

**Town of Tecumseh
Sanitary Sewage Collection
System Improvements
Class Environmental
Assessment**

Environmental Screening Report

April 2013

12-5969

Corporation of the Town of Tecumseh

Submitted by

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1.0 INTRODUCTION

1.1 Background and Purpose of Report

Since the early 1980's, wet weather conditions have occasionally resulted in excess inflow and infiltration that has exceeded the capacity of the Town of Tecumseh's sanitary sewage collection system causing basement flooding, especially in the former Village of St. Clair Beach area (referred to as St. Clair Beach in this report). As part of a long-term strategy to reduce basement flooding and accommodate new development, the Town is considering further improvements to the sanitary sewage system. Dillon Consulting Limited was retained to complete a Class Environmental Assessment and functional design of improvements to the sanitary sewage system. The study was completed following the requirements of the Municipal Class EA (October 2000, as amended in 2007 and 2011).

This study builds on previous studies, including the Town of Tecumseh Water and Wastewater Master Plan (2008 Update) and the Town's Sanitary Sewer Assessment Report completed by Dillon in 2011. The assessment report developed recommendations to manage and reduce the risk of future basement flooding in the community by building on the on-going efforts of the Town of Tecumseh. A comprehensive program organized into the following four general categories was recommended to address extraneous flows:

- Improvements to reduce extraneous flows including measures to reduce sources of infiltration and inflows from sanitary manhole covers, roof rainwater downspouts and improper plumbing connections to the sanitary sewage system. The report also recommended the passing of a Municipal by-law authorizing the Town to inspect and require homeowners to disconnect downspouts and correct improper connections at their own cost.
- Partnering with homeowners to manage risks, including a public education and awareness program and subsidies for the installation of backflow prevention devices and the disconnection of foundation drains.
- Assessment and management of infrastructure. Recommended Town actions included sanitary sewer modeling and flow monitoring, measures to manage extraneous flows and an Asset Management Program for the sanitary sewage collection system.
- Storm drainage improvements including upgrades to storm pump station outlets within the older parts of the Town.

To date, the Town has undertaken various efforts to improve the sanitary collection system within the public right-of-way as part of the comprehensive program. Efforts include:

- Completion of on-going studies and sewer/private connection investigations.
- Sewer system repairs and improvements, including:
 - Sanitary and storm collection system improvements.
 - Road reconstruction projects.
 - Regular sewer camera investigations and repair programs.
- Construction of the County Road 22 Sanitary Interceptor Sewer in 2008.
- Installation of sanitary manhole rain shields in low lying areas.
- Mandatory installation of back flow preventers on private sanitary sewer connections to be enforced for new home construction.
- Subsidy program for residents to disconnect foundation drains from sanitary sewers.

As part of this Class EA, Dillon identified and evaluated various alternative solutions to address the problem of basement flooding and the lack of capacity in the sanitary sewage system to accommodate future growth. Based on a comparative evaluation, an expansion and upgrading of the existing sanitary sewage collection system was identified as the preferred solution. To implement the preferred solution, the following sanitary sewage collection system improvements are proposed:

Lakewood Pump Station (PS) Improvements (2013/2014)

- Provide a new PS facility on the west side of Lakewood Park and decommission the existing Lakewood PS at Hayes Avenue.
- Increase PS discharge capacity by 15%.
- Provide an emergency back-up power supply.

Increased Storage Capacity

- Stage 1: Lakewood Park Trunk Sewer (2013/2014):
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity.
- Stage 2: Riverside Drive Trunk Sewer (Future Consideration):
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity.

- Stage 3: Dillon Drive Sanitary Sewer System (Future Consideration):
 - Investigate observed sewer surcharging and identify recommended mitigating measures (public and private).

This Environmental Study Report documents the decision-making process leading to the selection of the preferred functional design of the proposed improvements.

1.2 Study Area

As shown on **Figure 1**, the Study Area encompasses the Town of Tecumseh area north of County Road 22, which includes St. Clair Beach and the former Town of Tecumseh. It is bordered by Lake St. Clair on the north, Pike Creek and the Town of Lakeshore on the east, the Via Rail line and County Road 22 on the south and the City of Windsor on the west.

