX E - Extracts from Zoning By-law 8600

SECTION 3 – DEFINITIONS

3.10 DEFINITIONS

DWELLING means a *building* or *structure* that is occupied for the purpose of human habitation. A *correctional institution, hotel, motor home, recreational vehicle, tent, tent trailer, or travel trailer* is not a *dwelling*.

MULTIPLE DWELLING means one *dwelling* containing a *minimum* of three *dwelling units*. A *double duplex dwelling, semi-detached dwelling, stacked dwelling, or townhome dwelling* is not a *multiple dwelling*.

SINGLE UNIT DWELLING means one *dwelling* having one *dwelling unit* or, where permitted by Section 5.99.80, one *dwelling* having two *dwelling units*. A single family dwelling is a *single unit dwelling*. A *duplex dwelling, mobile home dwelling, semi-detached dwelling unit, or townhome dwelling unit*, is not a *single unit dwelling*.

SEMI-DETACHED DWELLING means one *dwelling* divided vertically into two *dwelling units* by a common interior wall having a *minimum* area above *grade* of 10.0 sq. m., and may include, where permitted by Section 5.99.80, up to two additional *dwelling units*.

DWELLING UNIT means a unit that consists of a self-contained set of rooms located in a *building* or *structure*, that is used or intended for use as residential premises, and that contains kitchen and bathroom facilities that are intended for the use of the unit only.

SEMI-DETACHED DWELLING UNIT means one *dwelling unit* in a *semi-detached dwelling*, and may include, if permitted by Section 5.99.80, one additional *dwelling unit*.

SECTION 10 - RESIDENTIAL DISTRICTS 1. (RD1.)**10.3 RESIDENTIAL DISTRICT 1.3 (RD1.3)****10.3.1 PERMITTED USES***Existing Duplex Dwelling**Existing Semi-Detached Dwelling**One Single Unit Dwelling*

Any use accessory to the preceding uses

10.3.5 PROVISIONS

	Duplex Dwelling	Semi-Detached Dwelling	Single Unit Dwelling
.1 Lot Width – minimum	9.0 m	15.0 m	9.0 m
.2 Lot Area – minimum	360.0 m ²	450.0 m ²	270.0 m ²
.3 Lot Coverage – maximum	45.0%	45.0%	45.0%
.4 Main Building Height – maximum	10.0 m	10.0 m	10.0 m
.5 Front Yard Depth – minimum	6.0 m	6.0 m	6.0 m
.6 Rear Yard Depth – minimum	7.50 m	7.50 m	7.50 m
.7 Side Yard Width – minimum	1.20 m	1.20 m	1.20 m

APPENDIX F – RESULTS OF CIRCULATION

ENBRIDGE GAS

Thank you for your correspondence with regard to the proposed Site Plan Application. Enbridge Gas Inc, (formerly Union Gas Ltd.), does have service lines running within the area which may or may not be affected by the proposed Site Plan.

Should the proposed site plan impact these services, it may be necessary to terminate the gas service and relocate the line according to the new property boundaries. Any Service relocation required would be at the cost of the property owner.

If there is any work (i.e. underground infrastructure rebuild or grading changes...) at our easement and on/near any of our existing facilities, please contact us as early as possible (1 month in advance at least) so we can exercise engineering assessment of your work. The purpose is to ensure the integrity of our main is maintained and protected.

Confirmation of the location of our natural gas pipeline should be made through Ontario One Call 1-800-400-2255 for locates prior to any activity.

ENBRIDGE - WINDSOR MAPPING

After reviewing the provided drawing at 1092 Dougall Ave. and consulting our mapping system, please note that Enbridge Gas has active infrastructure in the proposed area. A PDF drawing has been attached for reference.

Please Note:

1. The shown piping locations are approximate and for information purposes only
2. The drawings are not to scale
3. This drawing does not replace field locates. Please contact Ontario One Call for onsite locates prior to excavating, digging, etc

Enbridge Gas requires a minimum separation of 0.6m horizontal and 0.3m vertical from all of our plant less than NPS 16 and a minimum separation 1.0m horizontal and 0.6m vertical between any CER-regulated and vital pipelines. For all pipelines (including vital pipelines), when drilling parallel to the pipeline, a minimum horizontal clearance measured from the edge of the pipeline to the edge of the final bore hole of 1 m (3.3 ft) is required. Please ensure that this minimum separation requirement is maintained, and that the contractor obtains locates prior to performing any work and utilizes safe excavation practices while performing any work in the vicinity.

Also, please note the following should you find any abandoned infrastructure in the area:

- Any pipe that is excavated, please assume that it is live
- If during the course of any job, any pipe is found that is not on the locate sheet and is in conflict with your work, please call our emergency number (1-877-969-0999), and one of our Union Gas representatives will respond to determine if that plant is in fact live or dead
- Please note that our Enbridge Gas representative will respond to the live or dead call within 1-4 hours, so please plan your work accordingly

TRANSIT WINDSOR

Transit Windsor has no objections to this development. The closest existing transit route to this property is with the Dougall 6. The closest existing bus stop to this property is located on Dougall at Pine SW Corner. This bus stop is approximately 40 metres from this property falling well within our 400 metre walking distance guideline to a bus stop. This will be maintained with our Council approved Transit Master Plan.

CITY OF WINDSOR – PLANNING DIVISION – HERITAGE PLANNER - KRISTINA TANG

The subject property is not listed on the heritage register but has historic characteristics, and is adjacent to heritage properties recognized on the Heritage Register. The proposal does not indicate alterations visible to the exterior to accommodate the added uses (other than the added grade entrances at the back ends of the building). Should there be exterior alterations, it is recommended that it be limited in scope and directed towards least visible locations that are more inconspicuous from public views. If additions are proposed on the roof, it is recommended that the dormer be lower than the roof ridge and be appropriately scaled in size.

The subject lands is located on an area of low archaeological potential.

Nevertheless, the Applicant should be notified of the following archaeological precaution.

1. Should archaeological resources be found during grading, construction or soil removal activities, all work in the area must stop immediately and the City's Planning & Building Department, the City's Manager of Culture and Events, and the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries must be notified and confirm satisfaction of any archaeological requirements before work can recommence.
2. In the event that human remains are encountered during grading, construction or soil removal activities, all work in that area must be stopped immediately and the site secured. The local police or coroner must be contacted to determine whether or not the skeletal remains are human, and whether the remains constitute a part of a crime scene. The Local police or coroner will then notify the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries and the Registrar at the Ministry of Government and Consumer Services if needed, and notification and satisfactory confirmation be given by the Ministry of Heritage, Sport, Tourism and Culture Industries.

Contacts:

Windsor Planning & Building Department:

519-255-6543 x6179, ktang@citywindsor.ca, planningdept@citywindsor.ca

Windsor Manager of Culture and Events:

Michelle Staaedegaard, (O) 519-253-2300x2726, (C) 519-816-0711,
mstaaedegaard@citywindsor.ca

Ontario Ministry of Heritage, Sport, Tourism and Culture Industries

Archaeology Programs Unit, 1-416-212-8886, Archaeology@ontario.ca

Windsor Police: 911

Ontario Ministry of Government & Consumer Services

A/Registrar of Burial Sites, War Graves, Abandoned Cemeteries and Cemetery Closures,
1-416-212-7499, Crystal.Forrest@ontario.ca

CITY OF WINDSOR - BUILDING DIVISION - BARBARA RUSAN

The Building Code Act, Section 8.(1) requires that a building permit be issued by the Chief Building Official for any construction or demolition of a building. It is strongly recommended that the owner and/or applicant contact the Building Division to determine building permit needs for the proposed project.

The Building Division can be reached at 519-255-6267 or at buildingdept@citywindsor.ca

CITY OF WINDSOR – ENGINEERING - Pierfrancesco Ruggeri

The subject lands are located at 1092 Dougall Avenue, designated Residential by the City of Windsor Official Plan and zoned Residential District 1.3 (RD1.3) by Zoning By-Law 8600. The applicant is seeking to add site-specific provisions to the current zoning to allow for a total of five dwelling units on the subject parcel. The applicant is proposing to convert the existing attic into an additional dwelling unit. No exterior modifications are being proposed, interior remodeling only. No parking to be provided on-site.

RIGHT-OF-WAY – The current site has a wood fence and concrete block encroachment along the Pine Street right-of-way. The wood fence and concrete block encroachment should be removed due to sight line concerns. If the applicant wishes to keep the wood fence and concrete block, it would need to be partially modified to eliminate any sight line issues. If on-site parking is deemed to be a requirement, the owner will be required to contribute to the alley maintenance fund in the amount of \$3,585 based on the 2021 User Fee Schedule.

In summary we have no objection to the proposed rezoning, subject to the following requirements (enforced prior to issuance of Building and Right-of-Way permits):

Alley Contribution – If on-site parking is deemed to be a requirement, the owner agrees, prior to the issuance of a Building Permit, to contribute \$3,585.00 (\$250 per linear meter), payable to The City of Windsor and deposited in the General Fund intended for the upkeep of alleys within The City of Windsor.

Encroachment Agreement – The owner agrees to either remove the wood fence and concrete block encroachment, or modify to eliminate any sight line issues. If the owner agrees to modify, then they must submit an application for and execute an agreement with the Corporation for the wood fence and concrete block encroachment along the Pine Street right-of-way to the satisfaction of the City Engineer.

CITY OF WINDSOR – TRANSPORTATION PLANNING – RANIA TOUFEILI

- Dougall Avenue is classified as a local road with a required right-of-way width of 20 meters. The current right-of-way width is sufficient, therefore no conveyance is required.
- Pine Street is classified as a local road with a required right-of-way width of 20 meters. The current right-of-way width is sufficient, therefore no conveyance is required.
- The existing fence encroachment at this property creates sight line issues for drivers using the alley. The fence should be removed or adjusted for sightlines.
- It is recommended that additional bicycle parking be provided to mitigate any parking deficiency.

APPENDIX G – SITE SPECIFIC EXCEPTION

The recommendation and site specific provision below are provided for information purposes and do not represent the opinion of the Planner or the position of the Planning Department on the application.

Should the Development and Heritage Standing Committee and/or City Council choose to approve the application for a multiple dwelling containing a maximum of five dwelling units the recommendation and site specific exception below should be used.

THAT Zoning By-law 8600 **BE AMENDED** by changing the zoning of Lot 328 and Part Lot 327, Registered Plan 581, (known municipally as 1092-1096 Dougall Avenue; Roll No. 040-370-07800; PIN 00187-0245), situated at the northeast corner at Dougall Avenue and Pine Street, by adding a site specific exception to Section 20(1) as follows:

XXX. NORTHEAST CORNER OF DOUGALL AVENUE AND PINE STREET

For the lands comprising of Lot 328 and Part Lot 327, Registered Plan 581, a *multiple dwelling* containing a maximum of five *dwelling units* shall be an additional permitted use, and the following additional provisions shall apply:

- | | |
|-----------------------------------|----------------------|
| a) Lot Width – minimum | 14.3 m |
| b) Lot Area – minimum | 400.0 m ² |
| c) Lot Coverage – maximum | 52.0% |
| d) Main Building Height – minimum | 10.0 m |
| e) Front Yard Depth – minimum | 3.60 m |
| f) Rear Yard Depth – minimum | 3.80 m |
| g) Side Yard Width – minimum | 1.50 m |
| h) Required Parking – minimum | 0 spaces |

[ZDM 7; ZNG/6624]

Originally submitted at February 7, 2022
Development & Heritage Standing Committee
Written Submission

From: Barbara Gebara
Sent: January 24, 2022 2:28 PM
To: clerks <clerks@citywindsor.ca>
Subject: Zoning by-law 8600

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Sent from my iPad

File number; zng/6624. Z-041/21

To who it may concern. My address is 1107 Victoria ave. Located on the corner of pine st.
I wish to decline approval of the fifth apartment addition to 1092 Dougall ave.

Thank you for your time, Barbara Gebara (home owner)

Originally submitted at February 7, 2022
Development & Heritage Standing Committee
Written Submission

From: Cheryl Colborne
Sent: February 2, 2022 11:55 PM
To: clerks <clerks@citywindsor.ca>
Subject: File ZNG/6624 Z-04/21. 1092 /1096 Dougall

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I received notice of amendment to Zoning ByLaw 8600. I am concerned as a home owner at 240 Pine St. . I enjoy living downtown and would like to stay in area but the homes are being purchases by out of town / or local investors who turn homes into multiple family rental units that are often left unkept or unmanaged and along with the Mission concerns and homeless/crime issues it is becomes unruly.

The home at 1092/1096 Dougall was a duplex and new owner dug out basement this year to make it a Fourplex which in not completed and now wants a 5 plex on such a small lot with no available parking.

We struggle with parking along Pine between Ouellette and Church and down Victoria Ave from Erie to Giles as it is unsafe to park in alley spots due to car safety/breaking and conversion of alley parking to recreational space for home owners leaving us with no driveways and no place to park. The hospital staff and Health unit staff park on our streets to avoid parking fees leaving us to park blocks away from our home at times. We have tried to approach council re option of Permit Parking but told City was not approachable at the time and was left with mute response. I pay a lot for taxes @ \$4000 (for a 23'x72' lot) with no driveway or parking option close to my home most of the time.

This home will not be offering affordable rent options in area and there will be a need for 10 extra parking spots to area which we CANNOT SUPPORT, unless you provide us with Permit parking.

We have a duplex 1 block away on Dougall with 1 renter taking up 4 parking spots. The garbage disposal area for a 5 plex is limited also in alleyway causing more concern for rodents. We also have the Granada apt. building on Dougall and Giles with no parking available in area and 2 apartment complexes on Pine and Pelissier with no parking....when is the city going to put a stop to creating this parking issue in this downtown area. We need to create safer alleys for parking options.

Downtown was once a respectable area to reside but the city has let us down. Please help to balance private residential home owners to rental building and properties to allow our area to maintain its integrity and historical presence.

Please do not allow this change to our Zoning Bylaw, support your downtown residents.
Thank you for your attention to this concern.



Subject: Pillette Village BIA Streetscape Improvements - Funding Proposal

Moved by: Councillor Sleiman
Seconded by: Councillor Holt

Decision Number: **DHSC 369**

- I. THAT the proposed streetscape modifications for Pillette Village BIA as shown in Appendix B as prepared by the Pillette Village BIA Association in collaboration with the Planning & Building Department **BE APPROVED**;
- II. THAT the request of the Pillette Village BIA Association for consideration of a 50/50 cost sharing arrangement subject to the following terms **BE APPROVED**:
 - a. THAT the Pillette Village BIA Association be provided with a 10-year interest free loan in the amount of \$160,000;
 - b. THAT prior to commencement of the project, an amount of \$54,000 representing funds that have been collected from the Pillette Village BIA Association membership for purposes of this project be remitted to the City and deducted from the initial loan amount; and,
 - c. THAT commencing in 2023, an annual amount of \$10,600 be included in the Pillette Village BIA Association's budget and remitted directly to the City.
- III. THAT a capital project in the amount of \$320,000 **BE ESTABLISHED** with funding as follows:
 - a) THAT funding in the amount of a \$160,000 representing the City's share of the estimated costs be transferred from the BIA Assistance Program project 7069002 to the capital project; and,
 - b) THAT funding in the amount of \$160,000 be set up as a long-term receivable from the Pillette Village BIA Association.
- IV. THAT the CAO and the City Clerk **BE AUTHORIZED** to sign an Agreement with the Pillette Village BIA Association with regards to the loan, satisfactory in form to the City Solicitor, in financial content to the Chief Financial Officer and City Treasurer, and in technical content to the City Planner.
- V. THAT the CAO and City Clerk **BE AUTHORIZED** to execute any other agreements that may be required as a result of the proposed capital works satisfactory in form to the City Solicitor, in financial content to the Chief Financial Officer and City Treasurer, and in technical content to the City Planner.

Carried.

Report Number: C 21/2020
Clerk's File: Z/13002

Clerk's Note:

1. The recommendation of the Standing Committee and Administration are the same.
2. Please refer to Item 11.1. from the Development & Heritage Standing Committee Meeting held February 7, 2022.
3. To view the stream of this Standing Committee meeting, please refer to:
<http://csg001-harmony.sliq.net/00310/Harmony/en/PowerBrowser/PowerBrowserV2/20220209/-1/7304>

Subject: Pillette Village BIA Streetscape Improvements - Funding Proposal

Reference:

Date to Council: February 7, 2022
Author: Stefan Fediuk
Landscape Architect | OALA CSLA
350 City Hall Square West | Suite 320
519-255-6543 ext.6025

Planning & Building Services
Report Date: February 7, 2020
Clerk's File #: Z/13002

To: Mayor and Members of City Council

Recommendation:

- I. THAT the proposed streetscape modifications for Pillette Village BIA as shown in Appendix B as prepared by the Pillette Village BIA Association in collaboration with the Planning & Building Department **BE APPROVED**;

- II. THAT the request of the Pillette Village BIA Association for consideration of a 50/50 cost sharing arrangement subject to the following terms **BE APPROVED**:
 - a. THAT the Pillette Village BIA Association be provided with a 10-year interest free loan in the amount of \$160,000;
 - b. THAT prior to commencement of the project, an amount of \$54,000 representing funds that have been collected from the Pillette Village BIA Association membership for purposes of this project be remitted to the City and deducted from the initial loan amount; and,
 - c. THAT commencing in 2023, an annual amount of \$10,600 be included in the Pillette Village BIA Association's budget and remitted directly to the City.

- III. THAT a capital project in the amount of \$320,000 be established with funding as follows:
 - a) THAT funding in the amount of a \$160,000 representing the City's share of the estimated costs be transferred from the BIA Assistance Program project 7069002 to the capital project; and,
 - b) THAT funding in the amount of \$160,000 be set up as a long-term receivable from the Pillette Village BIA Association.

- IV. THAT the CAO and the City Clerk **BE AUTHORIZED** to sign an Agreement with the Pillette Village BIA Association with regards to the loan, satisfactory in form to the City Solicitor, in financial content to the Chief Financial Officer and City Treasurer, and in technical content to the City Planner.
- V. THAT the CAO and City Clerk **BE AUTHORIZED** to execute any other agreements that may be required as a result of the proposed capital works satisfactory in form to the City Solicitor, in financial content to the Chief Financial Officer and City Treasurer, and in technical content to the City Planner

Executive Summary:

N/A.

Background:

Through their Executive Director, Bridget Scheuerman, the Pillette Village BIA Association approached Administration within the Urban Design Section of the Planning & Building Department in April of 2018 regarding the condition of the existing street furnishings and the potential for rebranding of their image.

The Pillette Village BIA Association, as shown in Figure 1, is one of nine Business Improvement Areas (BIA's) in the City of Windsor. Designated under Section 204 of the *Ontario Municipal Act*, the city has the authority to:

- oversee the improvement, beautification and maintenance of municipally-owned land, buildings and structures in the area beyond that provided at the expense of the municipality generally; and
- promote the area as a business or shopping area.



The BIA has advised that their last major revitalization project took place over 20 years ago. In 2019, the BIA received \$43,000 for trash and recycling bin replacements through a larger AMO Main Street Initiative Funding that was shared with all nine of the city's BIA's.

Discussion:

While the ideal time for such enhancement work would be during road infrastructure improvements, the Pillette Village BIA Association felt that they had not been informed enough in advance to prepare a proposal when such construction work was undertaken in 2015. Given the unlikelihood of road infrastructure work occurring in the near future, the Pillette Village BIA Association are requesting a special consideration of Council for a Capital Works Project.

Current Conditions:

In May 2018, Planning Staff conducted site visits of all nine of the Business Improvement Areas, as a component of an Association of Municipalities of Ontario (AMO) grant for Main Street Revitalization Initiative Fund (CR252/2018). The review of the current conditions of the Pillette Village BIA made it apparent that many of the existing site furnishings had become dated, and much had been lost over time due to deterioration. Existing site furnishings were limited as well to the original district along Wyandotte Street East, yet the BIA's limits have expanded to the shops and businesses along Pillette Road, both north and south of Wyandotte Street. As the funds from AMO were limited and to be shared amongst the nine BIA's; resulting in only Trash and Recycle bins being replaced in 2019 through this grant. As a result, the Pillette Village BIA Association further requested that the Planning Department work with them to provide conceptual ideas to revitalize the image of the Pillette Village BIA Association.

BIA Proposal:

Over the last two years, Administration has met several times with Pillette Village BIA Association to discuss and refine the concept and various details for site furnishings to improve the streetscape along the selected theme. As one of the oldest BIAs in the city, the Pillette Village BIA are interested in building on the existing built urban environment and natural character of the area. After reviewing several concepts for a new theme to attract people to the area, the Pillette Village BIA Association returned with a consensus to rebrand the BIA with an Art Nouveau character (see Appendix B).

Streetscape Elements Design - The design of the streetscape elements reflect the unique character of the BIA by incorporating a blend of Art Nouveau and Art Deco motifs. Where possible pre-manufactured items have been used (i.e. trash/recycle bins, planters, and bike racks) to help reduce costs. The existing benches within the BIA already reflect this theme. In 2019, due to main street improvement funding from AMO, the trash and recycle bins along Wyandotte Street East were replaced reflective of the rebranding of the BIA.

Banner tops and business sign markers will require custom manufacturing due to a lack of such product on the market.

Preliminary estimates for the proposed works, prepared in early 2020 total \$320,000. Procurement of the site furnishings will follow the Purchasing Bylaw directions; however, custom items have been designed to encourage local manufacturers to participate in the procurement process.

Installation Consultations - Initial discussions with ENWIN Utilities has identified that several of the banners will be located on their poles along Wyandotte Street East. It is necessary to engage the City Solicitors Office to enter into an agreement for the required permits to mount the banners to those poles.

Both the banners and the business address markers will protrude into the municipal right-of-way, requiring the Pillette Village BIA Association and each business owner to enter into Encroachment Agreements with the City of Windsor's Public Works Department.

The Horticulture Division of the Parks Department currently maintain some ornamental plantings within the BIA. A revised Agreement and Memorandum of Understanding will be required to ensure that responsibilities of both the City and the BIA are identified, reflective of the new planting arrangements. It is anticipated that the new planting arrangements will not require additional City resources to support ongoing maintenance. In the event that additional operational City resources are required, Parks will bring forward a budget request as part of a future operating budget submission.

Risk Analysis:

Though the dollar value of \$320,000 reflects a moderate financial risk, the Life Cycle Costing is expected to last 10+ years. There is a long-term financial risk to the Corporation with regards to the long-term loan request from the BIA however this risk is mitigated through the budget and levy process that is administered through the City's finance department.

Operationally, most of the streetscape improvement are to replace existing amenities; however, there are some additional items (i.e. banners) that will be added as enhancements to the current infrastructure. However, unlike most banners found throughout the city these banner tops are permanent and will not require routine seasonal or annual replacement as would be with fabric banners. There will be a modest increase in the number of trash/recycle bins to accommodate the businesses along Pillette resulting a low risk depending on how often these are used. Final locations to be coordinated with Public Works and Environmental Services to ensure that they are strategically placed to ensure operational efficiencies.

While there are no perceived reputational or health and safety risks, there is however a potential for an improved Civic Image with these streetscape elements being implemented. Potential for the Pillette Village BIA businesses to increase their profile and attract business will make the area more viable. There is a greater potential to establish a sense of place through the development of a walkable community, thus reducing risk for petty crime within the BIA by having more people and eyes on the street. Such benefits have been seen in other recent BIAs enhancements (i.e. Walkerville, Via Italia as well as Wyandotte West).

However, there are community impact and timing risks if the recommendations are not approved. If the Pillette Village BIA Association is unable to fund the full Beautification Project on its own, the BIA may prioritize between enhancing its character through minimal updating and repairing of the existing street side furniture and horticultural agreements with the Horticultural staff. This will decrease the opportunity for the Pillette Village BIA Association to enhance its appeal which has implications on the economic development of Pillette Village.

Climate Change Risks

Climate Change Mitigation:

Scientific evidence identifies that trees can help to reduce both heat island affects and greenhouse gas emissions. The current planters found along the Pillette Village BIA, are too small support large trees and are often replace annual. Planting trees directly into the pavement is not financially practical at this time. One component of the proposed concept is to replace the existing planter with larger planters that can support trees through the year, allowing them to mature to larger trees which can provide better reduce of greenhouse gas emission through carbon sequestration.

Climate Change Adaptation:

In addition to the above climate change mitigation approach, the proposal to accommodate larger trees along the BIA will help to provide shade to help provide refuge for pedestrians from the increasing temperatures. This is especially important for the most vulnerable populations of the community (i.e. seniors) to allow for shade while patronizing the shops and restaurants along the BIA.

Financial Matters:

Estimated projects costs for the streetscape improvements were based on similar works completed by the City through the Purchasing Department. The work being proposed by the Pillette Village BIA Association represents a total cost of \$320,000 (inclusive of material, labour and administrative costs) detailed as follows:

Pillette Village Site Furnishings and Streetscape Improvements	
Median Gateway & Pole Banners	\$ 110,000
Banners & Poles for Median	\$ 34,000
Banner pole toppers for existing poles	\$ 66,000
Design, Permits, Consulting & Contract Administration	\$ 5,000
Contingency 5%	\$ 5,000
Business Address Markers	\$ 75,600
Metal Banner address markers	\$ 72,000
Encroachment Agreements	\$ 3,600
Streetscape Amenities	\$ 134,400
Self watering Planters Large	\$ 33,000

Trees/Soil /Plants	\$ 16,500
Planter surrounds	\$ 66,000
Bike Racks	\$ 6,400
NEW Trash/Recycle stations (along Pillette Street)	\$ 12,500
Total Required Items	\$ 320,000

Pillette Village BIA Association is requesting that the City of Windsor enter into a 50/50 cost share an agreement to fund this project. With a \$320,000 total estimated cost of the project based on 2019 values, the anticipated cost to each party would be \$160,000.

The Corporation's BIA Assistance Program (Project 7069002) is intended to provide financial assistance to the BIA's for initiatives which include beautification and as noted below, there is sufficient funding available for this purpose.

In terms of the Pillette Village BIA Association share, a request for a 10-year interest free loan has been made. As part of their 2020 Operating Budget submission, the Pillette Village BIA Association had put forward an increased request of \$40,000. This increase included an amount of \$10,600 to cover the estimated BIA's portion of the project. The BIA members were duly advised and there was no objection to the increase, and the 2020 Draft Operating Budget was approved at the Annual General Membership Meeting in December 2019.

Inclusive of an amount yet to be approved for 2022, the Pillette Village BIA Association will have set aside \$31,800 (three years of the allocated \$10,600). In addition, the BIA has sufficient reserves to support a one-time payment of \$22,200. As a condition of the 10-year loan and prior to commencement of the project, Administration is recommending that the Pillette Village BIA Association provide an upfront payment of \$54,000 which will lower the loan amount to \$106,000. This amount will then be included in the annual BIA budget for years 2023 to 2032 and will be deducted from the levy payments that are issued by the Finance department until the loan is fully repaid.

Since the proposed work is consistent with the purpose of the BIA Assistance Program, Administration is recommending that this program be used to provide the City portion of the funding. The BIA Assistance Program, capital project 7069002 currently has a balance of \$380,000. Under the proposed cost sharing, \$160,000 (50%) will be transferred from Project 7069002 to a newly created project in 2022

If approved, the BIA Assistance Program Project 7069002 will have a remaining Project balance of \$220,000.

Upon completion of the project, any ongoing costs associated with the maintenance of the site furnishing or any replacements will be the responsibility of the Pillette Village BIA Association which are subject to future budget deliberations and approvals.

Consultations:

Eric Dyrda – Technical Service Advisor, ENWIN Utilities Ltd.
 Bridget Scheuerman – Executive Director Pillette Village BIA
 Michael Dennis – Financial Manager, Asset Planning

Janice Guthrie - Deputy Treasurer Taxation & Financial Projects
 Josie Gualtieri - Financial Planning Administrator
 Anne Marie Albidone – Manager Environmental Services
 Wanda Letourneau – Manager Horticulture
 Juan Paramo – Transportation Planning
 Jeff Hagan – Transportation Planning Senior Engineer

Conclusion:

Pillette Village Business Improvement Area has been a vibrant and active community in the City of Windsor. Over the years they have seen other BIA’s improve and rebrand to accommodate more contemporary trends. Some funding has been afforded to the Pillette Village BIA Association through AMO, and street infrastructure has been completed recently.

Their request to enter into a 50/50 partnership for a Capital Works Project with the City of Windsor is the only method to help expedite the process for procurement of streetscape amenities to help improve this area. The Planning & Building Department with in-house design assistance, as well as consultation with other civic administrative departments support the proposed streetscape enhancements.

Planning Act Matters:

N/A

Approvals:

Stefan Fediuk	Landscape Architect, Planning Department
Josie Gualtieri	Financial Planning Administrator
Janice Guthrie	Deputy Treasurer, Taxation & Financial Projects
Neil Robertson	Manager of Urban Design / Deputy City Planner
James Chacko	Senior Manager, Parks
Thom Hunt	City Planner / Executive Director, Planning & Development Services
Wira Vendrasco	Deputy City Solicitor, Legal Services & Real Estate
Shelby Askin Hager	Commissioner, Legal & Legislative Services
Joe Mancina	Commissioner, Corporate Services Chief Financial Officer / City Treasurer
Jason Reynar	Chief Administration Officer

Notifications:

Name	Address	Email
Bridget Scheuerman	Pillette Village BIA	bscheuerman38@gmail.com

Appendices:

- 1 APPENDIX 'A' - Pillette Village Capital Works Project Request
- 2 APPENDIX 'B' - Pillette Village Final Streetscape Concept

From: [Bridget Scheuerman](#)
To: [Fediuk, Stefan](#)
Cc: [Gignac, Jo-Anne \(Councillor\)](#); [Sleiman, Ed](#); [Robertson, Neil](#); [Hunt, Thom](#)
Subject: Pillette Village Capital Works Project
Date: Tuesday, October 29, 2019 10:14:03 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Stephan,

Pillette Village Business Improvement Association would like to proceed with the Capital Works Project that is currently being discussed and planned through communications/visits with yourself and the BIA. We have had several meetings regarding this project and the concept and designs were presented to the General Membership at our Annual Meeting last December. The Board of Directors have agreed to propose an increase in the BIA Levy to \$40,000, in order to participate in the payment of the project. I have asked Finance to prepare what the individual levies would look like with an increase to the amount of \$40,000 annually, which will be ongoing.

A registered letter will be sent to each Property and Business Owner indicating the difference they would be paying should this levy increase request be approved by the General Membership. A presentation of the entire project will be made at our Annual Meeting in December at which time the Membership will be able to vote to approve or disallow the increase. Should the Membership not allow the increase, the project would have to be reassessed.

It is our intention to propose a shared cost with the City for the project as we discussed. You have presented an approximate costing of \$320,000 and this would see the entire project completed with the exception of the Community Information Kiosk and the self-watering Planters. The BIA will be requesting a 50/50 split with the city, which would see the BIA paying back \$160,000 over a 15 year period, interest free. It is important to note, that in 2015 Road construction/sewers were done within Pillette Village, but the BIA was not given sufficient notice in order to plan and design any additional improvements, landscape features, entrance markers, etc. that could have been done during this construction project. This would have been an ideal time to do the project we are now proposing, due to the fact that costs on some items would have been reduced, ease of installation of some items, etc.

I have copied below the e-mail that was sent to the Board of Directors yesterday, October 28th for information purposes.

If you require any additional information, please feel free to contact me.

Thanks,
Bridget

The following was sent October 28, 2019 to the Pillette Village Board of Directors.

Hi Everyone

I had a meeting this afternoon with Stefan Fediuk in Planning to go over the costing of the Capital Works Project.

After our discussion at the last Board meeting, I presented Stephan with the items that we would like included in the project and the total costing will be \$320,000 and this includes Banner Poles for Median, Banners for Median Poles, Piles for Banners, Bike Racks, Business address markers, Banner pole toppers, self-watering Planters Large, tress/soil/plants, planter surrounds and additional trash/recycle stations for Pillette Road. The project would be presented to council as a 50/50

proposal with Pillette Village re-paying \$160,000 over fifteen years, with no interest. This would be in line with the **proposed** increase to the Operating Budget to \$40,000.

As we discussed at the meeting, we will present this to the General Membership indicating specifically how much each property owner's levy will be increasing, rather than saying we are increasing the budget to \$40,000. This should soften the blow a bit, if they realize that their portion will not be as great, other than for McDonalds and Shoppers. I will send the operating budget back to Finance at \$40,000 and they will be able to calculate what each property will pay and we will then determine the difference to pass along to the property owners. At this time, we are still in the formulation mode and are not indicating that the budget will be increasing to \$40,000. The membership could turn it down very quickly, so we have to be diligent in how we present the information. A registered letter will be going to each property owner indicating what the difference in their levy payment will be along with a complete description of the project. It can then be discussed and voted upon at the Annual Meeting in December.

It is necessary at this time to send an e-mail to Planning indicating they we wish to proceed with the project as we have only two weeks before this will go to the first hurdle which is the Standing Committee. This will give us an idea if the project has a chance of being approved by Council or put aside. I will send this e-mail on Tuesday. If you have any comments, please let me know as soon as possible. Again, we are not putting the wheels in motion, but are at the information gathering stage. I look to our two Councillors for recommendations. It should be noted that there was no additional money available in any of the Planning Department budgets to offset some of the cost of the project. It will be noted in the e-mail to Planning that Pillette Village did not have an opportunity to ask for infrastructure improvements at the time of the recent road construction



PILLETTE VILLAGE BIA

STREETSCAPE IMPROVEMENTS PLAN



Pillette Village Northeast Corner

Daytime view

277 Pillette Rd
Windsor, Ontario
Google, Inc.
Street View - Oct 2016



Pillette Village Southwest Corner



Pillette Village Southeast Corner



Pillette Village Northwest Corner



Pillette Village Western Gateway



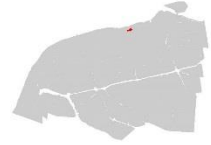
Pillette Village Eastern Gateway

DOUBLE BANNERS as WESTERN GATEWAY

Pillette Village B.I.A.

Legend

- Bench
- Trash Receptacle
- BIA Boundary
- Proposed banner



JUNE 2019



0 25 50 100 Meters

SINGLE BANNERS ON EXISTING STREET LAMPS

DOUBLE BANNERS as EASTERN GATEWAY

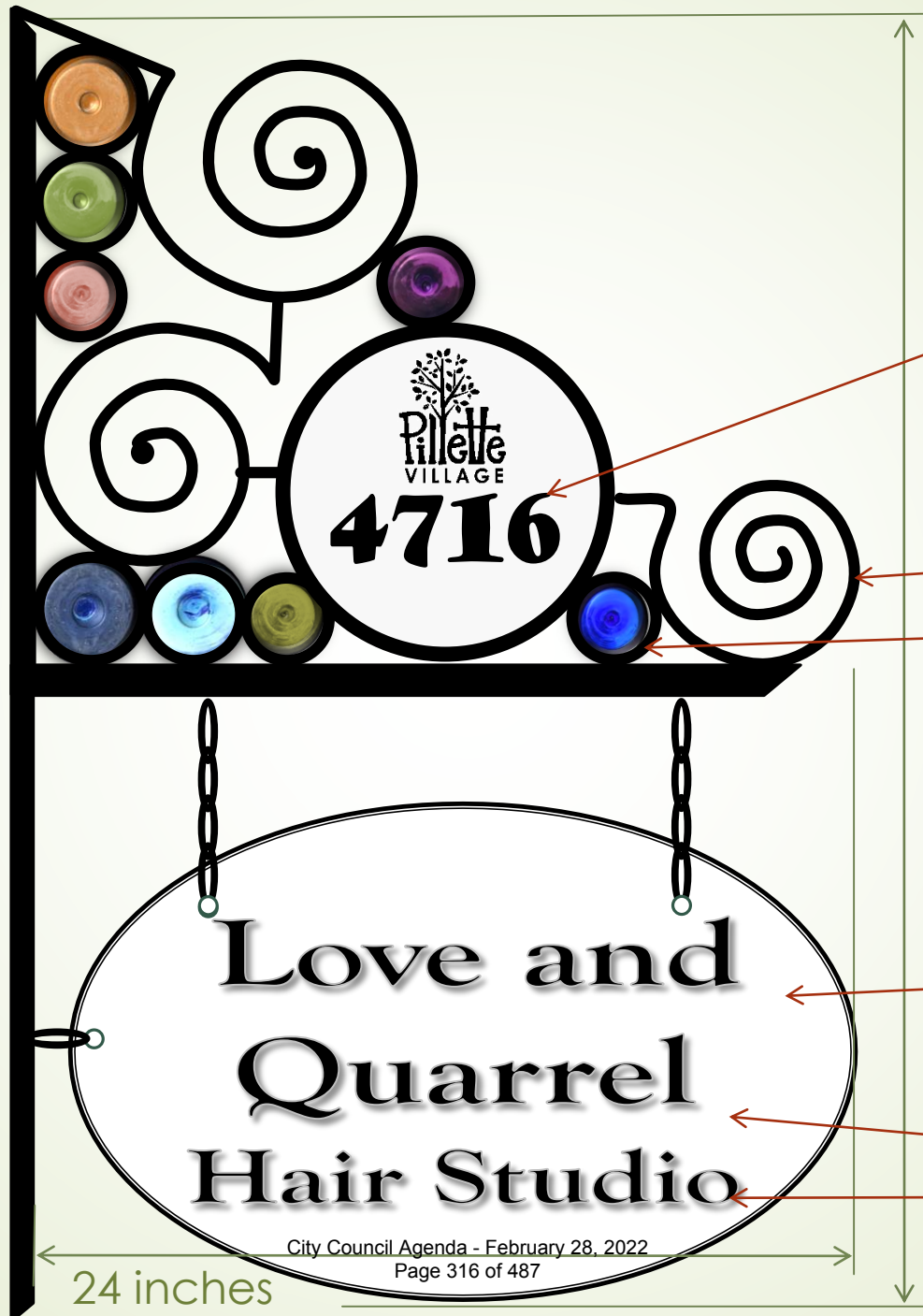
Pillette Village Banner Locations



SINGLE BANNERS ON
EXISTING STREET LAMPS

Pillette Village North-South Gateways

Address & Business Name SIGNS



2 inch Black Numbers and Pilette Village logo applied on an White Tile

Aluminium Scroll work

2.25 inch & 3 inch diam. Colour glass rondels inserts characteristic of the Catalan Modernista Art Nouveau Style

White Tile with Black lettering of business name sign
- Replaceable on new tenants

4 inch Letters
3 inch Letters

36 inches

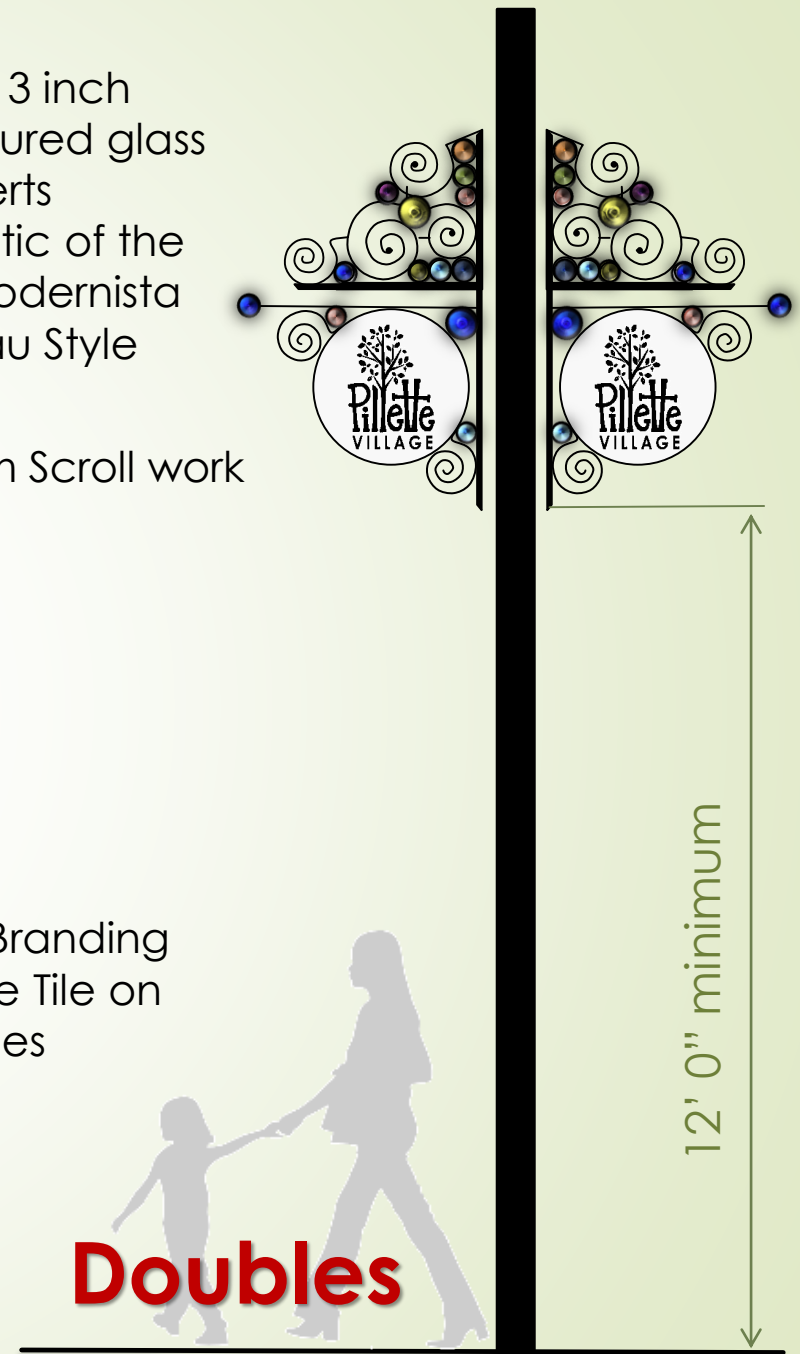
24 inches

Banner Pole Tops

Singles



Doubles



Planters



Optional, self-watering flower planters for businesses



Standard City of Windsor, self-watering Tree Planter insert



Custom exterior frame by Wishbone to match Trash Receptacles.

Waste Receptacles

Beselt Round

Model Number : BTRR-24

Total Height	33.5 inches / 851mm
Width	24 inches / 609mm
Depth	24 inches / 609mm
Capacity	20.5 Gal / 75L
Weight	90lbs / 41kg

Designer Notes

This traditional top-load waste receptacle was designed to go alongside the Beselt Park Bench at the request of a customer. The cast aluminum construction, vertical slats, foot design, and overall aesthetic compliment the Beselt Bench nicely. The round lid is intentionally designed with a small opening to restrict the type and size of garbage that can go in it. The lid is secured to the base to prevent it being stolen or taking off in high winds and to allow for easy replacement due to damage or vandalism. On the durability side, aluminum is not as corrosive as steel and will last longer and look better with years of use.

Wishbone Ltd. provides an extended 10 year limited warranty from the date of invoice.



100% Canadian Made

Wishbone
site furnishings





Committee Matters: SCM 46/2022

Subject: Response to CQ 32-2020: Tree Protection and Replacement Policies Related to Development – City Wide

Moved by: Councillor Morrison

Seconded by: Councillor Holt

Decision Number: **DHSC 370**

THAT the report of the Landscape Architect dated September 23, 2021 entitled "Response to CQ 32-2020: Tree Protection and Replacement Policies Related to Development – City Wide" **BE RECEIVED** for information.

Carried.

Report Number: C 142/2021

Clerk's File: SRT2022

Clerk's Note:

1. The recommendation of the Standing Committee and Administration are the same.
2. Please refer to Item 11.2. from the Development & Heritage Standing Committee Meeting held February 7, 2022.
3. To view the stream of this Standing Committee meeting, please refer to:
<http://csg001-harmony.sliq.net/00310/Harmony/en/PowerBrowser/PowerBrowserV2/20220209/-1/7304>

Subject: Response to CQ 32-2020: Tree Protection and Replacement Policies Related to Development - City Wide

Reference:

Date to Council: February 7, 2022
Author: Stefan Fediuk OALA (with Seal), CSLA
Landscape Architect
519-255-6543 ext.6025
Planning & Building Services
Report Date: September 23, 2021
Clerk's File #: SRT2022

To: Mayor and Members of City Council

Recommendation:

THAT Council **RECEIVE FOR INFORMATION** this report responding to CQ 32-2020 on tree protection and replacement policies related to development applications.