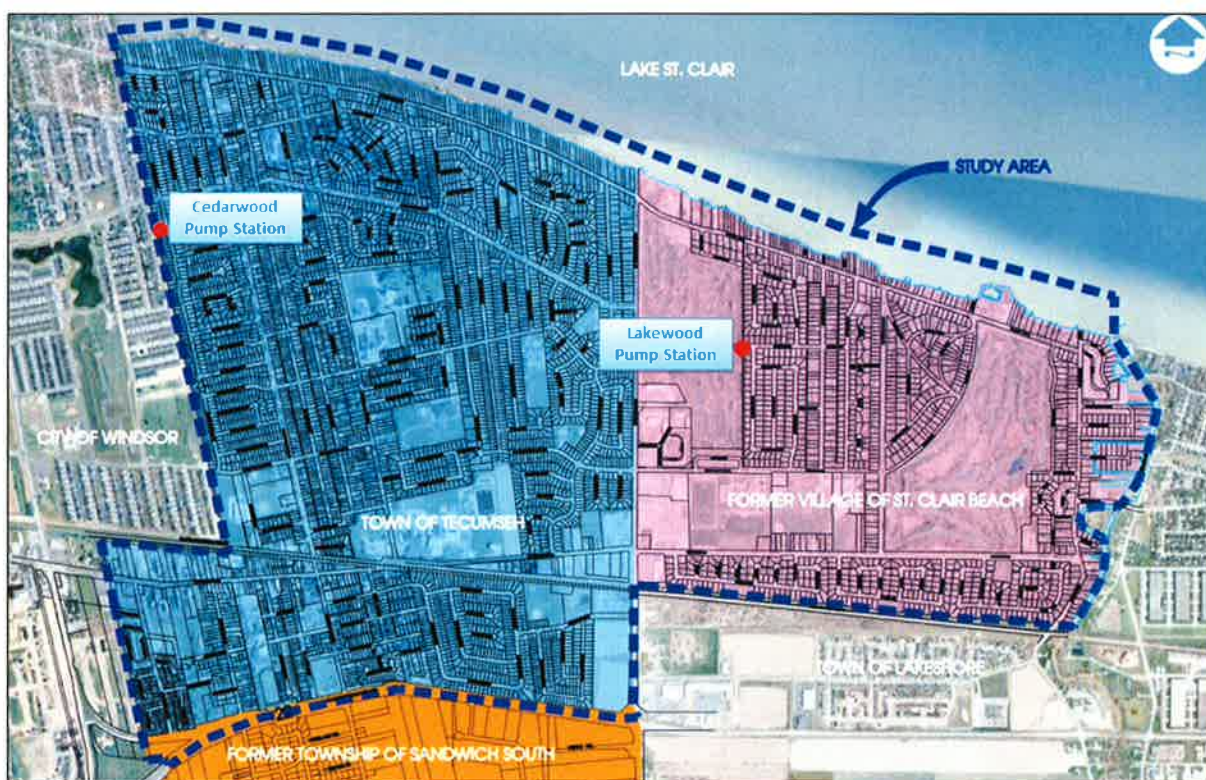


Figure 1: Municipal Class EA Study Area

1.3 Class EA Process

Municipal sanitary sewage projects must meet the requirements of the Ontario *Environmental Assessment (EA) Act*. The Municipal Class EA (October 2000, as amended in 2007 and 2011) applies to a group or “class” of municipal water, wastewater and roads projects which occur frequently and have relatively minor and predictable impacts. These projects are approved under the *EA Act*, as long as they are planned, designed and constructed according to the requirements of the Class EA document.

The specific requirements of the Class EA for a particular project depend on the type of project, its complexity and the significance of environmental impacts. Three categories of projects are identified in the document, including Schedule “A”, “B” and “C” projects. The proposed improvements to the Town of Tecumseh’s sanitary sewage collection system are classified as the following type of Schedule “B” project:

Establish, extend or enlarge a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not in an existing road allowance or an existing utility corridor. (Page I-15, Class EA)

As shown on **Figure 2**, a Schedule “B” project follows Phases 1 and 2 of the Class EA process and is subject to an “environmental screening”:

- Phase 1 of the Class EA process consists of “Problem/Opportunity Identification”.
- Phase 2 consists of the development and evaluation of “Alternative Solutions”.
- Based on the objective of avoiding or minimizing adverse environmental impacts, the Schedule “B” screening process involves:
 - The preparation of an inventory of the environment potentially affected by the project.
 - Development of design options and a recommended design.
 - Public and agency consultation, including consultation with First Nations.
 - An impact assessment of the recommended design, including measures to avoid/mitigate any adverse impacts.
 - Documentation of the Class EA process in a Project File or Environmental Screening Report.