Executive Summary:

N/A

Background:

At the regular meeting of Windsor City Council on December 7, 2020, Councillor McKenzie submitted the following council question CQ23-2020 to the City Planner and City Forester:

That Administration review and report back to Council on tree protection and replacement policies as it relates to the City of Windsor's land development bylaws. The review should include information pertaining to replacement ratios and the mechanisms by which trees are protected and required to be protected through the development process as well as the extent to which development is impacting the total tree count under our current framework along with options for Council to consider in terms of protecting trees and increasing tree cover through land development policy.

Discussion:

Outside of Provincially Legislated or Federally Regulated areas, or where Species at Risk (SAR) are present, the preservation of trees and natural heritage areas on private properties is identified through best practices and policies found in various municipal documents. These documents include; the Official Plan (latest Amendment 2013),

Planning Act, Landscape Manual for Development (4th edition 1997), Climate Change Adaptation Plan (updated 2020), and the Environmental Master Plan (2017). Throughout these documents, the preservation of trees is encouraged and where preservation is not practical, the replacement and/or the planting of new trees is recommended or required.

Urban Tree Canopy Replacement/Improvement Legislation Policies:

1) Planning Act and Municipal Act:

The Municipal Act (2001) authorizes the municipality to pass by-laws to prohibit or regulate the destruction or injuring of trees (135(1)), including on private land, and dictate that they shall have regard for Good Forestry Practices (135(5)).

The Planning Act (1990, revised 2019) provides the legislative foundation for many council policies and their implementation through Official Plans in connection with the trees and landscapes within the municipality.

In addition, the Provincial Policy Statement (1996, revised 2014) outlines the long-term general protection of environmental features, and details the protection of natural feature areas, including significant natural areas (2.1). It also contains policy direction for defining forests, woodlands, and woodlots, referencing the Forestry Act (1990) for technical details.

The Endangered Species Act (2007) identifies tree Species at Risk in Ontario in order to protect their destruction. However, the More Homes, More Choice Act (2019) allows developers to pay into a fund rather than refraining from activities that may harm at-risk species, and trees could be cut down if approved by the provincial government.

2) Official Plan Policies:

As one of several primary objectives, the OP encourages a high degree of civic and environmental design in both public and private developments including “the planting of trees and other forms of landscaping, suitably arranged, to enhance the visual quality of buildings, streets and pedestrian ways.”

The Vision of the OP (Section 3.1) recognizes that one of its four interrelated themes is that of a Clean and Efficient Environment. While environmental issues are addressed throughout the document, Chapter 5 Environment (updated 2005) is entirely dedicated to the preservation and enhancement of the natural heritage and green infrastructure of the City (see Appendix ‘B’). The goals and objects found in this Chapter 5 still support preservation of existing trees and the planting of new trees within development sites. Enhanced protection for areas designated by the Province as Areas of Natural Significance (ANSI) or wetlands, as well as Environmental Policy Areas (EPA) are outlined in more detail as to how development can occur including when further environmental studies are required (i.e. Environmental Evaluation Report (EER), Tree Inventory and Preservation Study). Urban Forestry Policies are also covered under this Chapter, identifying the benefits of trees, and the creation, maintenance and enhancement of treed areas

along infrastructure rights-of-ways for both public and private development. Clause 5.3.6.12 also recommends that Council consider adoption of a tree by-law to further foster the conservation of trees and/or woodlots. The City Forester is currently undertaking a city-wide Urban Forestry Management Plan (UFMP) through Urban Forest Innovations Inc. as an external consultant to review the policies and guidelines to better manage, preserve and enhance the urban forest for both private and public lands. Dependent on that review, Council may recommend adoption of future preservation and urban tree count requirements.

In addition, it is important to note that Chapter 4 of the OP is dedicated to development of a Healthy Community as an overarching philosophy for the City. This part of the OP also addresses the importance of healthy natural environments to address climate change, liveability and sustainability of the City. Recent Council initiatives have endorsed this philosophy through tree planting within civic development projects. (see Appendix 'C')

Similarly, environmental sustainability and the protection of environmentally significant and sensitive natural heritage features is reiterated in the goals and objectives found in Chapter 6: Land Use of the OP. Though trees are not specifically mentioned, it is understood they are a significant component of the natural environments and cross-reference to various sections of Chapter 5: Environment where appropriate.

Within Volume II of the Official Plan, are Special Policy Areas and Secondary Plans. Depending on the individual areas, specific policies and objectives are identified related to landscaping and tree preservation. These areas are generally associated where publicly held lands are found (i.e. Waterfront Lands, Spring Garden ANSI) and where Community Incentive Plans (CIP) are part of the overall development of the area. One of note, is the South Cameron Planning Secondary Plan which contains several woodlots identified in the Candidate Natural Lands Study (CNLS) prepared in collaboration with Essex Region Conservation Area (ERCA). This Secondary Plan prescribes the preservation of existing trees and natural areas for both Woodland Residential (Subsection 4.7.2) and Woodland Business Park development (Subsection 4.7.6) in addition to Open and Natural Heritage (Subsection 4.7.4).

Tree preservation where necessary, is identified in the requirements for both the Subdivision Agreements and Site Plan Control Agreements or woodlot development within the South Cameron Planning Area as well as other Secondary Plans and Special Policy Areas. Such development agreements are subject to the Fees and Charges Bylaw 40-2021 which is updated annually (See Appendix 'D').

This is not the only area within the city where CNLS has designated woodlot areas of concern for preservation. ERCA is consulted on all proposed development within or near CNLS lands to help define the limits and nature of the proposed development and its impact on trees and vegetation; especially if there is a potential impact on habitat or Species at Risk. Where it is necessary for trees to be removed for a development, compensation, usually in the form of new trees at a rate of caliper per caliper, is prescribed as part of a Site Plan Control Process.

Urban Tree Canopy Replacement/Improvement Implementation:

The provisions concerning trees and landscapes of the Planning Act and the Official Plan are implemented through Site Plan Control, Subdivision and Severance Agreements. In addition, the City's Landscape Manual provides guidance for the details of implementation.

3) Site Plan Control

Under Section 41 of the *Planning Act*, specified development within municipalities is subject to Site Plan Control (SPC). A standard condition of SPC approval is the provision of appropriate and adequate landscaping within a development. This is implemented by way of the SPC agreement.

Prior to any approvals there may be a request to inventory and address existing vegetation and trees, and how they will be affected through removal or preservation. Support studies may be requested through pre-consultations for any development application process. These findings of these studies are most instrumental when the development proposal reaches the approval stage where detailed requirements are assessed for tree planting, replacement and preservation. Those requirements are itemized in the City of Windsor's Landscape Manual for Development.

Under a Site Plan Control Agreement, the owner is required to provide a landscape plan to ensure that the appropriate number and placement of trees is achieved to the satisfaction of the City Planner and the Planning department's Landscape Architect. In addition, the owner is required to provide securities in the form of a Certified Cheque or Letter of Credit, to ensure that the landscaping and trees are installed as per the approved landscape plan. Often existing trees are identified to be preserved, and the landscape security includes the protection as part of the conditions for return. Upon completion, the developer/owner can request that the Landscape Architect perform a site inspection to reduce the Landscape Performance Security to a Landscape Maintenance Security (approx. 30%). Currently, there is a one-year period for maintenance, however an extension may be made when; the landscape is not maintained adequately, replacements are required, or existing trees appear to be negatively impacted by the development and require additional time to ensure that they will survive or will need to be replaced.

Site Plan Control has resulted in the planting of hundreds of trees annually throughout the City of Windsor within commercial, industrial, institutional and residential developments.

4) Subdivision Agreements, Severances, Residential Building Permits

S. 51 of the Planning Act authorizes municipalities to approve plans of subdivision. A standard requirement of subdivision approval is the requirement for a subdivision agreement. The identification and preservation of trees under the subdivision process is included in the subdivision agreement and is similar to the one in the SPC process. However in the case of subdivisions, the planting of the required trees is

undertaken by the City Forester. The Subdivision Agreement references the Landscape Manual for tree planting requirements.

Similarly, when there is a request for a severance, the Committee of Adjustment may impose a condition that applicant provide a tree as part of the severance approval.

Whether part of a Subdivision Agreement or a erection of single residential home, the developer is required to pay for the installation of trees as outlined Section 4.7 of the Landscape Manual which states, one new deciduous shade tree for every 15m or 50 feet of lot frontage within the right of way. The current fee for the City to plant a 75mm calibre deciduous tree is \$520.00. This fee is included in the City's Fees and Charges by-law which is updated annually (see Appendix 'D'). These fees are collected prior to the issuance of the building permit for any residential unit.

5) Landscape Manual for Development (4th Edition):

The City of Windsor Landscape Requirements for Development, originally approved by Council in 1979, and revised several times with current 4th edition (1997 by CR835/96) is the main guideline for landscaping of development on private and public property. Provision of a minimum of new deciduous shade trees as per Section 3.2.3 of the manual states: "One 75mm tree for every 10m of street frontage, or one 75mm tree for every 250sm of hard or soft landscaped area (whichever is greater), plus equal size diameter for any trees greater than 100mm (4inch) caliper removed from site."

Council is to be aware, that this document was last updated in 1997. The Planning Department's Landscape Architect is currently undertaking a revision to update the manual to address contemporary issues (i.e. climate change, CPTED, appropriate species selection), new innovations (i.e. Low Impact Design, subsurface soil structures), and alternative replacement and compensations as development becomes more intensified and the areas for appropriate landscaping are becoming more constrained (see part 4) Challenges below).

Challenges to Tree Preservation and Tree Planting within Developments :

6) Tree Protection or Tree Cutting Bylaw

S. 135 of the Municipal Act, authorizes municipalities to pass by-laws for regulating or prohibiting the destruction or injuring of trees. Pursuant to this legislation the City passed **Parks By-law 131-2019** and **Trees on Highways By-Law 135-2004**. The Parks Department City Forester enforces by-laws that only apply to City owned properties. (see Appendix 'A'). These two By-laws clearly identify that "*No person shall destroy or injure trees on city property*". Anyone in contravention of the By-laws is guilty of an offense, and upon conviction is liable to a fines ranging from \$1,000 to a maximum total of \$25,000 for an individual or from \$5,000 to a maximum total of \$100,000 for corporations.

However, the City of Windsor currently does not have a similar by-law that applies to private properties. Through previous Council Questions, Administration has twice prepared reports to Council regarding a bylaw for the protection of trees on private properties similar to those found in other municipalities. In both instances, it was identified that there is a deficiency in civic resources to administer and enforce a universal tree-cutting bylaw for private properties. (see Appendices E)

While the Planning Act and the Official Plan authorize the City to require developers to provide studies that will help identify existing vegetation, including trees, it does not require a developer/owner to retain any vegetation on site prior to the municipality receiving an application for development. This is a loophole that developers have become aware of and thus some sites are clear-cut prior to any development application being received by the City. The Waterloo Study identified that another important tool is having an Urban Forest Management Plan. Since Council approved the Parks Departments to prepare a Tree Canopy Protection & Enhancement Policy (CR50-2019), the City Forester has retained an urban forest consultant to complete an Urban Forest Plan for the City of Windsor that will include recommendations for both public and private management guidelines. (see Appendix 'F').

A Study completed by the University of Waterloo in July 2020 *Guiding Urban Forestry Policy into the Next Decade: A Private Tree Protection & Management Practice Guide*, surveyed 17 Ontario municipalities and 5 out of province municipalities on their tree protection bylaw and best practices. (see Appendix 'G')

In all those studied, tree protection is referenced in the municipality's Official Plan. Ten of the seventeen have Private Tree Cutting Bylaws. Many of the tree protection bylaws in other Ontario Municipalities are associated with a tree cutting bylaw that allows for the removal upon receiving a permit. Failure to acquire a tree cutting permit, can result in fines between \$500 to \$100,000 per tree depending on the municipality.

Key themes for protection and preservation of trees found in this document include;

- Replacement and Relocation (where possible)
- Preservation of perimeter trees on development properties
- Heritage Tree Protection
- Policies related to functional and aesthetic benefits
- Ecosystem Management guidelines related to indigenous species, climate change resilience and soil conditions and volumes
- Enforcement

Municipality	Official Plan	Private Tree By-law	Urban Design Guidelines	Urban Forest Management Plan
Ajax	✓	✓	✓	✓
Barrie	✓	✓	✓	
Cambridge	✓		✓	✓
Guelph	✓	✓	✓	✓
Kingston	✓	✓	✓	✓
Kitchener	✓	✓	✓	✓
Mississauga	✓	✓	✓	✓
Niagara Falls	✓		✓	✓
Oakville	✓	✓	✓	✓
Oshawa	✓		✓	
Peterborough	✓	✓		
St. Catharines	✓		✓	✓
Thunder Bay	✓		✓	✓
Toronto	✓	✓	✓	✓
Vaughan	✓	✓	✓	✓
Waterloo	✓		✓	
Windsor	✓			

Table 1: Municipal Documents Scanned

Figure 1: Waterloo Study of Municipal Tree Protections

While the study is thorough, it concluded, *“protection and management is not one-size-fits-all.”* However, it did identify that municipalities with private tree by-laws found it to be the most effective tool for protecting and managing trees on private property, simply because they are “an actual enforcement tool”.

7) Reduced Landscape Areas in Developments for Tree Planting

Zoning Bylaw 8600 regulates the use of land, the type of construction and the bulk, character, density, floor area, height, location, size, setbacks and use of buildings or structures, the provision of parking, loading and other facilities, and other matters including landscape area and setback provisions listed in the Planning Act. However, some amendments to the Bylaw such site specific amendments, have reduced the total landscape open space and landscape setbacks. This precludes the ability for preserving and planting trees to ensure their survival. In addition, there is an inconsistency in the total percentage of land designated as landscape area, with some as low as 0%.

Furthermore, the term LANDSCAPED OPEN SPACE as defined in the Zoning Bylaw is as follows: *“... an area open to the sky and maintained with one or more of the following ground covers: bark; flowers; grass; mulch; ornamental stone, block or brick, excluding construction grade aggregate; shrubs; trees; water feature; wood chips; and may include outdoor recreational facilities accessory to a dwelling or dwelling unit.”* While this may seem inclusive, it does not result in soft landscaped

open space or provide for climate change adaptation, natural drainage, nor green areas. By this very definition, no green elements are required.

As a result, the Zoning Bylaw and subsequent amendments may create barriers to planting new trees on private properties.

When the Zoning Bylaw, and rezoning site-specific amendments result in deficient landscape area, Site Plan Control, has helped to address these challenges. The Planning Department' Landscape Architect in consultation with the City Forester and the developer, have been able to negotiate the installation of boulevard trees in lieu of planting trees on private property to achieve the required number of trees for given development. However, this may not always be achievable due to physical constraints. In rare occurrences, cash-in-lieu of tree planting has been considered. When implementing cash-in-lieu, the owner/developer is required to pay the City's Building Department the appropriate fee for each tree at the time of issuing a building permit. That fee is forwarded to the Parks Department for the City Forester to plant trees elsewhere in the city; preferably in the area where the fee has been paid. In some instances, where this accommodation has been made for a site-specific situation, developers have interpreted this as a precedent for any sites that they develop. This results in all future developments from those developers continuously being proposed without enough areas for trees to be preserved or planted.

Risk Analysis:

This report is for Council Information only, as a response to a Council Question. There are no risks at this time, however any actions to be taken by additional recommendations from Council related to tree cutting or preservation may have associated risks.

Climate Change Risks

Climate Change Mitigation:

Trees provide many benefits, including greenhouse gas mitigation benefits. A well-maintained urban forest can sequester carbon.

Climate Change Adaptation:

Trees and vegetation are intrinsic to the impacts of Climate Change as found throughout the City of Windsor's Climate Change Adaptation Plan and the City of Windsor's Environmental Master Plan. Furthermore, protection of existing tree canopies and increasing tree plantings are primary recommendations of the City's Urban Heat Island Study and the two thermal comfort studies (e.g. parks and downtown).

While acceptance of this report in itself will not have any climate change risks, any actions related to preservation and new tree plantings will have a positive impact, whereas removal of current tree protections will certainly have a negative impact.

Financial Matters:

There is no financial impact associated with the recommendations in this report. Should Administration be directed to pursue regulations or Bylaws pertaining to tree cutting or preservation, the matter would be brought back to Council with recommended implementation measures and associated costs.

Consultations:

Gaspar Horvath, City Forester (A)
Karina Richters, Supervisor of Environmental Sustainability and Climate Change

Conclusion:

This report responds to Council Question CQ32-2020. It identifies current regulations and procedures for tree preservation and planting on public and private developments, as well tools that are currently being pursued and others that are available to Council that could improve the urban tree canopy throughout the City.

Approvals:

Name	Title
Stefan Fediuk	Landscape Architect, Planning Department
James Chacko	Senior Manger of Parks
Neil Robertson	Manager of Urban Design / Deputy City Planner
Thom Hunt	City Planner / Executive Director, Planning & Development
Wira Vendrasco	Deputy City Solicitor, Legal Services & Real Estate
Shelby Askin Hager	Commissioner, Legal & Legislative Services
Jason Reynar	Chief Administration Officer

Notifications:

Name	Address	Email

Appendices:

- 1 Appendix 'A' Tree Protection Clauses from Parks Department Enforced By-laws
- 2 Appendix 'B' Official Plan; Chapter 3 - Environment
- 3 Appendix 'C' Specific Official Plan Chapter 4 Healthy Community Initiatives
- 4 Appendix 'D' Boulevard & City Right-of-way Trees Requirements
- 5 Appendix 'E' Previous City of Windsor Tree Protection Reports
- 6 Appendix 'F' City of Windsor Tree Canopy Protection & Enhancement Policy (CR50-2019)
- 7 Appendix 'G' Guiding Urban Forestry Policy into the Next Decade

Appendix 'A': Tree Protection Clauses from Parks Department Enforced By-laws

- **BY-LAW 131-2019: A BY-LAW FOR THE USE, REGULATION, AND PROTECTION OF PARKS:** Section 4.4 identifies that within a park, no person shall destroy, disturb, burn or in any way damage or remove any tree. This is also extending to Environmentally Significant Areas (ESAs) in Section 4.13. Enforcement (Section 14.4) is to be conducted through “any police officer, auxiliary police officer, provincial offences officer, municipal law enforcement officer or employee of the Municipality designated by the Executive Director...”, with penalties (Section 14.5) for “Any Person contravening any provision of this By-law is guilty of an offence and on conviction is liable to such penalty as is provided for under the Provincial Offences Act, R.S.O. 1990, Chapter P.33, as amended from time to time.”
- **BY-LAW 135-2004: A BY-LAW TO REGULATE THE PLANTING OF TREES AND PROHIBIT THE DESTRUCTION OR INJURING OF TREES ON HIGHWAYS IN THE CITY OF WINDSOR OR ON ANY LANDS OWNED BY THE CORPORATION OF THE CITY OF WINDSOR:** States that *“No person shall destroy or injure trees on a highway in the City of Windsor, or on any lands owned by the Corporation.”*

Further to this any contravention to the by-law is guilty of an offence and upon conviction is liable to a fines ranging from \$1,000 to a maximum total of \$25,000 for an individual or from \$5,000 to a maximum total of \$100,000 for corporations.

5. Environment

5.0 Preamble

A healthy and sustainable environment represents a balance between human activities and natural features and functions. In order to attain this balance, Council will enhance the quality of Windsor’s natural environment and manage development in a manner that recognizes the environment as the basis of a safe, caring and diverse community and a vibrant economy.

This chapter of the Official Plan provides goals, objectives and policies for the environmental designations identified on Schedule B: Greenway System and Schedule C: Development Constraint Areas and should be read in conjunction with the other parts of this Plan.

5.1 Goals

In keeping with the Strategic Directions, Council’s environment goals are to achieve:

- | | | |
|---|--------------|---|
| HEALTHY &
SUSTAINABLE | 5.1.1 | A healthy and sustainable natural environment. |
| COOPERATION &
COORDINATION | 5.1.2 | Cooperation and coordination among all stakeholders to maintain a flourishing natural environment. |
| ENVIRONMENTAL
AWARENESS | 5.1.3 | An awareness, appreciation, and responsibility for the natural environment and its functions and features. |
| COMPATIBLE
DEVELOPMENT | 5.1.4 | Development that is compatible with environmental functions and features. |
| REDUCE
POLLUTION | 5.1.5 | The reduction of pollution. |

5.2 General Policies

- | | | |
|--|--------------|---|
| SCHEDULE B:
GREENWAY
SYSTEM | 5.2.1 | The following environmental quality designations shall be identified on Schedule B: Greenway System: |
|--|--------------|---|

- (a) Natural Heritage;
- (b) Waterfront Recreation;
- (c) Community and Regional Parks;
- (d) Waterway Corridors;
- (e) Recreationways; and
- (f) Linkages.

SCHEDULE C:
DEVELOPMENT
CONSTRAINT
AREAS

5.2.2

The following environmental management designations shall be identified on Schedule C: Development Constraint Areas:

- (a) Natural Heritage;
- (b) Environmental Policy Area A and B;
- (c) Candidate Natural Heritage Sites;
- (d) Aggregate Resource Sites;
- (e) Mineral Mining Sites;
- (f) Airport Operating Area;
- (g) Floodplain Areas;
- (h) Shoreline and Floodprone Areas;
- (i) Known or Suspected Waste Disposal Sites;
- (j) Pollution Control Plants; and
- (k) Rail Yards. (amended by OMB order 1485 – 11/01/2002)

5.3 Environmental Quality

5.3.1 Objectives

ECOSYSTEM
HEALTH

5.3.1.1

To provide a means to maintain and improve ecosystem functions and processes within an urban area.

NATURAL RESOURCES	5.3.1.2	To protect, conserve and improve the quality and quantity of Windsor’s natural features and functions.
PROTECT BIOLOGICAL DIVERSITY	5.3.1.3	To protect biological diversity and the habitats of endangered, threatened and vulnerable species.
INCREASE NATURALIZED HABITAT	5.3.1.4	To increase the quantity and quality of naturalized habitat.
INTEGRATE CONSIDERATIONS	5.3.1.5	To integrate environmental, social, and economic considerations in growth and development matters.
PROTECT BENEFITS	5.3.1.6	To protect the visual, aesthetic and recreational benefits of the natural environment.
LINKAGES	5.3.1.7	To establish recreational and natural linkages between open space areas and natural areas.
URBAN FORESTRY	5.3.1.8	To guide urban forestry within Windsor.
WATER QUALITY	5.3.1.9	To improve the water quality of watercourses within Windsor.
WATERSHED PLANNING	5.3.1.10	To integrate water related resource management strategies and land use planning processes through watershed planning.
AIR QUALITY	5.3.1.11	To improve atmospheric air quality through the planning process.

5.3.2 Greenway System Policies

The Greenway System is based on the belief that the quality of life within Windsor will be enhanced by the establishment of a linked and continuous network of “green” land uses. This planned network of natural environment and recreational elements will provide a means to establish Windsor as a healthy and liveable city.

GREENWAY SYSTEM DEFINITION	5.3.2.1	For the purpose of this Plan, the Greenway System is a planned network of natural environment and recreational elements.
GREENWAY SYSTEM COMPONENTS	5.3.2.2	The specific components of the Greenway System designated on Schedule B: Greenway System consist of the following:

- (a) lands designated as Natural Heritage on Schedule D: Land Use and described in the Land Use chapter of this Plan;
- (b) lands designated as Waterfront Recreation on Schedule D: Land Use and Schedule E: City Centre Planning District and described in the Land Use chapter of this Plan;
- (c) Community and Regional Parks as described in the Land Use chapter of this Plan;
- (d) Waterway Corridors which consist of the Detroit River, Lake St. Clair, Little River, Turkey Creek (Grand Marais Drain) and their tributaries;
- (e) Recreationways as described in the Transportation chapter of this Plan; and
- (f) Linkages which are potential natural and/or recreational corridors between lands designated as Community and Regional Parks, Natural Heritage, Waterfront Recreation and/or Waterway Corridors.

<i>NEIGHBOURHOOD PARKS</i>	5.3.2.3	Notwithstanding policy 5.3.2.2, Neighbourhood Parks as described in section 6.7.3 of this Plan and Environmental Policy Areas as described in section 5.3.4 of this Plan may be considered to be a part of the Greenway System and be identified in a secondary plan or guideline plan.
<i>EXPAND GREENWAY SYSTEM</i>	5.3.2.4	Council shall encourage the expansion and refinement of the Greenway System within Windsor as opportunities arise through the planning approval process or through other measures as may be appropriate.
<i>REGIONAL EXTENSIONS</i>	5.3.2.5	Council, in cooperation with the Town of LaSalle, Town of Tecumseh, the Essex Region Conservation Authority and other organizations, shall encourage regional extensions of the Greenway System as opportunities arise through the planning approval process or through other measures as may be appropriate.
<i>DETERMINING EXACT BOUNDARIES</i>	5.3.2.6	Council shall determine the exact physical boundaries of the Greenway System within Windsor on an area or site specific basis as a part of the planning approval process having regard to the following:

- (a) natural features and functions on the site or in the area;
- (b) existing and/or proposed land use designations and zoning;
- (c) the current use or activity on the property;
- (d) any boundaries between the existing Greenway System and a new site or area;
- (e) property ownership;
- (f) the location of future Linkages and/or Recreationways; and
- (g) any relevant studies or reports.

*INCORPORATE
INTO OTHER
PLANNING
DOCUMENTS*

5.3.2.7

The exact physical boundaries of the Greenway System within Windsor will be incorporated into other planning documents such as secondary plans, guideline plans and plans of subdivision, where appropriate.

*PRIVATE
OWNERSHIP*

5.3.2.8

The designation of the Greenway System does not infer a commitment to purchase areas that are not currently under public ownership, nor is it implied that such areas under private ownership are available for public use.

*PROTECTION
METHODS*

5.3.2.9

Lands identified as part of the Greenway System may be protected by the Municipality through:

- (a) conveyance or dedication as a part of the planning process;
- (b) purchase of all or part of the identified area;
- (c) partnership arrangements with the Essex Region Conservation Authority and other organizations and groups;
- (d) the conservation of all or part of the identified area as a condition of planning approval;
- (e) the arrangement of leases with private property owners to provide for the protection and appropriate management of all or part of the identified area;
- (f) an exchange of lands;

- (g) donations, gifts, or bequests from individuals or corporations;
- (h) conservation easements;
- (i) the use of land stewardships agreements and techniques (refer to the Procedures chapter of this Plan); and
- (j) other measures as may be appropriate.

<i>PUBLIC ACCESS</i>	5.3.2.10	Public access to elements of the Greenway System will be established by the Municipality, where appropriate.
<i>RECREATIONWAYS</i>	5.3.2.11	The Recreationways designated on Schedule B: Greenway System will provide for recreational movement within the Greenway System and are further described in section 7.2.3 of this Plan.
<i>LINKAGES</i>	5.3.2.12	Council will endeavour to establish Linkages between the areas designated as Waterway Corridors, Natural Heritage, Community and Regional Parks and Waterfront Recreation on Schedule B: Greenway System.
<i>WATERWAY CORRIDORS</i>	5.3.2.13	<p>Council will encourage the enhancement of Waterway Corridors by:</p> <ul style="list-style-type: none"> (a) using the other provisions of this Plan related to water quality, floodplain and floodprone areas and stormwater management; (b) retaining and enhancing vegetation adjacent to a watercourse; (c) ensuring the protection of watercourses during construction in accordance with federal and provincial legislation, polices and guidelines; and (d) other methods as may be appropriate.
<i>NATURALIZE</i>	5.3.2.14	Council shall encourage the naturalization of those components of the Greenway System that are deficient in existing natural cover.

<i>EER REQUIREMENT</i>	5.3.2.15	Council may require an Environmental Evaluation Report (EER), or other suitable study, for lands proposed for development or infrastructure undertakings within or adjacent to the Greenway System (refer to the Procedures chapter of this Plan).
<i>PORT OF WINDSOR</i>	5.3.2.16	Council will have regard to the existing and future operations of the Port of Windsor when considering the development and/or expansion of the Greenway System adjacent to the Detroit River and Lake St. Clair.

5.3.3 Natural Heritage Policies

Lands identified as Natural Heritage provide for the protection and conservation of Windsor’s most environmentally significant and sensitive natural areas, including provincially designated areas of natural and scientific interest (ANSI) and wetlands.

<i>NATURAL HERITAGE DESIGNATION</i>	5.3.3.1	Lands designated as Natural Heritage appear on Schedules B: Greenway System, C: Development Constraints and D: Land Use.
<i>REFER TO LAND USE CHAPTER</i>	5.3.3.2	The policies which establish the permitted uses, ancillary uses, evaluation criteria, protection and conservation of lands designated as Natural Heritage are further described in the Land Use Chapter of this Plan.

5.3.4 Environmental Policy Area Policies

<i>ENVIRONMENTAL POLICY AREA DEFINITION</i>	5.3.4.1	For the purpose of this Plan, an Environmental Policy Area (EPA) is an environmentally significant and/or sensitive natural area which may be able to tolerate appropriately designed development. Environmental Policy Areas are further classified as follows: <ul style="list-style-type: none"> (a) Environmental Policy Area A may be partially developed provided that the development conserves the significant natural features and/or functions; and (b) Environmental Policy Area B may be developed provided the significant natural features are incorporated as a part of the development.
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*EPA A
LAND USE
DESIGNATION*

5.3.4.2

Council shall evaluate development proposals within the developable portion of an Environmental Policy Area A according to the other provisions of this chapter and the land use designation(s) of the site on Schedule D: Land Use.

*EPA B
LAND USE
DESIGNATION*

5.3.4.3

Council shall evaluate development proposals within an Environmental Policy Area B according to the other provisions of this chapter and the land use designation(s) of the site on Schedule D: Land Use.

*EVALUATION
CRITERIA*

5.3.4.4

Council shall designate an Environmental Policy Area A or B according to an assessment of the land's environmental significance and sensitivity based on the evaluation of the following criteria:

- (a) the biophysical characteristics of the area serve one or more ecological functions such as providing a migratory stop-over, linking other natural areas and serving a hydrological function;
- (b) the area exhibits a high degree of biological diversity at the species, community or structural level;
- (c) the area contains natural communities which are poorly represented from a local perspective, or are rare from a provincial or national perspective;
- (d) the area provided habitat for species which are vulnerable, threatened or endangered from a national, provincial or regional perspective;
- (e) the area is of sufficient size (at least one hectare) to enable biological communities and species to sustain themselves in a healthy state;
- (f) the area is representative of at least one community and/or habitat of the natural landscape of Windsor that is not adequately represented in existing protected areas;
- (g) the area is in a relatively natural condition and exhibits low levels of disturbance from intrusions such as infrastructure corridors, development and exotic species;

- (h) the area contains earth science features which are poorly represented from a local perspective, or are rare from a provincial or national perspective; and,
- (i) the area is of visual, aesthetic or recreational importance to the city, its planning districts, neighbourhoods and streetscapes.

NATURAL HERITAGE 5.3.4.5 Council may amend this Plan to redesignate an Environmental Policy Area A or B to Natural Heritage in accordance with the provisions of section 6.8 of this Plan.

DEVELOPMENT PROPOSALS WITHIN AN EPA A OR B **5.3.4.6** **Proponents of development or infrastructure undertakings within an Environmental Policy Area A or B shall be required to complete an Environmental Evaluation Report or other suitable study to the satisfaction of the Municipality in accordance with the Procedures chapter of this Plan.**

ADJACENT LANDS 5.3.4.7 The Municipality may require proponents of development on lands adjacent to an Environmental Policy Area A or B to complete an Environmental Evaluation Report or other suitable study to the satisfaction of the Municipality in accordance with the Procedures chapter of this Plan. The identification of adjacent lands subject to this requirement will be determined by the Municipality on a site-specific basis, with regard to provincial legislation, policies and appropriate guidelines, and in accordance with policy 10.2.5.4 of this Plan.

INCREASE AWARENESS 5.3.4.8 Council, in cooperation with other public agencies, will make the public aware of the value and significance of lands designated as Environmental Policy Areas and Natural Heritage through educational programmes, outreach activities and stewardship.

5.3.5 Candidate Natural Heritage Sites Policies

CNHS DEFINITION 5.3.5.1 For the purpose of this Plan, a Candidate Natural Heritage Site is land characterized by potentially significant and/or sensitive environmental features or functions.

<i>REDESIGNATION</i>	5.3.5.2	Council may amend this Plan to redesignate a Candidate Natural Heritage Site to an Environmental Policy Area A or B in accordance with section 5.3.4 of this Plan and/or Natural Heritage in accordance with section 6.8 of this Plan.
<i>EER REQUIRED WITHIN OR ADJACENT</i>	5.3.5.3	<p>Proponents of development or infrastructure undertakings within or adjacent to a Candidate Natural Heritage Site may be required by the Municipality to successfully complete an Environmental Evaluation Report or other suitable study to determine:</p> <ul style="list-style-type: none"> (a) the environmental significance and sensitivity of the site; (b) if, where and under what conditions development may be permitted; and (c) other issues, as appropriate, in accordance with the Procedures chapter of this Plan.
<i>FRAGMENTED OWNERSHIP AREAS</i>	5.3.5.4	Where there is fragmented ownership within a Candidate Natural Heritage Site that inhibits the coordinated study of the site, the Municipality may undertake an Environmental Evaluation Report or other suitable study in accordance with the Procedures chapter of this Plan to determine the factors provided for in policy 5.3.5.3.
<i>COST RECOVERY</i>	5.3.5.5	Council may assess and recover costs for the Environmental Evaluation Report or other suitable study undertaken in accordance with policy 5.3.5.4 as development occurs.
<i>UNAFFECTED LANDS</i>	5.3.5.6	The requirements of policy 5.3.5.3 shall not apply to lands used in accordance with the Zoning By-law.
<i>NEW SITES</i>	5.3.5.7	Council may designate a Candidate Natural Heritage Site following the completion of a watershed/subwatershed plan, or other suitable study (refer to the Procedures chapter of this Plan).

5.3.6 Urban Forestry Policies

<i>PROTECT TREES</i>	5.3.6.1	Council will recognize and encourage the protection of trees as essential to the health and welfare of the community and the natural environment.
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URBAN FOREST	5.3.6.2	Council will recognize that a diversity of trees contribute to the distinctive character of neighbourhoods and promotes the planting of species which further enhance this character.
DIVERSITY OF TREES	5.3.6.3	Council will encourage the planting of trees on public and private property, in particular those species most tolerant of Windsor's climatic conditions and those less susceptible to disease.
<i>NATIVE TREES</i>	5.3.6.4	Council will encourage the planting of native tree species associated with the Carolinian forest region.
TREED CORRIDORS	5.3.6.5	Council will encourage the planting of trees along watercourses and Linkages to reduce flooding and erosion and to improve natural habitat.
CREATE & ENHANCE	5.3.6.6	The Municipality will create, maintain and enhance treed areas along infrastructure rights-of-way and in public open spaces.
CONSERVATION PLAN	5.3.6.7	Council may require proponents of development and infrastructure undertakings to submit an inventory of trees on site and prepare and implement a tree conservation and replacement plan.
PREVENT DAMAGE	5.3.6.8	The Municipality will endeavour to protect trees on public and private lands from damage by mechanical equipment during construction and maintenance activities by developing guidelines and standards to protect trees from damage associated with construction and maintenance operations.
<i>TREE INVENTORY</i>	5.3.6.9	The Municipality will maintain a city-wide inventory of trees along public rights-of-way as the basis to monitor the effectiveness of urban forestry policies and practices.
TREE RELOCATION	5.3.6.10	The Municipality will encourage the relocation and transplanting of trees to municipal lands in situations where trees would have been lost due to development activities.
STREET TREES	5.3.6.11	The Municipality will maintain the character of its mature tree-lined streets by replacing any tree within the public right-of-way requiring removal with a new tree planted as close as practical to the location of the original.
TREE BY-LAW	5.3.6.12	Council will consider the adoption of a by-law to foster the conservation of trees and/or woodlots.

5.3.7 Atmospheric Air Quality Policies

*PUBLIC
INVOLVEMENT*

5.3.7.1 Council, in cooperation with other agencies, will actively encourage public participation, information and education to foster awareness of atmospheric change and of local initiatives to reduce atmospheric air pollution.

**REDUCE AIR
POLLUTION**

5.3.7.2 Council will contribute to the reduction of air pollution by using the following land use planning approaches:

- (a) increasing opportunities for non-automotive transportation modes including walking, cycling and public transportation in accordance with the Infrastructure chapter of this Plan;
- (b) regulating development which has the potential to increase atmospheric pollution in accordance with the Land Use chapter of this Plan;
- (c) improving energy conservation in accordance with the Urban Design chapter of this Plan;
- (d) locating compatible residential, commercial and employment uses in a manner that reduces distance and vehicle trips as outlined in the Land Use chapter of this Plan; and
- (e) protecting and improving trees and natural areas.**

5.3.8 Water Quality Policies

The following policies should be read in conjunction with section 7.3.4 of this Plan.

*HABITAT
ENHANCEMENT*

5.3.8.1 Council, in cooperation with owners of riparian lands, private organizations and public agencies, will support the strategic placement of habitat enhancement elements in and along watercourses to provide for the spawning, feeding, and nesting of aquatic related species.

<i>IMPROVE WATERCOURSES</i>	5.3.8.2	Council will work with property owners, public agencies, and other interested groups to maintain watercourses free from litter, refuse, and other debris in order to augment the flow and flushing ability of waterways and to improve aquatic habitat.
<i>OTHER AGENCIES</i>	5.3.8.3	Council will support the actions undertaken by other public agencies and organizations to remediate polluted surface and ground water.
<i>CONSTRUCTED WETLANDS</i>	5.3.8.4	Council, in cooperation with property owners, local organizations and public agencies, will support the creation of constructed wetlands, where appropriate.
<i>WATER QUALITY</i>	5.3.8.5	Council will support efforts to improve the water quality of the Detroit River, Lake St. Clair, Turkey Creek and Little River.
<i>WATERSHED PLAN</i>	5.3.8.6	Council may authorize the preparation and implementation of a watershed or subwatershed plan in accordance with the Procedures Chapter of this Plan to assist in improving water quality.

5.4 Environmental Management

5.4.1 Objectives

<i>SUSTAINABLE RESOURCES</i>	5.4.1.1	To ensure the long-term sustainability of environmental resources.
<i>AGGREGATE & MINING SITES</i>	5.4.1.2	To recognize the importance of aggregate resource operations and mineral mining industries to Windsor's economy.
<i>MINIMIZE ENVIRONMENTAL IMPACTS</i>	5.4.1.3	To minimize any adverse environmental impacts caused by the development and operation of aggregate resource, wayside pits and quarries, portable asphalt plants and mineral mining sites.
<i>REHABILITATION</i>	5.4.1.4	To rehabilitate and restore abandoned aggregate resource extraction, mineral mining and contaminated sites to land uses compatible with the surrounding area.
<i>NOISE ATTENUATION</i>	5.4.1.5	To protect the residents of Windsor from unacceptable levels of noise which may negatively impact their health and well being.

FLOODPLAINS & SHORELINES 5.4.1.6 To protect human life and property located within and adjacent to floodplains and shorelines.

POLLUTION CONTROL PLANTS 5.4.1.7 To ensure that development is compatible with the operation of pollution control plants.

5.4.2 Aggregate Resource Sites Policies

AGGREGATE RESOURCE SITES DEFINITION 5.4.2.1 For the purpose of this Plan, Aggregate Resource Sites are areas where aggregate extraction and/or operations are taking place, or where there is a high potential for aggregate extraction to occur due to the quantity and quality of the mineral deposits.

LAND USE DESIGNATION 5.4.2.2 Council shall permit existing Aggregate Resource Sites as an interim land use. As such, Aggregate Resource Sites are designated on Schedule D: Land Use for their ultimate intended land use.

INCOMPATIBLE LAND USES 5.4.2.3 Council shall protect Aggregate Resource Sites from incompatible adjacent land uses except where it can be shown that:

- (a) resource extraction and/or operations would not be feasible;
- (b) the proposed use or development serves a greater long term interest to the public than does aggregate extraction and/or operations;
- (c) the proposed use or development would not significantly preclude or hinder future extraction and/or operations; and
- (d) the proposed use or development would not be in keeping with provincial legislation, policy or appropriate guidelines.

SEPARATION DISTANCES 5.4.2.4 Council shall require sensitive land uses to be separated and/or buffered from Aggregate Resource Sites in accordance with provincial legislation, policies and appropriate guidelines.

NEW SITES 5.4.2.5 Council may permit new Aggregate Resource Sites in any land use designation on Schedule D: Land Use without requiring an amendment to this Plan provided:

- (a) the use is in keeping with provincial legislation, policies and appropriate guidelines; and
- (b) the proponent mitigates potential negative impacts of the extraction and/or operation on surrounding and/or sensitive land uses.

REHABILITATION 5.4.2.6 Council shall require Aggregate Resource Sites be rehabilitated and restored in keeping with the land use designation(s) identified on Schedule D: Land Use.

5.4.3 Mineral Mining Sites Policies

MINERAL MINING SITES DEFINITION 5.4.3.1 For the purpose of this Plan, Mineral Mining Sites are mining operations and associated facilities, or past producing mines with remaining mineral potential that have not been permanently rehabilitated and restored to another land use.

INCOMPATIBLE LAND USES 5.4.3.2 Council shall protect Mineral Mining Sites from incompatible adjacent land uses except where it can be shown that:

- (a) mineral mining would not be feasible;
- (b) the proposed use or development serves a greater long term interest to the public than does mineral mining; and
- (c) the proposed use or development would not significantly preclude or hinder future mining.

SEPARATION DISTANCES 5.4.3.3 Council shall require sensitive land uses to be separated and/or buffered from Mineral Mining Sites in accordance with provincial legislation, policies and appropriate guidelines.

REHABILITATION 5.4.3.4 Council shall require Mineral Mining Sites to be rehabilitated after mining and related activities have ceased in accordance with relevant provincial legislation, policies and appropriate guidelines.

MINING WELLS 5.4.3.5 Upon cessation of production from mining wells, the mining wells and the associated facilities shall be plugged and rehabilitated to allow for the development of the uses designated on Schedule D: Land Use of this Plan.

SALT SOLUTION MINING **5.4.3.6** Council shall require that proponents of development within or immediately adjacent to the Mineral Mining Area designated on Schedule C: Development Constraint Areas where there is known present or past underground salt or salt solution mining activity to successfully complete a geo-technical study prepared by a qualified professional to confirm that the site is suitable for the proposed development.

5.4.4 Wayside Pits and Quarries and Portable Asphalt Plants Policies

DEFINITION **5.4.4.1** Wayside Pits and Quarries and Portable Asphalt Plants shall be defined in accordance with provincial policy.

NEW PITS, QUARRIES & PORTABLE ASPHALT PLANTS **5.4.4.2** Council may permit Wayside Pits and Quarries and Portable Asphalt Plants in any land use designation on Schedule D: Land Use without requiring an amendment to this Plan provided:

- (a) the use is in keeping with provincial legislation, policies and appropriate guidelines; and
- (b) the proponent mitigates potential negative impacts of the extraction and/or operation on surrounding and/or sensitive land uses.

5.4.5 Noise and Vibration Policies

REGARD FOR NOISE & VIBRATION **5.4.5.1** Council shall require the proponent of development in proximity to existing or proposed sources of noise and vibration, or the proponent of development that may be a source of noise or vibration, to evaluate the potential negative impacts of such noise and vibration on the proposed future land use. In determining the exact distances for the application of this policy, the Municipality shall have regard to provincial legislation, policies and appropriate guidelines.
(Amended by OPA 43 – 06/13/2006 – OMB Order 1695)

REQUIRE STUDY **5.4.5.2** If a proposed development is expected to be subject to noise or vibration, or to cause noise or vibration, the proponent shall be required to complete a noise and/or vibration study to the satisfaction of the Municipality to support the feasibility of the proposal in accordance with the Procedures chapter of this Plan.
(Amended by OPA 43 – 06/13/2006 – OMB Order 1695)

<i>ABATEMENT MEASURES</i>	5.4.5.3	<p>Abatement measures may include one or more of the following, depending on the physical characteristics of the specific location and the source of the noise and/or vibration:</p> <ul style="list-style-type: none"> (a) increased setbacks from the noise or vibration source; (b) sound barriers such as landscaped berms, walls, buildings, and fences; (c) building design, including specific attention to height, massing, internal layout and fenestration; (d) building construction, including materials for acoustical and/or vibration insulation, glaze or ventilation; (e) registered notice on title of possible excessive noise and/or vibration, and; (f) any other appropriate attenuation measures.
<i>IMPLEMENTATION</i>	5.4.5.4	Council shall require that appropriate noise and/or vibration abatement measures be implemented by the proponent as a condition of development approval.
<i>AIRPORT OPERATING AREA DEFINITION</i>	5.4.5.5	For the purpose of this Plan, the Airport Operating Area includes those lands within the Noise Exposure Forecast and Noise Exposure Projection contours approved by the federal government and extended to the nearest right-of-way.
<i>REFER TO TRANSPORTATION CHAPTER</i>	5.4.5.6	Council shall evaluate a proposed development within the Airport Operating Area designated on Schedule C: Development Constraint Areas in accordance with the Transportation chapter of this Plan.
<i>RAIL YARD DEFINITION</i>	5.4.5.7	For the purpose of this Plan, Rail Yard includes the lands associated with a designated rail yard. (amended by OMB order 1485 – 11/01/2002)
<i>REFER TO TRANSPORTATION CHAPTER</i>	5.4.5.8	Council shall evaluate a proposed development adjacent to a Rail Yard designated on Schedule C: Development Constraints, in accordance with the Transportation chapter of this Plan. (amended by OMB order 1485 – 11/01/2002)

5.4.6 Floodplain Areas Policies

The following policies apply to lands within the Floodplain Areas designated on Schedule C: Development Constraint Areas and should be read in conjunction with the Infrastructure chapter of this Plan. Floodplains contain both a floodway (where flood depths and velocities are the greatest) and a flood fringe.