Figure 2: Schedule B, Class EA Process



2.0 PHASE 1: PROBLEM/OPPORTUNITY IDENTIFICATION

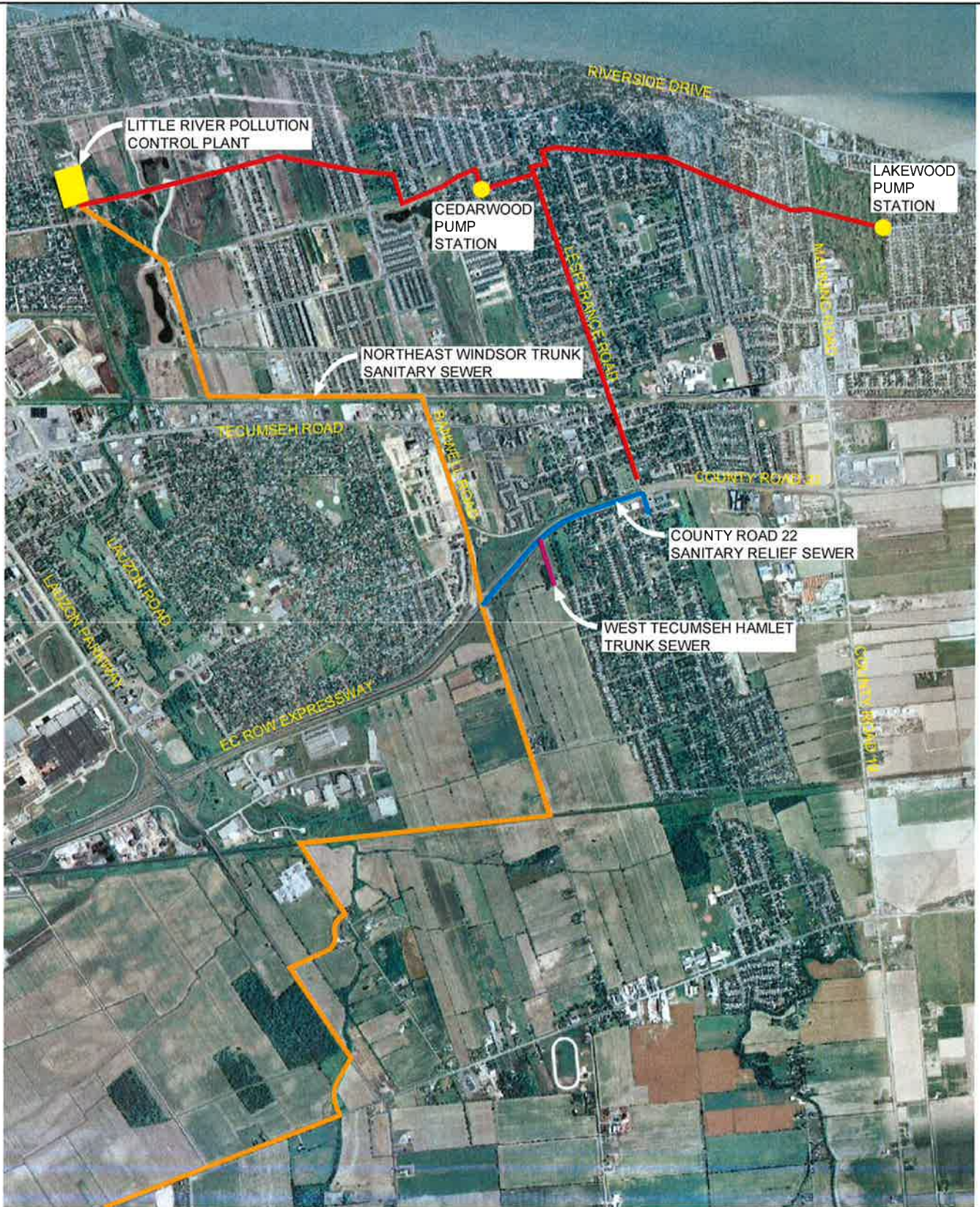
2.1 Introduction

Phase 1 of the Class EA process consists of “Problem/Opportunity Identification” and provides the required justification for improvements to the sanitary sewage collection system.

2.2 Sanitary Sewage Servicing in the Town of Tecumseh

In the 1970’s, the Ministry of the Environment (MOE) constructed sanitary sewage collection systems in the former Village of St. Clair Beach, a portion of the former Township of Sandwich South (Tecumseh Hamlet) and the former Town of Tecumseh. These three communities were amalgamated in 1999 to form the Town of Tecumseh. Sewage is treated at the City of Windsor’s Little River Pollution Control Plant (PCP). The Town currently has a maximum peak flow allocation of 1,308 l/s.

The Town of Tecumseh completed a Master Plan of its water and wastewater systems in 2002, including a 2008 update, which identified opportunities to accommodate growth. In 2004, the City of Windsor and Town entered into a new wastewater agreement allowing increased sewage flows to the City’s Little River PCP. As illustrated by **Figure 3**, the City of Windsor recently constructed the north-east Windsor trunk sanitary sewer on Banwell Road, followed by the construction of the County Road 22 (CR 22) sanitary relief sewer by the Town. This resulted in the diversion of sewage flows from the Tecumseh Hamlet area directly to the Little River PCP, thereby relieving the Lesperance Road sanitary sewer and the Cedarwood Pump Station north of CR 22. The north-east trunk sanitary sewer also provided an outlet for further growth in the Tecumseh Hamlet, south of CR 22, as well as sewage capacity to serve a portion of the Town’s Oldcastle Industrial Park area, south of Highway 401.



**Sanitary Sewage Collection
System Improvements
Municipal Class Environmental
Assessment**

TOWN OF TECUMSEH

**Sanitary Collection
System Trunk Sewers**



FIGURE # **3.0**

Prepared by:
 DILLON CONSULTING
 12500 Lakeshore Blvd. East, Unit 100
 Aurora, ON M1S 1S8
 April 10, 2013, 2:28 PM