<i>FLOODPLAIN BOUNDARIES</i>	5.4.6.1	The Floodplain Areas subject to the following policies were determined in consultation with the Essex Region Conservation Authority and follow the general boundaries shown on Schedule C: Development Constraint Areas.
<i>FLOODWAY</i>	5.4.6.2	Council will prohibit new development within the floodway of inland watercourses. The Municipality, in consultation with the Essex Region Conservation Authority, will identify the floodway on a site-specific basis and may include it in secondary plans and/or the zoning by-law as appropriate.
<i>DEVELOPMENT WITHIN FLOODPLAIN</i>	5.4.6.3	Council will prohibit buildings or structures in Floodplain Areas except: (a) in accordance with policies set out below; and (b) works and facilities related to flood and erosion control.
<i>DEVELOPMENT CRITERIA</i>	5.4.6.4	Council may permit development in a floodplain in recognized flood fringe areas outside of the floodway, including behind flood control dykes (so as to address the matter of the potential failure of protective works) provided: (a) sufficient information accompanies the application to show that the proposed development and its occupants will be protected from the effects of a Regulatory Flood; (b) the potential upstream and downstream impacts of the development proposal will not significantly affect the hydrology or hydraulics of the floodplain; and (c) that adequate floodproofing measures, determined in consultation with the Essex Region Conservation Authority, are incorporated in the development.

<i>MINOR ADDITIONS</i>	5.4.6.5	<p>Council may permit renovations, minor additions and alterations to existing buildings or structures in the floodplain provided:</p> <p>(a) no adverse affects on the hydraulic characteristics of flood flows are created; and</p> <p>(b) such renovations, additions or alterations are generally flood proofed to the Regulatory Flood elevation with reductions as determined appropriate and feasible.</p>
<i>REPLACEMENT OF STRUCTURES</i>	5.4.6.6	<p>Council will require that structures which are replaced due to fire or unusual loss to be flood proofed to the Regulatory Flood elevation as appropriate.</p>
<i>MUNICIPAL WORKS</i>	5.4.6.7	<p>The City will consult with the Essex Region Conservation Authority to determine the necessary design requirements to mitigate against any adverse impacts of flooding prior to undertaking municipal works on or adjacent to the floodplain.</p>
<i>HAZARDOUS SUBSTANCES</i>	5.4.6.8	<p>Council will not permit development and/or uses primarily associated with substances of a chemical, hazardous or toxic nature, which would pose a threat to public safety if damaged as a result of flooding or the failure of flood proofing measures, in the floodplain.</p>
<i>INSTITUTIONAL USES</i>	5.4.6.9	<p>Council will not permit the development of Institutional uses in the floodplain unless adequate flood proofing measures are implemented to ensure public safety in the event of flooding.</p>
<i>EMERGENCY SERVICES</i>	5.4.6.10	<p>Council will not permit emergency services such as police, fire or ambulance stations in a floodplain unless adequate flood proofing measures are implemented to ensure that the delivery of such services would occur in the event of flooding.</p>

5.4.7 Shoreline and Floodprone Areas Policies

The following policies apply to lands within the Lake St. Clair and Detroit River Shoreline and Floodprone Areas designated on Schedule C: Development Constraint Areas and should be read in conjunction with the Infrastructure chapter of this Plan.

*GENERAL
BOUNDARIES*

5.4.7.1

The Shoreline and Floodprone Areas subject to the following policies were determined in consultation with the Essex Region Conservation Authority and follow the general boundaries shown on Schedule C: Development Constraint Areas.

*DEVELOPMENT
REQUIREMENTS*

5.4.7.2

Council may permit development in a floodprone area provided:

- (a) the effects of the proposal on wave and current patterns, water flows and levels, and water quality are considered by the Municipality, in consultation with the Essex Region Conservation Authority and/or federal or provincial governments, to be acceptable;
- (b) that adequate floodproofing measures, determined in consultation with the Essex Region Conservation Authority, are incorporated in the development;
- (c) that the development be set back an appropriate distance from the shoreline. The setbacks for development will be determined in consultation with the Essex Region Conservation Authority on a site specific basis and may be incorporated into secondary plans and/or the zoning by-law as appropriate. When determining such setbacks, consideration will be given to:
 - (i) the type of shoreline;
 - (ii) bank stability;
 - (iii) angle of bank slope;
 - (iv) degree of erosion protection, and;
 - (v) other relevant aspects.

*ALTERATIONS OR
OTHER WORKS*

5.4.7.3

Any alterations and other related works within Shoreline and Floodprone Areas will be evaluated based on the following:

- (a) the potential negative impact of the proposal on the natural features and functions of the area, including fish habitat;
- (b) any proposed measures to mitigate potential negative environmental impacts;

- (c) the potential negative impacts upon archaeological resources in accordance with the Heritage chapter of this Plan;
- (d) the effects of the proposal on wave and current patterns, water flows and levels, and water quality are considered by the Municipality, in consultation with the Essex Region Conservation Authority and/or federal or provincial governments, to be acceptable;
- (e) the extent to which the proposal provides for maintaining the desirable natural features and functions, and;
- (f) how the site layout and project design relate to the adjacent land uses.

5.4.8 Potentially Contaminated Sites Policies

~~POTENTIALLY
CONTAMINATED
SITES
DEFINITION~~

~~5.4.8.1~~

~~For the purpose of this Plan, Potentially Contaminated Sites include lands, buildings and/or structures where it is reasonable to suspect that substances, either individually or collectively, are present which may pose a danger to public health, safety and/or the environment.~~

~~(Deleted by OPA#77, March 28, 2011, By-law 66-2011)~~

~~DETERMINING
NEED FOR A
STUDY~~

~~5.4.8.2~~

~~Council shall not approve development applications on a Potentially Contaminated Site until the site has been assessed and/or remediated in a manner consistent with federal and provincial legislation, policies and appropriate guidelines and the policies of this Plan. Accordingly, at the time of submission, the proponent of development of a Potentially Contaminated Site shall be required to demonstrate that development is feasible having regard to the other provisions of this Plan and the following:~~

~~(Deleted by OPA#77, March 28, 2011, By-law 66-2011)~~

- ~~(a) when the planning application involves the division of land for residential purposes or lands associated with a former industrial or commercial use the Municipality shall require the proponent to follow the environmental site assessment process outlined in policy 5.4.8.3; and~~

- (b) ~~when the planning application involves anything other than that outlined in (a) above, the Municipality may require the proponent to follow the environmental site assessment process outlined in policy 5.4.8.3 where there is a reasonable expectation that the site may be contaminated.~~

~~ENVIRONMENTAL
SITE
ASSESSMENT~~

~~5.4.8.3~~

~~When an environmental site assessment is required by this Plan, it shall be prepared by a qualified professional having regard to federal and provincial legislation, policies and appropriate guidelines. The process of preparing an environmental site assessment may involve as many as four phases, which are summarized as follows:-~~

~~(Deleted by OPA#77, March 28, 2011, By-law 66-2011)~~

- (a) ~~a Phase I site assessment where the proponent is required to gather information to identify actual or potential contamination related to current or historical land use of the site;~~
- (b) ~~a Phase II sampling and analysis where the proponent is required to confirm and delineate the presence or absence of contamination found or suspected from the Phase I site assessment;-~~
- (c) ~~a Phase III site clean up where the proponent is required to:-~~
 - (i) ~~stage 1— develop a Remediation Action Plan; and~~
 - (ii) ~~stage 2— implement the Remedial Action Plan to clean up or remediate the contamination found on the property to federal and/or provincial policies and guidelines; and~~
- (d) ~~a Phase IV verification and documentation of the clean up.~~

~~REVIEW
PROCEDURE~~

~~5.4.8.4~~

~~When an environmental site assessment is completed, it shall be reviewed as follows:~~

~~(Deleted by OPA#77, March 28, 2011, By-law 66-2011)~~

- (a) ~~if a Phase I environmental site assessment does not find or suspect contamination, the qualified professional who prepared the report shall be required to sign and submit a statement to the Municipality confirming that no further environmental site assessment is required prior to the scheduling of a Public Meeting under the Planning Act; or~~

- (b) ~~if a Phase I environmental site assessment finds or suspects contamination the proponent shall be required to prepare a Phase II environmental site assessment. If the Phase II environmental site assessment concludes that a Phase III environmental site assessment is not required, the qualified professional who prepared the report shall be required to:

 - (i) ~~sign and submit a statement to the Municipality confirming that no further environmental site assessment is required; and~~
 - (ii) ~~submit the environmental site assessment to the Municipality for review and, where appropriate, concurrence by an independent peer reviewer prior to the scheduling of a Public Meeting under the Planning Act; or~~~~
- (c) ~~if a Phase II environmental site assessment confirms the need for a Phase III environmental site assessment, the proponent shall be required to prepare a Phase III stage 1 Remedial Action Plan. The Phase III stage 1 Remedial Action Plan shall be prepared by a qualified professional and submitted for review by the Municipality and concurrence by an independent peer reviewer prior to the approval of the planning application; and~~
- (d) ~~when a Phase III stage 2 environmental site assessment and Phase IV environmental site assessment are completed, the qualified professional who completed the environmental site assessment shall:

 - (i) ~~sign and submit a statement to the Municipality confirming that the site is suitable for the proposed development; and~~
 - (ii) ~~submit all documentation covering implementation to the Municipality for review and concurrence by an independent peer reviewer prior to the issuance of the Building Permit.~~~~

PEER REVIEW 5.4.8.5

~~Where an independent peer review is required in accordance with policy 5.4.8.4, the proponent shall be required to pay for the review.~~

~~(Deleted by OPA#77, March 28, 2011, By-law 66-2011)~~

- POTENTIALLY CONTAMINATED SITES DEFINITION* 5.4.8.1 For the purpose of this Plan, Potentially Contaminated Sites are sites where the environmental condition of the property or properties may have potential for adverse effects on human health, ecological health or the natural environment. In order to prevent these adverse effects, prior to permitting development on these properties, it is important to identify these properties and ensure that they are suitable or have been made suitable for the proposed land use(s) in accordance with provincial legislation, regulations and standards.
(Added by OPA#77, March 28, 2011, By-law 66-2011)
- AVAILABLE INFORMATION* 5.4.8.2 While the identification of potentially contaminated sites is important in the planning application review process, the policies in this section should not be interpreted as a commitment on the part of the City to identify all contaminated sites. Rather, these policies should be regarded as an effort by the municipality to responsibly utilize available information in the planning application review process to help ensure that development takes place only on sites where the environmental conditions are suitable for the proposed use of the site.
(Added by OPA#77, March 28, 2011, By-law 66-2011)
- PREVIOUS LAND USE* 5.4.8.3 The City will require applicants to document previous uses of a property or properties that are subject of a planning application and/or properties that may adversely impact a property or properties that are subject of a planning application in order to assist in the determination of the potential for site contamination.
(Added by OPA#77, March 28, 2011, By-law 66-2011)
- RESIDENTIAL DEVELOPMENT* 5.4.8.4 When a planning application involves the subdivision of land for residential purposes, the City may require an affidavit from a qualified person as defined by provincial legislation and regulations, confirming that a Phase 1 ESA has been completed or, where the subject land is identified as a potentially contaminated site, a Record of Site Condition has been filed in accordance with Ontario Regulation 153/04, as amended from time to time.
(Added by OPA#77, March 28, 2011, By-law 66-2011)
- MANDATORY FILING OF A RECORD OF SITE CONDITION* 5.4.8.5 Where a change to a more sensitive property use (as defined in Ontario Regulation 153/04) is proposed, a mandatory filing of a Record of Site Condition is triggered in accordance with provincial legislation. The Record of Site Condition must be filed prior to the issuance of a building permit.
(Added by OPA#77, March 28, 2011, By-law 66-2011)

ADDITIONAL
RECORD OF SITE
CONDITION
REQUIREMENTS

5.4.8.6

Where the City determines that there is a proposed change in land use to a more sensitive use on a property or properties that have been identified through the City's planning application review process as "potentially contaminated", the City will:

(Added by OPA#77, March 28, 2011, By-law 66-2011)

- (a) Require as a condition of planning approval, written verification to the satisfaction of the City from a qualified person as defined by provincial legislation and regulations, that the property or properties in question are suitable or have been made suitable for the proposed use in accordance with provincial legislation, regulations and standards, including where required by the City, or provincial legislation and/or regulations the:
 - (i) filing of a Record of Site Condition (RSC) signed by a qualified person in the Environmental Site Registry;
 - (ii) submission to the City of a Declaration signed by the qualified person acknowledging that the City may rely on the statements in the RSC ; and,
 - (iii) submission to the City of written acknowledgement from the Ministry of Environment specifying the date that the RSC was filed in the Environmental Site Registry.
- (b) Establish conditions of planning approval for all planning applications to ensure receipt of satisfactory verification of suitable environmental site condition as per Policy 5.4.8.5; and,
- (c) Where applicable, utilize the holding provisions of the Planning Act to ensure that satisfactory verification of suitable environmental site condition is received as per Policy 5.4.8.6 (a).

REVIEW OF
REPORTS

5.4.8.7

The City reserves the right to require as a condition of planning approval, submission and review of some or all of the environmental site assessment reports prepared in support of a Record of Site Condition.

(Added by OPA#77, March 28, 2011, By-law 66-2011)

- PEER REVIEW* 5.4.8.8 Where the City determines that an independent peer review of environmental site assessment reports is required, the proponent shall be required to pay for this peer review.
(Added by OPA#77, March 28, 2011, By-law 66-2011)
- DEEDED LAND* 5.4.8.9 Where the City is deeded land for public highways, road widenings, parks, stormwater management, easements, or for any other purpose, the City may require, as a condition of transfer, satisfactory verification of environmental site condition as per Policies 5.4.8.6 to 5.4.8.8.
(Added by OPA#77, March 28, 2011, By-law 66-2011)

5.4.9 Waste Disposal Sites Policies

- KNOWN SITES* 5.4.9.1 Schedule C: Development Constraint Areas identifies the location of all Known or Suspected Waste Disposal Sites within Windsor and adjacent municipalities within approximately 500 metres of the municipal boundary.
- DISPOSAL SITE REPORT* 5.4.9.2 Council shall require proponents of development within 500 metres of a Known or Suspected Waste Disposal Site to prepare a report in accordance with provincial legislation, policy and appropriate guidelines to demonstrate the site is suitable for development.
- RESTRICT DEVELOPMENT* 5.4.9.3 Council shall prohibit residential, commercial, employment, mixed use and institutional development within 30 metres of a known waste disposal site and restrict development within 500 metres of a known or suspected waste disposal site if the site has any adverse environmental effects or poses a risk to public health and safety.
- DEVELOPMENT APPROVALS* 5.4.9.4 Where development is proposed on a waste disposal site, an official plan amendment, zoning by-law amendment, or building permit will not be adopted or granted until applicable approvals from the province are obtained.

5.4.10 Pollution Control Plant Policies

The following policies should be read in conjunction with the Infrastructure chapter of this Plan.

<i>POLLUTION CONTROL PLANTS DEFINITION</i>	5.4.10.1	For the purpose of this Plan, a Pollution Control Plant refers to sewage treatment facilities and associated uses.
<i>SCHEDULE C: DEVELOPMENT CONSTRAINT AREAS</i>	5.4.10.2	The Lou Romano Water Reclamation Plant and the Little River Pollution Control Plant and any known Pollution Control Plant within approximately 300 metres of the municipal boundary are identified on Schedule C: Development Constraint Areas.
<i>PROHIBIT INCOMPATIBLE DEVELOPMENT</i>	5.4.10.3	Council shall prohibit residential, commercial, mixed use and institutional development within 300 metres of a Pollution Control Plant. The 300 metre distance shall be measured from the property line of the Pollution Control Plant to the property line of the proposed development.
<i>COMPATIBLE DEVELOPMENT</i>	5.4.10.4	Council may permit Industrial or Open Space uses within 300 metres of a Pollution Control Plant: <ul style="list-style-type: none"> (a) in accordance with provincial legislation, policy, and appropriate guidelines; and (b) where the proponent demonstrates that the development is feasible given the operations of the plant, and in particular, the emission of odours.
<i>ACQUISITION OF 300M BUFFER AREA</i>	5.4.10.5	Council may acquire land within 300 metres or more of the Lou Romano Water Reclamation Plant or the Little River Pollution Control Plant to facilitate the operation and/or expansion of the facility.

Appendix 'C': Specific Official Plan Chapter 4 Healthy Community Initiatives

- a) **CQ34-2014 Response** – In 2016 the City Planner prepared a response to a Council question relating to the **Progressive Options for Compact & Walkable Communities**. Throughout the report several references were made to the importance of preserving existing trees and the planting of new trees to improve the environment for healthy, livable and walkable communities. Section 'O' addressed the Urban Tree Canopy directly:

“A healthy urban tree canopy contributes to the environmental, physical, mental, social, and economic health of a city. As recommended by the recent Downtown Urban Heat Island Study, additional tree canopy coverage in public spaces can dramatically improve thermal comfort during summer months and lead to more usable public space and walkable streets. Tree canopy coverage targets for public spaces could be developed and achieved through enhanced public realm and streetscape planting and better environments for street trees (e.g. larger vaults for root systems). A strategy for maintaining and replacing existing street trees could also ensure that no loss of canopy coverage is experienced.”

- b) In August of 2021, Mayor Drew Dilken and Ward 6 Councillor Jo-Anne Gignac celebrated a \$4Million reconstruction of Eastlawn Avenue using a storm water management system (Silva Cells) to intercept runoff using pipe-like “cells” that divert excess water to strategically placed trees. The trees then absorb the water, thereby helping to reduce flooding while promoting a healthy natural environment.
- c) A similar product has been used by the Planning Department to provide better soil volumes for trees along Wyandotte Street West, the Walkerville BIA and City Hall.
- d) A current project at Site Plan Control is incorporating this product, as recommended by the corporation’s Landscape Architect, to provide the required soil volumes for trees within the development due to the reduced amount of landscape setbacks to accommodate the building infrastructure of the development.

Appendix 'D': Boulevard & City Right-of-way Trees Requirements

- **CR 332/79 Subdivision Agreements:** That all future subdivision agreements include a provision that the developer plant a minimum average of one large growing tree per lot or for larger corner lots, one tree per every 15 m (50 feet) of lot frontage within the street right-of-way, the species and size of trees 1 to conform with the general requirements of the City's Landscape Manual.
- **CR188/2003 Severances Through Committee of Adjustment:** That in the case of lot severance applications to the Committee of Adjustment where there is no existing municipal tree in the abutting city right-of-way, or in the case of a lot severance where an existing tree must be removed for development purposes, the applicant be required to pay \$275.00 per lot, or per every 15m of frontage, for Forestry Services to plant a tree in the right-of-way at the front of the subject lot after lot development has occurred, or elsewhere in the City if a tree is not desired by the new property owner.
- **By-law 40-2021 Schedule of Fees:** Changed the fee schedule to increase price of trees on Municipal Boulevard to \$520 to align with current cost and similar rates in other Ontario municipalities of similar size.
- **CR 1386/94:** Council resolved to adopt a policy to implement the planting of Carolinian tree species throughout the City. The policy when written did recognize that the some exotic species would be better suited due to the urban conditions not being appropriate for indigenous trees.
- **Subdivision Agreement General Provisions**
G-3. LANDSCAPE AND PARK PROVISIONS

G-3(1). Trees - The Owner further agrees to pay to the Corporation, prior to the issuance of any construction permits, in connection with trees required for the subject lands, the amount set out in accordance with the Corporation's Manual of Landscaping Requirements available from the Corporation's Executive Director of Parks and the Department Fee Schedule approved by the Council of the Corporation from time to time.

G-3(2). Preservation of Existing Trees - The Owner further agrees to preserve those existing trees on the subject lands and/or adjacent public right-of-way and include preservation guidelines on the approved construction documents for the protection of the said trees during demolition and construction of the proposed development all to the satisfaction of the Executive Director of Parks .

THE CORPORATION OF THE CITY OF WINDSOR
Parks and Recreation

**MISSION STATEMENT:**

"The City of Windsor, with the involvement of its citizens, will deliver effective and responsive municipal services, and will mobilize innovative community partnerships"

BASIS Report Number:	Report Date: August 31, 2005
Author's Name: Bill Roesel	Date to Council: September 19, 2005
Author's Phone: 519 253-2300 ext. 6709	Classification #:
Author's E-mail:	

To: Mayor and Members of City Council

Subject: Natural Environment Area Protection Bylaw for the City of Windsor

P&R 05-66

1. RECOMMENDATION: City Wide: _____ Ward(s): _____

That Council **APPROVE** the Bylaw #231-2005 to protect Natural Environment Areas in the City of Windsor.

EXECUTIVE SUMMARY:

N/A

2. BACKGROUND:

The County of Essex in concert with the City of Windsor has the lowest forest cover in all of Ontario (4.5%) however, within the boundaries of the City of Windsor we are approaching 9% forest cover. As such, the preservation of remaining natural areas is extremely important. At present, the City of Windsor Tree Bylaw #135-2004 provides protection for trees on all publicly owned property and right of ways.

Since 1992, the City has protected over 225 hectares (555 acres) of former Candidate Natural Heritage Sites that might have been lost to development had there not been the planning identification put in place in 1994. A number of CNHS's have been processed through Environmental Evaluation Reports (EER), as development applications were brought forward. In most cases, the evaluations have lead to the protection of the natural areas through parkland conveyance or purchase.

However, privately held natural areas remain vulnerable to destruction. More recently an identified natural area was lost to clearing activities despite being recognized in planning documents as requiring protection considerations. Although the City's Official Plan prescribes conditions for natural areas to be conserved as part of development approvals, the City has no legal ability to halt the destruction of natural areas prior to development applications being approved.

Other municipalities have a by-law in place to prevent private natural areas from being destroyed. A number of tree and vegetation protection bylaws from across Ontario were

reviewed and administration felt that protection of trees and vegetation within designated natural areas would be an appropriate first step for Windsor.

3. DISCUSSION:

This particular bylaw would help protect natural areas regardless of ownership status. Natural Environment Areas as defined in the proposed by-law includes “Environmental Policy Areas”, “Natural Heritage” and “Candidate Natural Heritage Sites” as designated on map Schedule C - Development Constraint Areas of the Official Plan for the City of Windsor.

The test as to how and under what conditions a privately held natural area may be developed remains the same. The Environment Chapter of the Official Plan guides natural area protection as part of development approval process. The policies and procedures were approved with the passing of the Official Plan in 2000.

The proposed by-law covers the protection of trees and natural vegetation that includes woodlands, prairies, and wetland areas. Since the preservation of natural areas in whole is more beneficial than protecting individual trees, it was felt that this would be an appropriate bylaw to implement.

We will be monitoring the new City of Toronto tree and vegetation protection bylaw to determine their success and challenges. As a next step we may wish to expand our bylaws in the future to include individual trees on typical building lots.

4. FINANCIAL MATTERS:

If Bylaw #231-2005 is approved as recommended then there **should not** be a need for further staffing requirements. However, if it is Council’s wish to include individual trees on all private properties then additional staffing would be required.

The City of Toronto added seven (7) new tree inspectors and \$800,000 annually to their forestry-operating budget to administer their new bylaw, which includes all trees, private and public, in the City of Toronto.

To amend the list of “Natural Environment Areas” from time to time will require a new biological assessment of the areas, and a need to contract outside resources i.e. ERCA or an independent biologist. The estimated cost to complete an update to the 1992 Candidate Natural Heritage Sites Biological Report is approximately \$30,000; this work would be a component of the updating of the Official Plan in 2005/6.

5. COMMUNITY STRATEGIC PLAN

Implementing a tree and vegetation protection bylaw for defined areas (city and private) in the City of Windsor is in keeping with the Environmental Goals in the Official Plan. This particular initiative is also in keeping with Council’s strategic directions.

6. CONSULTATIONS:

This report was developed in consultation with other Ontario municipalities as well as Planning, and Legal units of the City of Windsor.

7. CONCLUSION:

Approval of this tree and vegetation protection bylaw will be a positive step towards protecting our remaining natural areas.

Don Sadler
Executive Director of Parks

John Skorobohacz
Chief Administrative Officer

Michael Duben
General Manager, Client Services

George Wilkki
City Solicitor

Robert Hayes
City Planner

APPENDICES:

DEPARTMENTS/OTHERS CONSULTED:

Name:

Phone #: 519 ext.

NOTIFICATION:

Name	Address	Email Address	Telephone	FAX

REPORT NO. 77
of the
WINDSOR-ESSEX COUNTY ENVIRONMENT COMMITTEE (WECEC)
of its meeting held
October 3, 2013
at 5:30 o'clock p.m.
Lou Romano Water Reclamation Plant, 4155 Ojibway Parkway

Members present at the October 3, 2013 meeting:

Charlie Wright, Co-Chair
Councillor Alan Halberstadt, Co-Chair
Mark Bartlett
Derek Coronado
Rick Coronado
Jesse Gardner Costa
Roger Dzugan (alternate)
John Miller
Mike Nelson

Your Committee submits the following recommendation:

Moved by Councillor Halberstadt, seconded by J. Gardner Costa,
That a Private Tree By-law Subcommittee of the Windsor Essex County Environment
Committee consisting of Councillor Halberstadt, J. Miller, M. Nelson, B. Wansbrough, Planner
II, Stefan Fediuk, Landscape Architect and B. Roesel, City Forester **BE ESTABLISHED.**
Carried.

COUNCILLOR ALAN HALBERSTADT, CO-CHAIR

COMMITTEE COORDINATOR

NOTIFICATION:	
NAME	CONTACT INFORMATION
WECEC Committee including resource personnel	on file
Bill Roesel, City Forester	broesel@city.windsor.on.ca
Beau Wansbrough, Planner II	bwansbrough@city.windsor.on.ca
Stefan Fediuk, Landscape Architect	sfediuk@city.windsor.on.ca

REPORT NO. 80
of the
WINDSOR-ESSEX COUNTY ENVIRONMENT COMMITTEE (WECEC)
of its meeting held
February 6, 2014
at 5:30 o'clock p.m.
Lou Romano Water Reclamation Plant, 4155 Ojibway Parkway

Members present at the February 6, 2014 meeting:

Charlie Wright, Co-Chair
Councillor Alan Halberstadt, Co-Chair
Frank Butler
Eileen Chen (non-voting)
Derek Coronado
Roger Dzugan
Jesse Gardner Costa
Paul Henshaw
John Miller
Mike Nelson
Lindita Prendi
Radwan Tamr

Your Committee submits the following recommendation:

Moved by F. Butler, seconded by J. Gardner Costa,
That due to the clear-cutting of the woodlot on the Greek Orthodox Community of Windsor lands (located northeast of Walker Road and the E.C. Row Expressway), that City Council **BE REQUESTED** to consider the implementation of a Tree By-law, and further, that a permit process and the issuance of fines relating to the clear cutting of trees **BE CONSIDERED**.
Carried.

COUNCILLOR ALAN HALBERSTADT, CO-CHAIR

COMMITTEE COORDINATOR

NOTIFICATION:	
NAME	CONTACT INFORMATION
WECEC Committee including resource personnel	On file
Tom Hunt, City Planner	thunt@city.windsor.on.ca
Bill Roesel, Manager, Forestry & Horticulture	broesel@city.windsor.on.ca
Lee Anne Doyle, Executive Director/Chief Building Official	ldoyle@city.windsor.on.ca



OFFICE OF THE CITY CLERK COUNCIL SERVICES

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WEBSITE: www.citywindsor.ca

City Council Decision Monday, February 25, 2019

Moved by: Councillor Bortolin
Seconded by: Councillor Costante

Decision Number: CR50/2019

That Council **APPROVE** the Tree Canopy Protection and Enhancement Policy attached as Appendix A to this report.

Carried.

Report Number: C 29/2019

Clerk's File: GP2019 8.2

Steve Vlachodimos

Deputy City Clerk/Senior Manager of Council Services
May 21, 2019

Department Distribution

Paul Giroux	City Forester
Jan Wilson	Corporate Leader – Parks, Recreation & Culture and Facilities

External Distribution

Subject: Bill 68-Municipal Act Changes and Requirement for Municipal Tree Canopy Policies

Reference:

Date to Council: 2/25/2019
Author: Paul Giroux
City Forester, Manager of Forestry & Natural Areas
Parks Department
(519) 253-2300x2760
pgiroux@citywindsor.ca
Parks
Report Date: 2/12/2019
Clerk's File #: GP2019

To: Mayor and Members of City Council

Recommendation:

THAT Council **APPROVE** the Tree Canopy Protection and Enhancement Policy attached as Appendix A to this report.

Executive Summary:

N/A

Background:

Bill 68, entitled *Modernizing Ontario's Municipal Legislation Act, 2016*, received royal assent on May 30th, 2017. This bill introduced a series of reforms to the Municipal Act, 2001, the Municipal Conflict of Interest Act, and the Municipal Elections Act, 1996. Of the various reforms introduced, an amendment to Section 270 of the Municipal Act, 2001, has the effect of requiring all municipalities to adopt and maintain policies with respect to the protection and enhancement of the tree canopy and natural vegetation in the municipality.

Presently, the City of Windsor does not have a Tree Protection Policy and therefore Administration is seeking approval of the draft Tree Canopy Protection and Enhancement Policy, attached as Appendix A.

Discussion:

The City of Windsor presently has a number of tools to protect and enhance trees and natural vegetation located within the City of Windsor. These tools govern municipally owned trees, the urban forest and our natural areas and vegetation. These tools are in the form of by-laws, policies, programs, plans and procedures and include:

- By-law 25-2004 - Protection of Publicly Owned Trees
- Official Plan in Relation to Trees and Natural Areas
- Parks Master Plan
- Parks By-law
- Natural Environment Zoning
- Climate Change Sustainability Program
- Invasive Species Removal Program
- Endangered Species Act, 2007
- Species At Risk Protection Program
- Commemorative Bench and Tree Policy
- Policy for One Large Growing Tree per Lot in Future Subdivision Agreements
- Community Stewardship Programs for Ecological Restoration – in partnership with ERCA, Forests Ontario, Scouts Canada, Friends of Ojibway and Essex County Nature
- Technical Resource Provider for Local Stakeholders and Initiatives
- Oak Wilt Awareness and Education Program
- Native Seed Collection Program
- Municipal Tree Nursery Program
- City-Wide Tree Planting Program
- Young Tree Watering Program
- Enhanced Mulching Program
- Arbor Week and Earth Day Celebrations

Consolidating the above by-laws, policies, programs, plans and procedures into one policy document will allow us to meet the requirements under Section 270 of the Municipal Act, 2001.

In 2019, Administration will finalize and seek council approval for the Urban Canopy Development Policy. In addition, Administration will be completing the Canopy Cover Assessment, the City's Tree Inventory Update, the Black Oak Heritage Park Management Plan and in 2020, the Urban Forest Management Plan. These new policies, plans and programs will all work towards goals of the Tree Canopy Protection and Enhancement Policy and once approved by Council, should all be included in the Policy. The attached Tree Canopy Protection and Enhancement Policy will be amended from time to time to incorporate these and any additional Council approved initiatives that relate to this policy.

Risk Analysis:

Municipalities have until March 1, 2019 to adopt and maintain policies with respect to the protection and enhancement of trees and natural vegetation. If Council does not approve the Tree Canopy Protection and Enhancement Policy, the City of Windsor would not be in compliance of Section 270 of the Municipal Act, 2001.

Financial Matters:

There are no financial impacts anticipated as a result of this Policy.

Consultations:

Manger of Forestry and Natural Areas

Town of the Blue Mountains

Ministry of Municipal Affairs and Housing

Conclusion:

The City of Windsor already has a number of tools in the form of by-laws, policies, programs, plans and procedures which govern the protection trees and natural vegetation located within the City of Windsor. It is in the best interest of the Corporation of the City of Windsor to approve the Tree Canopy Protection and Enhancement Policy in order to comply with Section 270 of the Municipal Act, 2001 by March 1, 2019.

Approvals:

Name	Title
Jan Wilson	Corporate Leader – Parks, Recreation & Culture and Facilities
Onorio Colucci	Chief Administrative Officer

Notifications:

Name	Address	Email

Appendices:

- 1 Attachment A - Tree Canopy Protection and Enhancement Policy



Guiding Urban Forestry Policy into the Next Decade: A Private Tree Protection & Management Practice Guide

Kaitlin Webber, Melissa Le Geyt, Theresa O'Neill, Vignesh Murugesan

July 2020



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B. Review of Best Practices	

Kaitlin Webber, Melissa Le Geyt, Theresa O’Neill and Vignesh Murugesan are all Master’s students in the School of Planning at the University of Waterloo.

This Practice Guide was adapted from a project conducted in PLAN 721: Advanced Planning Project Studio at the University of Waterloo. The original project, “Tree Protection & Tree Management: A Best Practices and Legislative Review” was prepared for the Community, Recreation and Culture Services department at the City of St. Catharines, Ontario.



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Acknowledgements

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- Bob Lehman, Dana Anderson, and Nancy Adler - the PLAN 721 course instructors at the University of Waterloo - for their support, advice, and planning-related humour. An extended thanks to Bob for supporting us beyond the scope of the course project and helping to create this Practice Guide.

- Municipal staff members from the surveyed Ontario municipalities for their considerations, and helpful contributions through the interview process, including:
 - The Town of Ajax
 - The City of Barrie
 - The City of Cambridge
 - The City of Guelph
 - The City of Mississauga
 - The City of Niagara Falls
 - The Town of Oakville
 - The City of Oshawa
 - The City of St. Catharines
 - The City of Thunder Bay
 - The City of Toronto
 - The City of Waterloo
 - The City of Windsor

- Staff members from the following provinces, territories, and municipalities, who allowed us to expand the scope of our project:
 - Calgary, Alberta
 - Prince Edward Island
 - St. John's, Newfoundland & Labrador
 - View Royal, British Columbia
 - Winnipeg, Manitoba



Image: City of Vancouver

Using This Guide

This Guide aims to provide planners and policymakers with an improved understanding of the legislative framework and current approaches to private tree protection and management in Ontario. It also highlights effective tools for protecting, managing, and increasing tree canopy coverage on private land. It is informed by interviews with municipal practitioners, and a review of policy documents and academic articles that pertain to municipalities in Ontario. However, findings and recommendations are applicable to municipalities across the country due to their shared responsibilities and challenges of protecting urban trees.

The Guide begins by providing an overview of the current state of Canada's tree canopy, and current approaches to tree protection and management in major cities across the country. Next, the remainder of this Guide uses Ontario as a case study to examine the effectiveness of current tree protection and management strategies, accomplished through the following tasks:

- 1. Environmental Scan:** State of Urban Forestry Literature
- 2. Provincial Policy & Legislation Overview:** Relevant Policy Framework in Ontario
- 3. Municipal Policy Scan:** Key Themes and Unique Policies
- 4. Review of Best Practices:** Municipal Staff Survey

Key findings from these tasks have been summarized and used to develop recommendations for planners and policymakers who are working to meet and exceed canopy goals in municipalities across the country.

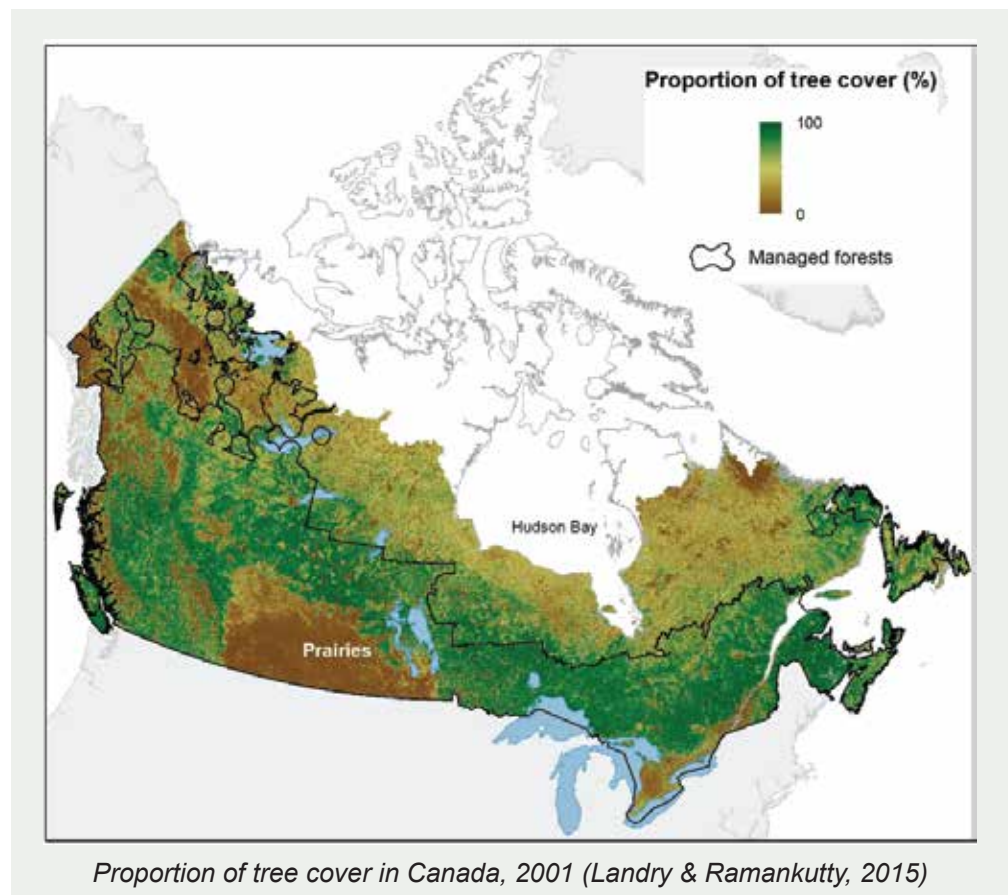


Introduction

Trees are well understood to have significant value, from the ecosystem services they provide, to their role in establishing healthy communities. In an urban context, individual trees and forested areas improve ground water quality, reduce soil erosion, contribute to stormwater management by reducing and storing run-off, help to mitigate urban heat islands, and provide flora and fauna habitat. Additionally, trees in urban areas can reduce risk factors to health, such as high blood pressure and chronic stress (Ulrich et al, 1990), and provide space for local communities. These health benefits have the capacity to extend across the country, as more than 80% of Canadians live in urban areas (Statistics Canada, 2011).

Between 1991 and 2011, urban areas in Canada grew outward by about 6% through the conversion of agricultural and forested lands. Over the same decade, Canada's urban tree canopy decreased by about 1.5%, from about 27.6% in 1990, to 26.1% in 2012 (McGovern & Pasher, 2016). While the national average has decreased, in the Prairies, there has been an increase in tree cover, as treeless landscapes that existed before are being converted into urban areas. Further, tree canopy in urban areas increases as tree cover matures over time (McGovern & Pasher, 2016).

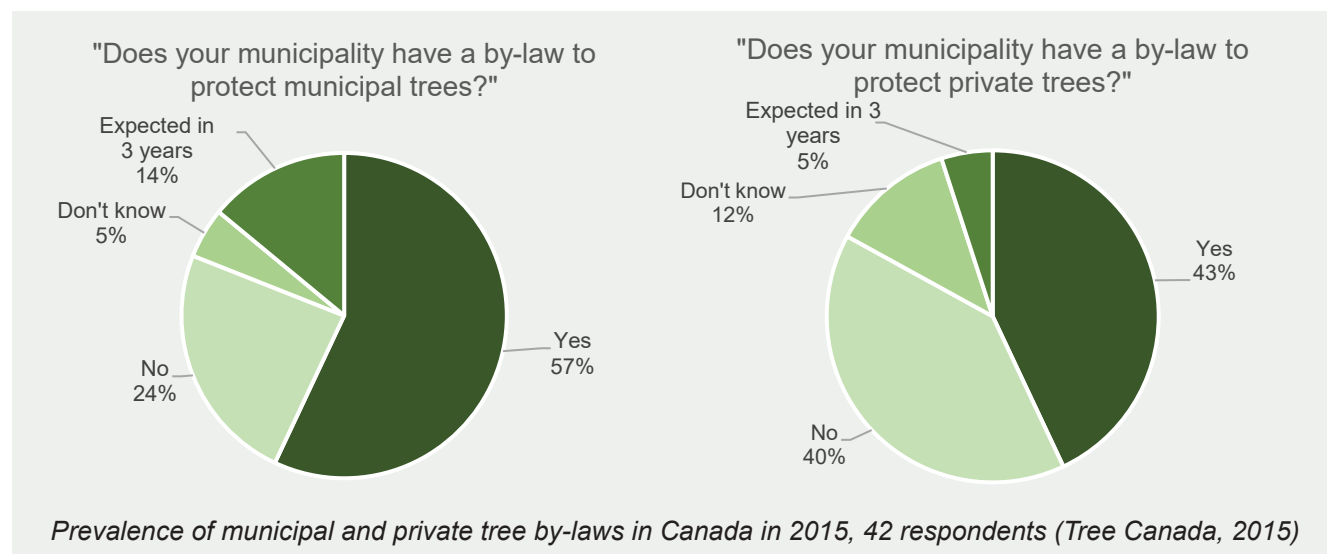
As the owners of trees on city land, municipalities can protect public trees using methods such as by-laws. However, there is an increasing need to also protect trees on private property in order to reach ideal canopy cover and maintain ecological integrity. This is especially important in regions such as Southern Ontario, where a large proportion of trees are located on private property. For example, in the City of Cambridge, 80% of the urban forest



canopy is on private land (City of Cambridge, 2015), and in Toronto, private trees make up 60% of the City's tree canopy (City of Toronto, 2013). To help protect private trees and improve urban tree cover, this Practice Guide provides an overview of different policy and planning approaches taken by municipalities throughout the province of Ontario.

Provincial & Territorial Approaches to Tree Protection and Management: Overview of Policies and Programs

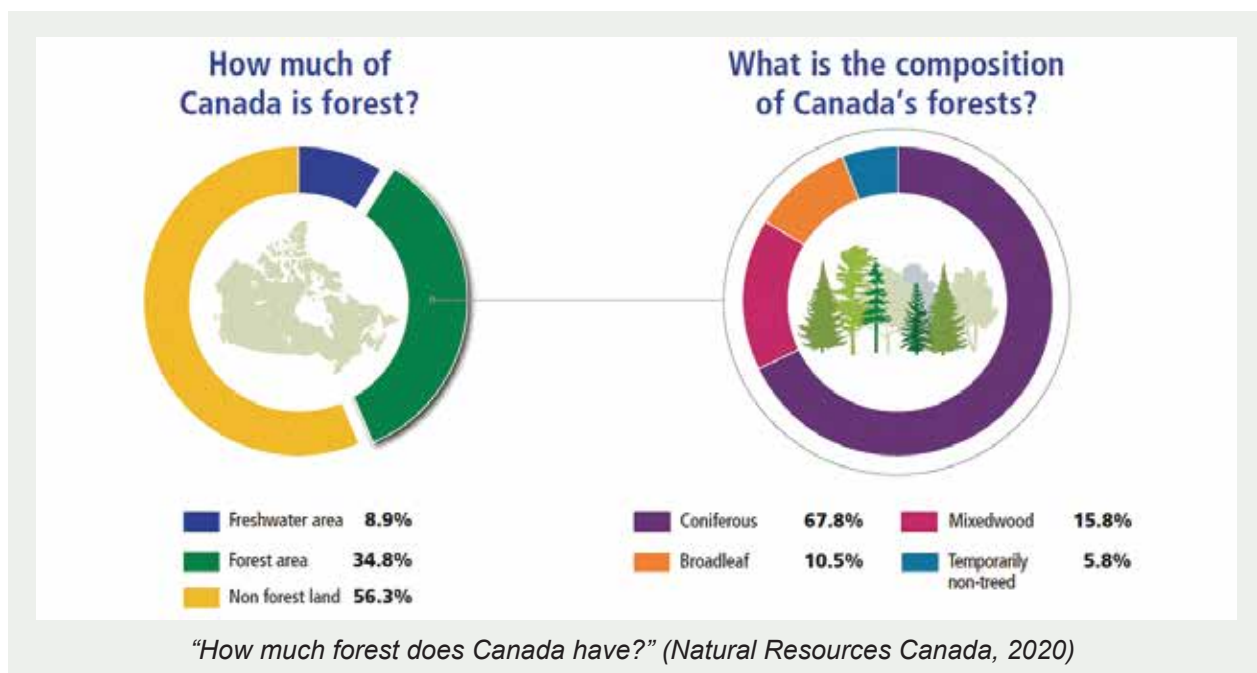
Municipalities across Canada have taken various measures to protect trees in their jurisdiction. These measures vary according to their priorities and circumstances. A survey conducted in 2015 revealed that 57% of the 42 surveyed municipalities accorded the protection of municipality-owned trees to the presence of by-laws. However, only 43% of the municipalities had by-laws that protect private trees (Tree Canada, 2015).