PROJECT #: 12-5969 Date: MARCH 2013

Jun 5-6, 2010 Rainfall Event

Logged Call Locations in Wards 1 & 2
as of June 9th, 2010

 WARD 2: Number of Events = 84
 WARD 1: Number of Events = 222

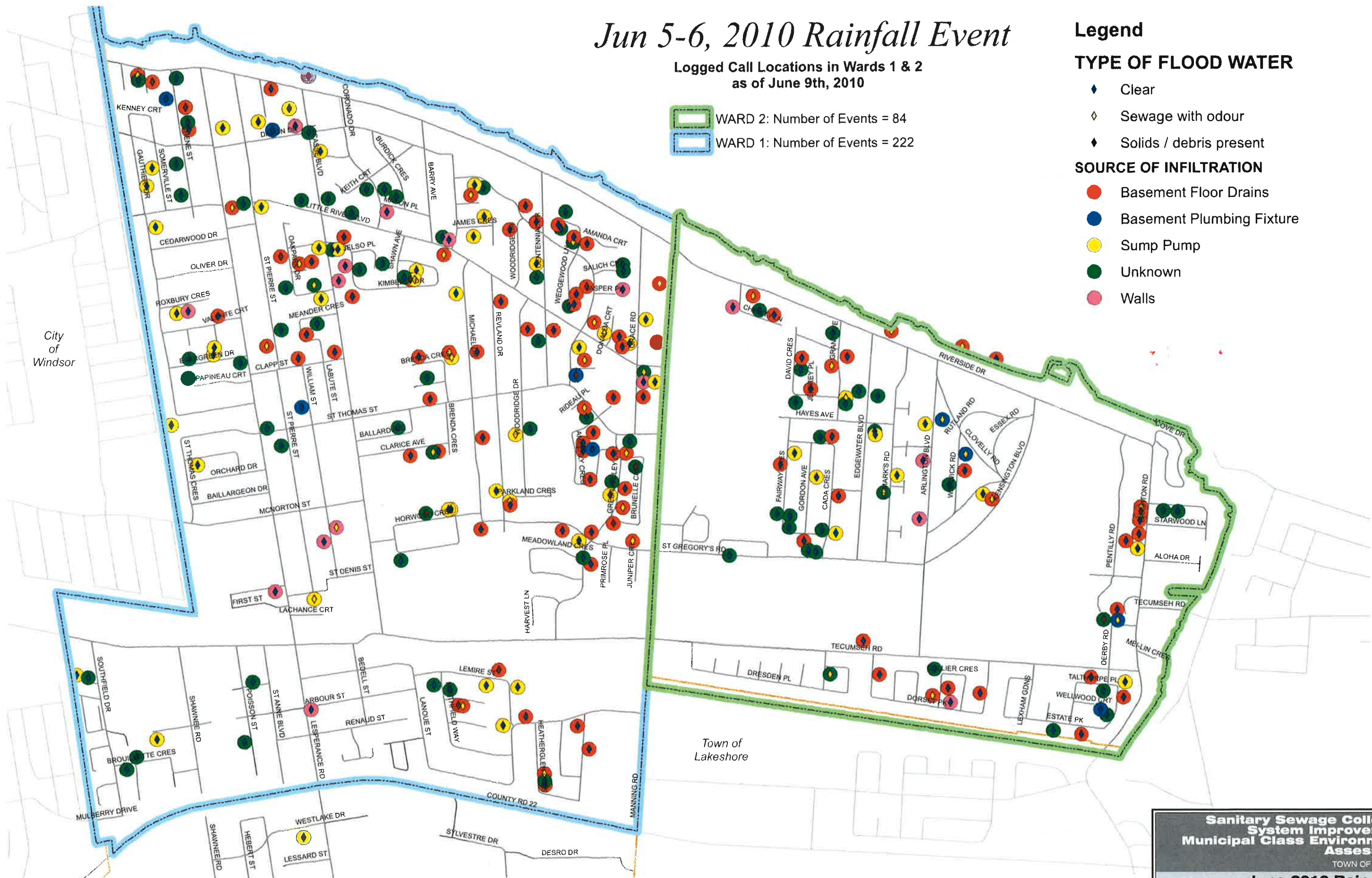
Legend

TYPE OF FLOOD WATER

- ◆ Clear
- ◇ Sewage with odour
- ◆ Solids / debris present

SOURCE OF INFILTRATION

- Basement Floor Drains
- Basement Plumbing Fixture
- Sump Pump
- Unknown
- Walls



Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment

TOWN OF TECUMSEH

June 2010 Rain Event



FIGURE # **4.0**



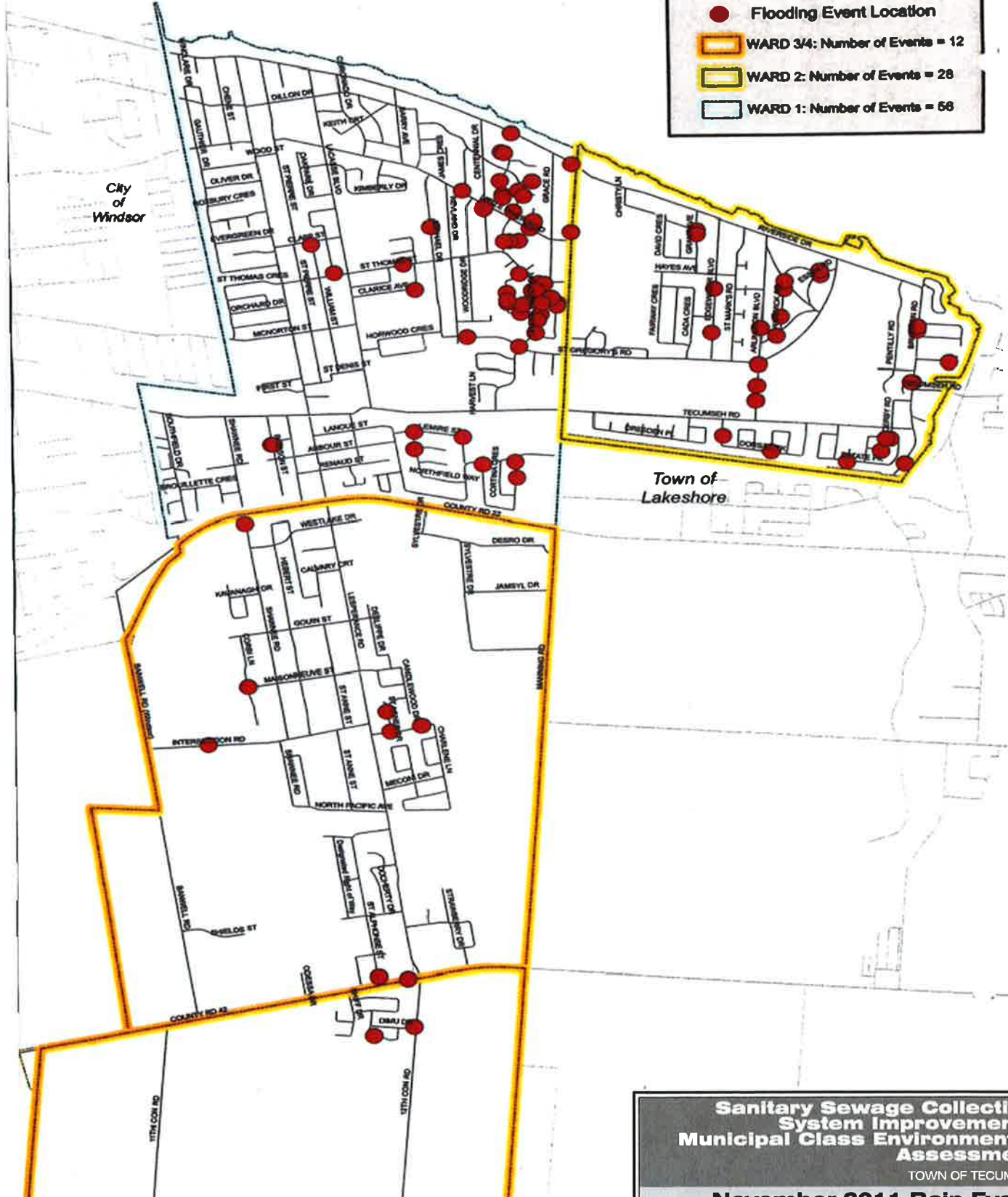
2011 Rainfall Event

November 28th - 29th

Logged Call Locations

Legend

- Flooding Event Location
- WARD 3/4: Number of Events = 12
- WARD 2: Number of Events = 28
- WARD 1: Number of Events = 56



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**Sanitary Sewage Collection
System Improvements
Municipal Class Environmental
Assessment**

TOWN OF TECUMSEH

November 2011 Rain Event

FIGURE # **5.0**



This study focuses on the sanitary drainage areas tributary to the Cedarwood Pump Station and the Lakewood Pump Station.