While by-laws are the highest form of protection accorded to urban trees, there are other ways that cities have tried to preserve trees. In this section, we provide an overview of urban tree protection strategies used by various municipalities across Canada, with an exception of cities in Ontario, as this is expanded upon in the case study section of this report. Various provincial legislations like Municipal Government Acts, Local Government Acts, Planning Acts, etc. give municipalities the power to regulate and protect trees within their boundaries. In all Canadian provinces and territories, municipalities have the authority to regulate and protect trees within their boundaries. Some components of each province and territory's tree-related legislation are outlined below.

- **British Columbia:** municipalities must adhere to Regional Growth Strategies when creating Official Community Plans. Vancouver and Victoria have both private and public tree by-laws. The City of Victoria has also "gamified" tree planting by creating a challenge to plant 5000 trees on public and private land. The municipality also has an Urban Forest Master Plan.
- **Alberta:** municipalities must adhere to regional plans when exercising their authority to regulate land use. The City of Calgary has protected public trees through a bylaw. It also protects several trees by designating them as heritage trees. Edmonton has similar provisions and also provides protection to perimeter trees via a Community Standards by-law. However, both Edmonton and Calgary see protection of trees on private property as a challenge.
- **Saskatchewan:** the municipalities of Regina and Saskatoon have provisions such as by-laws to protect public trees, but private trees don't have similar protections.

- **Manitoba:** the City of Winnipeg requires tree preservation reports during any development that impacts trees. The Manitoba Heritage Tree Program legislated under the Forest Health Promotion Act shows some promise of protecting significant trees.
- **Quebec:** Montreal and Quebec City have a permitting process for cutting trees on private and public property, where the permit is issued only when the tree in question is liable to cause damage, is dead, or is afflicted with an incurable disease. Trees are also protected during any new development projects.
- **New Brunswick:** in the City of Fredericton, only public trees are protected by by-laws.
- **Newfoundland & Labrador:** in St. John's, only public trees are accorded protection. However, the City does offer homeowners a voucher that can be used for purchasing trees.
- **Nova Scotia:** Halifax has protected trees on public land by means of a by-law.
- **Prince Edward Island:** Charlottetown has accorded protection to public and heritage trees through a by-law.
- **Northwest Territories:** the City of Yellowknife protects its trees on both public and private lands through different planning processes. The trees on public lands are protected by a by-law whereas trees on private lots are preserved and managed by means of landscaping requirements and the site development process.
- **Yukon:** in Whitehorse, trees on public lands are regulated and preserved by a by-law. Trees on private property are protected and managed by landscape guidelines which apply overlay controls to protect significant trees and landscape character. It also provides guidelines for tree protection during construction.
- **Nunavut:** almost all of the territory lies above the tree line and therefore, no regulations exist to preserve trees in urban areas. However, there are provincial building practices that suggest the preservation of onsite vegetation.





Case Study: Private Tree Protection & Management in Ontario

1. Environmental Scan: State of Urban Forestry Literature

This scan identifies and summarizes academic literature on tree protection and management in Ontario. Findings are categorized into three categories, which are summarized below. Detailed findings can be found in Appendix A1.

Tree Management Policies

There is a growing body of literature that compares urban forestry policies across Ontario. From these studies, general findings emerged, including:

- The most common urban forestry policies in Ontario are pest and disease control policies, landscape guidelines, and standards for development. Tree planting and greening strategies are less common.
- Upper-tier municipalities are more likely to have tree by-laws than lower-tier municipalities. This has been attributed to resource constraints and the population threshold required for enacting conservation by-laws.
- A universal standard for urban forestry best practices has not been adopted across Ontario. Some municipalities refer to the International Society of Arboriculture, while others refer to American National Standards Institute.

Urban Forestry Strategies and Management Plans

Urban Forestry Management Plans (UFMPs) are a common tool used to provide strategic direction for dealing with urban forest-related matters. This may include articulating specific programs to be implemented, or for certain actions to occur (e.g. hiring a municipal staff member to oversee conservation efforts). In a study conducted comparing effectiveness of UFMPs, they found that key factors contributing to effective UFMPs include adopting “active adaptive management” (adapting plan to changing conditions) and taking a collaborative approach both internally and externally to ensure a consistent approach to implementation (Douglas, 2016).



Within UFMPs, municipalities approach native and non-native species differently:

- While all municipalities include themes of ecosystem services and ecological integrity in their UFMPs, the importance of native species is only raised when discussing an area's ecological integrity.

- Many municipalities discuss the importance of native species and express a desire to increase the proportion of native species in the urban forest. However, they do not include native-to-non-native target ratios or scenarios when native or non-native species should be used.

When it comes to the choice of tree belonging to either sex, findings from the Canadian Urban Allergy Audit (2012) show a preference for male trees in Canada’s urban forests:

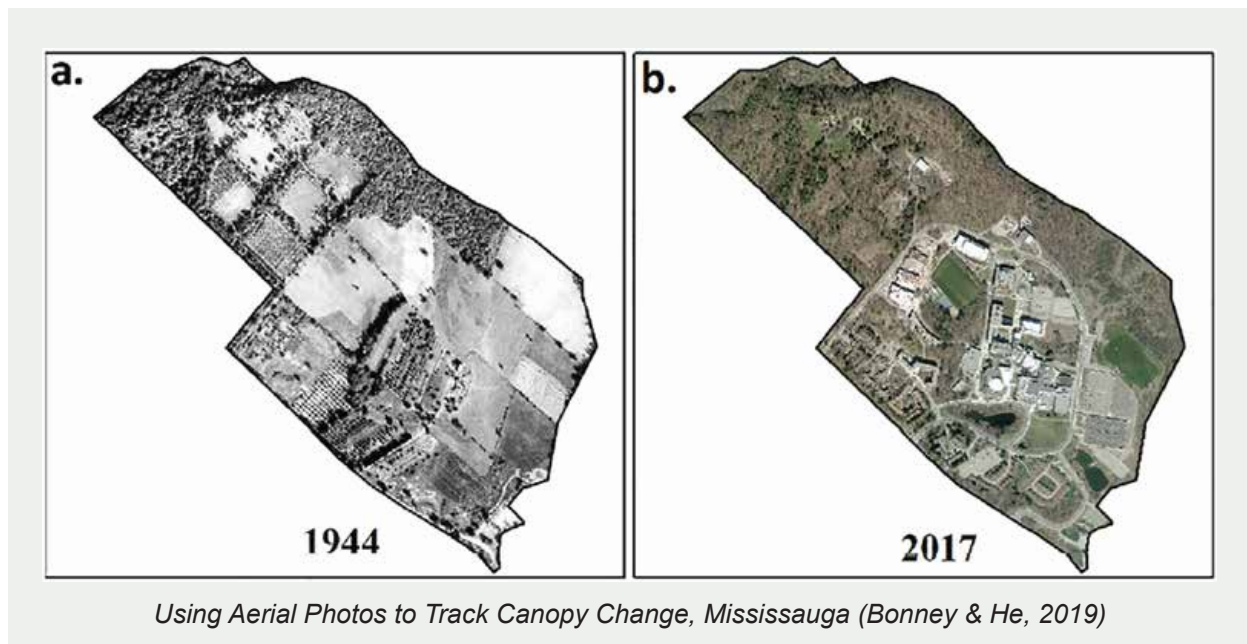
- In most major cities, over 90% of the trees in urban forests are male. Municipalities prefer male trees over female trees because they are considered litter-free in comparison to female trees.
- This bias in favour of male trees has resulted in increased pollen presence in the air, leading to aggravation of associated allergies and asthma in urban areas.

Assessment of Urban Forestry Methods

Literature on tree canopy measurement methods and techniques is limited, as are techniques for evaluating the success of approaches to increase the tree canopy. This gap in the research is likely a result of the relatively recent adoption of monitoring policies, as well as the limitations associated with measurement technologies.

One study conducted in Mississauga (Bonney & He, 2019) used leaf-off (i.e. autumn) aerial photographs from the 1940s to 2017 to track changes in the City’s tree canopy. Notable findings include:

- Tree density is able to recover, be maintained, or increase post-development.
- Aerial photographs, while not originally intended for tree-related purposes, can be effectively used to track changes to the tree canopy over time.



Another study explored urban foresters' perspectives on assisted migration - a process where non-native species are used in anticipation of future climate change (Fontaine & Larson, 2016). Researchers found:

- Many urban foresters are aware of the concept of assisted migration, but it remains more of a theoretical concept than a management tool.
- Many municipalities unknowingly employ assisted migration strategies such as planting southern tree species at the northernmost end of their range, and using non-native trees in areas where native species cannot adapt and/or where their growth is compromised.

Resident Perspectives

A growing body of literature that is particularly useful when exploring private tree management strategies examines resident perspectives related to a variety of tree-related topics. Key findings are as follows:

- Resident participation in tree planting and removal activities is primarily motivated by aesthetic reasons.
- Residents were more supportive of private tree management policies if they were in newer neighbourhoods, if they recently moved to the area, if they have a university degree, and/or if their household does not include older adults.
- Resident knowledge of native tree species is generally low, whether or not their municipality has a UFMP.
- While most residents believe native species are more beneficial than non-native species, native status is not a primary consideration when choosing a tree to plant on their property.
- Residents in municipalities that have UFMPs are more actively engaged in planting native trees, planting and removing trees on their properties, and had more trees on their properties in general.

Overview of Findings

Urban forestry research is a small but growing field. Based on these findings, several conclusions about the state of urban forestry in Ontario can be made:

- The lack of best practice guidance from the Province has resulted in a wide range of municipal urban forestry plans and policies.
- The effectiveness of these plans and policies is difficult to assess, as these plans often lack concrete measurements and targets, partly due to the absence of historical tree canopy data.
- Residents are willing to be active participants in tree preservation and management programs, but must be engaged meaningfully.

As municipal tree protection efforts are increasing rapidly, it is expected that this field of research will continue to grow and inform best practices for tending to urban forests.

2. Provincial Policy & Legislation Overview: Relevant Policy Framework

In Ontario, municipalities are either single-tier or two-tier. In single-tier municipalities, local governments assume all responsibilities as outlined in the *Municipal Act* (2001). In two-tier municipalities, the upper-tier municipality (either a county or a regional municipality) is composed of several lower-tier municipalities, and responsibilities are divided amongst the two levels. This assessment outlines the hierarchy of provincial and regional policies and legislation that impact how tree protection and management measures can be undertaken at the municipal level.

At the highest level is the provincial legislation that outlines the authorities granted to municipalities, which includes:

- **Municipal Act (2001):** contains legislation which gives both upper- and lower-tier municipalities the responsibility to ensure laws and plans are in place to protect natural features, including the power to create tree by-laws (135(1)). Municipalities are allowed to prohibit or regulate the destruction or injuring of trees (135(1)), including on private land, and dictate that they shall have regard for Good Forestry Practices (135(5)). Both upper- and lower-tier municipalities can enact tree by-laws, though some restrictions exist (e.g. only lower-tier municipalities with a population greater than 10,000 can monitor and regulate tree cutting).
- **Planning Act (1990, revised 2019):** gives municipalities the power to set goals and priorities through Official Plans, as well as the ability to pass by-laws to protect and regulate significant natural features.
- **Provincial Policy Statement (1996, revised 2014):** outlines the long-term general protection of environmental features, and details the protection of natural feature areas, including significant natural areas (2.1). It also contains policy direction for defining forests, woodlands, and woodlots, referencing the Forestry Act (1990) for technical details.

The following are pieces of provincial legislation that pertain exclusively to trees. Among other things, these acts provide municipalities with the appropriate language to use in their subsequent policies.

- **Forestry Act (1990):** along with Ontario's ecological land classification system, define forests, woodlands, and woodlots for policy use. They reference values including significant eco-systems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health and the aesthetics and recreational opportunities of the landscape (F26). The Act also defines "Good Forestry Practices", which include activities conducted in ways that lead to ecological sustainability of managed stands, more specially, by minimizing damage to the site and wildlife habitats, and by protecting natural features for the integrity and long-term health of the stand (S. 2).
- **Professional Foresters Act (2000):** defines the urban forest, which gives policy direction for managing and protecting trees specifically within urban boundaries. It includes a wide range of vegetation, including woodlots, plantations, shade trees, fields, wetland and riparian areas (18,3(3)).

The Province also has a number of policies that affect different geographies, such as:

- **Places to Grow Act (2005):** allows the Province to designate different areas as “growth areas” with a specific planning focus (e.g. Growth Plan for the Greater Golden Horseshoe [2006, revised 2019]).
- **The Greenbelt Act (2005):** provides the Province with the authority to create the Greenbelt Plan (2017). It also includes the Niagara Escarpment and Oak Ridges Moraine, and their associated plans.

There are few provincial and regional policy and legislative mechanisms that enable the protection and management of urban trees, and in particular, trees on smaller properties. However, there are a few options that can be considered as possible tools, including:

- **Site Plan Control:** Under the *Planning Act* (1990) municipalities are allowed to designate site plan control areas and withhold approval of site plans if consideration is not given to woodland buffers and renovation, and trees for landscaping and protecting adjoining lands, including highways.
- **Heritage Trees or ‘Significant Community Trees’:** Under the *Ontario Heritage Act* (1990), trees can be given heritage status by designation under Part IV, or through recognition under the Heritage Tree Program of Forests Ontario. If the tree(s) are on private land, the landowner is not required to agree to the designation; however it can be challenged. Once established, a heritage designation remains even if the property is sold.
- **Endangered Species Act (2007):** identifies tree species on the Species at Risk in Ontario List and protects their destruction. However, the *More Homes, More Choice Act* (2019) allows developers to pay into a fund rather than refraining from activities that may harm at-risk species, and trees could be cut down if approved by the provincial government.
- **Environmental Protection Act & Building Code Act:** Under these acts, trees in designated Shoreline Areas and Environmental Protection Zones can be protected.



Overall, the policies and legislation in place at the provincial level are broad and lack specificity regarding tools that municipalities can use to protect and manage trees. This makes it difficult for municipalities to defer to the provincial government for guidance. Additionally, due to the lack of enforcement mechanisms, the onus falls on the development planning process to enforce desired measures.

3. Municipal Policy Scan: Key Themes & Unique Policies

This scan explores the range of policies that address urban trees on private property across 17 municipalities in Ontario. Each municipality’s Official Plan, Urban Design Guidelines, and Tree By-laws (if applicable) were scanned for tree-related policies (Table 1). Urban Forest Management Plans (UFMPs) were scanned separately to assess their recommendations and direction. Additionally, tree-related programs present in each municipality were recorded and compared for analysis. Due to project scope, the following scan includes a selection of municipalities and is therefore non-comprehensive; other municipalities in Ontario also have relevant policies. Additional details about the policies included in this scan can be found in Appendix A3.

Municipality	Official Plan	Private Tree By-law	Urban Design Guidelines	Urban Forest Management Plan
Ajax	✓	✓	✓	✓
Barrie	✓	✓	✓	
Cambridge	✓		✓	✓
Guelph	✓	✓	✓	✓
Kingston	✓	✓	✓	✓
Kitchener	✓	✓	✓	✓
Mississauga	✓	✓	✓	✓
Niagara Falls	✓		✓	✓
Oakville	✓	✓	✓	✓
Oshawa	✓		✓	
Peterborough	✓	✓		
St. Catharines	✓		✓	✓
Thunder Bay	✓		✓	✓
Toronto	✓	✓	✓	✓
Vaughan	✓	✓	✓	✓
Waterloo	✓		✓	
Windsor	✓			

Table 1: Municipal Documents Scanned

Key Themes

1. Protection & Preservation

This theme encompasses a variety of policies that pertain to the protection of existing trees on private land. Some policies include general and non-binding language, while others clearly establish the protection of trees as a key consideration (e.g. “where possible” versus “shall”).

Oshawa, Landscaping Design Policies (1988): “Existing features such as trees [...], and other site assets shall be preserved in the design of a site, wherever feasible. The proponent may be required to undertake protective measures and maintain such protective facilities to the satisfaction of the City to ensure that these features are protected during the course of site development. No tree cutting or regrading shall be permitted on a site while the City’s decision on a development application is pending.” (1.0 GENERAL REQUIREMENTS - 1.9)

Kitchener, Urban Design Manual - City-wide Design (2019): “Retain and incorporate existing trees and other natural features into new development planning where possible, using tree protection and conservation techniques to protect the integrity of the root soil zone as well as the existing growing and drainage characteristics of the site.” (Urban Forestry)

Toronto, Townhouse And Low-Rise Apartment Guidelines (2018): “Provide high-quality, sustainable streetscape and landscape between the building and adjacent streets, parks and open spaces. a. Retain and protect existing trees, vegetation, natural slopes and native soils and integrate these features into the overall landscape plan, wherever possible (5.1 Streetscape, landscape and stormwater management - 5.1.2a.)

Other distinct groups within this theme emerged, and are divided into the following sub-categories:

a. Replacement & Relocation of Trees

These policies direct proponents to replace trees removed through the construction process. While there are several replacement- and relocation-focused policies, the majority are only applicable to municipal government-led projects and public infrastructure projects. Fewer policies direct proponents to replace private trees removed or damaged during development.

Niagara Falls, Model Urban Design Guidelines (2005): “If any significant trees designated for preservation are removed or substantially damaged during clearing, grading, or construction, they should be replaced. Replacement trees should be the same diameter, and of similar species to the trees removed or damaged, or alternately a species native to the Region.” (3e. Natural Heritage - 3e. 6 Significant Tree Preservation: g))

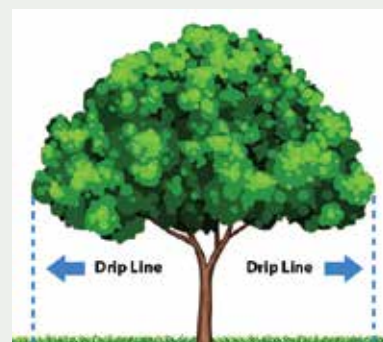
Oshawa, Landscaping Design Policies (1988): “Trees which are to be preserved as per the Landscape Plan, and which have died or have been damaged beyond repair during site construction activities, shall be replaced with a tree(s) of species and size which shall reflect the size and species of the damaged plant material as determined by the Director of the Department of Planning and Development. The location of such trees shall be approved by the Director. Failure to replace damaged trees shall result in the City exercising its right to draw upon the landscape portion of the letter of credit as per Section 7.4 of this document.” (6.0 PLANT MATERIAL - 6.10)

b. Preservation of Perimeter Trees

Policies that aim to preserve perimeter trees can encourage more intense development while preserving existing trees. Such policies permit development to occur with the understanding that some trees will be damaged (e.g. trees in the centre of a site), but focus on ensuring that trees located along the perimeter of the site will be protected. Overall, perimeter tree protection policies are limited and currently not widely enacted by municipalities.

Ajax, Employment Areas Urban Design Guidelines (2006): “Preserve all existing perimeter trees with minimal changes to the area beneath the drip line. Locate underground services and utilities so as not to encroach within the drip line of trees to be preserved, to minimize disruption to the root system” (4.3 Landscaping)

Ajax, Urban Design Guidelines for Motor Vehicle Gas Bars/Service Centres (2006): “Protect all existing perimeter trees worthy of preservation, with minimal grade changes to the area beneath the drip-line” (6.0 Landscaping and Tree Preservation)



Drip Line (Good Earth Plants)

c. Heritage Protection

Several policies frame tree protection as a matter of preserving cultural or historic heritage, or the natural heritage features of neighbourhoods. Some policies provide direction on designating trees in select neighbourhoods as a natural heritage feature protected under the *Ontario Heritage Act* (1990). This allows for increased protection measures, which in turn, makes it more difficult for trees to be removed.



Designated Heritage Tree
(City of Windsor)

Oakville, Official Plan (2009): “The Town shall develop a set of criteria for determining trees of cultural heritage value.” (5.3 Heritage Conservation - 5.3.12)

Waterloo, Official Plan (2012): “When considering development applications and site alteration permit applications, the City may require the protection and enhancement of hedgerows, especially where: (c) they are composed of mature, healthy trees; (d) they contain trees that are rare, unique, culturally important, or over 100 years in age.” (8.2 Natural Heritage - 8.2.9 Urban Forest - 3)

Windsor, Official Plan (2000): “The objective of the Sandwich Heritage Conservation District is to preserve the buildings and streetscape. Owners of property will require a heritage permit for the following changes to their property: (s) Removal of trees with a minimum trunk diameter of 10 centimetres.” (1.26 Sandwich Heritage Conservation District - Building Renovations and new construction - 1.26.8)

2. Design Element & Function

Many policies address tree protection and management by promoting their benefits and ecosystem services. These policies fall into two sub-categories:

a. Functional Benefits

The first sub-category encompasses policies that reference the ecosystem services trees provide. These often include: urban cooling (shade), air purification, stormwater management, slope stabilisation, erosion mitigation, wind breaks, noise reduction, carbon sequestration, and privacy screening. As mature trees provide more ecosystem services than young trees, mature trees and continuous canopies are often favoured by tree protection policies.

Niagara Falls, Model Urban Design Guidelines (2005): “Landscape plans should use deciduous street trees and on-site trees where these trees will grow to shade windows of residential structures. Such trees provide shade and help reduce temperatures inside adjacent units during the warmer months and shed their leaves to allow sunlight and better heat penetration during cooler months.” (4g. Environmental Sustainability - 4g.6 Solar Orientation)

Toronto, Urban Design Guidelines for Privately Owned Publicly-Accessible Spaces (2014): “Arrange trees and other plantings to provide maximum effect and efficiencies in maintenance and watering and consider methods to capture stormwater (e.g. sloping paved areas towards planters).” (5.3 SOFT LANDSCAPING - d)

Vaughan, Official Plan (2010): “The design of rooftops and parking areas should minimize the heat island effect, through rooftop gardens, green roofs and the planting of shade trees between parking aisles.” (11.3 Steeles West Secondary Plan - Environmental and Servicing Policies - 11.3.13.3).

Thunder Bay, Urban Design Guidelines (2012): “Playground equipment should be [...] located in areas shaded by trees.” (Parks and Open Space: 2C Uses and Amenities: b))

Windsor, Official Plan (2000): “Council will contribute to the reduction of air pollution by using the following land use planning approaches: (e) protecting and improving trees and natural areas.” (Atmospheric Air Quality Policies - 5.3.7.2)

b. Aesthetic Benefits

Many policies linked the presence of trees to a more visually appealing streetscape. These policies highlighted the aesthetics of trees, in terms of the visual impact they provide property owners, the neighbourhood, and the larger community.

Oakville, Site Design and Development Standards for Oakville (2017): “In order to minimize and alleviate the conflicts of the railway network with adjacent land uses aesthetic measures should be implemented [...]. Any required 7.5 m continuous landscape width should contain, at a minimum: a. one (1) deciduous or coniferous tree planting for every 4.5 m of abutting land, with a minimum of 80% of the trees within the buffer strip as coniferous species; [...] to form a continuous screening element with a minimum height of 1.8 m.” (2.0 Soft Landscape Standards - 2.6 Treatment for Required Landscaping: 4.)

Kitchener, Urban Design Manual - Mid-rise Buildings (2019): “All sites are to be comprehensively landscaped including substantial tree planting [...]. Use landscaping to accentuate, unify and complement different areas of the site.” (Shared Spaces - Landscaping)

Thunder Bay, Urban Design Guidelines (2012): “In order to improve the aesthetic quality of the urban environment, the Official Plan advocates increasing the stock of trees through planting programmes, adhering to high standards regarding maintenance and replacement, and encouraging developers to retain existing trees wherever practical. In addition, the City places a high priority on the protection and wise management of natural heritage features.” (Urban Forestry)

3. Ecosystem Management - Systems Approach

The policies within this theme address the role trees play in the overall ecosystem. These policies aim to protect trees by identifying their importance as a component of a healthy natural system and outlining suitable management practices to maintain them. These practices often refer to connecting ecological networks, native and climate-appropriate planting, and suitable tree-planting conditions.

a. Ecological Network

Many municipalities protect and encourage continuous ecological networks of trees and other vegetation by linking in Natural Heritage Systems (NHS) or referring to tree canopy goals. Such policies can focus on continuous canopies or articulate the importance of preserving individual trees in order to achieve the larger goal of maintaining an ecological network.

Mississauga, Official Plan (2019): “The Natural heritage System will be protected, enhanced, restored and expanded through the following measures: a. ensuring that development in or adjacent to the Natural Heritage System protects and maintains natural heritage features and their ecological functions through such means as tree preservation, appropriate location of building envelopes, grading, landscaping, and parking and amenity area locations.” (6.3.24)

Oakville, Site Design and Development Standards for Oakville (2017): “New development [...] shall demonstrate adherence with the canopy cover targets established [...]; development should implement the target canopy to help achieve Oakville’s town-wide 40% canopy coverage objective.” (2.0 Soft Landscape Standards - 2.1 Canopy Cover)



The Value of Urban Trees (Urban Forest Stewardship Network)

b. Native and Climate-Appropriate Planting

Native and non-native non-invasive tree species are well-adapted to local climatic conditions and encourage biodiversity. Many municipalities encourage the planting of native and climate-appropriate trees and vegetation through their Official Plans and Urban Design Guidelines. In some cases, these policies integrate *assisted migration*: the practice of planting trees according to the projected future climate, which ensures the longevity of a municipality’s tree canopy and ecological system.

Oshawa, Landscaping Design Policies (1988): “The use of indigenous plant material is encouraged. It is suggested that at least 50 percent of all proposed tree and shrub plantings on a site be of indigenous material.” (6.0 PLANT MATERIAL - 6.4)

Toronto, Official Plan (2015): “[...] secure the following sustainable design features in development that address exterior building and site matters [...]: trees to enhance the urban forest and use of native species to protect, restore and enhance the natural heritage system.” (5.1.3 SITE PLAN CONTROL - 3. e))

Niagara Falls, Model Urban Design Guidelines, (2005): “Street trees and street landscaping should be locally adapted native species. Plants that grow naturally in the Region of Niagara are adapted to the local climate and soil conditions and have a better than average chance of surviving with minimum upkeep, use of fertilizer, pesticide or irrigation.” (3h Environmental Sustainability - 3h.3 Right-of-Way & Street Infrastructure: e))

Ajax, Official Plan (2016): “To maintain, protect, and enhance the existing tree canopy, the Town shall: Encourage the planting of native or non-native non-invasive tree species and vegetation that are resilient to climate change and provide high levels of carbon sequestration, subject to the Town’s approval, particularly through new development and on municipally-owned land.” (2.1.4 Tree Canopy, b))

c. Soil & Conditions for Tree Growth

Many policies outline the conditions necessary to ensure trees can reach maturity and survive long-term. They include directions about the location of trees on a site, soil conditions, and structural supports. Good growing conditions are an important aspect of the longevity and preservation of trees planted on a site in accordance with other development policies.

Mississauga, Urban Design Guidelines - Green Development Standards (2012): “For groups of two or more trees planted primarily in hardscaped areas, provide a minimum volume of 15 m³ (530 ft³) of high quality soil per tree. A single tree planted in hardscape requires a minimum volume of 30 m³ (1060 ft³) of soil. - Provide trees planted in softscape with a minimum volume of 30 m³ (1,060 ft³) high quality soil. - Plant “shade trees” approximately 6-8 m (20-27 ft) apart along all street frontages, open space frontages and public walkways.” (4.1)

Cambridge, Design Guidelines - Preston Streetscape (2013): “The use of strata cells (structured soil cell) is proposed [...] Urban trees require a large volume of soil in order to survive and establish into healthy specimens, however, often urban environments do not allow for adequate space. Soil structure systems allow for adequate soil volumes and also allow the structural support required to engineer roadways.” (4.2 Street Trees and Planters)



Strata Cells (Greenleaf Ireland)

Vaughan, City-wide Urban Design Guidelines (2018): “Landscape design should prioritize provision of soil volumes to support mature tree growth to help achieve York Region’s urban tree canopy goal for the City of 25-35%.” (6.1.1 Tree Planting (a))

Waterloo, Urban Design Manual (n.d.): “Encourage designs that allow for increased soil volumes for root growth and canopy space for future growth of large shade trees to promote an urban forest.” (2. GENERAL CITY DESIGN GUIDELINES - 2.5 SUSTAINABLE DESIGN - (17))

4. Enforcement

Policies that explicitly connect tree protection mechanisms with the development application process and enforcement measures are classified in this theme. These policies allow municipalities to take a stronger stance in order to ensure that developers take appropriate steps to address tree protection. Most of these policies state that if any existing trees will be impacted by the proposed development, a tree inventory and preservation plan will be required of the proponent.

A serious concern for municipalities is the potential for landowners (i.e. residents and developers) to clear-cut properties before submitting a planning application. Clear-cutting beforehand not only negatively impacts the tree canopy, but could also result in the proponent not having to adhere with tree-related policies, as it is only through the formal planning process that Official Plans, Urban Design Guidelines, and other relevant policy documents can be applied to a development proposal. This scan found that municipalities are beginning to confront this concern by including policies to ensure proponents are held accountable for any site alterations made before a planning application is submitted to the municipality.

Guelph, Official Plan (2018): “Development and site alteration within or adjacent to a Cultural Woodland shall also require a Tree Inventory and Tree Preservation Plan in accordance with Section 4.2.4” (4.1.4.3 Cultural Woodlands - Policies - 3)

Guelph, Official Plan (2018): “Plans prepared in conjunction with development and site alteration applications will require indigenous plants, trees and shrubs except where harsh environmental conditions would limit their survival” (4.1.7 Natural Heritage Stewardship and Monitoring - Policies - 4.1.7.1 Invasive Species)



Developer Clear-Cut Lot (CBC Hamilton, 2017)

Barrie, Official Plan (2018): “Where existing trees have been substantially removed and land stripping and/or the removal of topsoil has occurred prior to an application for development or during the process of obtaining approval for any development of a site, Council may impose conditions of such approval in accordance with the intent of the City’s tree cutting by-law”

Oshawa, Official Plan (1987): “No significant removal of trees or topsoil or significant grading shall be undertaken within the Pinecrest Planning Area without prior approval from the City. In this regard, the City may require the submission of an environmental analysis report including a Tree Inventory and Preservation Plan in accordance with Policy 5.12.4 by a qualified arborist prior to granting such approval” (8.4.12 Environmental Management - 8.4.12.10)

Oshawa, Landscaping Design Policies (1988): “Trees which are to be preserved as per the Landscape Plan, and which have died or have been damaged beyond repair during site construction activities, shall be replaced with a tree(s) of species and size which shall reflect the size and species of the damaged plant material as determined by the Director of the Department of Planning and Development. The location of such trees shall be approved by the Director. Failure to replace damaged trees shall result in the City exercising its right to draw upon the landscape portion of the letter of credit as per Section 7.4 of this document.” (6.0 PLANT MATERIAL - 6.10)

Tree By-laws

Of the 17 municipalities studied, 11 have private tree by-laws. When reviewing the by-laws, two key differences emerged:

1. Application of the By-law

Each by-law examined contains a detailed section that delineates the specific trees and circumstances upon which the by-law is enforceable. The by-laws vary significantly with regard to the restrictiveness of their application. Criteria outlining which trees are subject to the tree by-law included items such as the diameter of the tree (e.g. Vaughan), land use designation (e.g. Ajax), or the size of the land that the subject tree is located on.

2. Permit Requirements

Each municipality with a private tree by-law had different levels of requirements for obtaining a tree removal permit. For example, some required an extensive application with reports from arborists and written consent from the adjacent property owner (e.g. Mississauga's Tree By-law), while others asked for a notification with the property owner's contact information, the tree's species and diameter, and the reason (if any) for removing the tree and plans (if any) for replacing it (e.g. Peterborough Tree Notice By-law). The varying levels required to obtain a permit to remove a private tree impact how rigorously a municipality can monitor the tree canopy.

Tree Planting Programs

While a comprehensive study of urban forestry programs was not conducted, programs mentioned were noted and some additional research was conducted. Many municipalities have public programs and events aimed at tree planting and maintenance, which are used to inform residents about the importance of trees and provide education on tree stewardship. These programs exist outside of municipal policy frameworks, although many UFMPs and some Official Plans indicate the need to create such programs. The three general models adopted by municipalities are highlighted below.

1. Donation Programs

Greening Guelph is a donation program aimed at helping to increase the tree canopy in Guelph. Donations are solicited from interested individuals and corporate sponsors, then are used to fund existing tree planting, protection, and education programs in the municipality.



Thunder Bay Hydro Recognized for Tree Stewardship (NetNewsLedger)

2. Events & Planting Partnerships

Events and public-private partnerships exist in many forms. These partnerships allow the municipality some control over tree protection and management while working strategically with a private entity to facilitate the desired outcome. Examples include:

- The City of Windsor's public-private partnerships to expand the urban forest, relying heavily on city expertise and planting support from local environmental groups.
- The City of Cambridge's subsidized tree program, delivered in partnership with Local Enhancement & Appreciation of Forests (LEAF) and Reep Green Solutions. For between \$150 and \$220 per tree, residents receive a personalized consultation, delivery, planting, and a long-term care guide.
- The City of Thunder Bay hosts many events throughout the year that promote tree planting and education, which are advertised on the City's website.

3. Planting Programs

Some municipalities have larger-reaching public programs aimed at increasing the tree canopy. For example, Mississauga is well known for their *One Million Trees* program. Through this program, groups or individuals can input information about the tree(s) they've planted, which are then displayed on the program's website. This 'gamification' has allowed the municipality to better track their goal of planting one million trees and encourage resident participation in achieving this goal.

CONNECT WITH US   

380,657
trees
planted

Help the City of Mississauga
plant one million trees by 2032

 **MISSISSAUGA**

One Million Trees Program (City of Mississauga)

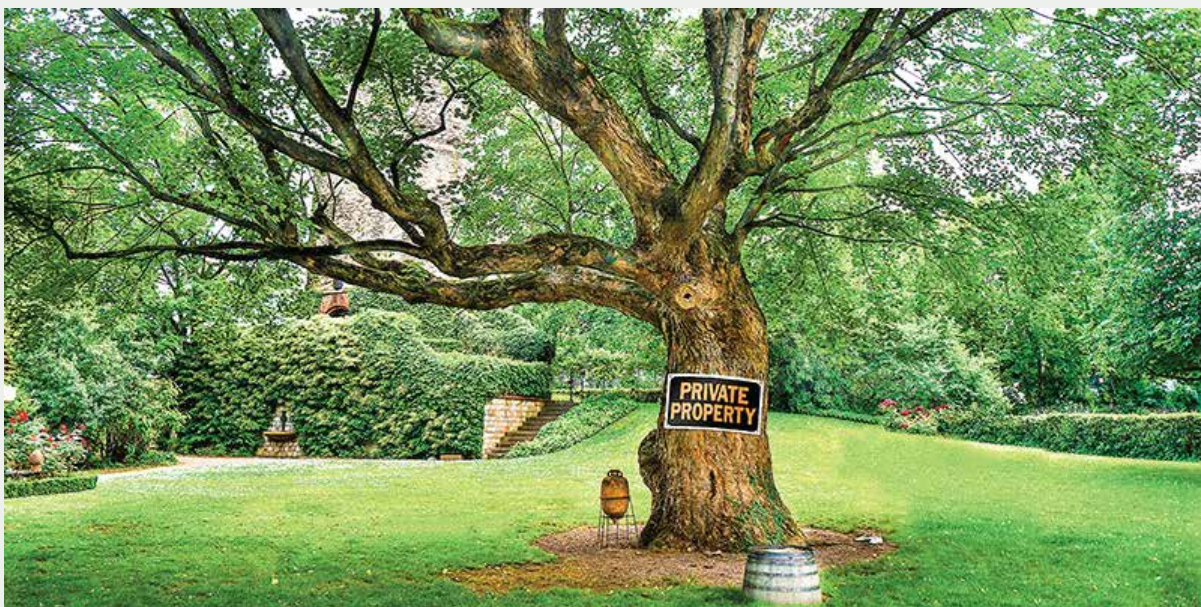
Urban Forest Management Plans

Of the 17 municipalities selected for this review, 12 have UFMPs. As previously mentioned, a UFMP is a document adopted by a municipality that outlines their plans and goals regarding the tree canopy. UFMPs range in style and approach, from high-level plans-of-action that focus on visionary statements and urban forestry goals, to specific recommendations and courses of action to enhance the municipality's urban forest. The actions or recommendations typically are based on existing municipal documents, best practices employed by other municipalities, and public engagement on the matter.

UFMPs are important documents for municipalities, as they can provide direction on a variety of initiatives the municipality is willing to undertake to enhance their urban tree canopy and meet coverage targets. They can include direction on establishing public education programs, tree-planting programs, and can influence Official Plan and Urban Design Guideline policies regarding private trees. A selection of UFMPs have been included in Appendix A3, and demonstrate the types of tree-related issues addressed by the municipality, and other ways they plan on growing their urban tree canopy.

Overview of Findings

Through the scan of municipal policy documents, it is evident that there are a wide range of policies that pertain to private tree protection and management. Municipalities have enacted policies that address the tree canopy from various angles, which are unique to and reflect their local context. In terms of private tree by-laws, there is little consistency across municipalities and there are major differences among their approaches, which results in a significant variation in the number of trees protected in a municipality, and likely has an impact on resident perspectives of tree protection. By sharing best practices, municipalities can take a targeted approach to protect more trees on private residential property.



Tree on Private Property (The Sarnia Journal, 2017)

4. Review of Best Practices: Municipal Staff Survey

Context & Methodology

As demonstrated through the *Municipal Policy Scan*, municipalities in Ontario employ a variety of strategies to protect and manage their urban forests. As many of these strategies are relatively new, it is difficult as yet to determine what methods are effective. Additionally, municipalities seldom share assessment strategies or reflections until the policy or program is updated. To gain insight into the effectiveness of policies and programs implemented to protect and manage urban forests, a municipal staff survey was conducted.

Key informants were recruited from all 17 municipalities included in the *Municipal Policy Scan*. Of the municipalities contacted, 13 responses were received. Since tree protection overlaps with a number of municipal activities, and municipalities vary in their internal organization, informants came from a variety of departments, further highlighting the complexity of this topic.

Key Informant Survey: Respondents			
Ajax	Mississauga	St. Catharines	Windsor
Barrie	Niagara Falls	Thunder Bay	
Cambridge	Oakville	Toronto	
Guelph	Oshawa	Waterloo	

Table 2: Municipal Survey Respondents

Summary of Findings

Through conducting key informant interviews with municipal staff, several themes emerged, which are outlined below:

1. Policy Effectiveness

Of the 13 municipalities surveyed, all have Official Plans that reference the importance of trees, 9 have UFMPs, 12 have Urban Design Guidelines, and 6 have private tree by-laws. However, these policies vary greatly among the municipalities, highlighting the reality that tree protection and management is not one-size-fits-all.

Private Tree By-laws

All municipalities with private tree by-laws stated that they were the most effective tool for protecting and managing trees on private property, simply because they are “an actual enforcement tool” (Guelph). As discussed in the *Municipal Policy Scan*, the restrictiveness and coverage of private tree by-laws ranges significantly across municipalities. Some of these municipalities, such as Ajax, have expressed an interest in expanding their by-law to cover a greater

area. Further, most municipalities without private tree by-laws cited a desire to adopt one, but have faced challenges in doing so.

Heritage Designation

Several municipalities discussed the effectiveness of using heritage designations to protect trees on private land. Heritage designation through the Ontario Heritage Act (1990) can be applied at the scale of an individual tree to entire neighbourhoods. Some examples include:

- **Barrie:** “Natural Heritage Resources ‘protected areas’ mapping is the greatest improvement in high level planning to identify areas of significant forested/natural lands for protection from development”.
- **Mississauga:** “while staff, through development applications, encourage the retention of trees, there really isn’t enough authority for staff to refuse or withhold an approval to save trees, unless a tree is designated under the *Ontario Heritage Act*”.
- **Niagara Falls:** two individual trees have been designated as culturally significant under the *Ontario Heritage Act*.



Heritage-designated “Stamford Green White Oak Tree” (City of Niagara Falls)

Development Process

Municipalities frequently face challenges during the land development process, and often struggle to balance tree preservation with other aspects of development. Some of these challenges include:

- Developers and landowners cutting down trees prior to submitting a Site Plan application or Building Permit. The informant from Mississauga explained that “where the City is able to prove that this has occurred, fines and penalties are pursued”, but it is likely that many instances go unreported.
- Unequal “power” of tree protection policies versus development applications, where development trumps tree protection. In many municipalities, “applications for permission to cut down trees made under the Private Tree By-law cannot be refused in the instance where it negates the approval of a development application” (Mississauga).

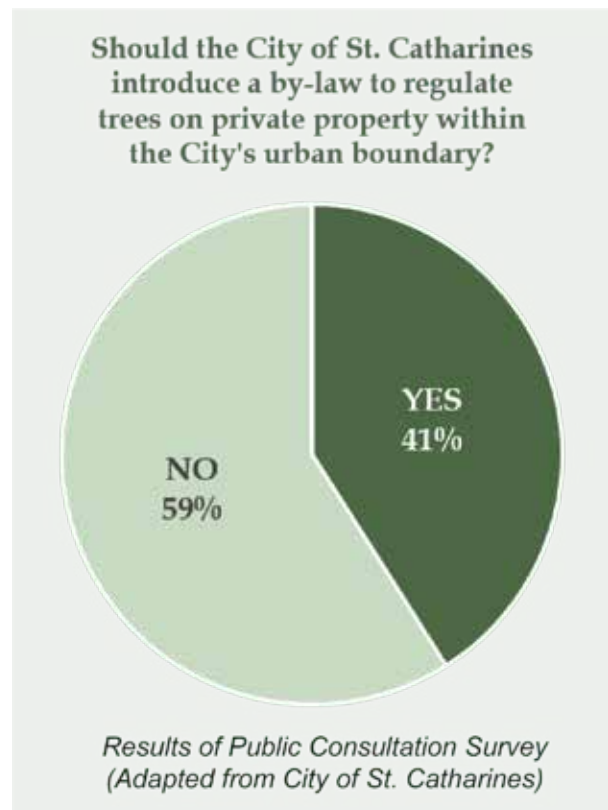
The representative from City of Thunder Bay spoke about the recent adoption of unique tree planting initiatives related to land development. For example, in 2018 the City began a program that involves collecting the money that would be allocated to tree planting requirements under Site Plan Control and planting the trees using the City’s own contractor. They explained that in removing the onus of tree planting from the developer, there is “no more warranty period for the contractor and no more battles with them”. Similarly, they began working with their Engineering Department for large capital rebuilds, where they “follow directly behind completion and replant boulevards regardless if there was a tree there or not”, which has been effective in increasing the number of trees in the City.

2. Policy Adoption Process

Opposition

While some policies and plans are more effective than others, many informants discussed challenges associated with both the initial adoption and long-term governance, including opposition from developers, residents, and City Council. Examples from informants include:

- **Barrie:** “the development community, often through planning consultants, challenged any new policy that would affect total development area on private lands”.
- **Mississauga:** when reviewing their private tree by-law in 2012, Councillors and residents largely disapproved of a more restrictive by-law. The informant explained, “while there are groups that advocate for more retention, there are also groups that want to be able to take down trees when they can”.
- **St. Catharines:** City staff were directed to consult the public after proposing a private tree by-law to Council. The negative responses from residents led Council to reject the by-law and instead seek alternatives.



- **Ajax:** when exploring expanding their current by-law to include properties within the Urban Area, the informant explained that “politically this has not been prioritized, and the cost of enforcement needs to be examined more closely”.
- **Windsor:** a private tree by-law was proposed several times, and while there was reported interest from residents, the informant explained that the political climate of Council caused the by-law to be rejected.

Implementation

While the first step to managing the urban forest lies in creating a tree protection or management strategy, municipalities often struggle with its implementation. For example, informants discussed the frequency in which developers and landowners ignore by-laws, and referenced private sector planners, engineers, and the Local Planning Appeal Tribunal (LPAT), who “do not give much attention to policy statements” (Barrie). The informant from Thunder Bay eloquently articulated this concern when referencing the effectiveness of their UFMP, explaining that “it remained, as so many plans do, on a dusty shelf with little appeal for higher ups to initiate”.

Enforcement

Some municipalities interviewed simply lack the financial and human resources to implement and oversee policies and programs. Examples of these challenges include:

- **St. Catharines:** “a tree protection by-law is only effective as it’s enforced”. City staff are concerned about the staffing required to review, implement, and enforce by-laws.
- **Windsor:** discussed their lack of City resources for monitoring a private tree by-law.
- **Thunder Bay:** when exploring a City-supplied and -sponsored tree planting program, they said one of the main reasons it has not been initiated is because of the lack of time and capacity of municipal staff.



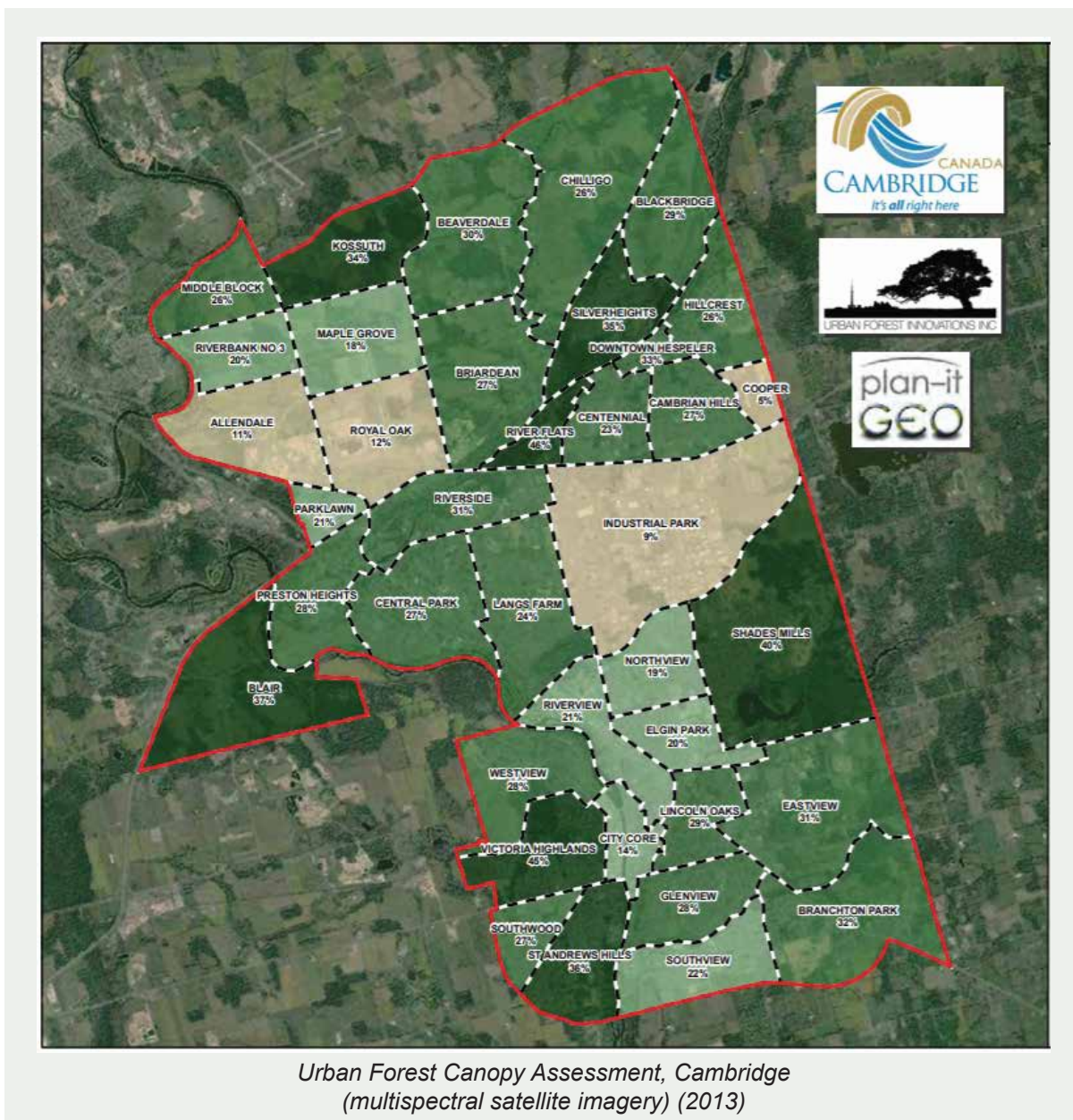
Tree Protection during Construction
(CBC Edmonton, 2017)

3. Measurement Methods

The municipalities interviewed employ a variety of methods to measure contributions to the urban forest and overall canopy growth. In most cases, a canopy measurement is completed as part of the UFMP, and will be conducted each time the plan is updated. Some examples of tracking strategies include:

- **Barrie:** through their Urban Forest Strategy, have begun mapping the tree canopy and conducting “urban forest health card assessments”.
- **Cambridge:** private consultants were hired to conduct in-depth canopy measurements in 2013 and 2018, which show tree cover at the city-wide, neighbourhood, and individual parcel scales.
- **Guelph:** is currently conducting an Urban Forest Study, which will set the baseline for monitoring the tree canopy, and be conducted every ten years.
- **Toronto:** conducts a canopy study every decade using LiDAR and satellite imagery.

While municipalities use a range of methods to measure the tree canopy and track changes, most municipalities indicated that it is too early to determine how tree protection and management actions have impacted the overall tree canopy.



4. Compensation Programs

Compensation programs may allow for the removal of healthy trees if more trees are planted to make up for the corresponding loss of ecosystem services. Cities have different formulas for calculating appropriate compensation ratios and often include a cash-in-lieu option:

- **Ajax:** a compensation program is employed through development applications, where a tree replacement formula is used and “trees are either replaced on-site, or cash-in-lieu is provided and the Town plants trees elsewhere”.
- **Cambridge & Guelph:** private tree by-laws work in a similar way, where, if homeowners are unable to plant enough compensation trees, they pay into a private tree planting reserve fund.
- **Niagara Falls:** the Official Plan “contain[s] a policy supporting a compensation program for the removal of private trees however a formal program has not yet been created”.

While compensation can be effective when trees cannot be protected, “the replacement trees are never at the same caliper as the tree removed typically” - meaning there is an initial decrease to the canopy (Mississauga).

3.5.4 Tree Replacement Program

At the discretion of the Town, deciduous trees with a min. caliper of 150 mm or coniferous trees with a min. height of 4.5 metres, which are to be removed or intended to be protected and expire within five years of completion of construction of the development, the following aggregate caliper formula shall be used:

If one 250 mm caliper tree is to be removed, the replacement shall be 5-50 mm caliper trees, 2-125 mm caliper trees or 1-250 mm caliper tree.

Based on the above formula, the applicant is to provide:

1. **How many healthy existing trees (that are more than 150mm DBH) are to be removed?** For example, there are 5 existing healthy deciduous trees with more than 150mm DBH that are to be removed due to the development.
2. **The total DBH (diameter at breast height in mm) removed** (i.e. the sum of all the removed trees' DBH). For example: 750 mm DBH (i.e. 5 x 150mm) are being removed.
3. **How many new trees (in what caliper) are to be replanted back to the subject site.** For example: 8 new deciduous trees in 60mm caliper, in a total of 480 mm DBH back to the site.
4. **The balance of DBH that is owing.** For example: 750 mm DBH – 480 mm DBH = 270 mm DBH.
5. **The balance of new trees.** 270 mm DBH divided by 60 mm (i.e. the size of a new tree) = 4.5, or round up to be 5 new trees
6. **Calculate the cash-in-lieu value for the balance of trees. We currently use \$500.00 per new tree.** \$500.00 x 5 = \$2,500.00 as the tree compensation cash-in-lieu.

Tree Replacement Formula (Town of Ajax)

5. Community Programs

Lastly, municipalities were questioned about the existence of tree-related programs facilitated by the municipality, and their effectiveness compared with tree protection and management policies. Programs mentioned include:

- Local Enhancement & Appreciation of Forests (LEAF) Backyard Planting Program (Ajax & Oakville)
- Reep Green Solutions Backyard Tree Planting Program (Cambridge)
- One Million Trees (Mississauga)
- Free Tree Giveaway Day (St. Catharines)



Free Tree Giveaway Day (St. Catharines Standard, 2019)

As indicated in the list of tree-related programs, programs are often implemented through partnerships with larger organizations. The informant from Barrie explained that “these programs as a result are far more successful as they start with the same goal in mind and are easy for municipal staff to support/assist with implementation”.

When comparing the effectiveness of policies versus programs, informants overwhelmingly cited the need for both. For example, the informant from Cambridge stated, “policies form the foundation of programs, so they are each important in their own way”. Additionally, the informant from Oakville discussed the success of both policies and programs in contributing to the tree canopy, stating that from 2017 to 2018, there were 2,072 planted on private properties through the revised private tree by-law and an additional 101 trees and 89 shrubs were planted on private properties through their backyard planting program.

The informant from Waterloo compared the effectiveness of private tree by-laws versus programs in reaching the goal of saving and protecting trees. For example, they explained that the punitive nature of by-laws is “burdensome to enforce and a great annoyance to the average resident”, whereas with less punitive measures and education programs, “trees become an asset to the property, not a liability”. Their perspective highlights the need for municipal staff, developers, and local residents to come together to “share an understanding and appreciation of the many benefits of trees”, which will, in turn, provide a better outcome overall tree canopy.

Conclusion

It is clear that municipalities share common successes and challenges with regard to urban forestry protection and management strategies. These findings are integrated into the *Recommendations* section in this report. More information about the survey can be found in Appendix B.

Recommendations

The need for protecting and enhancing urban tree canopies has become critical for municipalities. With tree canopies in many municipalities significantly below the recommended targets, alternatives to tree protection by-laws and new approaches through the legislative frameworks of planning are needed to ensure the expansion of urban tree canopies. In many municipalities, over half of the urban forest is located on private property. This has resulted in the need for urban forest strategies that extend beyond tree planting efforts and towards stronger development policies that ensure the protection and enhancement of existing trees on private land.

In addition to encouraging planners to incorporate the full array of applicable private tree planning policies in their work, the following recommendations are potential policy directions and tools for municipalities to consider. The list of recommendations demonstrates that private tree protection and management is best achieved when a variety of approaches and municipal actors are involved.

1. Develop & Implement a Private Tree By-law

Private tree by-laws are successful in protecting and preserving existing trees on private property. As a municipal by-law, this will be enforceable and can be applied throughout the development process, and in some instances, outside the planning development process.

- Develop a private tree by-law in consultation with residents and experts.
- Within the by-law, include specific language around fines for removing trees unlawfully (i.e. without submitting appropriate documentation), tree replacement ratios, and criteria for requiring a tree removal permit.



Developer Cut Down 30 Mature Trees Without Permit (Canuck Post)

2. Increase By-law Coverage

Municipalities may consider expanding the coverage within existing by-laws to include more regulations addressing trees on private property. This can be useful in cases where private tree by-laws are not viable. As mentioned in the report, this can be due to a variety of reasons, including a lack of interest or support from residents and Council, to the municipality's internal capacity for by-law governance and enforcement.

- Expand property standards-related by-laws to include the removal of hazardous trees, and add a standardized replacement formula and a cash-in-lieu calculation. Also consider providing a list of approved tree species for replacements.
- Explore means of including increased landscaped open space requirements in zoning by-laws, thus allowing municipal staff to request more tree planting on sites.

3. Strengthen Development Application Process

Several municipalities in Ontario are using creative tactics to bring tree protection and preservation into the development process, with some approaches proving to be highly effective in both protecting existing trees and encouraging new planting. In order to add a level of accountability to development applications, municipalities should formally incorporate tree protection and preservation into the development process.

- Add policies to the municipal Official Plan or Urban Design Guidelines that clearly outline requirements for a complete development application (e.g. requirements for tree protection/preservation plans when trees will be damaged by construction; or standards for site plans and the level of landscaping detail required).
- If a by-law is present, consider adopting an Official Plan policy that enables fines for removing vegetation prior to submitting a development application, similar to that present in the City of Barrie's Official Plan.
- Consider implementing a planting program modelled after the City of Thunder Bay (see 3.3.1 Policy Effectiveness - Development Process).
- Adopt a tree replacement ratio, under which a certain number of trees must be replanted for each tree an applicant removes. This formula could be a caliper-for-caliper replacement (e.g. Town of Ajax), a standardized formula, or a scaled formula (e.g. City of Vaughan). If new trees cannot be planted, a cash-in-lieu program should be implemented, where a monetary value for each tree removed is paid to the municipality (and can support off-site tree planting).



"Bylaw orders developer that felled up to 40 trees to stop" (CBC News Hamilton, 2018)

4. Designate Trees as Heritage Features

The *Ontario Heritage Act* (1990) allows trees to be given a heritage designation. Many municipalities cited the effectiveness of framing tree protection as a matter of preserving cultural or historic heritage, or the natural heritage features of neighbourhoods. Municipalities should explore neighbourhoods and trees that are potential candidates for tree protection.

- Compile a list of potential candidate trees to designate under the *Ontario Heritage Act* (1990) by engaging residents and experts.
- Apply to designate identified trees as natural heritage features or neighbourhoods as heritage landscapes through appropriate channels outlined by the *Ontario Heritage Act* (1990).

5. Create Resident-Focused Education Programs

Literature shows that while residents believe trees are beneficial, their knowledge of trees - including tree health and maintenance, native tree species, and ecosystem services they provide - is generally low. However, through staff surveys, some municipalities identified resident education as an important contributor to the success of tree programs and on-going tree protection and preservation efforts.

- Create educational programs and materials for residents about the benefits of trees, tree planting, and tree species identification.
- Identify and foster strategic partnerships with local organizations such as schools and other non-government organizations.
- Develop a culture of tree-conservation among city staff and the public. This can be facilitated by a strong UFMP.



Tree Education Program (LEAF - flickr)

6. Increase Tree-Related Programs

Staff from the municipalities interviewed overwhelmingly cited the need for both policies and programs to meet canopy targets. Municipalities used a combination of self-run initiatives and programs implemented through public-private partnerships with larger organizations. The latter approach may prove additionally beneficial as it decreases the onus on municipal staff to provide full-programming support.

- Partner with private organizations to develop resident tree stewardship and planting programs.
- Introduce and support year-round tree-related programs.
- Create a program that accepts monetary donations from residents and businesses to help fund community tree-planting initiatives and events.
- Explore the implementation of innovative programs that “gamify” tree planting and allow for robust data collection (e.g. Mississauga’s One Million Trees).

7. Leverage Perimeter Trees

The preservation of perimeter trees encourages more compact development while preserving existing trees on properties. Details can be included in municipal policies and guidelines to strengthen preservation and protection efforts. Municipalities should consider including the preservation of perimeter trees in policy and plans.

- Include preservation of perimeter trees in urban design guidelines and/or development regulations.
- Focus specifically on ensuring minimal disturbance to the root system of trees, so as to not encroach on tree drip lines.

8. Include Planting Target Ratios

Native tree species are well-adapted and contribute positively to the local ecosystem, however, many non-native tree species are better suited for harsh growing conditions (e.g. urban areas). Of the municipalities studied, no plans indicated target ratios for native-to-non-native or female-to-male planting, what the overall split of native-to-non-native species or female-to-male should be, or situations when respective species and sex should be used.

- Indicate target ratios for native-to-non-native and female-to-male tree planting in an UFMP and create a clear implementation strategy and timeline.
- Ensure that native trees are included on, and promoted via the municipal recommended planting list. These lists should also consider urban versus non-urban factors that influence the success of certain species.

9. Formalize Climate Resilience Considerations

Climate change is altering the environment, including temperature extremes and frost dates. While urban trees can help in mitigating and adapting to climate change, they themselves are vulnerable to these changes. Successful tree planting and tree survival rates must consider these factors. Research and surveys revealed that some municipalities are considering alternative tree species, planting schedules and locations, often informally. In order to proactively plan for climate resilience and to ensure high rates of survival from tree planting efforts, municipalities should consider formalizing climate resilience considerations:

- Adopt “active adaptive management” such as planting techniques to encourage assisted migration.
- Develop information for linking ecosystem services to specific land use in to guide tree species selection.

10. Canopy Cover Monitoring Metrics

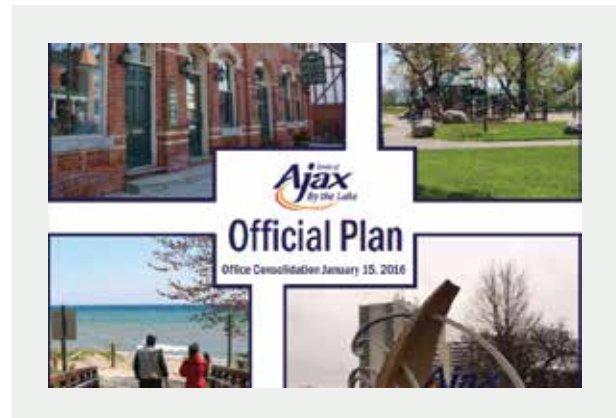
Currently, there are no national or provincial standards that identify canopy coverage targets or methods of measuring and monitoring the tree canopy. Municipalities studied either adopted targets from the International Society of Arboriculture or the American National Standards Institute. This can result in varying targets and approaches to both developing and pursuing tree canopy targets. Therefore, we recommend that municipalities:

- Support efforts to develop a scientifically-informed standard of practice for setting and achieving canopy cover targets (at the provincial- or national-scale).
- Continue identifying and following current best practices for canopy monitoring.
- Establish a canopy monitoring program (e.g. within an UFMP) that includes a recurring canopy assessment to track canopy change (e.g. every 10 years).
- Adopt a remote-sensing and land cover classification approach to long-range canopy monitoring. For example, The City of Toronto uses “high resolution leaf-on aerial and satellite imagery” to perform a land cover classification every decade. Although costly, remote sensing is an effective and practical method of monitoring canopy change over time.

11. Amend Official Plans and Design Guidelines to Include Overarching Tree Policies

Many municipalities have broad tree-related policies within their Official Plans and Design Guidelines. Such policies are an efficient way to address multiple aspects of private tree preservation and protection. Therefore, we recommend that municipalities amend these documents to include these policies that will address multiple aspects of all private tree matters using one policy. This can be effective as all policy aims can be included in one policy, instead of throughout an entire planning document. In addition to the specific policies included in this Guide, the documents below include comprehensive policy that can be used as models:

- **Ajax:** Official Plan (2016)
- **Cambridge:** Official Plan (2018)
- **Guelph:** Official Plan (2018)
- **Toronto:** Official Plan (2015)
- **Oakville:** Livable by Design Manual (Part C) – Site Design and Development Standards (2017)



12. Ensure a Consistent Municipal “Tree Vision”

To ensure the greatest success in maintaining and increasing tree canopy coverage, the municipality’s tree-related goals should be apparent and consistent across all documents, policies, programs, and activities carried out by the municipality. The goals of the municipality should be clear to all stakeholders. When all municipal departments, stakeholders, and residents are aware and committed to this vision, substantial progress in managing and protecting the urban forests can be made. To achieve this, it is recommended that municipalities create a vision statement, or a set of goals with regard to canopy coverage and urban forest health, that governs all activities that intersect with tree protection and management.

Concluding Remarks

Trees are valuable assets for Canadian communities due to the environmental, ecological, public health, and social benefits they provide. As this Practice Guide demonstrates, trees located on private property play an important role in the overall health and well-being of a municipality’s urban forest, and will continue to do so as urbanization increases across the country. Therefore, private trees should be specifically included in tree-related policies and programs by municipalities. Although this study was limited to the geography of Ontario, recommendations provided can and should be adapted to suit the unique socio-political framework present in other provinces and territories.

Substantial change can occur by adopting only a few of the suggested interventions; however, it is encouraged that municipalities adopt both policies and programs targeted at enhancing the tree canopy. The most important takeaway is that Canadian municipalities should implement tree protection and management measures to ensure the well being of their community and urban forests well into the future.

Definitions

Assisted Migration: A conservation tool and adaptation strategy that consists of moving and establishing species or populations outside of their historical range to a new location where the climate will be more suitable under expected conditions of climatic change (also referred to as Assisted Colonization) (Fontaine & Larson, 2016).

Drip Line: The area directly underneath the outer circumference of the tree branches. When the tree canopy gets wet, excess water is shed and falls along the drip line. This is also known as a tree's Critical Root Zone (CRZ).

Ecological Integrity: A contested definition, but generally refers to the natural composition of species and/or habitat, or the wholeness and proper functioning of an ecosystem (Conway, 2019).

Ecosystem Services: Goods or services produced by urban forests that contribute to human well-being (MEA, 2005).

Good Forestry Practices: As defined by the Forestry Act (1990), Good Forestry Practices refers to the proper implementation of harvest, renewal, and maintenance activities in a given forest and environmental context. This includes minimizing adverse effects on significant ecosystems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health, and the aesthetics and recreational opportunities of the landscape (1(1)).

Invasive Species: Any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem; and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Native Species: Trees and plants that have adapted to the local climate and soil conditions. This means that they do not need as many resources such as watering or fertilizers to grow properly. These species have evolved with native animals and insects, and provide habitat and a food source.

Significant Woodlands: Treed lands which are of special interest due to ecological, functional or economic considerations. Some municipalities differentiate between smaller “locally significant woodlands” and larger “provincially significant woodlands”.

Tree Canopy: A measurement of the aerial extent of tree foliage coverage, typically measured in percentage of total land area. Also known as forest canopy cover, or canopy coverage.

Tree protection: To prevent or minimize harm to any tree.

Tree preservation: To ensure trees are maintained in their existing states.

Urban Forest: The sum of all woody and associated vegetation in and around dense human settlements.

Urban Forest Management Plan: A tailored plan that guides tree care professionals to proactively and effectively manage and provide for maximum, long-term benefits to the community (United States Global Change Research Program, 2019).

References

- Bonney, M. T., & He, Y. (2019). Attributing drivers to spatio-temporal changes in tree density across a suburbanizing landscape since 1944. *Landscape and Urban Planning*, 192, 103652. <https://doi.org/10.1016/j.landurbplan.2019.103652>
- Canadian Urban Allergy Audit. (2012). PolleNation™. Retrieved May 27, 2020 from http://file.marketwire.com/release/PolleNation_Report.pdf
- Conway, T. M., Almas, A. D., & Coore, D. (2019). Ecosystem services, ecological integrity, and native species planting: How to balance these ideas in urban forest management? *Urban Forestry and Urban Greening*, 41, 1–5. <https://doi.org/10.1016/j.ufug.2019.03.006>
- City of Cambridge. (2015). Urban Forest Plan 2015-2034. Retrieved from <https://www.cambridge.ca/en/learn-about/resources/Accessible-PDFs/Cambridge-Urban-Forest-Plan-2015-2034.pdf>
- City of Toronto. (2013). Sustaining and Expanding Urban Forest: Toronto's Strategic Forest Management Plan 2012-2022. Retrieved from <https://www.toronto.ca/data/parks/pdf/trees/-sustaining-expanding-urban-forest-management-plan.pdf>
- Douglas, T. (2016). Best Practices for the Creation of Urban Forest Management Plans: Lessons from London and Mississauga for Ontario's Large Municipalities (Master's project), Queen's University, Kingston, ON.
- Fontaine, L. C., & Larson, B. M. H. (2016). The right tree at the right place? Exploring urban foresters' perceptions of assisted migration. *Urban Forestry and Urban Greening*, 18, 221–227. <https://doi.org/10.1016/j.ufug.2016.06.010>
- Landry, J-S., & Ramanjuttu, N. (2015). Carbon Cycling, Climate Regulation, and Disturbances in Canadian Forests: Scientific Principles for Management. *Land*, 4, 83-118.
- McGovern, M., & Pasher, J. (2016). Canadian urban tree canopy cover and carbon sequestration status and change 1990–2012. *Urban forestry & urban greening*, 20, 227-232.
- Millennium Ecosystem Assessment (MEA). (2005). *Ecosystems and Human Well-Being, Synthesis*. Island Press, Washington, DC.
- Natural Resources Canada. (2020). How much forest does Canada have? Government of Canada. Retrieved from <https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/how-much-forest-does-canada-have/17601>
- Province of Ontario. (2014). Provincial Policy Statement. Retrieved from <http://www.mah.gov.on.ca/Page10679.aspx>
- Province of Ontario (2001). Municipal Act, Statute of Ontario, 2001, c.25. Retrieved from <https://www.ontario.ca/laws/statute/01m25>
- Province of Ontario. (1990). Conservation Land Act, 1990, c. C.27. Retrieved from <https://www.ontario.ca/laws/statute/90c27>
- Province of Ontario. (1990). Environmental Protection Act, 1990, c. E.19. Retrieved from <https://www.ontario.ca/laws/statute/90e19>

Province of Ontario. (1990). Forestry Act, 2000, c. 18. Retrieved from <https://www.ontario.ca/laws/statute/00p18>

Province of Ontario. (2005). Greenbelt Act, 2005, c. 1. Retrieved from <https://www.ontario.ca/laws/statute/05g01>

Province of Ontario. (1990). Ontario Heritage Act, 1990, c. O.18. Retrieved from <https://www.ontario.ca/laws/statute/90o18>

Province of Ontario. (1990). Planning Act, Revised Statute of Ontario, 1990, c.P.13. Retrieved from <https://www.ontario.ca/laws/statute/90p13>

Province of Ontario. (2005). Places to Grow Act, 2005, c. 1. Retrieved from <https://www.ontario.ca/laws/statute/05g01>

Province of Ontario. (2000). Professional Foresters Act, 2000, c. 18. Retrieved from <https://www.ontario.ca/laws/statute/00p18>

Province of Ontario. (2014). A Place to Grow – Growth Plan for the Greater Golden Horseshoe. Retrieved from <https://www.ontario.ca/document/place-grow-growth-plan-greater-golden-horseshoe>

Society of Arboriculture. (2011). Criteria and Indicators for Strategic Urban Forest Planning and Management. Retrieved from https://www.isa-arbor.com/events/conference/proceedings/2013/VAN_WASSENAER_article_AUF_%20May_2011.pdf

Statistics Canada. (2011). Census 2011 Census. Ottawa. Released October 24, 2012. http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/vc-rv/index.cfm?Lang=ENG&TOPIC_ID=1&GEOCODE=01

Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments [https://doi.org/10.1016/S0272-4944\(05\)80184-7](https://doi.org/10.1016/S0272-4944(05)80184-7)

U.S. Climate Resilience Toolkit. (2019). Retrieved November 20, 2019, from <https://toolkit.climate.gov/tool/urban-forest-management-plan-toolkit>



Subject: Regional Food and Organic Waste and Biosolids Processing Project Update - City Wide

Reference:

Date to Council: February 28, 2022
Author: Tracy Beadow
Project Administrator
519-255-6100 ext. 1734
tbeadow@citywindsor.ca

Engineering
Report Date: January 27, 2022
Clerk's File #: SW/13940

To: Mayor and Members of City Council

Recommendation:

THAT Council **RECEIVE FOR INFORMATION** the letter received from Essex-Windsor Solid Waste Authority (EWSWA) dated January 27, 2022 regarding the Resolution of the EWSWA Board – Regional Food and Organics and Biosolids Waste Management Project attached as Schedule “A”; and,

THAT Council **RECEIVE FOR INFORMATION** the memorandum prepared by the Regional Food and Organics Oversight Committee and sent to EWSWA Board Members on January 6, 2022 regarding the Regional Food and Organics and Biosolids Waste Management Project – Facility Ownership and Recommended Next Steps attached as Schedule “B”; and,

THAT Council **AGREES** to participate in a EWSWA-led Regional Food and Organic Waste Management Program and **DIRECTS** Administration to so advise EWSWA prior to March 31, 2022.

Executive Summary:

N/A

Background:

In November 2020, the City retained GHD Limited (GHD) as the environmental consultant for Phase 1 of the Project through Council Resolution CR506/2020 (Schedule “C”). With input from the Food and Organics Waste and Biosolids Technical Working Group, Oversight Committee, and stakeholders, GHD produced a final report

which outlined their project direction analysis and recommendations. This report, along with a general project update, was presented to City Council on June 21, 2021, and was received through CR 273/2021.

Concurrent to this process, a Municipal Class Environmental Assessment (EA) was initiated by Pollution Control to evaluate options for expansion at the biosolids processing plant that will be required by 2029, which may include the construction of an anaerobic digestion facility. The EA includes the evaluation of organic material as a potential feedstock. This evaluation will provide valuable information to assist with further assessment of either a regional organics solution, or a Windsor-only organics solution.

Discussion:

Peer Review Report

In June 2021 the EWSWA Board passed a motion for EWSWA Administration to retain an independent third party consultant to conduct a peer review of the evaluation process completed to-date and GHD's report.

After a competitive bidding process, EWSWA retained the services of Tetra Tech Canada Inc. (Tetra Tech) to conduct the peer review. A copy of Tetra Tech's peer review report entitled "Essex-Windsor Solid Waste Authority Peer Review of Organics and Biosolids Waste Management & Processing Consulting Report and Analysis of the Impact Organic Diversion from the Regional Landfill", dated September 24, 2021 is attached as Schedule "D".

On September 15, 2021 and October 5, 2021, Tetra Tech presented the results of their review to the EWSWA Board. A summary of the findings identified by Tetra Tech are summarized below:

- The GHD Reports are substantially sound and offer comparative impacts of the various options. Concern was noted in regards to the capital costs presented by GHD, which may be underestimated.
- Given the compliance deadline of 2025 that applies to Windsor, Tecumseh, Amherstburg, LaSalle and Lakeshore, and the likelihood of an organics ban at all landfills which would then capture Kingsville, Essex and Lakeshore, Tetra Tech recommends that all 8 communities be part of a regional solution
- The Ministry of the Environment, Conservation and Parks ("MECP") will assess innovative technologies for compliance with the Food and Organic Waste Ontario Provincial Policy Statement ("OPPS"). Proponents of innovative technologies must demonstrate compliance with the OPPS, and should be allowed to submit a proposal in response to a Request for Proposal ("RFP").
- Anaerobic digestion appears to be the best fit for both organics processing and greenhouse gas reduction targets
- Tetra Tech recommends an RFP be prepared that requires proponents to meet the following key critical end points:
 - That the proponents have the skills, experience and technology that works

- That any proposal meets all regulatory and policy requirements for EWSWA (including energy policies)
- That a cost proposal (whether upfront capital or all inclusive tipping fees) be evaluated on a Net Present Value (“NPV”) basis.

At the October 5, 2021 EWSWA Board meeting, the Board directed the Oversight Committee to sole source the next phase of consulting services to GHD for the preparation of a Request for Qualification (RFQ), followed by a Request for Proposal (RFP), and that the EWSWA Board approve the terms of reference prior to publishing of the RFQ and RFP.

In addition, the Board directed EWSWA Administration to schedule presentations at each of the seven (7) County municipalities and at the City of Windsor outlining the requirements of the Ontario Food and Organic Waste Policy Statement and the decision points that will be required by each municipality.

Facility Ownership and Recommended Next Steps

Following the October 5, 2021 EWSWA Board meeting, the Oversight Committee, Technical Working Group and GHD began working towards the preparation of an RFQ. During this process, several issues and concerns were identified regarding a procurement process that allows for both municipally-owned and privately owned models. The details of these concerns are detailed in the Oversight Committee memorandum to the EWSWA Board dated January 6, 2022, provided in Schedule “B”.

In an effort to assist the Regional Partners, GHD prepared a Roadmap to navigate the various questions and issues that still need to be determined to support data-driven decision making. Step 1 of the Roadmap, Program Governance, involves making decisions regarding who will be responsible for the implementation and management of each aspect of an organics program, and who will be participating and to what extent. The Oversight Committee, Technical Working Group and the Regional Partners have been working towards a decision regarding Regional Program Governance and participation.

The Roadmap clearly illustrates that a significant amount of effort is still required before a long-term organics program is established. Given the issues identified with an open procurement process, unknown participation levels, and numerous other variables including equipment and material sourcing delays which require a contract be established up to two years prior to commencement of services, the Oversight Committee concluded that the only option that can be completed prior to 2025 is a short term service delivery contract.

Therefore, the Oversight Committee recommended to EWSWA Board that Step 2 of the Roadmap – Short Term Service Processing Contract(s) – be initiated as soon as possible in order to secure processing capacity, establish and maintain compliance with

provincial requirements, and gather valuable information and data regarding organic waste within the region. As additional capacity for biosolids processing is not required until 2029, biosolids will not be included in a short term service processing contract.

The following recommendations were adopted by the EWSWA Board on January 12, 2022:

1. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to continue to work through the various steps outlined in the Roadmap, and report back with progress updates, and;
2. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to proceed with a short-term organic waste processing contract(s) RFP that meets the following minimum criteria:
 - a. That the RFP **BE REQUIRED** to accept, at a minimum, source separated organics from Windsor and any other of the municipalities choosing to participate at the onset, and allows for changes to quantities of source separated organics, and;
 - b. That industry standards **BE EXCEEDED** regarding odour control measures implemented at the facility and the end product, and;
 - c. That the RFP **BE REQUIRED** to provide service for a 5-year term with options for extensions.
3. That the EWSWA send correspondence to the County of Essex and all municipalities in the region who have yet to respond to indicate whether or not their members or those municipalities will participate in the EWSWA led organics program and to indicate that response is required by March 31, 2022.

On January 27, 2022, EWSWA sent a letter to the City of Windsor requesting that the City of Windsor Council provide a response to the EWSWA to indicate whether or not they will participate in the EWSWA led organics program by March 31, 2022. A copy of the letter is provided as Schedule "A". It is Administration's recommendation that the City participate in the EWSWA led organics program for food and organic waste, and that the inclusion of biosolids as a potential feedstock for the program will be determined at a later date.

Administration will report back following the results of the short term service provider and organic waste collection procurement.

Risk Analysis:

Risks Associated with Failure to Act:

The City of Windsor may risk a lost opportunity to participate in a regional organics programs if a response is not provided to EWSWA before March 31, 2022.

Timing Risks:

There is a significant timing and compliance risk associated with failure to proceed expeditiously with this project. Legislation mandates that the City provide curbside collection of food and organic waste by 2025. Administration has conservatively interpreted the OPSP deadline to mean a new processing facility must be built, commissioned and ready to accept feedstock from curbside collection or depot programs as early as January 1, 2025. The planning, design and construction of a new facility can take from four to six years, which is further complicated by the fact that a site has yet to be selected. Therefore GHD and Administration have recommended that a short term service contract be established by the end of the second quarter of 2022, in order to secure capacity with a service provider before 2025.

Climate Change Risks

Climate Change Mitigation:

Developing a biosolids and organics strategy has been outlined as a Priority Action in the Acceleration of Climate Change Actions in response to the Climate Change Emergency Declaration. Depending on the technology selected, significant emissions reduction is possible.

Depending on the short-term contract location, greenhouse gas emissions reduction as a result of removing organic waste from landfill will be partially offset by greenhouse gas emissions generation from transport to the contract location. It is recommended that the service-contract consider the distance of travel to minimize the impact on greenhouse gas emissions.

Climate Change Adaptation:

The review of any technology or site selection through a future procurement process shall include an assessment of possible climate change impacts that may affect ongoing operations of such a facility (e.g. flooding risk).

Financial Matters:

Eighty-five percent (85%) of the costs for engineering consulting and City of Windsor Project Management for Phase 1 of the Project are being reimbursed by EWSWA. The remaining fifteen percent (15%) are considered to be attributable to the biosolids portion of the Project, which is being funded entirely by the City at this time.

The recommendations of this report do not require any additional financial commitment at this time.

While there are many variables to consider, such as the number of municipalities that will be participating in the EWSWA led organics program, preliminary estimates

provided by our consultant (Schedule D) indicate that service contracts of this nature could cost approximately \$155 per tonne for organics processing. Based on preliminary estimates of organic tonnages diverted from waste, this could result in an incremental annual cost of approximately \$2.2M to the City. It should be noted that this cost estimate is based on currently available data. Given the volatile market conditions at this time, actual costs may differ. A separate organic waste collection RFP will be issued following completion of the processing RFP.

A report detailing all incremental costs related to the short-term organic waste processing contract(s) will be brought to City Council at the completion of the processing and collection RFPs, which is expected to be completed by the end of 2022.

Consultations:

Anne-Marie Albidone, Manager of Environmental Services
 Alex Vucinic, Purchasing Manager
 Carrie McCrindle, Financial Planning Administrator
 Tony Ardovini, Deputy Treasurer Financial Planning
 Karina Richters, Supervisor of Environmental Sustainability & Climate change
 Wira Vendrasco, Deputy City Solicitor

Conclusion:

The above project update and attached supporting documentation has been provided for information.

Administration is recommending that the City of Windsor participate in the EWSWA-led Regional Food and Organic Waste Management Program for food and organic waste, and that the inclusion of biosolids as a potential feedstock for the program will be determined at a later date.

Planning Act Matters:

N/A

Approvals:

Name	Title
Colleen Middaugh	Manager of Corporate Projects
France Isabelle-Tunks	Senior Manager of Engineering / Deputy City Engineer
Phong Nguy	Acting Executive Director of Operations/Deputy City Engineer

Name	Title
Jake Renaud	Senior Manager of Pollution Control / Deputy City Engineer
Chris Nepszy	Commissioner, Infrastructure Services
Shelby Askin Hager	Commissioner, Legal & Legislative Services
Joe Mancina	Commissioner, Corporate Services
Jason Reynar	Chief Administrative Officer

Notifications:

N/A

Appendices:

- 1 Schedule "A" – Letter to the City of Windsor from EWSWA dated January 27, 2021 regarding the Resolution of the EWSWA Board – Regional Food and Organics and Biosolids Waste Management Project (2 pages)
- 2 Schedule "B" - Oversight Committee memorandum to the EWSWA Board dated January 6, 2022 (19 pages)
- 3 Schedule "C" – Council Resolution CR506/2020 (2 pages)
- 4 Schedule "D" - EWSWA Peer Review of Organics and Biosolids Waste Management & Processing Consulting Report and Analysis of the Impact Organic Diversion from the Regional Landfill", dated September 24, 2021 (32 pages)



Essex-Windsor Solid Waste Authority

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ph: 519-776-6441 f: 519-776-6370
tf: 1-800-563-3377 / tty: 1-877-624-4832
email: ask@ewswa.org / web: www.ewswa.org

January 27, 2022

City of Windsor
350 City Hall Square West
Room 530
Windsor, Ontario N9A 6S1

Attn: Mr. Jason Reynar
Chief Administrative Officer
jreynar@citywindsor.ca

Mr. Steve Vlachodimos
City Clerk & Senior Manager of Council Services
svlachodimos@citywindsor.ca

**RE: Resolution of the Essex-Windsor Solid Waste Authority Board -
Regional Food and Organics and Biosolids Waste Management Project**

The following letter has been prepared to inform the City of Windsor of recent developments regarding the Food and Organic Waste Management Project.

Further to the following resolution adopted by County of Essex Council on October 20, 2021:

THAT the Essex County Council consider a Regional approach to the Food and Organics Waste Management Project as it relates to participation from municipalities and report its decision back to the Essex-Windsor Solid Waste Authority no later than December 31, 2021.

The Essex-Windsor Solid Waste Authority Board, at its Wednesday, January 12, 2022 meeting, adopted the following resolution:

Resolution 7-2022
Moved by Kieran McKenzie
Seconded by Jim Morrison

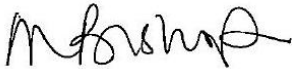
1. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to continue to work through the various steps outlined in the Roadmap, and report back with progress updates, and;
2. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to proceed with a short-term organic waste processing contract(s) RFP that meets the following minimum criteria:
 - a. That the RFP **BE REQUIRED** to accept, at a minimum, source separated organics from Windsor and any other of the municipalities choosing to participate at the onset, and allows for changes to quantities of source separated organics, and;
 - b. That industry standards **BE EXCEEDED** regarding odour control measures implemented at the facility and the end product, and;

- c. That the RFP **BE REQUIRED** to provide service for a 5-year term with options for extensions.
3. That the EWSWA send correspondence to the County of Essex and all **municipalities** in the region who have yet to respond to indicate whether or not their members or those municipalities will participate in the EWSWA led organics program and to indicate that response is required by March 31, 2022.

On January 19, 2022, communication was sent via email to the Chief Administrative Officer and Clerk of all seven (7) County of Essex municipalities requesting that responses from municipalities be received no later than March 7, 2022 in order for the correspondence to be placed on the March 16, 2022 County Council meeting agenda. Ms. Mary Birch, Director of Council and Community Services/Clerk for the County of Essex was included on the correspondence to each municipality. The EWSWA requests that Essex County Council will provide a response to the EWSWA by March 31, 2022.

The EWSWA is also requesting that the City of Windsor Council provide a response to the EWSWA to indicate whether or not they will participate in the EWSWA led organics program by March 31, 2022.

Please contact me if you require further information at 519-776-6441 ext. 1225 or email at mbishop@ewswa.org.



Michelle Bishop, General Manager

MEMO

Date: January 6, 2022

To: EWSWA Board Members

From: Regional Food and Organics Oversight Committee

Meeting Date: January 12, 2022

Subject: Regional Food and Organics and Biosolids Waste Management Project – Facility Ownership and Recommended Next Steps

1. Purpose

The purpose of this report is to inform the Essex Windsor Solid Waste Authority (“EWSWA”) Board of numerous issues that have been identified as the Regional Food and Organics Oversight Committee (“Oversight Committee”) works towards the preparation of a Request for Qualification (RFQ). The consultant (GHD Limited (GHD)) has prepared a roadmap of recommended steps to assist EWSWA, the City of Windsor and County municipalities (collectively referred to as the “Regional Partners”) to navigate through the various issues and decision points required to achieve the final goal of establishing a long-term organics collection and processing program that meets compliance obligations. The Oversight Committee has presented recommendations to initiate the first phase of an organics program.

It is intended that the EWSWA Board provide direction based on these recommendations during the January 12, 2022 board meeting.

2. Background

At the October 5, 2021 EWSWA Board meeting, administration was directed to proceed with the development of a procurement plan for an organic waste management and processing project that would be as unrestrictive as possible to allow the private sector to propose innovative and cost-effective solutions.

During the development of the RFQ, it has become apparent that an RFQ, and subsequent Request for Proposal (RFP) that allows for both municipally-owned and privately-owned models carries significant risks. The absence of information on components of the long term organics management program, such as organics quantity and composition, has also been identified as an infrastructure procurement risk. These risks should be brought to the attention of the Board prior to proceeding with a procurement process for this project.

3. Discussion

The development of the RFQ, and subsequent RFP, can in broad terms be broken down into 2 sections: technology and procurement.

In terms of technology, it is relatively common to have an RFQ/RFP remain open to all technologies available. In the case of this project, there is no concern with issuing an RFQ/RFP that is open to any technology that complies with the Ontario Food and Organic Waste Policy Statement.

In terms of procurement, the type of contract (i.e., service contract with a private facility, municipal-owned asset, P3, etc.) is typically specified in the procurement documents. Although there are several different types of contracts, the two main categories of contracts are defined by contracted service delivery by a privately-owned facility and development of a municipally-owned facility. There are a number of issues with undertaking a procurement process for an organic waste management facility without first determining if the facility will be municipally-owned or privately-owned. A procurement process that is neutral on facility ownership will be complex and create an unlevel playing field for potential respondents. The following are issues that will present themselves if the procurement process does not specify facility ownership:

1. Contract and Specifications

A procurement process that considers both municipal and private ownership will require the development of two separate contract and specification documents. The Technical Memorandum prepared by GHD (provided in Attachment A) presents a summary of how various types of contracts are typically structured. Creating two separate contracts and specifications will be both costly and time consuming.