2.3 Basement Flooding

Since the sanitary sewage collection system was constructed, residents have experienced basement flooding caused primarily by sanitary sewage back-up during significant rainfall events. As documented in previous studies, most of the flooding has been concentrated in St. Clair Beach. Basement flooding events were recorded in 1981, 1983, 1985, 1990, the late 1990s, 2010 and, most recently, in September and November 2011, as summarized on **Table 1**. **Figures 4 and 5** detail recorded basement flooding incidents during the June 2010 and November 2011 events, respectively.

Table 1: History of Basement Flooding in the Town of Tecumseh

Basement Flooding Event	Source of Rainfall Data	Total Rainfall Amount	Remarks
September 1981	Environment Canada, Windsor Airport	89.0 mm	Basement flooding reported throughout St. Clair Beach and Town of Tecumseh, with few reported cases of basement flooding in Tecumseh Hamlet. Flooding in Tecumseh occurred during a period of significant house construction.
July 1983		82.0 mm	Available records suggest that the majority of the basement flooding occurred in St. Clair Beach.
February 1985		34.6 mm	More concentrated flooding reported in St. Clair Beach, particularly in the new development area south of Tecumseh Road. Stormwater pumping station improvements were identified and completed later that year.
February 1990		70.6 mm	Available records suggest that the majority of the basement flooding occurred in St. Clair Beach, although fewer than previous events. There were no records of basement flooding in the Town of Tecumseh.
1998 to 2000	N/A	Unknown	Basement flooding occurred at some point during this period, but there are insufficient records regarding the specific date and/or severity of the basement flooding that occurred.

Basement Flooding Event	Source of Rainfall Data	Total Rainfall Amount	Remarks
June 2010	Environment Canada, Windsor Riverside Ontario (Volunteer Site)	89.8 mm	Widespread basement flooding reported, primarily north of CR 22. The new sanitary relief sewer on CR 22 may have contributed to the reduced basement flooding in the Tecumseh Hamlet.
September 2011		81.6 mm	Flooding reported primarily in the eastern portion of St. Clair Beach.
November 2011		76.2 mm	Basement flooding occurred mostly in Tecumseh north of CR 22. Compared to the June 2010 event, there was a 1/3 reduction in total reported cases.

During these more significant rainfall events, the sanitary collection system experiences significant surcharging caused by excess infiltration and inflow. Over the years, the Town has undertaken extensive studies to identify the sources of infiltration and inflow within the sanitary collection system, including private properties. Infiltration and inflow are defined as follows:

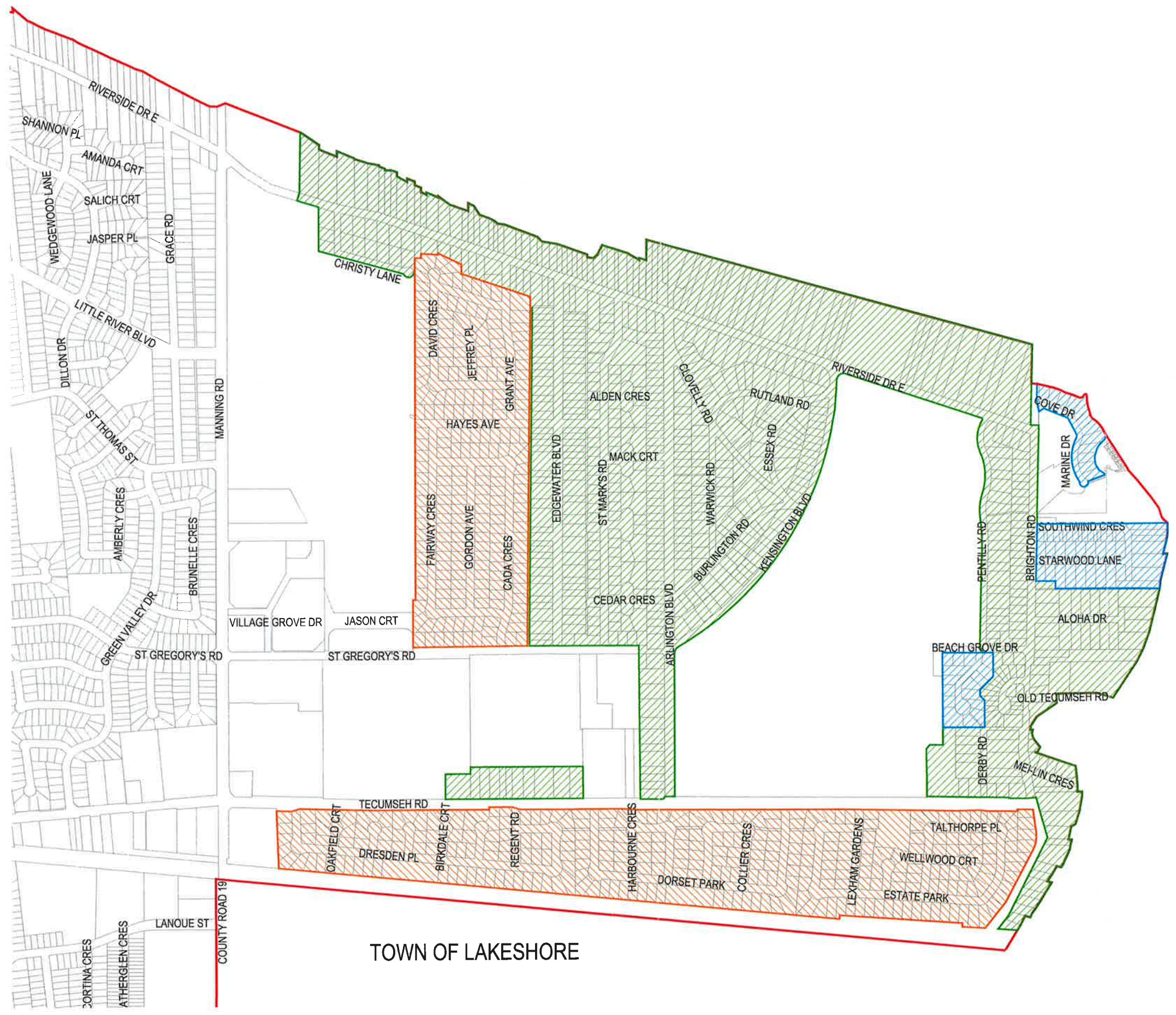
- **Infiltration** consists of groundwater that enters the sanitary sewage system through cracks or leaks in sewer pipes and/or improperly connected private drains. It may occur as a result of age-related infrastructure deterioration, loose joints, improper installation or maintenance, damage or root penetration. Infiltration is characterized by a constant base flow (during normal groundwater conditions) or a relatively delayed, longer duration flow pattern during wet weather conditions.
- **Inflow** is stormwater flows that are directly connected to a sanitary sewer system, including roof rainwater downspouts, basement foundation drains, surface drains (window wells, catchbasins, broken cleanout caps, etc.), improper plumbing connections and manhole covers. Inflows are typically characterized by more instantaneous, shorter duration and higher peak flow patterns.