2. Difficult Evaluation Process

It is relatively simple to compare municipally-owned and privately owned facilities on certain important metrics such as Net Present Value (NPV) and GHG emission reduction performance. However, there are other significant aspects of the two ownership models that are not easily compared, such as construction material quality, maintenance plans, etc. A good analogy would be choosing between a custom-built home and a rental apartment. It is difficult to compare quality or value for money because the requirements and expectations are different. A procurement process that considers proposals for both municipal and private ownership will create a situation where projects that do not easily compare must be evaluated and scored using the same metrics, impacting the ability to properly compare and evaluate proposals. Complex evaluation processes or metrics also increase the risk of unsuccessful bidders to challenge the award results.

3. Cost and Effort to Participate

The cost and level of effort required to participate in a procurement process for a municipally-owned facility are significantly greater than that for procuring a processing

service provider where the service provider has an existing facility with sufficient capacity. Costs for proponents to submit a proposal for a municipally-owned facility must include a level of design in order to accurately prepare cost estimates. The cost to go through this process is expected to be up to \$1 million in effort for a facility of this nature. This creates an unlevel playing field among potential participants in the procurement process and will discourage potential participants from participating under a project delivery method for a municipally-owned facility.

4. Risk in Participation

Potential participants in the procurement process will only participate if their perceived chance of winning is great enough. By opening up the procurement process to both municipally- and privately-owned project delivery methods, the perceived chance of winning will be lowered for all parties, but especially for potential participants delivering a municipally-owned facility. The perception in the Ontario market is that the procurement of a municipally-owned organics facility may not be able to compete with merchant capacity processors.

A procurement process that considers both municipal and private ownership will create a situation where interest is very low for potential participants for delivering a municipally-owned facility.

In addition to the procurement risks outlined above, GHD identified several questions, observations and processes that need to be determined prior to the development of a long-term organics solution. A key issue is that the Regional Partners have not yet designed or implemented their organics management programs, including collections and processing, and therefore do not have organics quantity or composition data to help minimize infrastructure procurement risk.

4. Mitigation Strategies

GHD has proposed various strategies that can be used to mitigate some of the procurement concerns listed in Section 3 above. These strategies are summarized below:

1. Determine Facility Ownership

In order to receive a greater number of competitive bids, it is advised that the facility ownership model be selected prior to the issue of an RFQ/RFP. This would alleviate all of the issues identified in Section 3 above. However, as discussed in Section 5 below, other considerations in the Windsor-Essex region make this decision difficult at this time.

2. Select a Collaborative Project Delivery Model

For proponents interested in a municipally-owned facility, there is an increased interest and preference by contractors for project delivery models that are more collaborative to reduce the cost to participate and alleviate risks taken on by contractors. A collaborative

approach includes one or more proponents retained prior to the completion of the design. The proponents work with the owner to create the design. At established design stages, the owner may select proponent(s) to proceed to the next phase. When the design is at or near completion, the proponent(s) is required to submit a fixed cost for the remainder of the project. This approach reduces costs to participate and alleviate risks taken on by the proponents, as they are reimbursed for their design efforts and are involved in the design which allows a greater amount of comfort for the proponents.

3. Provide an Honorarium

If the ownership model is not defined in the procurement process, one way to encourage teams completing proposals for a municipally-owned facility is to provide an honorarium. It is anticipated that an honorarium of a sum greater than \$1 million per compliant bid would be required to be effective. This mitigation strategy would address the issue of the imbalance of the cost to participate, but does not address the other risks outlined above.

4. Enter into a Short Term Service Delivery Contract in the Interim

Municipalities commonly begin processing organic waste through service delivery contracts before procuring a municipally owned facility. This would allow time to gain experience with the collection program and knowledge regarding waste quantities and composition. This mitigation strategy provides compliance with provincial requirements and allows additional time to plan and gain invaluable information, however one of the other mitigation strategies will eventually need to be selected in order to proceed with a long-term organics program. It is noted that since a long-term organics program is not expected to be operational by 2025, a service delivery contract will likely be necessary to establish compliance for the municipalities required to meet organics management obligations by 2025.

5. GHD's Conclusions and Recommendations

Given the issues identified with an open procurement model, and given the magnitude of this project and timelines, GHD has recommended that one or more of the mitigation strategies be selected, and notes that ultimately a decision on facility ownership should be made. GHD further notes that at this stage of the project, there remains more questions than answers about the program components of a long-term organics solution, and is therefore recommending that the Regional Partners move forward with planning and implementing one or more short-term processing contracts. This would allow more time to develop an organics collection program, and provide data needed to form the basis of a long-term design or procurement. GHD recommends that short-term contract(s) be procured as soon as possible in order to secure capacity, and notes that many other municipalities will be working towards securing capacity in advance of the upcoming compliance deadline.

Furthermore, putting some distance between the pandemic and the large capital project of constructing a municipally-owned organic management facility could potentially save a significant amount of money.

GHD has proposed a Roadmap, provided in Table 5.1 of the attached Technical Memorandum and replicated below, to assist the Regional Partners with a path to navigate the various questions and issues that still need to be determined to support data-driven decision making. The proposed roadmap consists of 11 distinctive steps, where data obtained from previous steps may establish the basis for subsequent steps.

Item #	Steps	Description
1	Program governance	<ul style="list-style-type: none"> – For both processing and collections. – This is currently in progress on the processing side. Which lower-tier municipalities will participate and when? A determination is expected within the next few weeks. – Study if collections continue to be a lower-tier responsibility or are there benefits to shifting this to county level (i.e., EWSWA).
2	Short-term processing contract(s)	<p>Procure short-term processing contracts to cover the first few years of processing needs to maintain compliance with the provincial requirements and until decisions are made regarding a long-term solution:</p> <ul style="list-style-type: none"> – Start with market sounding to determine current and future available capacity and types of technology. – Roll-out of collections could be phased over this period starting with one of the municipalities that is required to implement a curb-side collection program (e.g., the City of Windsor) and then other municipalities added over time. – Planning and development for this step in the roadmap should begin early as this is a lengthy process – Some work from subsequent steps must be completed prior to establishing a processing contract, including the development of a collection program
3	Feedstock composition and forecast study	<ul style="list-style-type: none"> – After governance is decided, update composition and tonnage forecasts from previous studies. – This study will define how much processing is needed and when. This study would be attached to the RFP as background information. – Vines: explore options with Ontario Greenhouse Growers Association to divert this material from the landfill. This work should be completed in parallel to understand potential synergies before an opportunity is lost. – Other feedstock: Identify any other feedstocks EWSWA may want to procure and be responsible for collecting and processing. Wastewater sludges should also be considered further as planning for local wastewater infrastructure expansion and upgrades progresses in parallel; including characterizing this feedstock more fully.
4	Project risk matrix and workshop	<ul style="list-style-type: none"> – Complete a risk identification and quantification exercise to help inform program and project development decisions; including the question of owning or not owning a facility.
5	Environmental attributes study	<ul style="list-style-type: none"> – Study to determine what should be done with energy/gas and environmental attributes if attributes can be retained through a

Item #	Steps	Description
		merchant plant arrangement. Consult with Enbridge. Consult with processing plants (maybe as part of market sounding discussed under Short Term Processing Contract(s)).
6	Develop collection program	<p>Complete study and plan for collections program roll-out including:</p> <ul style="list-style-type: none"> – Review how rollouts are achieved in other municipalities (e.g., Guelph, York, Peel). – Consider how EPR will affect collection volumes and programs at the various municipalities. – How will collections be accomplished (e.g., curb-side collection or depot drop-off) – What technologies (e.g., RFID, split collection vehicles, bins, bags, automated collection) should be considered for a new program? – Consider potential collection schedule and routing – Consider timing relative to current collections contracts in the various municipalities – Develop implementation plans based on the above: <ul style="list-style-type: none"> • Public communication plan • Collection routing plan • Fleet management strategy • Implementation timeline <p>This will provide a clear picture of how much processing is needed and when. Planning and development for this step in the roadmap should begin early as this is a lengthy process.</p>
7	Essex landfill gas study	<ul style="list-style-type: none"> – Confirm landfill gas forecast and composition. – Confirm landfill gas ownership and determine strategic partners. – Confirm pipeline location with Enbridge.
8	Building consensus and roadmap with municipalities	<ul style="list-style-type: none"> - To ensure a coordinated and cohesive rollout across the Essex-Windsor region for an organics management program that includes both collection and processing, will require support for local municipal staff from the Technical Working Group and EWSWA - Communication with the municipalities should be done early and throughout the process. Each municipality will have their own financial and other planning considerations to address, which may be a lengthy process.
9	Other studies: <ul style="list-style-type: none"> – Form of contract – Siting 	<ul style="list-style-type: none"> – Following completion of other studies and roll-out of collections program and short-term processing contracts. – Update of siting and form of contract work done as previous studies. An update will be required as it is anticipated that much will change in the years following the pandemic and as other provincial policies change.
10	Final report on long-term processing solution	Compile studies into a final report and recommendation to the EWSWA board for long-term processing solutions.
11	Procure long-term processing solution	Issue appropriate RFP for selected long-term processing solution.

Step 1 of the Roadmap, Program Governance, involves making decisions regarding who will be responsible for the implementation and management of each aspect of an organics program, and who will be participating and to what extent. The Oversight Committee, the Technical Working Group and the Regional Partners have been working towards a decision regarding Regional Program Governance and participation. However, collection of organic waste has not yet been evaluated. Additionally, a short-term service contract outlined in Step 2 of the Roadmap has not been initiated.

6. Conclusion

The Roadmap outlined above clearly illustrates that a significant amount of effort is still required before a long-term organics program is established. The only mitigating strategy that addresses all the procurement risks identified in Section 3 above is to select either a privately-owned facility or a municipally-owned facility. It is difficult for the Oversight Committee to recommend one or the other without first knowing which municipalities are participating and subsequently what tonnages and energy benefits can be achieved. Presentations made to local municipal councils in November and December 2021 are still being evaluated by local administration. The County of Essex has not yet scheduled the organics project on a meeting agenda and it is anticipated that once all local councils have considered this matter there will be interest to deal with the matter at the County level and the County of Essex will then be in a position to schedule the organics issue on a meeting agenda. Once program governance is established, organic waste collection will need to be evaluated in order to determine if regional or individual collection programs are recommended and identify if potential synergies and cost saving opportunities exist as a result of the implementation of an organics collection program.

Other considerations that may affect various decision points regarding an organics program include the need for the City of Windsor to have a functioning solution in place by 2029 to address the existing biosolids processing plant expected capacity overflow; which may include the construction of an anaerobic digestion facility, the expansion of the existing facility or institution of new technologies to address the capacity overflow. The timing and terms of each municipality's current collection contracts for general refuse need to be taken into consideration, including the allowance for lower tonnages in those contracts as it is expected that refuse amounts will decrease with the implementation of an organics program. The need to expand the landfill gas collection network, and options to manage the collected gas also need to be evaluated. Furthermore, equipment and material sourcing are seeing significant delays, to the point that any future needs should be requested 2 years in advance of that need, even for service contracts. Since Blue Box Extended Producer Responsibility (EPR) will be changing collection contracts in 2 years, it would be prudent to establish collection and processing programs by the 2nd quarter of 2022. This would allow proponents sufficient time to obtain collection vehicles, and increase merchant capacity as needed.

The only mitigating strategy that can be completed by the 2nd quarter of 2022 is a short term service delivery contract.

7. Oversight Committee Recommendations

The Oversight Committee is recommending that Step 2 of the Roadmap– Short Term Processing Contract(s) – be initiated as soon as possible in order to secure processing capacity, establish and maintain compliance with provincial requirements, and gather valuable information regarding organic waste within the region. The Oversight Committee, Technical Working Group and the Regional Partners will continue to work through the various steps required to reach the final step of an established long-term organics program. Therefore, based upon the conclusions and recommendations of the GHD Technical Memorandum, prepared in consultation with the Technical Working Group and the Oversight Committee, the following recommendations are proposed for the Board’s consideration:

1. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to continue to work through the various steps outlined in the Roadmap, and report back with progress updates, and;

2. That the Food and Organic Waste Management Oversight Committee **BE DIRECTED** to proceed with a short-term organic waste processing contract(s) RFP that meets the following minimum criteria:
 - a. That the RFP **BE REQUIRED** to accept, at a minimum, source separated organics from Windsor and any other of the municipalities choosing to participate at the onset, and allows for changes to quantities of source separated organics, and;

 - b. That industry standards **BE EXCEEDED** regarding odour control measures implemented at the facility and the end product, and;

 - c. That the RFP **BE REQUIRED** to provide service for a 5-year term with options for extensions.

Technical Memorandum

January 05, 2022

To	Tracy Beadow, City of Windsor	Tel	519-884-0510
Copy to	Anne Marie Albidone, City of Windsor Natasha Gabbana, City of Windsor Michelle Bishop, Essex-Windsor Solid Waste Authority Sandra Zwiers, County of Essex Gavin O'Neil, GHD Michael Cant, GHD	Email	mike.muffles@ghd.com
From	Mike Muffles, GHD Bryce Hill, GHD	Ref, no	11221671
Subject	Facility Ownership		

1. Purpose

The purpose of this report is to present the risks associated with entering a procurement for an organic waste management and processing facility without first determining the ownership of the facility (municipal or private).

2. Background

At the October 5, 2021, EWSWA Board Meeting, the administration was directed to begin the development of a request for qualifications document (RFQ) for an organic waste management and processing project (Project) that would be as unrestrictive as possible to allow the private sector to propose innovative and cost-effective solutions which will assist the City of Windsor, EWSWA, and the County (collectively referred to as the "Regional Partners") in meeting local and provincial environmental policy objectives and obligations, including:

- Being open to all technologies that comply with the Ontario Food and Organic Waste Policy Statement
- Being open to a variety of project delivery models, including both privately-owned (i.e., merchant capacity or third-party processing) and publicly-owned models (i.e., traditional design-tender and public-private partnerships [P3]).

During the development of the RFQ, it has become apparent an RFQ that allows for both municipally-owned and privately-owned models carries significant risks that GHD, in consultation with the Technical Working Group and Oversight Committee, recommend be brought to the attention of the Board.

3. Discussion

3.1 Issues with not specifying facility ownership

The development of the RFQ, and subsequent RFP, can in broad terms be broken down into 2 sections: technology and procurement.

In terms of technology, it is relatively common to have an RFQ/RFP remain open to all technologies available. In the case of this project, there is no concern with issuing an RFQ/RFP that is open to any technology that complies with the Ontario Food and Organic Waste Policy Statement.

In terms of procurement, the type of contract (i.e., service contract with a private facility, municipal-owned asset, P3, etc.) is typically specified in the procurement documents. Although there are several different types of contracts, the two main categories of contracts are defined by a privately-owned facility and a municipally-owned facility. There are a number of issues with undertaking a procurement process for an organic waste management facility without first determining if the facility will be municipally-owned or privately-owned. A procurement process that is neutral on facility ownership will be complex and create an unlevel playing field for potential respondents.

The following are issues that will present themselves if the procurement process does not specify ownership:

3.1.1 Contract and specifications

A procurement process that considers both municipal and private ownership will require the development of two separate contract and specification documents. Essentially, two procurements would need to be completed simultaneously.

As summarized in Table 3.1, each project delivery model has its own contract structure. Not all contracts contain a construction component, for example, which must adhere to the requirements of the Construction Act. A service provider contract would have no requirements under the Construction Act.

To allow for multiple ownership models to be procured simultaneously, multiple contracts would need to be developed in full and attached to the RFP when it is released. Contract development is the most labour-intensive component of the procurement process, requiring legal, financial, and technical drafting.

Table 3.1 Procurement process for different project delivery methods

Delivery methods	Procurement process		
Service delivery – Non-owned facility – e.g., Regional Municipality of York	A request for expression of interest (RFEOI) is not required but can be used to develop an interest in the project	Single RFP and contract typically based on a dollar-per-tonne gate fee.	<ul style="list-style-type: none"> – Service provider contract based on a per-tonne gate or processing fee. Service contracts can include performance requirements, which put the processor at risk. – No design, construction, or operations contracts or contracting terms. – The contractor takes lifecycle risk. – Contracts are typically short-term for service providers to avoid long-term pricing risk. Or they will want schedule price adjustments. – Longer-term contracts (10+ years) allow capital

Delivery methods	Procurement process		
			<p>expenditures to be amortized over more years; however, any risk premiums are compounded over more years.</p>
<p>Design-bid-build (DBB)</p> <ul style="list-style-type: none"> – Owned facility – e.g., Transfer stations 	<p>Not typically done for the constructor. However, separate procurements would be needed for the owner’s engineer and the operator (or operations team will need to be hired and built internally).</p> <p>There is minimal to no design work required to submit proposals and bids; the cost to submit a proposal or bid is minimal.</p>	<p>Once the detailed design is completed, the engineer tenders the construction contract and oversees construction on behalf of the owner.</p> <p>Operations are performed in-house, or separately procured by the owner.</p>	<ul style="list-style-type: none"> – The design, construction and operations are separately contracted or self-performed by the owner. – Capital expenditures are paid by the owner as construction progresses. – The owner takes lifecycle risk. – This model is not typical for organics or alternative waste processing projects because the key equipment and process design are still largely proprietary; the owner retains facility design, construction, lifecycle, and performance risks that cannot be transferred to the operator.
<p>Design-build (DB)</p> <ul style="list-style-type: none"> – Owned facility 	<p>Recommended</p> <p>RFQ is used to pre-qualify a long list of potential teams down to a shortlist based on experience and financial capacity; before any significant design effort is required by bidders.</p> <p>Limiting bidding teams will encourage participation as bidders will perceive their chance of winning as being greater.</p>	<p>DB teams must complete significant design work to be able to submit a fixed price proposal or bid. It is expensive to participate in the RFP process and bidders will expect a DB fee or honorarium if unsuccessful.</p> <p>Operation is performed in-house or separately procured by the owner.</p>	<ul style="list-style-type: none"> – The design and construction are contracted under a single DB contract. – The owner retains ownership of the facility. – Capital expenditures are paid by the owner as construction progresses. – Operation is separately contracted. – The owner takes lifecycle risk.
<p>Design-build-operate (DBO)</p> <ul style="list-style-type: none"> – Owned facility – Sometimes includes “maintain” in the acronym – e.g., City of Toronto 	<p>Recommended</p> <p>RFQ is used to pre-qualify a long list of potential teams down to a shortlist based on experience and financial capacity; before any significant design effort is required by bidders.</p> <p>Toronto prequalified the primary technology vendors only – not the design, construction, or operations team members. DBO teams were assembled around the prequalified technology vendors. This variation also results in a limited number</p>	<p>DBO teams must complete significant design work to be able to submit a fixed price proposal or bid for an RFP largely based on performance requirements. It is expensive to participate in the RFP process and bidders will expect a DB fee or honorarium. These are also lengthy processes, taking close to 2 years from the start of RFP drafting to contract award.</p> <p>Operations prices are typically fixed prior to the facility being designed or commissioned. There is not</p>	<ul style="list-style-type: none"> – The design, construction and operations are contracted under a single design, build, and operate contract. – Capital expenditures are paid by the owner as construction progresses. – The owner retains ownership of the facility. – Typically, the owner takes or shares lifecycle risk with the contractor, though this will increase the per-tonne processing fee.

Delivery methods	Procurement process		
	<p>of bidders as vendors typically align with one team. Limiting bidding teams will encourage participation as bidders will perceive their chance of winning as being greater.</p>	<p>always an operating plant with the same process to use as a basis.</p>	<ul style="list-style-type: none"> • The City of Toronto assumes lifecycle risk for their facilities. • The owner shared this risk with the contractor for the cancelled Region of Peel project.
<p>Design-build-finance-operate (DBFO)</p> <ul style="list-style-type: none"> – Owned facility – P3 project delivery method – e.g., City of Surrey 	<p>Recommended</p> <p>RFQ is used to pre-qualify a long list of potential teams, including debt and/or equity financing team member(s), down to a shortlist based on experience and financial capacity; before any significant design effort is required by bidders.</p> <p>Limiting bidding teams will encourage participation as bidders will perceive their chance of winning as being greater.</p>	<p>DBFO is similar to DBO, but capital expenditures are financed privately, and paid by the owner over an operating period through a per-tonne gate fee.</p> <p>DBFO teams must complete significant design work to be able to submit a fixed price proposal or bid. It is expensive to participate in the RFP process.</p> <p>Operations prices are typically estimated prior to the facility being designed or commissioned. There is not always an operating plant with the same process to use as a basis.</p>	<ul style="list-style-type: none"> – The design, construction, and operations are contracted under a single design, build, finance, and operate contract. – Capital expenditures are paid by the owner through per-tonne gate fees. – The owner retains ownership of the facility. – The contractor typically retains lifecycle risk for the duration of the operations period.
<p>Design-build-own-operate-transfer (DBOOT)</p> <ul style="list-style-type: none"> – Owned facility after transfer – P3 project delivery method – e.g., Windsor Biosolids Processing Facility 	<p>Recommended.</p> <p>RFQ is used to pre-qualify a long list of potential teams, including debt and equity financing team member(s), down to a shortlist based on experience and financial capacity; before any significant design effort is required by bidders.</p> <p>Limiting bidding teams will encourage participation as bidders will perceive their chance of winning as being greater.</p>	<p>DBOOT is similar to DBFO, except that the contractor retains ownership of the facility until the transfer date.</p> <p>DBOOT teams must complete significant design work to be able to submit a fixed price proposal or bid. It is expensive to participate in the RFP process.</p> <p>Operations prices are typically estimated prior to the facility being designed or commissioned. There is not always an operating plant with the same process to use as a basis.</p>	<ul style="list-style-type: none"> – The design, construction and operations are contracted under a single design, build, finance, and operate contract. – Capital expenditures are paid by the owner through per-tonne gate fees. – The owner retains ownership of the facility. – The contractor retains lifecycle risk for the duration of the operations period.

3.1.2 Difficult evaluation process

It is relatively simple to compare municipally-owned and privately-owned facilities on certain important metrics such as net present value (NPV) and GHG emissions reductions performance; however, there are certain aspects of the two ownership models that are not easily compared. For example, construction material quality and maintenance plans are important factors in evaluating a municipally-owned facility as it is imperative to have municipal assets in good condition at the end of a contract. For a privately-owned facility, material quality and maintenance plans are only important to the point that performance requirements are maintained.

A good analogy would be choosing between a custom-built home and a rental apartment. It is difficult to compare quality or value for money because the requirements and expectations are different. And it's difficult to compare on price because one option is pure cost over the short term.

A procurement process that considers both municipal and private ownership will create a situation where projects that do not easily compare must be evaluated and scored using the same metrics, impacting the ability of the Regional Partners to properly compare and evaluate proposals.

3.1.3 Cost and effort to participate

The cost and level of effort required to participate in a procurement process for a municipally-owned facility are significantly greater than that for procuring a processing service provider where the service provider has an existing facility with sufficient capacity. This creates an unlevel playing field among potential participants in the procurement process and will discourage potential participants from participating under a project delivery method for a municipally-owned facility.

3.1.4 Risk in participation

Potential participants in the procurement process will only participate if their perceived chance of winning is great enough. By opening up the procurement process to both municipally- and privately-owned project delivery methods, the perceived chance of winning will be lowered for all parties, but especially for potential participants delivering a municipally-owned facility. The perception in the Ontario market is that the procurement of a municipally-owned organics facility may not be able to compete with merchant capacity processors.

A procurement process that considers both municipal and private ownership will create a situation where interest is very low for potential participants for delivering a municipally-owned facility.

3.2 Recent experience in other jurisdictions

Table 3.2 summarizes a selection of recent projects to highlight the variety of project delivery models that have been employed by Canadian municipalities to construct organics processing facilities. There is no one clear preference for procuring organics processing capacity.

Table 3.2 Summary of recent projects

Municipality	Project delivery model
Regional Municipality of York (York)	<p>York has an RFP out, released June 7, 2021, and closing in November 2021, for processing their organic waste using merchant capacity (i.e., service provider model). Some details of the RFP are as follows:</p> <ul style="list-style-type: none"> – The Region will award one contract for 140,000 tonnes per year or two separate contracts for 70,000 tonnes per year. – The contracts will have a 20-year term. – The facilities can be new or existing. – The facilities must be within 200 km of the Region of York’s transfer stations. – The chosen processing technology is anaerobic digestion (wet or dry). <p>The possibility of two contracts lowers the risk of potential service interruptions. The long contract term length creates a more level playing field for respondents that need to expand, develop a new facility, or implement new technology such as biogas upgrading.</p> <p>To keep environmental stewardship as part of the procurement process, a comprehensive greenhouse gas (GHG) model is included in the RFP both for scoring and operating purposes. 25% of the scoring in the RFP is based on the respondents’ GHG emissions score based on the model, and if the GHG emissions guarantee (also based on the GHG model) is not met then the balance of GHG emissions will be offset by the purchase of renewable gas certificates by the contractor.</p>

Municipality	Project delivery model
Halifax Regional Municipality (HRM)	HRM utilized a technology-neutral DBOOT project delivery approach to procure their new composting facility. The project is in the design phase with some early civil works being completed. The technology options that were permitted in the RFP and contract were composting, anaerobic digestion, and on-farm anaerobic digestion. The technical specifications required the majority of the customization to facilitate this; however, some accommodations in the legal and financial aspects were also required. This flexibility added some complexity but, in the end, HRM received multiple compliant proposals.
City of Toronto	<p>The City of Toronto uses a combination of service contracts and their owned facilities to process their organic waste. Their Dufferin and Disco Road facilities were delivered using a DBO approach with a 3+1+1-year operating term. With this shorter operating term, the City of Toronto decided to retain equipment lifecycle costs and risk. The City of Toronto works with the DBO contractor to identify which equipment needs major refurbishment and replacement and when. The City of Toronto initiates separate capital projects to complete the replacements in cooperation with the contractor.</p> <p>The third-party service contractors are used to manage the fluctuations and peaks inflows of materials as the two owned facilities do not have enough capacity to process all of the City of Toronto's organic waste.</p> <p>The City of Toronto is planning a third owned facility and is still deciding how to implement the project.</p>
Regional Municipality of Peel (Peel)	<p>Peel initiated a procurement using a DBO approach for a large anaerobic digestion facility in 2017. Aspects that were unique in the Peel contract included the fact that the lifecycle risk was on the contractor (which is different than Toronto) and the increased amount of security against performance. This latter element resulted in the project morphing into a quasi DBF-O model (similar to the Calgary composting facility) where the construction was debt-financed through third parties, but the capital expenditures were all paid out by the end of construction.</p> <p>Ultimately this project was cancelled by Peel Council in an in-camera session. No reason was provided for the cancellation, but high bid prices were a contributing factor.</p>

3.2.1 Potential proponent perspective

Within the community of developers of organic waste processing infrastructure, there is a concern with the increasing cost to participate in the RFPs for DBO-style projects (more design required to mitigate risks) and the trend of increased risk being transferred to contractors. From the perspective of potential proponents, the risks outweighed the potential revenue. Generally, we are seeing an increased interest and preference by contractors for project delivery models that are more collaborative such as progressive design and integrated project delivery. This trend is resulting in the potential pool of good bidders shrinking for future DBO or DBFO type approaches.

3.3 Mitigation strategies

The following are potential strategies to mitigate the issues presented in section 3.1:

3.3.1 Determine the facility ownership

In order to receive a greater number of bids and the most competitive bids, it would be advisable to select either a municipally-owned or privately-owned facility. Table 3.3 summarizes the pros and cons of municipally-owned and privately-owned organics processing facilities.

Table 3.3 *Pros and cons of municipally-owned and privately-owned organics processing facility*

Ownership type	Pros	Cons
Municipally-owned	<ul style="list-style-type: none"> - More control over the process, including odour and nuisance risk - More access to process information - More control over future pricing - Ability to forecast future pricing and capacity availability 	<ul style="list-style-type: none"> - Typically, higher costs, especially upfront - More facility development risk taken on
Privately-owned	<ul style="list-style-type: none"> - Typically, lower cost, especially upfront - Increases competition in the organics processing market - More facility development risk is transferred to the private industry - Simpler procurement process 	<ul style="list-style-type: none"> - Less control over the process, including odour and nuisance risk - Less access to process information - Development costs can be passed on through tip fees without the benefit of ownership - Potential exposure to service disruptions that are out of the Regional Partners' control - Less control over future pricing and forecasting capacity availability - Tipping fees set by the private industry

3.3.2 Select a collaborative project delivery model

As outlined in this report, there is an increased interest and preference by contractors for project delivery models that are more collaborative. Contractors have a concern with the increasing cost to participate in the RFPs for DBO-style projects (more design required to mitigate risks) and the trend of increased risk being transferred to contractors.

There are various types of collaborative project delivery models. Generally, collaborative project delivery gets the contractor involved at an early stage of project development. After a certain level of project development, but before final design, the contractor will commit to an upset limit cost and schedule for final design and construction. This collaborative approach alleviates contractor risk by getting the contractor involved in the design and other pre-construction activities before they commit to price and schedule.

3.3.3 Provide an honorarium

As outlined in this report, an open procurement will create an unlevel playing field and likely result in only privately-owned bids. If the Regional Partners are interested in seeing both municipally-owned and privately-owned proposals, potential mitigation is an honorarium to teams completing the proposals for a municipally-owned facility option to level the playing field. It will be difficult to determine the appropriate amount for this honorarium for each proposal type, however it is anticipated that a sum greater than \$1 million per compliant bid will be required to be effective.

It should be noted that this mitigation strategy only addresses the issue of cost to participate and does nothing to address the other risks outlined in this report.

3.3.4 Enter into short-term service delivery contracts in the interim

It is common for municipalities to begin processing their organic waste through service delivery contracts before procuring a municipally-owned facility. This allows a municipality to gain experience with their collection program and gain knowledge regarding organic waste amounts and composition before procuring a processing

facility. It is further noted that interim waste service delivery contracts would be necessary to provide capacity during the development of a municipally-owned facility.

This strategy does not mitigate risks associated with facility procurements but provides additional time and experience for the Regional Partners to consider the various options available for delivering a project to process the County's organic waste.

4. Conclusions

It is clear that having an open procurement model, while possible, carries a host of risks that will limit the quantity and possibly quality of responses received. It is very likely that only service delivery models will be presented. Given the magnitude of this project, and the timelines established, it is advisable to select one or more mitigating strategies. If there is a preference for municipally-owned or privately-owned models, that should be made clear prior to finalizing the RFQ. If there is no preference, given the magnitude of this project, and the timelines established, it is advisable to select one or more other mitigating strategies.

5. Recommendations

Information is fundamental to good decision-making because data allows decision makers to accurately assess risks and decide on the best mitigation strategies. At this juncture, there are more questions than answers about a long-term organics solution in the Essex-Windsor region. Municipalities are being asked if they will participate in a project and program that has not been well defined. GHD is recommending that EWSWA and its jurisdictional municipalities pause and reflect on what they need their organics program to do for their residents.

A key question is on environmental attributes. Typically, if EWSWA enters into a service contract the environmental attributes will be lost. EWSWA may be able to negotiate retention of the attributes so that they can be used to help Essex municipalities and the County with their own net-zero targets; but this is not currently common practice and will be complex to administer, requiring additional effort and cost. Residential food waste is one of the most significant opportunities for renewable energy or gas generation a municipality controls; and being deliberate in capitalizing on that opportunity is critical to achieving your own targets and goals. This includes both climate-related goals as well as financial targets.

Another fundamental aspect to understand and quantify are project and program risks. In order to be able to mitigate risks and minimize risk premiums, it is important to identify and quantify those risks in a systematic way. Project risks should be reviewed and revised regularly as the project or program develops over time.

To buy time to more fully study and plan for a long-term organics management program, GHD recommends that EWSWA move forward with planning for and implementing one or more short-term processing contracts. This will allow the collection program to be developed and provide the data needed to form the basis for future design or procurement. The organics program can be rolled out slowly and phases with data collected from previous phases informing subsequent decisions. To minimize the available capacity risk and ensure that the owner can meet the provincial timeline it would probably be best to implement the organics program and secure capacity as soon as possible.

Pausing on the procurement of an owned asset also allows EWSWA to wait for current market conditions (i.e., supply chain and pricing pressures) to settle and for more experience to be gained with collaborative contracting methods for similar infrastructure.

We have outlined an eleven-step roadmap for your consideration. This roadmap was developed based on the following observations and considerations:

- That Essex County municipalities have not yet designed or implemented their organics management programs, including collections and processing, and therefore do not have organics quantity or composition data to help minimize infrastructure procurement risk; that not all municipalities have decided if they are in or out, or to what degree (not all are required to implement a collection program)
- That EWSWA and the municipalities has not decided and agreed which materials are in or out of the collection program
- That EWSWA has not fully assessed cost vs performance requirements vs risk in deciding whether or not to own the processing asset
- That there are still questions of other feedstocks including greenhouse vine waste that should be more fully explored. For the vine waste to be incorporated and diverted from the landfill a number of technical innovations are required first that will require study and testing
- That there are a number of stakeholders and multiple “owners” and building consensus, and a roadmap to partnership will take time for the partnership to be successful; this is not something that should be rushed into
- That, at the moment there is very little data, just projections and objectives, which makes decision making difficult
- That moving forward with a complicated or uncertain procurement is likely to end in a failed procurement and project
- That the underlying premise of the roadmap below is to pause, collect more data to support better decision making by all municipalities; data-driven decision making is the best” risk mitigation strategy
- That putting some distance between the pandemic, and the market and supply chain pressures that have resulted from the pandemic, and a large capital project will save EWSWA and its member municipalities significantly. GHD has seen estimates for a “COVID” construction premium of between 15 and 40 percent

Below is the recommended organics program implementation roadmap (based on data-driven decision-making). It is noted that the roadmap is intended for consideration and planning purposes and is not intended to suggest that work already completed is required to be redone.

Table 5.1 Draft roadmap

Item #	Steps	Description
1	Program governance	<ul style="list-style-type: none"> – For both processing and collections. – This is currently in progress on the processing side. Which lower-tier municipalities will be in and when? – Study if collections continue to be a lower-tier responsibility or are there benefits to shifting this to county level (i.e., EWSWA).
2	Short-term processing contract(s)	<p>Procure short-term processing contracts to cover the first few years of processing needs until decisions are made regarding a long-term solution:</p> <ul style="list-style-type: none"> – Start with market sounding to determine current and future available capacity and types of technology. – Roll-out of collections could be phased over this period starting with one of the municipalities that is required to implement a curb-side collection program (e.g., the City of Windsor) and then other municipalities added over time. – Planning and development for this step in the roadmap should begin early as this is a lengthy process. – Some work from subsequent steps must be completed prior to establishing a processing contract, including the development of a collection program.

Item #	Steps	Description
3	Feedstock composition and forecast study	<ul style="list-style-type: none"> – After governance is decided, update composition and tonnage forecasts from previous studies. – This study will define how much processing is needed and when. This study would be attached to the RFP as background information. – Vines: explore options with Ontario Greenhouse Growers Association to divert this material from the landfill. This work should be completed in parallel to understand potential synergies before an opportunity is lost. – Other feedstock: Identify any other feedstocks EWSWA may want to procure and be responsible for collecting and processing. Wastewater sludges should also be considered further as planning for local wastewater infrastructure expansion and upgrades progresses in parallel; including characterizing this feedstock more fully.
4	Project risk matrix and workshop	<ul style="list-style-type: none"> – Complete a risk identification and quantification exercise to help inform program and project development decisions; including on the question of owning or not owning a facility.
5	Environmental attributes study	<ul style="list-style-type: none"> – Study to determine what should be done with energy/gas and environmental attributes if attributes can be retained through a merchant plant arrangement. Consult with Enbridge. Consult with processing plants (maybe as part of market sounding noted below).
6	Develop collection program	<p>Complete study and plan for collections program roll-out including:</p> <ul style="list-style-type: none"> – review how rollouts are achieved in other municipalities (e.g., Guelph, York, Peel, etc.). – Consider how EPR will affect collection volumes and programs at the various municipalities. – how will collections be accomplished (e.g., curb-side collection or depot drop-off) – what technologies (e.g., RFID, split collection vehicles, bins, bags, automated collection, etc.) should be considered for a new program? – Consider potential collection schedule and routing – Consider timing relative to current collections contracts in the various municipalities – Develop implementation plans based on the above: <ul style="list-style-type: none"> • Public communication plan • Collection routing plan • Fleet management strategy • Implementation timeline <p>This will provide a clear picture of how much processing is needed and when. Planning and development for this step in the roadmap should begin early as this is a lengthy process.</p>
7	Essex landfill gas study	<ul style="list-style-type: none"> – Confirm landfill gas forecast and composition. – Confirm landfill gas ownership and determine strategic partners. – Confirm pipeline location with Enbridge.
8	Building consensus and roadmap with municipalities	<ul style="list-style-type: none"> – To ensure a coordinated and cohesive county-wide rollout of an organics management program that includes both collection and processing, will require support for local municipal staff from the Technical Working Group and EWSWA – Communication with the municipalities should be done early and throughout the process. Each municipality will have their own financial and other planning considerations to address, which may be a lengthy process.

Item #	Steps	Description
9	Other studies: <ul style="list-style-type: none"> - Form of contract - Siting 	<ul style="list-style-type: none"> - Following completion of other studies and roll-out of collections program and short-term processing contracts. - Update of siting and form of contract work done as previous studies. An update will be required as it is anticipated that much will change in the years following the pandemic and as other provincial policies change.
10	Final report on long-term processing solution	Compile studies into a final report and recommendation to the EWSWA board for long-term processing solutions.
11	Procure long-term processing solution	Issue appropriate RFP for selected long-term processing solution.

Please do not hesitate to contact us, should you have any questions about the contents of this technical memorandum

Regards,

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**City Council
Decision
Monday, October 19, 2020**

Moved by: Councillor Holt
Seconded by: Councillor Sleiman

Decision Number: CR506/2020

- I. That **APPROVAL BE GIVEN** to enter into an agreement with GHD Limited for the provisions of consulting services related to Organics and Biosolids waste management and processing in the amount of \$132,500 plus applicable taxes and that the Chief Administrative Officer and the City Clerk **BE AUTHORIZED** to sign the agreement with GHD Limited, satisfactory in form to the City Solicitor, in technical content to the City Engineer and in financial content to the City Treasurer; and,
- II. That Council **APPROVE** the funding for preliminary consulting services and internal project management with the balance being applied to additional future study costs from the following funding sources:
 - a) That \$100,000 in 2021 funding, previously approved in principle in the 2020 8-year Capital Plan, **BE PRECOMMITTED** to project 7184005 (Food and Organic Waste Study) from project OPS-006-19 (Food and Organic Waste Collection and Treatment); and,
 - b) That \$100,000 **BE TRANSFERRED** from the Landfill #3 Perpetual Care Reserve (account #1790) to project 7184005 (OPS-006-19); and,
 - c) That the balance in project 7161018 (Bio-Solids Disposal Strategies) **BE TRANSFERRED** to project 7184005 (OPS-006-19) and project 7161018 **BE CLOSED**; and,
- III. That Council **DIRECT** Administration to pursue funding from the Essex Windsor Solid Waste Authority to partially offset the costs of the consulting services related to Organics and Biosolids waste management and processing.

Carried.



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Deputy City Clerk/Senior Manager of Council Services

October 23, 2020

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Essex-Windsor Solid Waste Authority Peer Review of Organics and Biosolids Waste Management & Processing Consulting Report and Analysis of the Impact Organic Diversion from the Regional Landfill



PRESENTED TO



**Essex-Windsor
Solid Waste Authority**

SEPTEMBER 29, 2021

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APPENDIX SECTIONS

Appendix A Tetra Tech’s Limitations on the Use of This Document

ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
Authority	Essex-Windsor Solid Waste Authority
BOOT	Build-Own-Operate-Transfer
City	City of Windsor
EWSWA	Essex-Windsor Solid Waste Authority
ICI	Institutional, commercial, and (light) industrial
Landfill	Essex-Windsor Regional Landfill
LFG	Landfill gas
MECP	Ministry of the Environment, Conservation and Parks
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OPPS	Organics Provincial Policy Statement
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
RFP	Request for Proposal
RNG	Renewable natural gas
SSO	Source separated organics
Tetra Tech	Tetra Tech Canada Inc.

LIMITATIONS OF REPORT

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1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Essex-Windsor Solid Waste Authority (the Authority or EWSWA) for a qualified Environmental Engineering Consultant specializing in Organic Waste Management to perform a peer review. The peer review included a Scientific/Technical review and Financial analysis of GHD's 'Organics and Biosolids Waste Management and Processing Project, Phase 1 – Consulting and Project Direction Analysis and Recommendations' dated April 28, 2021. GHD's report assesses compliance with the Organics Provincial Policy Statement (OPPS) through a regional approach to organics and biosolids waste management and processing in Essex County.

The technical review included:

- An assessment of the completeness of technologies evaluated related to the number of available technologies and depth of analysis of each technology;
- A review of each technology and its compliance to the regulatory environment and identify any uncertainty; and
- An assessment of the consultant's evaluation and report and identify other relevant considerations that the Authority should consider.

The financial analysis included:

- An evaluation of the estimated feedstock volumes, capital, and operating expenditures, end market revenues, and renewable energy options;
- A review of the potential cost to the City of Windsor (City) and the seven County of Essex Municipalities; and
- An evaluation of the Authority's 15-year financial forecast – identify revenue impacts resulting from organic waste diversion activities from the Essex Windsor Regional Landfill.

2.0 PEER REVIEW METHODOLOGY

This section describes the methodology conducted to complete this study. Based on discussions with the EWSWA, the peer review included:

- Reviewing GHD's work related to the organic processing; and
- Reviewing three potential innovative technology proponents.
 - i) Gasification-like (Bradam.)
 - ii) Biodryer (AMICO and Wright).
 - iii) Co-Digestion with wastewater sludge (Synagro and StormFisher).

All three proponents have shown significant interest and have approached EWSWA, the City of Windsor, and council members in the Essex-Windsor area. Tetra Tech did not explicitly review any specific technologies/proponents beyond the aforementioned three proponents but have reviewed organic diversion processes. As such, Tetra Tech believes that GHD has included state of the art organic solutions that are commonly used in the marketplace.

Additionally, Tetra Tech performed an independent financial analysis of GHD's work that included a proforma. This high-level proforma analysis was conducted to examine capital and operating expenditures for an organics waste processing facility (e.g., composting and anaerobic digestion) for the City and the 7 surrounding municipalities.

Various documents were received from EWSWA and proponents as summarized:

- EWSWA documents
 - EWSWA's 15-Year Forecast from 2021 to 2035 (prepared in 2020).
 - EWSWA's 2021 Operational Plan and Budget.
 - 2020 Waste Data (e.g., disposal and diverted materials) by Municipalities in the Essex County area.
 - Project Charter Organics and Biosolids – Phase 1.
- GHD Documents
 - Organics Waste Management – Report 1 (GHD 2021).
 - Organics Waste Management – Report 2 (GHD 2021).
 - Cost Impact of Organic Waste System (GHD 2021) and its accompanying calculations spreadsheet.
 - Organic Waste Processing in Ontario (GHD Presentation 2021).
- Bradam
 - Bradam Energies' Carbon Energy Recovery System Review.
 - Introductory Letter from Bradam.
- AMICO and Wright
 - Biodryer WTE-Virtual Tour Presentation (AMICO presentation 2021).
 - Biodryer WTE-Windsor Essex Presentation (AMICO presentation 2021).
 - Biodryer Organic Waste Process System – Concurrent Recovery of Nutrients.
 - Letter to J. Wright from the Ministry of the Environment Conservation and Parks (2021).
 - Wood Ash Admixture to Organic Waste Improves Compost and Its Performance (Journal article in 2008).
- Synagro and StormFisher
 - Organics Waste Management and Processing – Proposed Development Approach (Synagro – StormFisher).

Furthermore, Tetra Tech has had various meetings with technology proponents and government regulatory agencies as follows:

- Bradam
 - Friday, August 6, 2021 met with Bradam representatives to discuss the technology, its process, and relevant regulatory requirements.

- AMICO and Wright technology
 - Wednesday, August 11, 2021 met with AMICO to have a high-level discussion about the project.
 - Monday, August 16, 2021 met with AMICO and their consultant to discuss the Wright technology, the proposed process, and relevant regulatory requirements.
- Synagro and StormFisher
 - Wednesday, September 1, 2021 met with Synagro and StormFisher representatives to discuss proposed technology, expansion/update plans to the wastewater treatment plant, and relevant regulatory requirements.
- Regulatory agencies
 - Tuesday, August 24, 2021 met with A. Durrani from the Ministry of the Environment, Conservation and Parks (MECP) to discuss various organic diversion technologies and regulatory requirements.
 - Tuesday, August 24, 2021 met with P. Dick from Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to discuss the current and future regulations as well as discussion of the various technologies.

3.0 TECHNICAL REVIEW

This section describes the technical review of GHD's work related to the organic processing and a comprehensive review of three potential technology proponents: i) Bradam; ii) AMICO and Wright; and iii) Synagro and StormFisher. All three proponents have shown significant interest and have approached EWSWA, the City of Windsor, and council members in the Essex-Windsor area.

The technical review was conducted to ensure that the information aligned with EWSWA's goals and priorities. The review considered the impending requirement of the *Waste Free Ontario Act* to implement a mandated curbside collection of food and organic waste by 2025. Furthermore, the review included an assessment of technical compliance with the *Waste Free Ontario Act*, the *Ontario Food and Organic Waste Policy Statement and Framework*, and in consultation with the Ministry of the Environment, Conservation and Parks.

Compliance with the following applicable environmental regulatory requirements were examined:

- Ontario *Environmental Protection Act*
 - O. Reg. 419/05 (emissions to air such as odours and noise).
 - Reg. 347 (solid waste management).
- Ontario Water Resources Act, regarding direct discharges to receiving water bodies, municipal stormwater and sanitary systems.
- As well as conforming to the City and County energy reduction policy and targets.

3.1 Organic and Biosolids Waste Management and Processing Study

GHD was retained by the City of Windsor (City) to conduct a study on the organic and biosolids waste management and processing in Essex-Windsor. Specifically, the purpose of the study was to develop and implement a regional plan to comply with Ontario's Food and Organic Waste Policy Statement that will require some municipalities in

Essex-Windsor to achieve specific food and organic waste reduction and recovery target rates by 2025 as follows (GHD 2021): All technologies reviewed by GHD are able to achieve the regional goals.

- City of Windsor: provide curbside collection of food and organic waste and achieve target reduction rate of 70 percent for single family residential buildings.
- Tecumseh, Amherstburg, LaSalle, and Leamington: provide collection (not necessarily curbside collection), of food and organic waste to single family dwellings and achieve a target reduction rate of 50 percent.
- Kingsville, Essex, and Lakeshore: not required to achieve specific reduction rate for food and organic waste; this may change as the population and population density increases in the future or if the provincial government amends the policy.
- Additionally, multi-residential buildings and some institutional, commercial, and industrial (ICI) establishments are mandated to achieve 50 percent diversion of organics. Presently, this is not a responsibility of the EWSWA.

The project also considered the inclusion of wastewater sludge produced from wastewater treatment and landfill gas produced at the Essex-Windsor Regional Landfill.

According to GHD (2021), the regional plan was “developed in a collaborative and consultative manner with participation and input from the Regional Partners and County municipalities through regular technical meetings and facilitated virtual workshops utilizing digital collaboration tools to engage with stakeholders effectively”. Through a series of workshops, the GHD project team developed various criteria and weighted them accordingly. A list of 14 potential pathways/options were developed as summarized in Table 3-1. These options were later shortlisted down to six preferred options. The options included both private and municipal sites.

Table 3-1: List of 14 Potential Organic Processing Pathways as Prepared by GHD

Code	Pathway/Option	Feedstock	Location	Facility Type
SC-1	Service contract for a third-party processing facility. Technology to be determined by the service provider.	Single family residential source separated organics (SSO) from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington	TBD by provider	TBD by provider
SC-2	Service contract for a third-party processing facility. Technology to be determined by the service provider.	All 8 County municipalities	TBD by provider	TBD by provider
NS-C-1	Contractor builds, owns, and operates a compost facility.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington.	Not specified	Compost Facility
NS-C-2	Contractor builds, owns, and operates a compost facility.	All 8 County municipalities	Not specified	Compost Facility
NS-AD-1	Contractor builds, owns, and operates an anaerobic digestion facility.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington.	Not specified	Anaerobic Digestion Facility
NS-AD-2	Contractor builds, owns, and operates an anaerobic digestion facility.	All 8 County municipalities	Not specified	Anaerobic Digestion Facility
LF-C-1	Development of a compost facility on lands adjacent to the landfill.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington.	Adjacent to EWR Landfill	Compost Facility

Code	Pathway/Option	Feedstock	Location	Facility Type
LF-C-2	Development of a compost facility on lands adjacent to the landfill	SSO from all eight County municipalities and capacity to process additional ICI waste.	Adjacent to EWR Landfill	Compost Facility
LF-AD-1	Development of an anaerobic digestion facility on lands adjacent to the landfill.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington and utilization of the landfill gas with the biogas generated from the food waste.	Adjacent to EWR Landfill	Anaerobic Digestion Facility
LF-AD-2	Development of an anaerobic digestion facility on lands adjacent to the landfill.	SSO from all eight County municipalities and capacity to process additional ICI waste and utilization of the landfill gas with the biogas generated from the food waste.	Adjacent to EWR Landfill	Anaerobic Digestion Facility
TS-AD-1	Development of an anaerobic digestion facility on unutilized land at Transfer Station #1.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington.	Unutilized land at Transfer Station #1	Anaerobic Digestion Facility
TS-AD-2	Development of an anaerobic digestion facility on unutilized land at Transfer Station #1.	SSO from all eight County municipalities and capacity to process additional ICI waste	Unutilized land at Transfer Station #1	Anaerobic Digestion Facility
WBPF-AD-1	Development of an anaerobic digestion facility adjacent to the Windsor Biosolids Processing Facility.	SSO from Windsor, Tecumseh, Amherstburg, LaSalle and Leamington. Additional biosolids processing capacity	Adjacent to the Windsor Biosolids Processing Facility and the Lou Romano Water Reclamation Plant	Co-Digestion
WBPF-AD-2	Development of an anaerobic digestion facility adjacent to the Windsor Biosolids Processing Facility.	SSO from all eight County municipalities and capacity to process additional ICI waste Additional biosolids processing capacity	Adjacent to the Windsor Biosolids Processing Facility and the Lou Romano Water Reclamation Plant	Co-Digestion

3.2 Regional Energy Plan

Essex County has developed a Regional Energy Plan to develop specific sustainability goals for the region. The Regional Energy Plan calls for an increase in community-wide energy efficiency of at least 50% by 2041 over 2019 levels and a 60% reduction in GHG emissions over that same time period. Under the Regional Energy Plan, there are multiple organic waste-related items that are considered for boosting renewable energy production and decreasing GHGs. These include bioenergy from MSW, greenhouses, farms, forestry and landfill gas.

Anaerobic digestion and co-digestion are attractive options for attaining the regional energy plan goals. With those processing scenarios, GHG emissions are greatly reduced due to the decrease of methane escaping directly to the atmosphere (in a landfill or in compost). Further, renewable natural gas can be produced, which displaces the need for some virgin fossil fuel usage.

The City of Windsor also has a similar community energy plan. The key targets of the City's plan are to reduce per capita primary energy use by 40 percent from 2014 by 2041 and to reduce GHG emissions by 40% over the same timeframe. Establishing an organic diversion program in collaboration with neighbouring communities is specifically stated within the plan.

3.3 OPPS

The Ontario Provincial Policy Statement (OPPS) defines specific goals for municipalities within the province, including:

- Reducing the amount of organic waste sent to landfill;
- Recovering resources from organic waste; and
- Develop resource recovery infrastructure.

The target levels (e.g., Diversion percentage) for municipalities is determined based on population. Hence, there are three levels defined by OPPS that are applicable to Essex County municipalities, as follows:

- City of Windsor
 - Provide curbside organics collection to all urban single family homes; and
 - Target rate of 70% diversion from landfill.
- Tecumseh, Amherstburg, LaSalle, and Leamington (TALL)
 - Provide collection infrastructure for all urban single family homes; and
 - Target rate of 50% diversion from landfill.
- Kingsville, Essex, and Lakeshore (KEL)
 - No relevant targets at this time due to small populations.

By launching an SSO program in Essex County with the development of collection and processing infrastructure, these targets are certainly attainable. For developed SSO programs, a diversion rate of 70% is attainable in urban areas across Essex County.

3.4 Proponents

Tetra Tech reviewed three proponents as requested by the EWSWA: i) Bradam, ii) AMICO and Wright; and iii) Synagro and StormFisher. Table 3-2 provides an overview of the proponents recommended processing capacity, suitable feedstocks, and end markets.

Table 3-2: Summary of Proponents Reviewed

Proponents	Technology Type	Processing capacity	Suitable feedstocks	End markets	OPPS Considerations
Bradam	<ul style="list-style-type: none"> Similar to gasification 	<ul style="list-style-type: none"> Each process line has a processing capacity of 100,000 metric tonnes of residuals at ≈30% moisture content 	<ul style="list-style-type: none"> Food waste Wastewater sludge 	<ul style="list-style-type: none"> Produces renewable natural gas and hydrogen gas 	<ul style="list-style-type: none"> May satisfy the OPPS requirements. However, additional information (including potential GHG reductions) may be required before approval can be determined
AMICO and Wright	<ul style="list-style-type: none"> Biodryer followed by aerobic composting and/or anaerobic digestion 	<ul style="list-style-type: none"> Modular system with varying process lines 50 to 1,000+ tonnes per day 	<ul style="list-style-type: none"> Mostly for wastewater sludge Additional pre-process is needed to process food waste 	<ul style="list-style-type: none"> Adaptive to produce soil amendment and energy 	<ul style="list-style-type: none"> Biofuel will most likely not conform to OPPS.
Synagro and StormFisher	<ul style="list-style-type: none"> Co-digestion 	<ul style="list-style-type: none"> Expansion at the existing Windsor Biosolids Processing Facility 	<ul style="list-style-type: none"> Organic waste Wastewater sludge (biosolids from Lou Romano and Litter River) 	<ul style="list-style-type: none"> Soil amendment and compost Increased biogas production from existing facility 	<ul style="list-style-type: none"> Could satisfy the OPPS requirements.

3.4.1 Bradam

The Bradam system (Table 3-1) uses a rotary kiln to transform the carbonaceous feedstock to product renewable natural gas and renewable hydrogen. The Bradam system has been conceptually designed to process various organic feedstock such as food waste, wastewater sludge, animal manure, and agricultural waste. According to Bradam, the system is modular and each process line includes two rotary calciners, a syngas clean-up, and a bio-methanation system. Each process line has a processing capacity of 100,000 metric tonnes of residuals. “All modules in the system are used commercially, guaranteed by the manufacturers and further backed by a 15 year, €100+ million warranty insurance policy from Munich Re guaranteeing the quality and quantity of energy produced.”

Under the current OPPS, the proposed process may satisfy the OPPS requirements. However, additional information (including potential GHG reductions) is required before approval can be determined

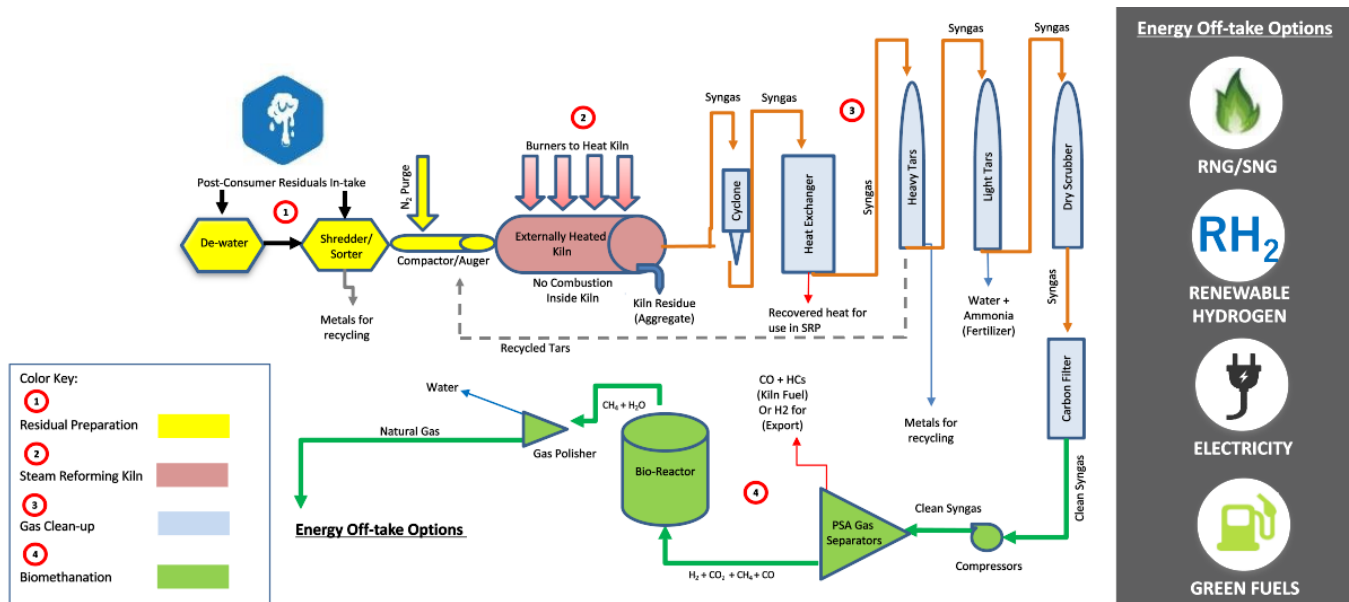


Figure 3-1: Bradam's process flow

3.4.2 AMICO and Wright

AMICO has recommended the use of the Wright technology. The Wright technology is a biodryer technology that has two zones: i) heating zone and ii) drying zone. As shown on Figure 3-2, transporter trays are pushed into position using a hydraulic ram which advances the trays through the in-vessel tunnel. Organic substrates are moved through the in-vessel tunnel with the advancing trays as a continuous flow through process. At the end of the tunnel, processed organics are removed from the tray and the last tray in the tunnel is pushed out the exit. The exiting tray is then placed on a wheeled dolly and moved to a tray holder until it can be re-introduced into the in-vessel tunnel. Once processed the material can either be further composted or processed to produce biofuel and subsequently produce energy (Figure 3-3).

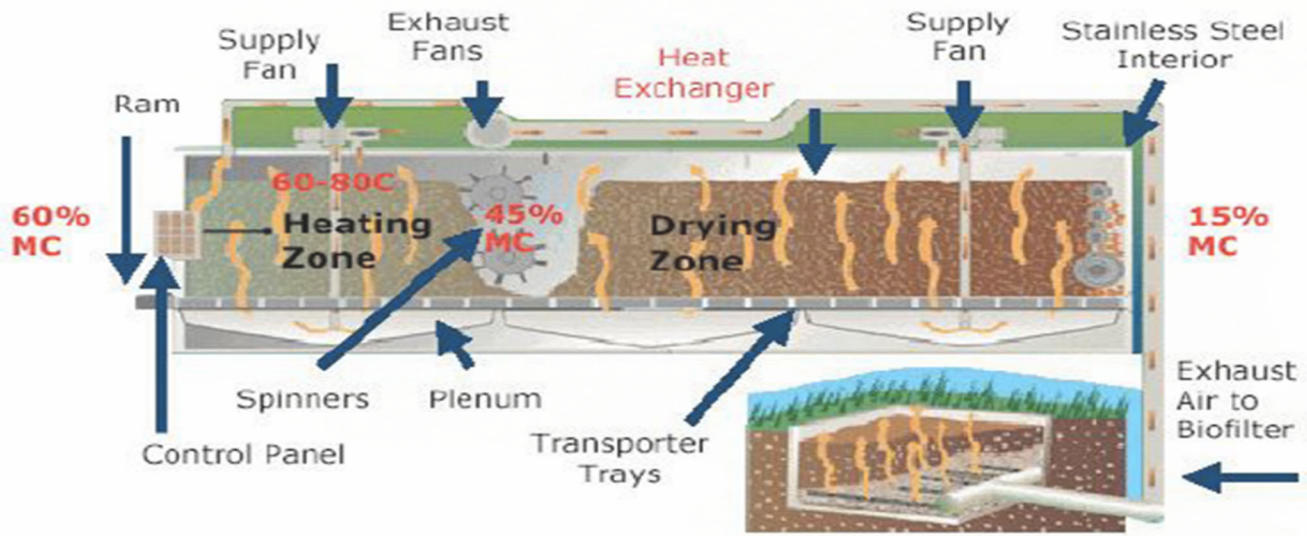


Figure 3-2: Process of the Wright Technology

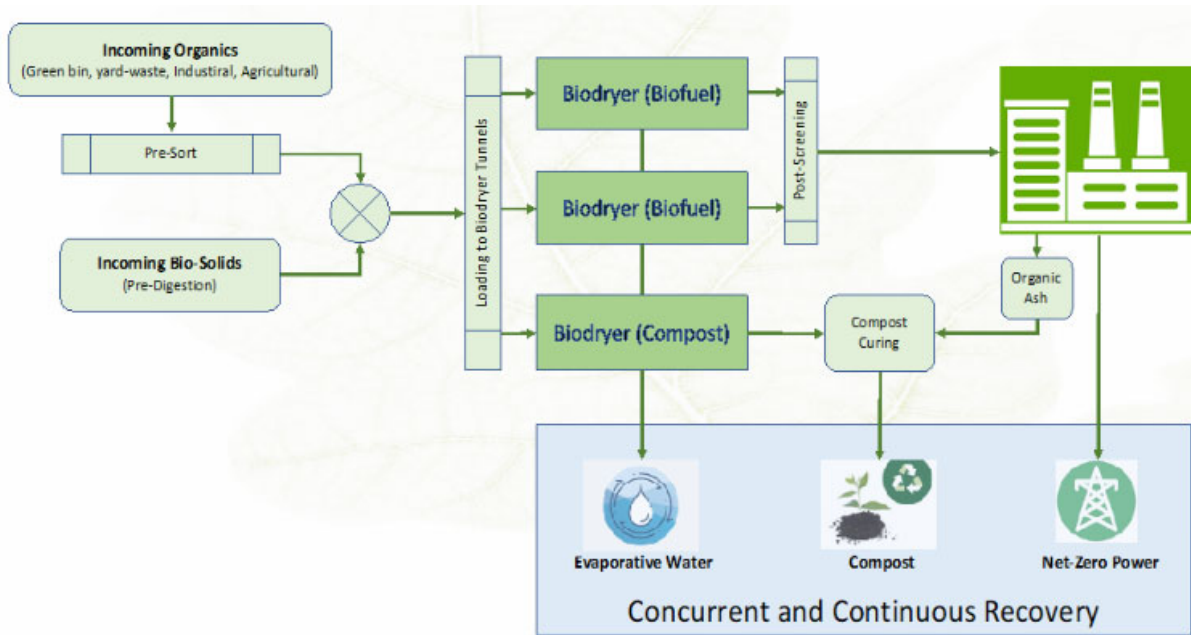


Figure 3-3: AMICO and Wright's Proposed Process

Under the current OPPS, the proposed process could satisfy the OPPS requirements for the composting side, but may not qualify for the biofuel stream.

3.4.3 Synagro and StormFisher

Synagro and StormFisher have partnered on a proposed facility that includes the sludge from wastewater treatment along with food and organic waste. The proposed facility (Figure 3-4) would include an enclosed receiving facility (odour controlled), pre-processing, intermediate storage and blending facilities, anaerobic digestion, residue processing and disposal, biogas cleaning, dewatering systems, and digestate treatment. These systems would likely be an expansion from the existing Windsor Biosolids Processing Facility.

The intent of incorporating wastewater sludge would be to complement the following:

- Wastewater capital planning for the City;
- Recommendations of the City’s Integrated Site Energy Master Plan;
- Potential future wastewater sludge management needs of other Essex County municipalities; and
- The Organics Provincial Policy Statement, which encourages municipalities to plan for the management and beneficial use of biosolids.

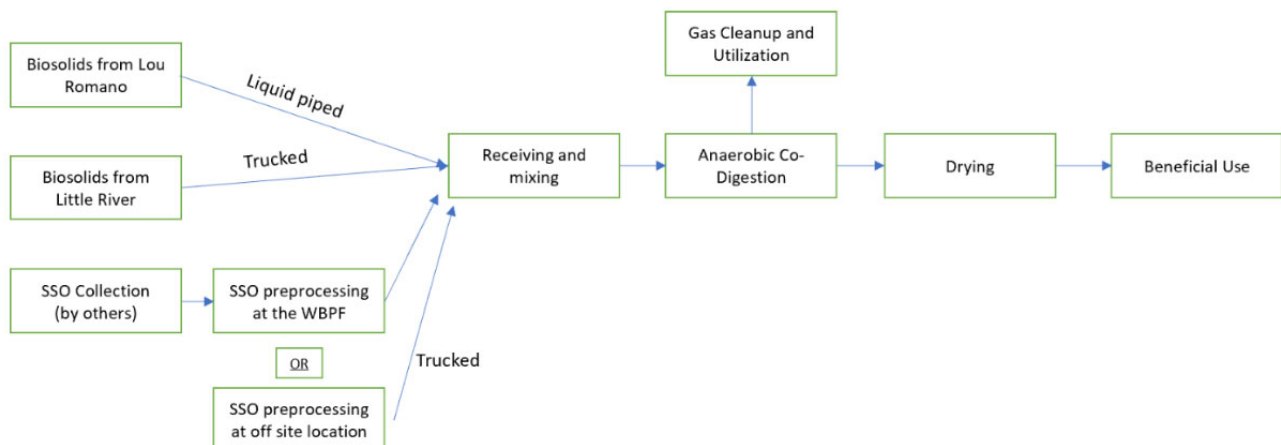


Figure 3-4: Synagro and StormFisher’s Proposed Process Flow

Under the current OPPS, the proposed process could satisfy the OPPS requirements.

3.5 Recommendations

Overall, GHD’s approach in consultation with the City of Windsor, EWSWA, and Essex County was sound and reasonable given the complexity of the study. The approach utilized available industry information and a facilitated multi-criteria decision-making process that involved various key stakeholders. This approach would allow “buy in” from various key partners to participating and to provide inputs in the decision-making process.

Based on available information, the 14 potential options outlined were high level and general. The 14 options do not specify any particular technology vendor but focus on general organic diversion categories (i.e., composting, anaerobic digestion, and co-digestion with wastewater sludge). Based on available information, all diversion categories would satisfy and adhere to the OPPS policy. The policy primarily focuses on organic waste diversion through composting, anaerobic digestion, and co-digestion means. Currently, the policy does not focus and allow

for innovative and emerging technologies such as waste-to-energy and biofuels. However, both OMAFRA and MECP may not be opposed to technologies such as waste-to-energy and may shift the regulations to allow for such innovative technologies.

Another pathway EWSWA should consider is utilizing surrounding on-farm digestors. OMAFRA recognizes on-farm anaerobic digestion facilities under O. Reg. 267/03 and has “some exemptions for the need of a REA or ECA.” On-farm digestors typically use agricultural sources such as crops and dairy products. Farm Digestors should only be used if they are brokered by a consolidated company. This company would ensure that their application would be in conformance to regulations and policy. This would put the “company” responsible for risk. This pathway will still be a regional approach for the Essex-Windsor county but would be a decentralized approach. Multiple on-farm digestors would be needed and a contract manager from EWSWA would be required. While maintaining contracts between various on-farm digestors is needed, this pathway allows for some flexibility as the organic diversion facility will not depend on one central facility.

Another consideration for EWSWA is to have a specific Request for Proposal for the technology vendors. As recommended by GHD, the request for proposal could lay out all the requirements such as financial components, meeting regulatory and specific policies. For example, with respect to the scoring, 50% could be technical and process capacity, 25% related to meeting EWSWA’s energy targets and sustainability goals, and 25% related to greenhouse gas reductions.

Furthermore, Table 3-3 provides a high-level summary of potential opportunities and risks related to the three proponents reviewed.

Table 3-3: High Summary of Potential Opportunities and Risks for Each Proponent Reviewed

Proponents	Opportunities	Risks
Bradam	<ul style="list-style-type: none"> Destroys Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), pathogenic, hormones etc. Has investors in place. 	<ul style="list-style-type: none"> No currently operating facility. Complex system with lots of multiple components - operations and regulatory compliance. <ul style="list-style-type: none"> A better understanding of timelines is needed. Getting a permit from OMAFRA may be quicker than getting a permit from MECP. The rules are more simple and the applications are typically less sophisticated. They also may be less expensive. Bradam mentioned the tar may be processed. If so, the facility may be classified as a hazardous waste facility and would need additional permits. While the MECP would not officially commit to any definitive comment, they indicated that they could be open to using the “ash” as a nutrient additive. Under the current OPPS, the proposed process may not satisfy the OPPS requirements. However, additional information is required before approval can be determined
AMICO and Wright	<ul style="list-style-type: none"> Modular system allowing the system to be scalable to increase processing capacity. Adaptive to produce soil amendment and energy. 	<ul style="list-style-type: none"> More focused on sludge treatment and the current proposed technology is a pre-treatment for a waste-to-energy facility. <ul style="list-style-type: none"> For SSO, more pre-treatment is required such as debagging, mixing with sludge, and material separation. Potentially more expensive compared to aerobic systems. Based on a facility in Whistler, BC. <ul style="list-style-type: none"> This facility uses Wright digestors that are 80 m long and is operational for 15 years.

		<ul style="list-style-type: none"> - Primary feedstock is biosolids mixed with wood waste. - Rel. high maintenance/capital replacement as transporter trays wear out quickly and replaced often. ▪ Under the current OPPS, the proposed process could satisfy the OPPS requirements if a compost line was included, while the biofuel process line would not satisfy OPPS requirements.
<p>Synagro and StormFisher</p>	<ul style="list-style-type: none"> ▪ Likely to meet diversion targets and energy targets. ▪ Capital improvements of the existing WWTP required for 2029 could potentially be used in co-digestion budget. ▪ Increase biogas production from existing system. ▪ Under the current OPPS, the proposed process could satisfy the OPPS requirements. 	<ul style="list-style-type: none"> ▪ Further analysis needed to determine the current wastewater treatment plant (WWTP) processing capacity as expansion may be required. ▪ Funding allocation between wastewater and solid waste may be challenging as typical models separate between the two areas.

4.0 FINANCIAL ANALYSIS

This section describes the financial review that GHD conducted related to the 14 pathways that were investigated. The financial review included:

- The financial scope of the project includes the evaluation of the estimated feedstock volumes, capital and operating expenditures, end market revenues and renewable energy options.
- A review of the potential cost impact to the City of Windsor and the seven (7) County of Essex Municipalities.
- An evaluation and analysis of the Authority’s 15-year financial forecast to identify the potential impact to revenue streams resulting from the diversion of residential organic material from the Essex Windsor Regional Landfill.

4.1 Evaluation of GHD’s Analysis

This section dissects GHD’s financial analysis of each developed option. Tetra Tech examined the assumptions and unit rates that were utilized in their calculations.

4.1.1 Estimated Feedstock Volumes

Tetra Tech reviewed GHD’s methodology for estimating feedstock volumes for the organic processing scenarios. In general, the methodology and approach were reasonable estimates. To determine feedstock volumes, GHD utilized the most recent EWSWA waste composition data in junction with waste tonnages provided by the EWSWA. Using these estimates, GHD assumed a population growth rate of 1.1% (average of the previous five years) a year in order to project organic waste tonnages into the future. For wastewater sludge volumes, GHD used the most recent reported data¹ and used the same population growth rate.

The organic diversion rates (percentages) that were utilized in GHD’s analysis may be slightly overestimated, resulting in higher feedstock generation numbers. GHD reported a maximum of 56,891 tonnes (2045) to be

¹ Stantec. 2020. (City of Windsor, Integrated Site Energy Master Plan Study Report for Wastewater Treatment Plants.

processed, which is the upper bound of Pathway Option 8, Option 10, Option 12 and Option 14. Feedstocks estimated by GHD are summarized in Table 4-1 in tonnes/year. “Low” represents the lower bound for diversion (55% SF diversion + 15% ICI diversion), “medium” represents a median diversion value (60% SF diversion + 25% ICI diversion) and high represents the upper bound for diversion (65% Sf diversion + 35% ICI diversion).

Table 4-1: Estimated Feedstock in Tonnages per Year

Pathway Option	Low	Medium	High
SC-1	20,393	22,456	24,327
SC-2	27,790	30,600	33,150
NS-C-1	20,393	22,456	24,327
NS-C-2	27,790	30,600	33,150
NS-AD-1	20,393	22,456	24,327
NS-AD-2	27,790	30,600	33,150
LF-C-1	20,393	22,456	24,327
LF-C-2	46,603	51,885	56,891
LF-AD-1	20,393	22,456	24,327
LF-AD-2	46,603	51,885	56,891
TS1-AD-1	20,393	22,456	24,327
TS1-AD-2	46,603	51,885	56,891
WBPF-AD-1	20,393	22,456	24,327
WBPF-AD-2	46,603	51,885	56,891

For single family residences, GHD utilized an expected capture rate range of 55-65% for organic materials, i.e., of the organic material available, 55% to 65% would be collected and diverted into an organic processing facility. This may be challenging as most mature SSO programs typically achieve a capture rate of 50%. For ICI and MF diversion, GHD used a capture rate of 25% to 35%, which is reasonable in Tetra Tech’s opinion.

4.1.2 Capital Costs

Based on Tetra Tech’s high-level analysis and past experience, it is estimated that the capital costs presented by GHD may be underestimated by 20% to 30% and possibly more depending on the proponent. To determine capital costs, GHD elected to calculate using two models: BOOT (build-own-operate-transfer) and capital projects. The cost estimation model utilizes 10% premium and safety factors to account for rapidly rising construction costs. None of the options analyzed account for the cost of land acquisition or repurposing.

BOOT options and transfer stations/expansions were assigned a discount rate of 5.5%. Regional partner-owned capital projects were assigned a 2.2% discount rate. Interest and amortization rates were sourced from Infrastructure Ontario and are reasonable. BOOT projects are difficult to evaluate against pure capital projects as they utilize completely different methodologies of calculating capital cost. With BOOT projects, the capital cost is difficult to calculate as a standalone cost. The actual owner of the building does not control the cost to build and the cost of operations but eventually gains control of the facility after a predetermined timeframe. Hence, Tetra Tech expects that BOOT calculations may not be a true reflection of capital cost and therefore capital costs may actually be higher.

4.1.3 Operating Costs

Tetra Tech performed a high-level review of GHD’s operating cost calculations. For options with operating contractors on owned capital projects, a 20% operating cost markup was incorporated. For BOOT owner operators, this markup was raised to 30%. Expenses that were included in the operating cost calculations include:

- Labour;
- Utilities;
- Inputs (chemicals, bulking agent, etc.);
- Digestate compost management;
- Residuals management; and
- Replacement equipment.

However, the specific details of each category as described above were not provided in GHD’s reports and calculations. Tetra Tech believes that the BOOT model may not be indicative of accurate operating costs. To account for the discrepancy in calculation, GHD incorporated a 20% operating cost markup for operating contractors on owned capital projects and a 25% to 30% markup for BOOT projects. In general, Tetra Tech regards the presented operating costs as reasonable based on the limited information available.

4.1.4 End Market Revenues and Renewable Energy Options

The primary end market that was examined in GHD’s reporting was renewable natural gas (RNG). RNG can be produced from upgraded landfill gas (LFG) or from upgraded biogas that are produced from anaerobic digestion or co-digestion. RNG has several marketable purposes, such as injection into natural gas pipelines, use as vehicle fuel, or combustion in combined heat and power plants. The other end market of note is Class A compost (from the composting options) and digestate (from anaerobic digestion/co-digestion options), which is slightly less marketable.

The assumptions that GHD made to calculate RNG quantities and sale prices are summarized in Table 4-2. In general, these estimates are conservative and reasonable given the provided information. However, the sale price of RNG may fluctuate depending on its intended use and quality. For upgrading to natural gas pipeline quality, the facility may be required to ensure over 96% methane RNG prior to sale. This would require more elaborate and expensive processing capabilities compared to a combined heat and power scenario which does not require a near-pure methane content.

Table 4-2: RNG Parameter Assumptions

Parameter	Low	Medium	High
SF SSO Methane Volume (m ³ methane per wet tonne of feedstock)	57	66	72
ICI/MF SSO Methane Volume (m ³ methane per wet tonne of feedstock)	54	63	78
Methane Capture by AD	90%	95%	99%
LFG Collection and Destruction Efficiency	40%	50%	60%
RNG Sale Price (per GJ)	\$7.50	\$15.00	\$25.00

GHD’s analysis did not account for compost or digestate sales, which could be an additional source of revenue. Tetra Tech estimates that Class A (high quality) compost can be sold at \$15/cubic yard (approximately \$30 tonne) dependent on demand. If anaerobic digestion or co-digestion options are pursued, the compost sale price may be reduced by about 50% due to a decrease in marketability, e.g., lower compost quality. Additionally, with an increase in organics processing, there will be more compost available for municipal uses (landscaping, community gardens,

back fill, etc.) which may have previously required purchase from outside compost providers. For the calculations below, it is assumed that 50% of the available compost is sold at the price stated above.

4.2 Individual Municipal Cost Impacts

Tetra Tech performed a high-level review of the potential cost impacts to the City of Windsor and other 7 County of Essex municipalities. This included GHD’s processing cost calculations and collection costs provided by the EWSWA. GHD previously calculated an expected cost per tonne for municipal SSO for each option. These estimations factor in all operating costs, capital costs and benefits as described by GHD. These values, prepared by GHD, have been presented in Table 4-3 (medium diversion assumed). For ease of comparison, the processing cost of each processing option has been shown graphically on Figure 4-1.

Table 4-3: Municipal SSO Processing Cost per Tonne

Option	Processing Cost per Tonne (Medium Diversion)
SC-1	\$154
SC-2	\$155
NS-C-1	\$78
NS-C-2	\$78
NS-AD-1	\$176
NS-AD-2	\$155
LF-C-1	\$84
LF-C-2	\$82
LF-AD-1	\$64
LF-AD-2	\$161
TS1-AD-1	\$184
TS1-AD-2	\$247
WBPF-AD-1 ¹	\$197
WBPF-AD-2 ¹	\$268

¹ The co-digestion options (WBPF-AD-1 and WBPF-AD-2) do not include the processing costs for wastewater sludge, which is costed separately. Processing costs related to wastewater sludge will be covered by the City of Windsor.

As mentioned in Section 4.1.2., Tetra Tech estimates that the processing costs per tonne presented above are underestimated. However, it is very difficult to estimate CapEX, as the cost of construction materials often fluctuate significantly from month to month.

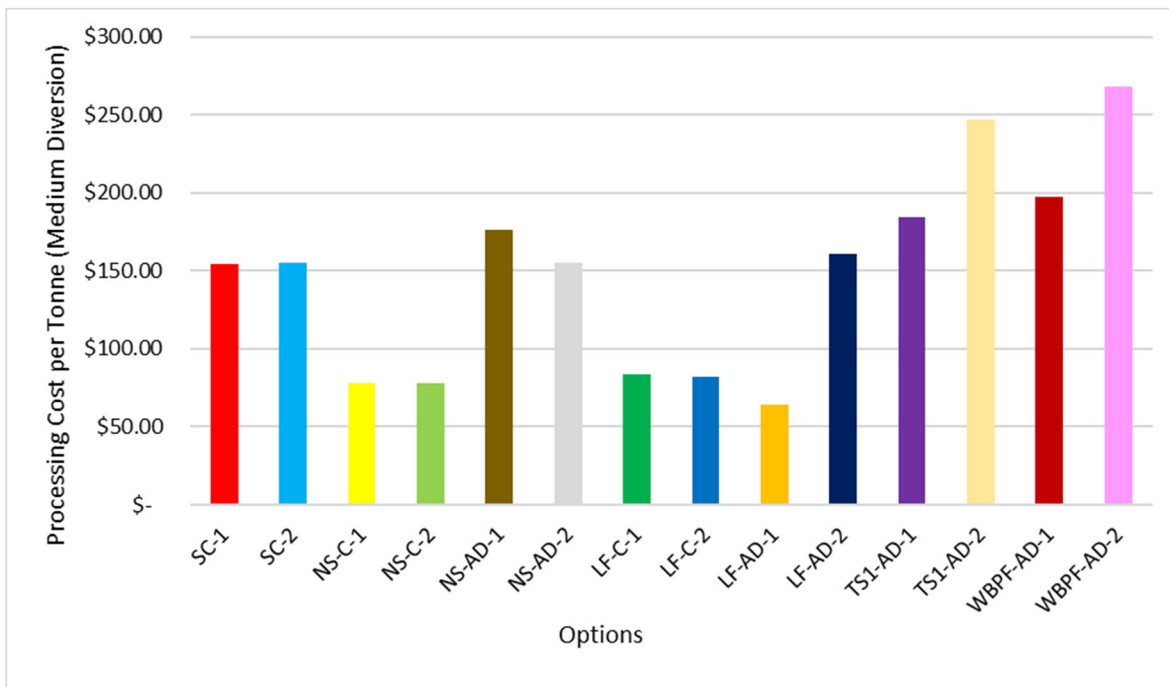


Figure 4-1: Municipal SSO Processing Cost per Tonne

Table 4-4 portrays the estimated processing cost per household in each municipality if LF-AD-2 were the chosen option. The assumptions that were utilized in this calculation include:

- 40% of the current MSW stream is compostable organics
- 60% of the compostable organics would be captured in an SSO program
- Collection and transportation costs are not included
- 2020 processing cost per tonne (LF-AD-2)
- 2020 estimated waste tonnages
- 2016 census data for number of households.

Table 4-4: Processing Cost per Household by Municipality

Municipality	Estimated Waste Tonnage	Estimated Organics Tonnages Diverted	Annual Processing Cost	Number of Households	Organic Processing Cost/Household
Amherstburg	7,251	1,740	\$280,195	8,951	\$31
Essex	5,942	1,426	\$229,605	8,694	\$26
Kingsville	5,690	1,366	\$219,876	8,359	\$26
Lakeshore	11,381	2,731	\$439,751	13,900	\$32
Lasalle	8,158	1,958	\$315,220	10,793	\$29

Municipality	Estimated Waste Tonnage	Estimated Organics Tonnages Diverted	Annual Processing Cost	Number of Households	Organic Processing Cost/Household
Leamington	6,647	1,595	\$256,846	10,726	\$24
Tecumseh	5,892	1,414	\$227,659	8,987	\$25
Windsor	56,199	13,488	\$2,171,514	97,777	\$22
Total	107,160	25,718	\$4,140,665	168,187	-

In GHD’s model, the cost of transfer and transportation were assumed to be part of collection. Estimated waste tonnages (2016-2019 average) and the cost of collection in each municipality (provided by the EWSWA) are presented in Table 4-5. It is assumed that the cost of SSO collection would match the current cost of collection for municipal solid waste. The estimated collection cost per tonne, prepared by Tetra Tech, ranges from \$69 to \$108 per tonne. These costs are based on information provided by each municipality in the summer of 2021.

Table 4-5: Collection Cost per Municipality

Municipality	Estimated Waste Tonnage	Proportion of County’s Waste	Total Collection Cost	Collection Cost per Tonne
Amherstburg	7,200	6.7%	\$536,929	\$77
Essex	5,900	5.5%	\$563,292	\$99
Kingsville	5,650	5.3%	\$548,720	\$100
Lakeshore	11,300	10.5%	\$1,185,633	\$108
Lasalle	8,100	7.6%	\$799,225	\$74
Leamington	6,600	6.0%	\$432,011	\$69
Tecumseh	5,850	5.9%	\$514,172	\$84
Windsor	55,800	52.5%	\$3,915,549	\$72

¹Collection costs for Lakeshore and Tecumseh were combined for MSW and yard waste, it is assumed that MSW comprised 80% of the cost.

It shall be noted that the collection costs do not include the purchase and distribution of curbside organic carts. Further, a regionalized (County-wide) approach to collection is possible, which may drive down collection costs compared to individual municipal collection contracts. Additionally, best practices undertaken by Tetra Tech indicate that privately-operated automated organics collection may further reduce collection costs.

Total cost per tonne is summarized in Table 4-6, broken down into individual municipalities. Depicted costs are based on inputs from Table 4-3 and Table 4-5 (medium estimated organics diversion).

Table 4-6: 2020 Total Cost per Tonne (By Municipality)

Option	Amherstburg	Essex	Kingsville	Lakeshore	Lasalle	Leamington	Tecumseh	Windsor
SC-1	\$231	-	-	-	\$228	\$223	\$238	\$226
SC-2	\$232	\$254	\$255	\$263	\$229	\$224	\$239	\$227
NS-C-1	\$155	-	-	-	\$152	\$147	\$162	\$150
NS-C-2	\$155	\$177	\$178	\$186	\$152	\$147	\$162	\$150
NS-AD-1	\$253	-	-	-	\$250	\$245	\$260	\$248
NS-AD-2	\$232	\$254	\$255	\$263	\$229	\$224	\$239	\$227
LF-C-1	\$161	-	-	-	\$158	\$153	\$168	\$156
LF-C-2	\$159	\$181	\$182	\$190	\$156	\$151	\$166	\$154
LF-AD-1	\$141	-	-	-	\$138	\$133	\$148	\$136
LF-AD-2	\$238	\$260	\$261	\$269	\$235	\$230	\$245	\$233
TS1-AD-1	\$261	-	-	-	\$258	\$253	\$268	\$256
TS1-AD-2	\$324	\$346	\$347	\$355	\$321	\$316	\$331	\$319
WBPF-AD-1	\$274	-	-	-	\$271	\$266	\$281	\$269
WBPF-AD-2	\$345	\$367	\$368	\$376	\$342	\$337	\$352	\$340

Tetra Tech regards GHD’s processing numbers as adequate for use in the total cost per tonne calculations. Savings on current waste expenditures could be achieved through best practices such as bi-weekly garbage collection, bag limits or “pay-as-you-throw” programs.

4.3 Development of Cost Scenarios

Tetra Tech developed three potential cost scenarios using the costs presented in Section 4.2. To show the potential range of technologies that the EWSWA may pursue, including LF-C-2 (Compost facility at the landfill, single family SSO from all eight municipalities in the County), LF-AD-2 (Anaerobic digestion

facility at the landfill, single family SSO from all eight municipalities in the County), and WBLF-AD-2 (Co-digestion, single family SSO from all eight municipalities in the County). Key assumptions that were made in the development of the costs include:

- Collection and processing costs increase by 2% annually to account for inflation;
- 40% of the County’s current MSW stream is compostable organics;
- 60% of the compostable organics is diverted from the MSW stream;
- Population (and hence waste tonnages) increase by 2% annually; and
- SSO program is launched in 2025.

Table 4-7 presents the total cost projections for LF-C-2, inclusive of collection costs and processing costs.

Table 4-7: LF-C-2 Cost Projections

Year	Windsor	Amherburg	Essex	Kingsville	Lakeshore	Lasalle	Leamington	Tecumseh
2025	\$2,539,155	\$330,462	\$305,427	\$294,539	\$614,645	\$364,798	\$288,315	\$279,755
2026	\$2,643,783	\$339,748	\$313,063	\$301,853	\$629,293	\$375,239	\$296,816	\$287,308
2027	\$2,752,723	\$353,748	\$325,963	\$314,291	\$655,224	\$390,701	\$309,046	\$299,147
2028	\$2,866,152	\$363,728	\$334,169	\$322,151	\$670,965	\$401,923	\$318,183	\$307,265
2029	\$2,984,254	\$378,716	\$347,939	\$335,426	\$698,613	\$418,485	\$331,294	\$319,926
2030	\$3,107,223	\$389,446	\$356,761	\$343,875	\$715,533	\$430,550	\$341,118	\$328,654
2031	\$3,235,259	\$405,493	\$371,461	\$358,045	\$745,017	\$448,291	\$355,174	\$342,196
2032	\$3,368,571	\$417,031	\$380,947	\$367,130	\$763,210	\$461,266	\$365,738	\$351,581
2033	\$3,507,376	\$434,216	\$396,644	\$382,258	\$794,659	\$480,273	\$380,808	\$366,068
2034	\$3,651,901	\$446,626	\$406,846	\$392,029	\$814,225	\$494,228	\$392,171	\$376,162
2035	\$3,802,380	\$465,030	\$423,610	\$408,183	\$847,776	\$514,594	\$408,331	\$391,662

Table 4-8 presents the total cost projections for LF-AD-2.