Figure 6 outlines the former Village of St. Clair Beach areas where the direct connection of foundation drains to the sanitary plumbing system was permitted for a period of time as new development occurred. Foundation drains connected to the sanitary sewer system have the potential to contribute significant inflows to the sanitary sewer. Other improper connections include connections of sump pumps, roof leaders or other stormwater sources to the home's sanitary plumbing system.




Basement flooding may also be caused by stormwater drainage sources, including infiltration of groundwater through cracks in basement walls/floors, plugged weeping tiles, failure of sump pumps, damaged roof downspout connections, or poor lot grading around the home. **Figure 7** illustrates low lying areas in the Town of Tecumseh that may be particularly vulnerable to surface water ponding, particularly during more significant rainfall events.

The Town has undertaken various improvements over the years to address extraneous flows within the public portions of the sanitary sewage collection system, including pump station improvements, rehabilitation of sanitary sewers, manholes and private drain connections, and infrastructure renewal as part of roadway reconstruction projects.

In May 2011, the Town adopted a comprehensive 10-year program that is summarized in **Table 2**, and began implementing many of these recommendations to further address extraneous flows in their sanitary collection system, including partnering with homeowners to implement improvements on private property.



LEGEND

-  FOUNDATION DRAINS MAY BE INTENTIONALLY CONNECTED TO THE SANITARY SEWER
-  FOUNDATION DRAINS MAY BE INDIRECTLY CONNECTED TO THE SANITARY SEWER
-  CROSS CONNECTIONS TO SANITARY SEWER SUSPECTED WITHIN THIS AREA

TOWN OF LAKESHORE

Sanitary Sewage Collection System Improvements Municipal Class Environmental Assessment
TOWN OF TECUMSEH