Table 4-8: LF-AD-2 Cost Projections

Year	Windsor	Amherburg	Essex	Kingsville	Lakeshore	Lasalle	Leamington	Tecumseh
2025	\$3,843,064	\$498,709	\$443,295	\$426,565	\$878,698	\$554,075	\$442,541	\$416,455
2026	\$4,001,421	\$514,927	\$456,612	\$439,320	\$904,227	\$572,315	\$457,396	\$429,641
2027	\$4,166,303	\$536,145	\$475,428	\$457,422	\$941,486	\$595,898	\$476,244	\$447,345
2028	\$4,337,979	\$553,641	\$489,793	\$471,180	\$969,023	\$615,576	\$492,270	\$461,570
2029	\$4,516,730	\$576,455	\$509,975	\$490,596	\$1,008,953	\$640,941	\$512,555	\$480,589
2030	\$4,702,846	\$595,332	\$525,474	\$505,439	\$1,038,661	\$662,173	\$529,847	\$495,937
2031	\$4,896,631	\$619,864	\$547,126	\$526,266	\$1,081,460	\$689,458	\$551,680	\$516,372
2032	\$5,098,401	\$640,235	\$563,850	\$542,283	\$1,113,516	\$712,370	\$570,341	\$532,934
2033	\$5,308,485	\$666,617	\$587,084	\$564,628	\$1,159,400	\$741,724	\$593,843	\$554,894
2034	\$5,527,226	\$688,604	\$605,133	\$581,914	\$1,193,995	\$766,453	\$613,984	\$572,769
2035	\$5,754,981	\$716,979	\$630,068	\$605,893	\$1,243,195	\$798,036	\$639,284	\$596,370

Table 4-9 presents the total costs of WBLF-AD-2.

Table 4-9: WBLF-AD-2 Cost Projections

Year	Windsor	Amherburg	Essex	Kingsville	Lakeshore	Lasalle	Leamington	Tecumseh
2025	\$5,609,117	\$726,586	\$630,029	\$605,386	\$1,236,340	\$810,437	\$651,429	\$601,606
2026	\$5,840,246	\$752,195	\$651,040	\$625,509	\$1,276,605	\$839,241	\$674,892	\$622,421
2027	\$6,080,898	\$783,190	\$677,867	\$651,283	\$1,329,209	\$873,823	\$702,701	\$648,069
2028	\$6,331,467	\$810,866	\$700,574	\$673,030	\$1,372,722	\$904,953	\$728,059	\$670,564
2029	\$6,592,361	\$844,278	\$729,442	\$700,763	\$1,429,287	\$942,242	\$758,060	\$698,196
2030	\$6,864,006	\$874,192	\$753,983	\$724,266	\$1,476,315	\$975,889	\$785,468	\$722,510
2031	\$7,146,843	\$910,214	\$785,052	\$754,110	\$1,537,148	\$1,016,102	\$817,834	\$752,282
2032	\$7,441,336	\$942,549	\$811,580	\$779,516	\$1,587,982	\$1,052,473	\$847,462	\$778,564
2033	\$7,747,963	\$981,388	\$845,022	\$811,636	\$1,653,416	\$1,095,842	\$882,383	\$810,646
2034	\$8,067,225	\$1,016,346	\$873,699	\$839,101	\$1,708,367	\$1,135,163	\$914,414	\$839,059
2035	\$8,399,642	\$1,058,225	\$909,701	\$873,676	\$1,778,762	\$1,181,938	\$952,093	\$873,633

The three scenarios above show the sliding scale of costs that can be expected for the EWSWA municipalities depending on the option that is pursued. Co-digestion and anaerobic digestion are typically much more expensive than composting when it comes to processing costs. However, the environmental metrics of co-digestion and anaerobic digestion are much higher with the potential of RNG production.

4.4 15-Year Financial Forecast Evaluation

Overall, the 15-year financial forecast study from EWSWA was reasonable. The forecast presented may be conservative and may underestimate the true cost. In some cases, large scale municipal owned capital projects have cost more than originally budgeted or expected. This was the case for the Peel Region and for the City of Edmonton when they constructed a large-scale solid waste processing facility.

Table 4-10 presents the estimated change in municipal costs as a result of incorporating an SSO program. As with above, the chosen option for this analysis was LF-AD-2 assuming that pre-existing costs would remain the same. The estimated change in cost on a per household by municipality was previously presented in Section 4.2e. Assumptions for the table include:

- The forecast includes the transition of the Blue Box Program to full Extended Producer Responsibility (EPR) in 2027.
- Assumed that the organics diversion program is launched in 2025.
- Assumed 2% inflation per year.
- Assumed that existing expenditures remain unchanged with the addition of an organics diversion program.

Table 4-10: Estimated Municipal Costs with Addition of Organics Diversion Program

Year	Expenditures	Non-Municipal Revenue	Amount Required from Municipalities (Total Fixed Cost & Tipping Fees)	Estimated Increase
2021	\$29,149,220	\$13,490,050	\$15,659,170	\$0
2022	\$29,498,877	\$14,678,050	\$14,820,827	\$0
2023	\$30,058,452	\$15,112,050	\$14,946,402	\$0
2024	\$30,638,480	\$15,179,050	\$15,459,430	\$0
2025	\$57,929,024	\$34,391,432	\$23,537,592	\$7,539,136
2026	\$59,608,062	\$35,268,057	\$24,340,005	\$7,812,194
2027	\$51,209,668	\$29,423,616	\$21,786,052	\$8,134,102
2028	\$52,741,236	\$30,279,548	\$22,461,688	\$8,429,606
2029	\$54,460,250	\$31,170,750	\$23,289,500	\$8,776,955
2030	\$56,202,796	\$32,098,674	\$24,104,122	\$9,096,656
2031	\$58,052,512	\$33,064,835	\$24,987,677	\$9,471,492
2032	\$59,683,610	\$34,070,807	\$25,612,803	\$9,817,397
2033	\$61,399,712	\$35,118,231	\$26,281,481	\$10,221,932
2034	\$63,135,068	\$36,208,815	\$26,926,253	\$10,596,217
2035	\$64,983,102	\$37,344,338	\$27,638,764	\$11,032,844

There were two potential revenue impacts from organic diversion from the residential and ICI sectors at the Essex Windsor Regional Landfill (Landfill): i) reduction in revenue from tipping fees and ii) reduction in landfill gas generation. In terms of tipping fee, less waste (organic) is expected to be diverted to the Landfill. Based on the current tipping rate of \$39/tonnes, if 23,000 tonnes per year of organic waste was diverted then it is estimated that about \$900,000 per year revenue would be lost at the Landfill. However, there will be a minimal impact to the landfill costs as most of these costs are fixed. Yet, each municipality's annual contributions will increase due to the additional cost of processing organics.

Furthermore, there will be a reduction in LFG generation as a result of organics diversion. This would subsequently impact potential revenues at the Landfill. However, revenues would not be impacted immediately, and it would be gradual (Figure 4-2). Figure 4-2 shows the annual methane gas generated for a scenario with no SSO program and a scenario with an SSO program (22,500 tonnes of food waste diverted each year). This is based on available site-specific data and modeling with the Scholl-Canyon model. Figure 4-3 shows the accumulating amount of methane gas generated in the landfill over time. Further investigation would be required to investigate and examine how LFG generation changes over time at the Landfill.

GHD had identified and determined greenhouse gas reductions and subsequently landfill gas reductions. The reductions were determined by LandGEM (The Landfill Gas Emissions Models). The LandGEM model provides estimated emissions from typical municipal solid waste landfills and typically uses theoretical models and may not support local conditions. Further investigation and comparison to actual landfill gas emissions may be required to fully understand the revenue impacts. This investigation would include how much gas is actually captured, collected, transported, and used, as well as, how much gas is typically lost and flared.

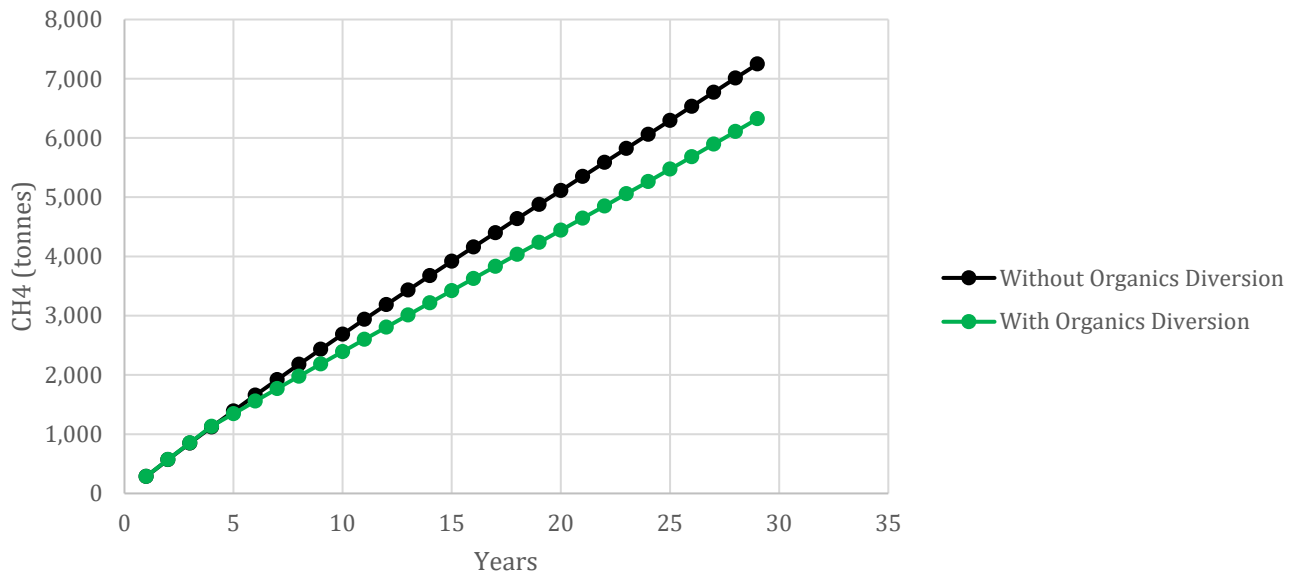


Figure 4-2: Annual Methane Generation in Landfill With and Without Organics Diversion

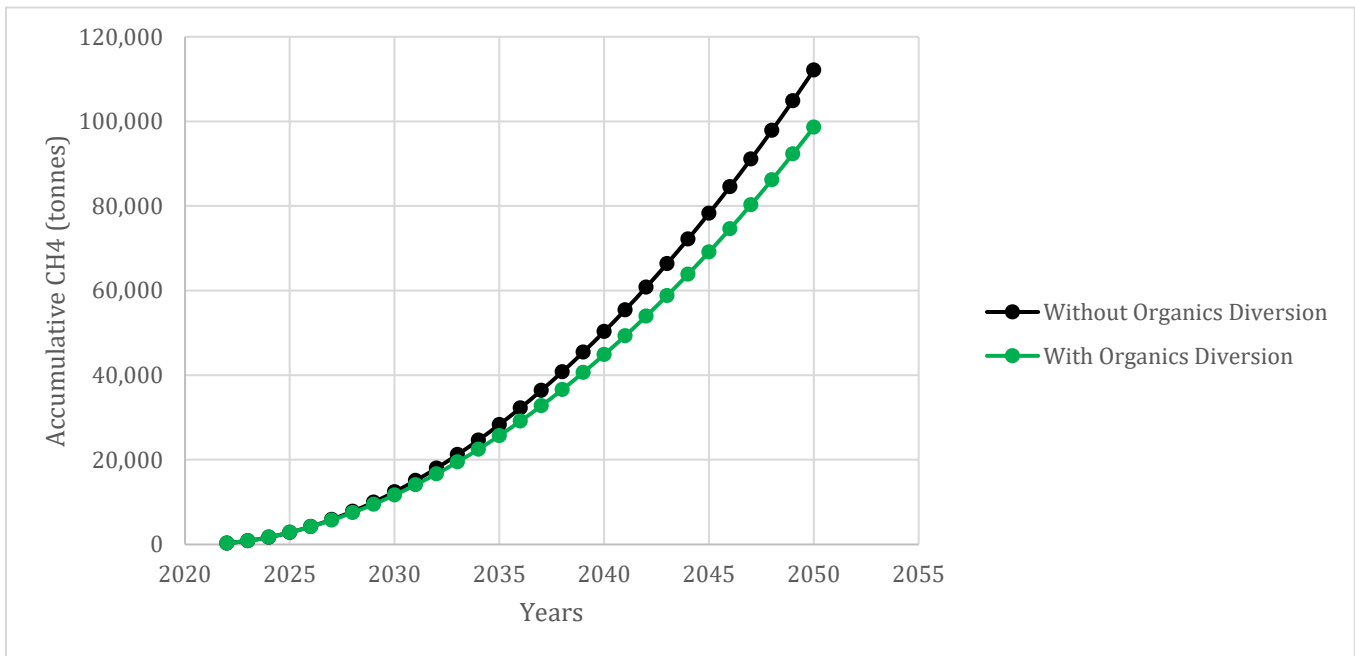


Figure 4-3: Accumulative Methane Generation in Landfill

5.0 SUMMARY

Tetra Tech has reviewed the reports assembled by GHD, and as per the scope outlined in Section 1, undertaken further review of companies that submitted proposals to the County's Request for Expression of Interest (REOI) and undertaken more detailed financial reviews derived from the GHD reports. Based on this analysis, Tetra Tech would recommend the following points:

- The GHD reports are substantially sound and offer comparative impacts of the various options. The primary issue of concern are the capital costs as outlined in the proformas as some more recent projects in Canadian municipalities have been cancelled due to significant higher costs than were anticipated. This has been further problematic due to more recent escalations of capital costs due to COVID-19 as some supply channels, such as metals, have significantly increased over the last 6 months. Furthermore, bidders will traditionally offer higher bids if significant risk has been transferred solely to them.
- While the City and four other municipalities will need aggressive organics programs by 2025 as required by the OPPS. Three other communities (Kingsville, Essex, and Lakeshore) will potentially be required at a near future date to have similar organics programs. It is highly recommended that all 8 communities be part of the same program as there may be further confusion by non-participating communities if they are not part of the Essex-Windsor communication programs.
- When assessing all innovative technologies, including Bradam and AMICO/Wright, it is clear that the province prefers to assess all new technologies as long as they fit the organic diversion policies. Both technologies may not currently meet the OPPS, but it is unknown when or if they will meet OPPS in the future. However, it is recommended that alternative technology vendors should be allowed to offer competitive proposals in the future.

- While not the least expensive options, anaerobic digestion alternatives appear to best fit both the OPPS and the Regional Energy Policy. Furthermore, the market for RNG appears to be more attractive as prices have increased by more than 25% over the last year. Also, these options have the potential to reduce GHGs.
- While the GHD report outlines specific organic diversion initiatives some options may actually be outside the 14 options as outlined by GHD. This includes the inclusion of farm digesters, co-sponsored projects with neighbouring municipalities (e.g., Chatham Kent) and 100% privately run organic processing facilities. To include all potential options, Tetra Tech would advise EWSWA and its delegates to assemble an RFP that potentially requires proponents to meet three key critical end points:
 - That the proponents have the skills, experience and technology that works.
 - That any proposal meets all regulatory and policy requirements for EWSWA (including energy policies).
 - That a cost proposal (whether upfront capital or all inclusive tipping fees) be evaluated on an Net Present Value basis.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.


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APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.



Subject: 2021 Micro-Mobility Pilot Review - Bird Canada E-Scooters and E-Bikes

Reference:

Date to Council: February 28, 2022
 Author: Rania Toufeili, Policy Analyst
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 Planning & Building Services
 Report Date: January 24, 2022
 Clerk's File #: MT/14304

To: Mayor and Members of City Council

Recommendation:

1. THAT report C 10/2022, "2021 Micro-Mobility Pilot Review – Bird Canada E-Scooters and E-Bikes" **BE RECEIVED** for information;
2. THAT Council **DIRECT** administration to continue pursuing a micro-mobility program for the 2022 year by renewing Bird Canada's existing contract under the same terms and conditions; and,
3. THAT Administration **BE DIRECTED** to extend the trial period for an additional one-year whereby e-scooters will be permitted on the Riverfront Trail paved path; and that the Parks By-law 131-2019 **BE AMENDED** accordingly; and, that the City Solicitor **BE DIRECTED** to prepare the necessary documents to amend the by law.

Background:

E-scooters are becoming an increasingly popular form of micro-mobility. In November 2019, the Ontario government announced a 5-year e-scooter pilot program, effective January 1, 2020. Under this pilot program, municipalities have the ability to allow electric kick-scooters to operate on streets and in rights-of-way under their jurisdiction.

The City of Windsor Active Transportation Master Plan recommends pursuing a partnership with private operators to provide a public bike sharing program and consider the feasibility of an electric scooter sharing program (Walk Wheel Windsor Action 3.1).

Similarly, the Windsor Works Report cited improving urban mobility as a key ingredient of downtown revival. The Bird E-Scooter program aligns with the Windsor Works recommendations and progress for the goals of investment in infrastructure and economic development and innovation. The most recent implementation report from Windsor Works explains that "the City needs to improve its downtown district, complete

riverfront developments and provide new and enhanced mobility options” and supports the implementation of e-scooters and e-bikes.

At the April 19, 2021 meeting of Council, Council directed administration to report back on the results of the trial period whereby e-scooters would be permitted on the Central Riverfront Trail from the Ambassador Bridge to Hiram Walker, subsequent to an amendment to the Parks By-law 131-2019 (CR165/2021 and CR83/2020). The trial period expired on December 1, 2021.

In report S 7/2020 on April 29, 2020, administration put forth a recommendation to the Environment, Transportation and Public Safety Standing Committee for issuance of a Request for Proposal for a Bike share and E-scooter operations. Council endorsed this recommendation on May 25th 2020 and an RFP was issued which identified that the successful proponent(s) would be responsible for supplying, operating, maintaining, managing, marketing, financing and reporting on the bike/e-scooter share system under the guidelines of a service agreement with the City for a one year pilot project to operate on City property. A Request for Proposal (RFP) was issued on January 15, 2021 and closed on February 8, 2021. Bird Canada was the successful proponent and began running their e-scooter program on May 1st 2021.

The total service area of the e-scooters equals approximately 22.6 km² (15% of the City) and includes approximately 65,000 residents (30% of Windsor’s population). **Figure 1** demonstrates the service area under which Bird operated for the 2021 term. A minimum fleet size of 450 devices and maximum of 600 devices between all Proponents (including impounded devices) was specified, with potential to increase upon request and review.

Bird Canada was required to provide a fleet of e-bicycles as part of the pilot, however there were a number of supply issues and delays due to Covid-19 that did not make it possible for Windsor to receive the equipment. The e-bicycles are now available and will be provided for the 2022 term if the Bird Canada’s contract is renewed for an additional year.

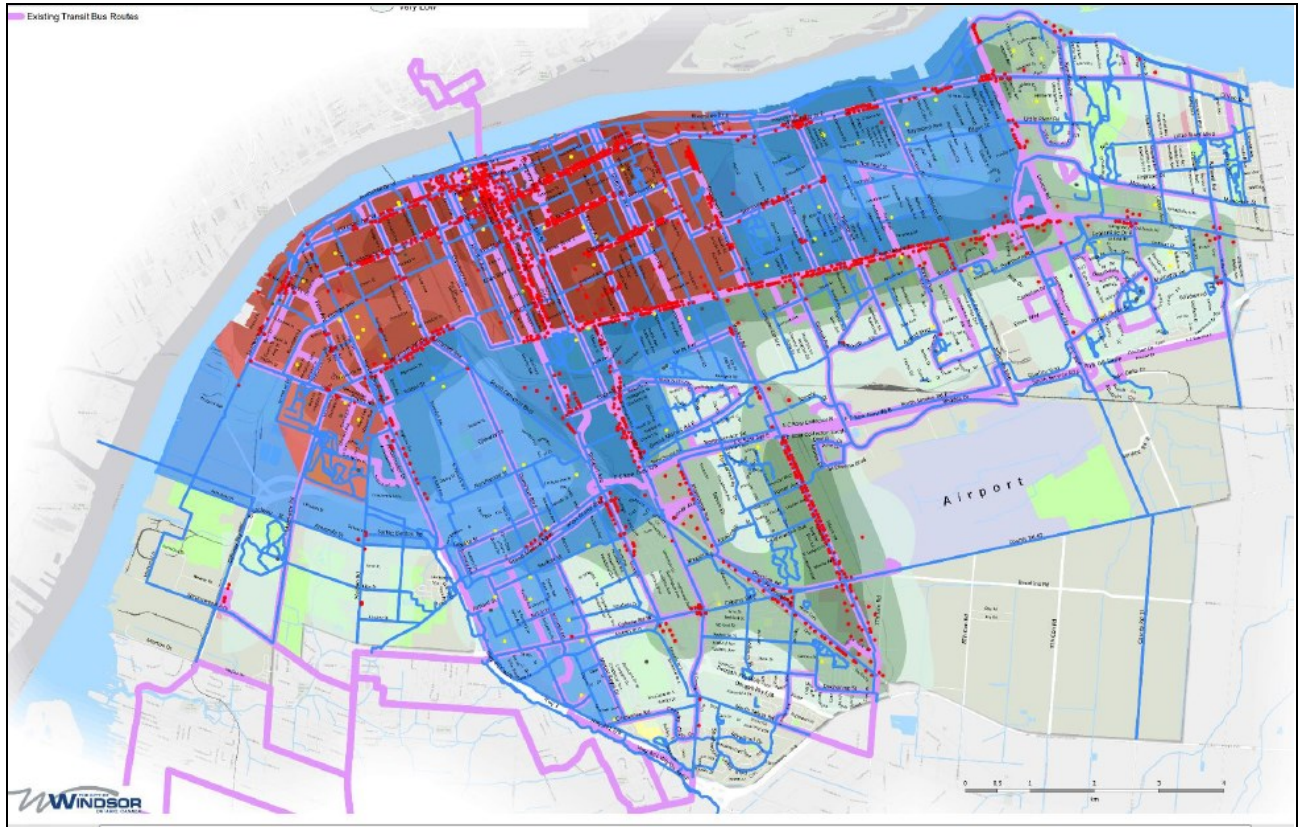


Figure 1 – Phase 1 Service Area

Generally bound by the Riverfront Pathway to the north, Tecumseh Road to the south, Prince Road to the west and Drouillard Road to the east

Bird Canada does not operate their e-scooters during the winter months and therefore they stopped the program for this period with the services ending on November 30th 2021. Bird Canada has expressed interest in renewing their contract for an additional year and supplying their e-scooters and e-bikes in Windsor for 2022.

Discussion:

Rider Data for the 2021 Bird Pilot

Rider feedback and data was collected and reviewed on a monthly basis by the operator and City Administration. **Table 1** below presents data pertaining to the ridership statistics in Windsor.

Table 1 – Rider Data for Bird Canada Pilot

Total Number of Rides	Unique Users	Average distance travelled (km)	Average duration of trip (min)
130,756	27,284	4.3	27.20

Windsor had the highest average distance travelled and highest average ride duration across all markets in Canada with active Bird Canada e-scooter programs. The longest ride taken in Windsor was 43 kilometers.

In September of 2021, Bird expanded their services for University of Windsor student travel needs. Designated parking areas were provided for students as well as slow down zones to ensure safe riding.

Equity and Ride Pass Programs

Bird Canada provided an Equity Pricing Program which provides discounted rides to a number of groups to increase equity. A form is available through the Bird app for individuals to write in to the program for qualification. Proof of documentation is required by Bird to verify eligibility.

The rides are 50% off for the following:

- Low-income residents
- Veterans
- Seniors
- Employees of pre-approved community-based organizations and non-profits in Windsor like Bike Windsor-Essex, Windsor Goodfellows and the Downtown Mission of Windsor

There are 11 riders who used the Equity Pricing Program during the 2021 pilot. If the Bird program returns, creating further outreach within the City and awareness of this equity benefit is a goal for the next term.

Additionally, Bird also has a ride pass program that allows riders to purchase daily, 3 day, weekly and monthly passes which provides them with unlimited rides of up to 30 minutes. There were 2,434 users who use the daily ride pass, 3 users who used the weekly ride pass, and 6 users who used the monthly ride pass.

Program Fees and Revenue

An administrative fee and licensing fee was charged to the operator of the program, which has covered the capital and operations costs associated with the pilot program. The administrative fee collected was for \$1 a day per vehicle used through Bird Canada. The licensing fee for the program for one year was \$10,000.

Bird charges riders (which are not part of the Equity or Ride Pass programs) a fee of \$1.15 at the beginning of their trip with an additional \$0.35 per minute.

A total revenue of \$123,750 (including HST) was generated from the scooters operating for a period of 7 months, from May to November. Furthermore, a \$10,000 fee is due at the anniversary of the Bird Scooters per the contract.

Public Safety with Bird Micro-Mobility

A number of actions were taken by Bird in order to increase safety of the e-scooters on the roadway. The following was implemented through the program:

- Bird created a safety video which is included in the riding app to inform riders about the rules of the road and safe riding. This includes information on proper riding etiquette and how not to ride.
- A “Beginner Mode” feature is available on the scooters to allow for gentle acceleration for any new riders who want to adjust or are still learning how to ride.
- Safe Street Patrols were present around the waterfront trail to educate riders on local rules, parking and etiquette.
- The Bird mapping also includes slow down zones to increase safety, where vehicles slow down safely down to 15km/h compared to the maximum mandated speed of 20km/h.
- Bird held multiple events in Windsor to demonstrate their services. They provided free helmets and free rides to people passing by and showed how to use the scooters properly.

Bird Canada also partnered with WindsorEats to provide a Graffiti and Street Art Tour to showcase Windsor’s famous Graffiti Alley where helmets were provided. This provided an opportunity to tour a 12 kilometre route using the e-scooters allows locals and tourists to explore the City with a Bird Canada e-scooter safely.

Even before the launch of the E-Scooter pilot project in May, 2021 and well after, the Windsor Police Service worked with Bird Canada to ensure public safety and education regarding e-scooters was the top priority. WPS also participated in a public safety demonstration that was held in early July. There was only one enforcement action taken as a result of a rider carrying a passenger (double riding on one scooter). Numerous occasions of scooter theft was also reported early on in the program and Bird worked together with Windsor Police to help resolve related issues.

Bird Canada implemented the use of license plate stickers shortly after the program started so that scooters could be identified uniquely and help with reporting and resolving theft issues. Bird has issued a total of 75 warnings/fines and 71 suspensions. Bird Canada has an escalating warning, penalty and suspension framework that is used to further enforce adherence to local rules. When they receive a report of inappropriate riding behaviour an initial warning is typically provided to the customer. An email is provided to the customer with educational materials on their unsafe actions and potential consequences. Any illegal or extremely unsafe riding such as pedestrian harassment or riding with a minor result in a one-strike-and-out policy for using the program in order to prioritize safety in the wider community.

There is currently a lack of gathered data on reported injuries as a result of the Bird e-scooters in Windsor for the 2021 Pilot. Through consultation it has been determined that data will need to be collected and compiled with Windsor Regional Hospital services and through the Research Ethics Board.

Micro-mobility in Other Municipalities

The introduction of e-scooters is a relatively new concept across municipalities in Canada. **Table 2** below gives an overview based on information gathered for some municipalities that are operating or working on piloting an e-scooter program. Many programs are currently in similar standing as Windsor, where their pilot program was completed in 2021 and are looking to determine plans for the 2022 term. Toronto and Montreal, two densely populated cities, have banned e-scooters for the time being due to concerns with traffic problems and poor compliance with e-scooter rules.

Table 2 – Information on E-scooter Programs across Canada

Municipality	Description
Hamilton, ON	<ul style="list-style-type: none"> • Hamilton will begin their e-scooter plan in the spring of 2022. A 24 month pilot will be completed using two e-scooter companies as determined through their RFP. • Riding on the sidewalks will not be allowed in Hamilton.
Ottawa, ON	<ul style="list-style-type: none"> • Ottawa completed their 2020-2021 e-scooter pilot program using 3 different service providers. • Ottawa expanded their number of e-scooters in their second year based on program success • Riding on sidewalks is not allowed in Ottawa and riders under 18 must wear a helmet. Must be over 16 years old to ride a scooter.
Mississauga, ON	<ul style="list-style-type: none"> • Currently studying how a micro-mobility program could work in Mississauga. Program not yet implemented.
Calgary, AB	<ul style="list-style-type: none"> • Calgary tested the viability of shared e-scooters through a 16 month pilot program from 2019-2020. Council voted to continue micro-mobility from 2021 onwards. Two service providers are operating throughout Calgary. • Riders must be over 18 years old and helmets are not required. • Scooters are allowed on sidewalks, pathways and in bicycle lanes.
Red Deer, AB	<ul style="list-style-type: none"> • Red Deer is piloting a 2 year program which started in the summer of 2021. Scooters are gone for the winter months but will be returning for another term in 2022. • Six e-scooter companies were awarded a permit to operate in Red Deer for the first year of the program. • Scooters are allowed on sidewalks and paved trails in Red Deer. • Helmets are not required. All riders must be over 18 years old.
Vancouver, BC	<ul style="list-style-type: none"> • Vancouver Council recently voted to legalize e-scooters and will be conducting a two-year long pilot program. Currently, e-scooters may be ridden through personal use as share or rental programs are not yet available. • Scooters are not allowed on sidewalks in Vancouver. • Riders must be over 16 years old.

2022 Micro-Mobility for Windsor

The contract between the City of Windsor and Bird allows for a renewal for an additional term of one year by mutual agreement on the same terms and conditions or such amended terms and conditions agreed to by the City and Bird Canada. Thus, if a renewal occurs the micro-mobility program will function in the same manner as stated in Bird's 2021 contract and within the same service area limits. In 2022, Bird is expected to supply e-bicycles within the service limits as per their contract.

The Bird app was able to deactivate devices within designated areas, eliminating the need for new signage. The same would be expected for e-bikes to prohibit usage within parks. Parks did not encounter any significant concerns or costs as a result of Bird's e-scooter pilot project in 2021. In order to continue allowing e-scooters to operate on the riverfront, the trial period for the Parks By-Law 131-2019 will require an extension. The trial period is proposed to be extended for an additional one year ending on December 1st 2022.

Risk Analysis:

Legal Liability Risk:

There is an inherent risk associated with riding a bike or e-scooter (regardless whether it is rented or owned). These risks pertain to both injuries to persons and/or damage to property. As more people will have access to e-scooters and e-bikes, there is the potential for claims to be brought against the City. Road surfaces which may be suitable for vehicles may not be suitable for e-scooters and e-bikes. Having dockless devices can also obstruct sidewalks, resulting in risk of harm to sidewalk users. Liability risks are mitigated by requiring the operator to carry insurance and agree to indemnify the City in the event of a loss, but an indemnification provision will not be triggered if the allegation relates to independent negligent acts of the City.

Complaint Risk:

Complaints regarding the use and or misuse of e-scooters and/or e-bikes and bicycles will be received from the public (i.e. blocked sidewalks, improper parking of devices, and improper use of devices). The City's 311 department will track the complaints. Complaints relating to the operator (i.e. broken e-scooter, e-scooter blocking sidewalk) will be forwarded directly to the operator to address. Complaints may be mitigated by educating users and the public regarding proper use and storage of the devices.

Climate Change Risks

Climate Change Mitigation:

Micro-mobility programs have the potential to decrease greenhouse gas emissions as people opt to use e-bikes or e-scooters to travel to their destinations as opposed to using a vehicle. New concepts of active transportation are introduced in Windsor through the micro-mobility program which helps achieve goals of sustainability and promote alternative modes of travel.

Climate Change Adaptation:

As climate change presents more global and local threats, a shift to active transportation will become more sustainable and necessary. Including a micro-mobility program within the City of Windsor is a right step towards climate change adaptation.

Financial Matters:

The program generated a revenue of \$123,750 (HST included) in the 2021 year operating months, and an additional \$10,000 will be due at the program anniversary from Bird Canada. The revenue has already been incorporated in the 2022 budget for Transportation Planning Services. No costs have been incurred as a result of the e-scooter pilot program by the City.

If Bird Canada’s contract is renewed under the same terms and conditions for the 2022 year, the same level of revenue can be expected as what was provided in the 2021 year.

Consultations:

Inspector Jennifer Crosby, Windsor Police Services
 Diane Bradford, Windsor Regional Hospital
 Wadah Al-Yassiri, James Chacko, Laura Ash, Parks
 Aaron Farough, Legal, Real Estate and Risk Management

Conclusion:

The micro-mobility program through Bird Canada helped increase the goals outlined in the Active Transportation Master Plan and Windsor Works Report by providing new and enhanced mobility options to the downtown core in Windsor. The e-scooter program has generated a large number of ridership and positive feedback from the public and the BIAs where they operated.

Administration recommends that the micro-mobility pilot program continue for the 2022 year for the spring to fall months and that the 2021 contractual agreement with Bird Canada be renewed for an additional year under the same terms and conditions.

Planning Act Matters:

N/A

Approvals:

Name	Title
Jeff Hagan	Transportation Planning Senior Engineer
Josie Gualtieri	Financial Planning Administrator
John Revell	Chief Building Official
James Chacko	Senior Manager of Parks
Chris Nepszy	Commissioner of Infrastructure Services
Shelby Askin Hager	Commissioner of Legal and Legislative Services
Joe Mancina	Commissioner of Corporate Services, Chief Financial Officer/City Treasurer

Name	Title
Jason Reynar	Chief Administrative Officer

Notifications:

Name	Address	Email
Windsor Bicycling Committee		
Bird Canada – Chris Schafer		chris.schafer@birdcanada.co

Appendices:



Committee Matters: SCM 40/2022

Subject: Minutes of the Housing & Homelessness Advisory Committee of its meeting held January 25, 2022

Housing and Homelessness Advisory Committee

Meeting held January 25, 2022

A meeting of the Housing and Homelessness Advisory Committee is held this day commencing at 10:00 a.m. via Zoom video conference, there being present the following members:

Marina Clemens, Chair
Councillor Kieran McKenzie
Jessica Brunet
Fiona Coughlin
Phil Dorner (arrives at 10:37 a.m.)
Kathy Hay
Eric Hill (arrives at 10:06 a.m.)
Mayor Gary McNamara, Town of Tecumseh
Jim Steele
Leigh Vachon
Joyce Zuk

Regrets received from:

Angela Yakonich
Judith Binder

Also present are the following resource personnel:

Debbie Cercone, Executive Director, Housing & Children's Services
Kirk Whittal, new Executive Director, Housing & Children's Services
Michael Cooke, Manager Planning Policy, Deputy City Planner
Kelly Goz, Manager, Homelessness & Housing Support
Jennifer Tanner, Manager Homelessness & Housing Support
Jeannie Diamond Francis, County of Essex
Karen Kadour, Committee Coordinator

1. Call to Order

The Chair calls the meeting to order at 10:03 o'clock a.m. and the Committee considers the Agenda being Schedule A attached hereto, matters which are dealt with as follows:

2. Disclosure of Interest

None disclosed.

3. Adoption of the Minutes

Moved by F. Coughlin, seconded by Mayor G. McNamara,
That the minutes of the Housing and Homelessness Advisory Committee of its meeting held November 23, 2021 **BE ADOPTED** as presented.
Carried.

4. Business Items

4.1 Residential Rental Licensing Pilot Study

The Chair advises that she recently met with J. Zuk and A. Angelidis to discuss their submission to the Environment, Transportation and Public Safety Standing Committee and City Council on the Residential Rental Licensing Pilot Study.

J. Zuk advises that they do not want the cost of licensing to be borne by renters and the only mechanism is for the City to absorb the costs. She asks if municipalities have to recover the costs of licensing, or is it an option, as they do not want to contravene the *Municipal Act*.

Councillor McKenzie strongly supports the city proceeding with the licensing pilot. It is important to remember that this is a pilot project and if Council chooses to proceed with the citywide policy, HHAC's feedback is extremely essential. The impact on rental costs is at the top of the list. There is not a strong sentiment on Council to absorb those costs to subsidize the landlords to register into this program. There is a willingness on Council to explore what should be done to provide protection to the tenants in our community. There is a serious issue respecting the living conditions that some people are experiencing mostly due to bad landlords. The good landlords will sign up and the bad landlords will not; we are adding costs to the good landlords who will pass along those costs to their renters.

Mayor G. McNamara echoes the comments by Councillor McKenzie relating to the good and the bad landlords and asks how do we make this a level playing field.

F. Coughlin states that what is happening in Windsor is attractive to all kinds of people who are investing and positioning themselves as building or providing affordable housing. They are leveraging that language to support funding and they are not necessarily very scrupulous organizations. Council needs to use the tools at their disposal to control that external investment in Windsor where some bad actors are

coming; buying up all the properties, driving up all of the housing prices, which means all rentals across the board, will increase. She adds that she is in support of the pilot study.

J. Zuk adds that if a licensing regime comes into effect with costs to landlords, we know that it will be borne by the tenants within the confines of provincial legislation. The landlords are struggling and are not getting the margins that they are looking for on rents. It is not HHAC's job to find the solution for Council on how to implement this; HHAC's job is to raise this issue, which could potentially impact rents in a very tight market. She proposes a one-page brief be provided to Council along with the Administrative report in April 2022.

4.2 Updates from Administration

D. Cercone provides an update of the **Community Housing Renewal Allocations under the OPHI and COCHI Program:**

- In August of 2021, the MMAH confirmed the funding allocations for the first year (2022-23) of the second three-year funding period for Windsor Essex.
- Details of the funding allocations for year two and three (2023-24, 2024-25) of this phase of funding were not provided which results in a short-term program planning as opposed to strategic multi-year planning.
- The objective of the Canada Ontario Community Housing Initiative (COCHI) is to protect tenants in current programs with expiring operating agreements/mortgages to begin to stabilize the supply of community housing through repairs, renovations and operating support.
- COCHI funding is to be used only in social and community housing; to protect, regenerate and expand social housing and to reduce housing need in social housing; and to preserve Native Urban units – no net loss of units.
- The components of the Ontario Priorities Housing Initiative (OPHI) includes –
- Rental housing, homeownership, Ontario Renovates, rental assistance and housing support services.
- In terms of the **Meadowbrook Development** – Rent Supplement Allocation, the City of Windsor has committed an annual rent subsidy of \$240,000 from 2022-2028 dedicated solely to the Meadowbrook development
- The annual funding will begin on occupancy of the units estimated to be August 2022.
- This funding will bridge the gap between the market rental rates of approximately 40 units and the tenant rental rates. The allocation will be funneled from the Community Housing Renewal Strategy funding allocation.
- Funding to continue to support **Housing First for Youth** (HF4Y) workers.

Councillor McKenzie advises that the Standing Committee determined the need for additional supports to be provided for the wrap around services. In terms of the five percent available for operational supports, asks if that could be legislatively increased.

D. Cercone responds that a level of advocacy would have to happen with the Ministry because if we submit a request for ten percent, it would be rejected as the guidelines state that the maximum is five percent. Our funding is a use it or lose it proposition and funding allocations must be within the fiscal year. We do need additional operating funds – we are experiencing millions of dollars in deficits around operating funds, which was identified to Council in 2022 as a pressure.

J. Tanner provides an update relating to the Housing with Supports Program as follows:

- The **Housing with Supports Program** provides subsidy payments for approximately 550 residents who live in nineteen different homes across the Windsor-Essex region.
- City Administration engaged with a consulting firm to evaluate the Housing with Supports Program in Windsor and Essex County with the goal of transforming the system to align with industry best practices and the 10 Year Housing and Homelessness Plan.
- The project is intended to improve outcomes for current and future residents by establishing a program that meets their needs and empowers them to move along the housing continuum toward more independent living.

K. Goz provides an update relating to the 2021 Windsor Essex Coordinated Point in Time Count as follows:

- In March 2021, the City implemented the third Coordinated **Point in Time Count**.
- Highlights from the 2021 Count include:
 - 250 people are experiencing homelessness – 198 single adults, 14 families with 26 dependent children and 13 youth
 - Gender – 71% male, 27% female and 1% non-binary/gender queer
 - Forty-two percent of the people experiencing homelessness need some time-limited assistance to get back into stable housing. 35% need highly intensive supports to stay housed. The remaining need a service delivery system that empowers them to end their own homelessness. Homelessness has grown increasingly chronic (six months or more in the last twelve months)
 - 75% single adults
 - 86% families
 - 77% youth
 - 22% of people identify as indigenous
- Data related to the **By-Names Prioritized List** is provided.
- **Housing Hub Consultation** – In July 2021, Council approved Administration to engage with a consultant to collect, evaluate and analyze information as well as conduct community, participant and stakeholder consultations throughout the service area to complete a proposal for a Housing Hub (also known as H4).

- A final report will be presented to City and County Councils that will include a Community-Informed Feasibility Study and “What We Have Heard”.

Moved by Councillor K. McKenzie, seconded by Mayor G. McNamara,

That City Council **BE REQUESTED** to call upon Senior Levels of government to increase support for housing retention policies including but not limited to the creation of long-term sustainable funding envelopes to increase supply and to promote successful tenancies through increased supports and supportive housing programming and that this resolution **BE FORWARDED** to the Prime Minister of Canada, the Premier of Ontario, the Minister of Housing, all local MP’s and MPP’s, the Association of Municipalities of Ontario, the Federation of Canadian Municipalities, the Western Ontario Wardens’ Caucus and the Eastern Ontario Wardens’ Caucus.

Carried.

4.3 Updates from Member Organizations

F. Coughlin, Habitat for Humanity provides an update relating to their 3D printed homes project and the CMHC funded projects as follows:

- Furniture bank renewals – Organizations that receive furniture donations can be picked up by the Habitat for Humanity Re-Store and will be provided with gift cards, which can be given to their clients.
- Currently in a soft launch phase of a repair program (due to COVID) but will be going public in July 2022. A repair crew will be available to do some pilot work on certain properties.
- CMHC Funding – Habitat for Humanity Canada has a large envelope of CMHC funding, so the more they can bring to Windsor-Essex, the better.
- CMHC requested that Habitat for Humanity take on the 3D printed homes project in partnership with the University of Windsor, which will be a great innovative experiment. Four homes will be built in Leamington.
- Habitat for Humanity is essentially a builder and mortgage company.
- There is \$50,000 pre-approved for every house they build with CMHC and there are opportunities for partnership.
- Want to take people living in a rent geared to income and to transfer them to a mortgage geared to income, which allows them to have equity in that home. In the past year, they have permanently housed 19 individuals.
- Working with the Canada Revenue Agency to ensure that they come in ten percent less than the appraisal values but it does not matter because the family will never pay more than 25% of their income.
- The houses are mortgaged on an annual term, so every year they meet with the family, look at their income, ensure they are paying their property taxes, and have insurance on their home.
- The mortgage payments go strictly to building more houses.

In response to a question asked by J. Steele regarding if the \$50,000 is on this grant/loan, F. Coughlin responds that it is a forgivable loan, which means they are tied to their homeownership model for that funding so they can be creative. The houses have to stay affordable for twenty years and after that, the loan is forgivable.

4.4 Consumption and Treatment Services Site (CTS) – 628 Goyeau Street

The Chair remarks that there have been negative comments from surrounding businesses relating to the Consumption and Treatment Services Site. For the most part members of HHAC felt this was a necessary tool to assist people in crisis. She adds that City Council at its meeting held January 17, 2022 approved the CTS site at 628 Goyeau

5. Date of Next Meeting

The next meeting will be at the call of the Chair.

6. Adjournment

There being no further business, the meeting is adjourned at 11:32 o'clock a.m.

CHAIR

COMMITTEE COORDINATOR



Committee Matters: SCM 39/2022

**Subject: Report No. 12 of the Housing & Homelessness Advisory Committee -
Increase supports for Housing Retention Policies**

REPORT NO. 12
of the
HOUSING AND HOMELESSNESS
ADVISORY COMMITTEE
of its meeting held
January 25, 2022

Present: Marina Clemens, Chair
Councillor Kieran McKenzie
Jessica Brunet
Fiona Coughlin
Phil Dorner
Kathy Hay
Eric Hill
Mayor Gary McNamara, Town of Tecumseh
Jim Steele
Leigh Vachon
Joyce Zuk

Your Committee submits the following recommendation:

Moved by Councillor K. McKenzie, seconded by Mayor G. McNamara,
That City Council **BE REQUESTED** to call upon Senior Levels of Government to increase support for housing retention policies including but not limited to the creation of long-term sustainable funding envelopes to increase supply and to promote successful tenancies through increased supports and supportive housing programming and that this resolution **BE FORWARDED** to the Prime Minister of Canada, the Premier of Ontario, the Minister of Housing, all local MP's and MPP's. the Association of Municipalities of Ontario, the Federation of Canadian Municipalities , the Western Ontario Wardens' Caucus and the Eastern Ontario Wardens' Caucus.
Carried.

CHAIRPERSON

COMMITTEE COORDINATOR

NOTIFY:

Housing & Homelessness Advisory Committee	On file
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