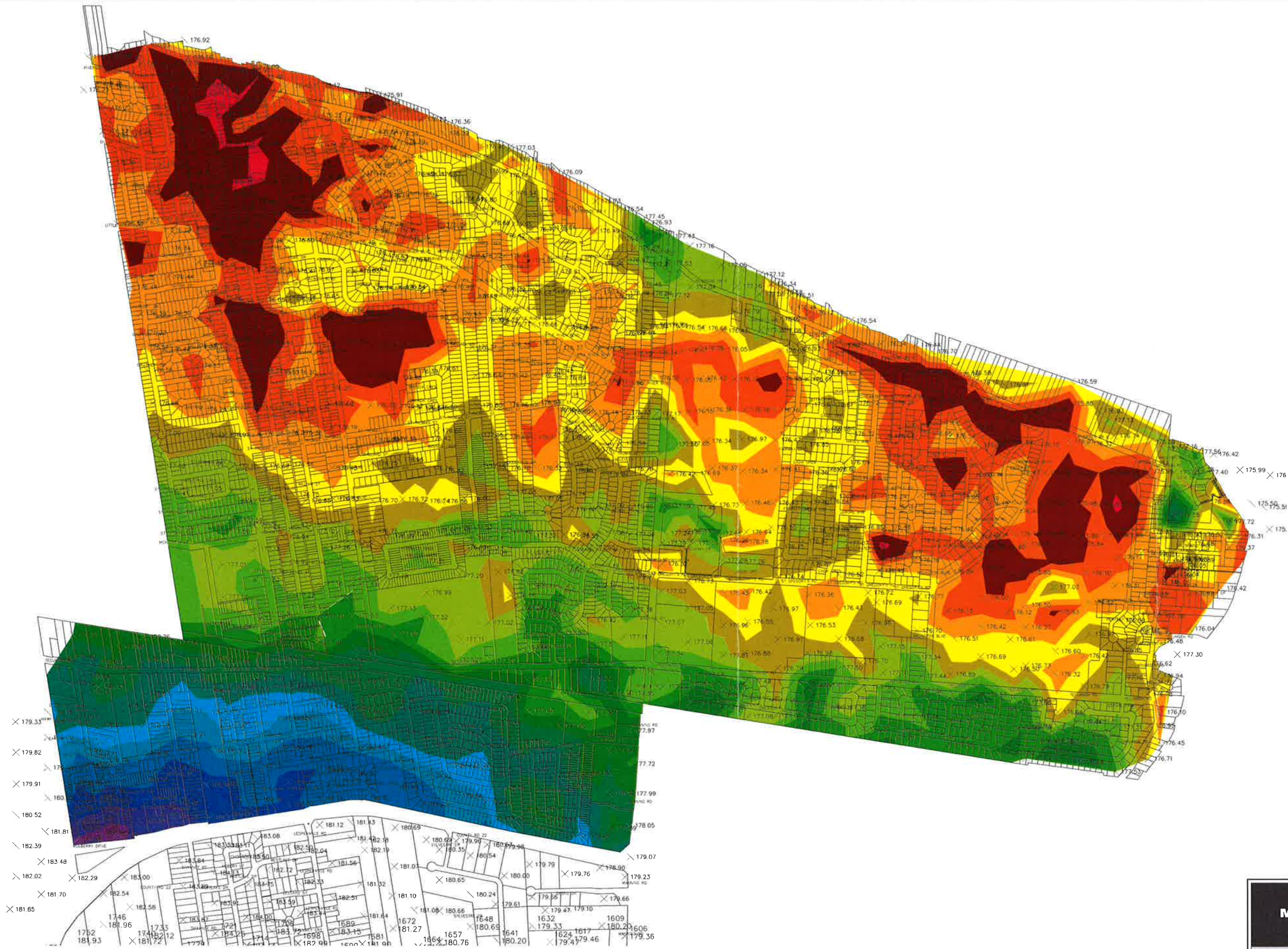
Foundation Drain Connection Plan



FIGURE # **6.0**

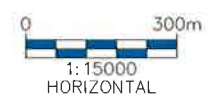


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LEGEND

Red	175.001m - 175.500m
Dark Red	175.501m - 176.000m
Orange	176.001m - 176.250m
Light Orange	176.251m - 176.500m
Yellow	176.501m - 176.750m
Light Green	176.751m - 177.000m
Green	177.001m - 177.250m
Dark Green	177.251m - 177.500m
Medium Green	177.501m - 177.750m
Light Blue	177.751m - 180.000m
Blue	178.001m - 178.500m
Dark Blue	178.501m - 179.000m
Very Dark Blue	179.001m - 179.500m
Dark Purple	179.501m - 180.000m
Medium Purple	180.001m - 181.000m
Light Purple	181.001m - 182.000m
Dark Grey	182.001m - 183.000m
Light Grey	183.001m - 184.000m
White	184.001m - 184.500m



Sanitary Sewage Collection System Improvements Municipal Class Environmental Assessment
TOWN OF TECUMSEH

Low Laying Area Plan



FIGURE # **7.0**

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Table 2: Tecumseh 10-Year Plan to Address Extraneous Flows

RECOMMENDED PROGRAM TO ADDRESS EXTRANEEOUS FLOWS TECUMSEH SANITARY SEWER SYSTEM		PROJECTED BUDGET
IMPROVEMENTS TO REDUCE EXTRANEEOUS FLOWS	Reduce Sources of Infiltration in the Town’s Sanitary Collection System	Budget \$150,000 annually for infrastructure assessment and repairs and monitor effectiveness.
	Reduce Inflow from Sanitary Manhole Covers	Budget \$15,000 for purchase and installation of rain catcher devices.
	Reduce Inflow from Roof Rainwater Downspouts	Town by-law providing authority to inspect and require homeowners to disconnect downspouts at their cost.
	Reduce Inflow from Improper/Illegal Connections	Town by-law providing authority to inspect and require homeowner to correct plumbing at their cost.
PARTNERING WITH HOMEOWNERS TO MANAGE RISK	Public Education and Awareness Program	Budget \$5,000 for the Town’s public education and awareness program.
	Support Installation of Backflow Prevention Devices	Budget \$30,000 annually for the Town’s subsidy in support of these installations.
	Support Disconnection of Foundation Drains	Budget \$30,000 annually for the Town’s subsidy in support of these disconnections.
ASSESSMENT AND MANAGEMENT OF PUBLIC INFRASTRUCTURE	Sanitary Sewer Modeling and Flow Monitoring	Budget \$70,000 for initial update of the Town’s model, with \$30,000 to update every 3 years.
	Implement Measures to Manage Extraneous Flows <i>*FOCUS OF THIS CLASS EA*</i>	Cost will depend on solutions arising from program effectiveness and results of sewer modeling.
	Asset Management Program for the Sanitary Collection System	This Asset Management Program may be considered separately by the Town.
STORM DRAINAGE IMPROVEMENTS	Improve Storm Drainage Outlets	Upgrade storm pump station outlets within older parts of the Town as funding permits.

The Town appreciates the importance of taking this comprehensive approach in order to effectively address extraneous flows and reduce the risk and frequency of basement flooding. In addition to continuing with longer-term efforts that would lead to progressive reductions in extraneous flows, the 10-Year Plan also includes recommendations for managing extraneous flows in a manner that would achieve more immediate improvements to the level of service, which is the focus of this Class EA, as noted in **Table 2**.

2.4 Problems and Opportunities

With the primary focus of this Class EA being the identification of shorter-term improvements to address the problem of basement flooding in the existing community, there are also opportunities to provide capacity to accommodate new development. Problems and opportunities associated with this project are outlined in the following:

- **Public health issues/nuisances** caused by the inability of the sewage system to handle excessive extraneous flows, resulting in:
 - The backup of raw sewage into basements
 - By-passing of sanitary sewage flows to the Detroit River at the City of Windsor's Little River PCP during periods of high flow.

- **System capacity issues.** The existing sewage system is not capable of providing an adequate level of service during wet weather flow conditions for excessive extraneous flows arising from:
 - Outdated original design/construction of the system, including pipe materials/fittings and construction practices. Also, for a period of time, the former Village of St. Clair Beach permitted the connection of foundation drains to the sanitary sewer system
 - Deterioration in condition of the sanitary sewage collection system, allowing increased infiltration of groundwater
 - Inappropriate private plumbing and drainage connections, resulting in increased inflows to the collection system
 - Surface water inflows to the collection system in low-lying areas and/or areas with deficient storm drainage systems.

- ***Opportunities to accommodate additional development flows.*** Proposed developments that could potentially be serviced by improvements to the sewage system include the Lakewood Park South development, Christy Lane residential development, and the retirement home on Riverside Drive.

2.5 Problem Statement

In summary, sanitary sewage system improvements are needed in Tecumseh to continue to reduce basement flooding and accommodate new development. A range of alternative solutions to address these noted problems and opportunities was considered as part of the Class EA process.

3.0 PHASE 2: ALTERNATIVE SOLUTIONS

3.1 Alternative Solutions

To address the project's problems and opportunities, six alternative planning solutions were identified for further evaluation, as follows:

Alternative 1: Expand or Upgrade Existing Sanitary Sewage System

The following options may be considered as part of this planning solution:

- Improve operation and maintenance of existing system.
- Manage peak flows by providing:
 - SCADA monitoring (system could be moderately surcharged without causing basement flooding);
 - Improved pump station operation and capacity;
 - On-line storage; and/or
 - Emergency overflow to receiving waters.
- Support the installation of backflow prevention devices through municipal subsidies to homeowners.
- Implement regular flow monitoring and update the Town's sanitary sewer model.
- Improve the stormwater drainage system to discourage or correct improper connections.

Alternative 2: Rehabilitate Existing Sanitary Sewage System

The following options may be considered as part of this planning solution:

- Re-line and/or seal existing sewers and private drain connections.
- Reconstruct existing sewers that are deficient.
- Identify and correct hydraulic deficiencies in the system.

Alternative 3: Expand Maintenance Program

The following options may be considered as part of this planning solution:

- Clean the sewage system to improve hydraulic characteristics.
- Undertake maintenance activities.
- Implement an Asset Management Program for the sanitary collection system.

Alternative 4: Reduce Sewage Flows

The following options may be considered as part of this planning solution:

- Implement and enforce municipal by-laws to regulate connections to the sewage collection system (mandatory downspout disconnection and backflow preventers).
- Support measures to minimize groundwater infiltration and stormwater inflow, including:
 - Reduce inflow from sanitary manhole covers;
 - Reduce inflow from roof rainwater downspouts;
 - Support disconnection of foundation drains through municipal subsidies to homeowners; and/or
 - Provide resources for public education and awareness.
- Improve storm drainage outlets and stormwater collection system.

Alternative 5: Limit Community Growth

- This planning solution would consider placing limitations on the ultimate extent and/or location of proposed residential, industrial and commercial growth in the community.

Alternative 6: Do Nothing

- No improvements or changes would be considered as part of this planning solution.

3.2 Evaluation Criteria

As shown on **Table 3**, the following factors and criteria were used to comparatively evaluate the alternative planning solutions:

- Ability to address Problem/Opportunity:
 - Ability to reduce risk of basement flooding; and
 - Ability to service new development.
- Design and Construction Considerations:
 - Required approvals; and
 - Construction requirements.
- Potential Environmental Impacts and Opportunities for Mitigation:
 - Cultural and heritage features;
 - Natural environment; and
 - Socio-economic environment.
- Conformity to County and local Official Plan, Land Use and Servicing Policies.
- Consistency with Provincial Policy Statement (PPS).
- Property Requirements.
- Project Costs.

3.3 Comparative Evaluation

The comparative evaluation of the six alternative planning solutions is shown on **Table 3**. The following is a summary of our evaluation:

- With respect to ability to address the problem/opportunity, a combination of Alternatives 1, 2, 3 and 4 is preferred. Expanding/upgrading the existing sewage collection has the potential to have a more immediate effect on reducing the risk of basement flooding and accommodating new development. Alternatives 2 and 3 are both longer-term strategies that will support the same objectives.
- Based on design and construction considerations, Alternatives 2, 3, 5 and 6 are preferred since approvals would not generally be required for these alternatives and construction impacts are generally localized (Alternative 2) or not required (Alternatives 3, 5 and 6).

- Alternatives 2, 3, 5, and 6 have limited impacts on cultural resources, the natural environment, or the socio-economic environment. Alternative 1 includes new infrastructure that may impact these features, but impacts can be mitigated.
- Alternative 1, Expand/Upgrade Existing Sanitary Sewage Collection System, is preferred with respect to conformity to local Official Plan land use and servicing policies. Alternative 1 conforms to the County of Essex Official by encouraging future growth and development in Settlement Areas and allowing new development to occur. It also conforms to the local Official Plans' policies for growth and servicing. Alternative 5, Limit Community Growth, does not conform to the County and local Official Plan policies which encourage growth in Settlement Areas. The other alternatives also do not meet long-term servicing needs in Tecumseh.
- With respect to consistency with the Provincial Policy Statement (PPS), Alternative 1 is preferred, as sanitary sewage system improvements will help reduce impacts on water resources caused by sewage flows by-passing treatment facilities during periods of high flow. As required by the PPS, Alternative 1 integrates planning for servicing needs with planning for growth. As shown on **Table 3**, the other alternatives are not consistent with some PPS policies, including the requirement that municipalities plan for growth.
- All of the alternatives, with the exception of Alternative 4, are equal with respect to property requirements. No property is required for Alternative 1, since the Town already owns the property.
- Alternatives 2, 3, 5 and 6 are preferred with respect to Project Costs. Alternatives 1 and 4 both have relatively high costs.

3.4 Preferred Solution

Based on the comparative evaluation, Alternative 1, Expand/Upgrade Existing Sanitary Sewage Collection System, was chosen as the preferred solution. In summary, this solution is preferred for the following reasons:

- Expanding/upgrading the system has a more immediate effect on accommodating growth and reducing the risk and frequency of basement flooding;
- It has limited environmental impacts that can be mitigated;

Table 3: Comparative Evaluation of Alternative Solutions

Evaluation Factors	1. Expand/Upgrade Existing Sanitary Sewage Collection System	2. Rehabilitate Existing Sanitary Sewage Collection System	3. Expand Maintenance Program	4. Reduce Sewage Flows	5. Limit Community Growth	6. Do Nothing	Preferred Alternative
1. Ability to Address Problem/Opportunity <ul style="list-style-type: none"> - Ability to reduce risk of basement flooding - Ability to service new development 	<p>More immediate effect on reducing risk of basement flooding.</p> <p>Will not completely eliminate basement flooding risks.</p> <p>More immediate effect on accommodating new development.</p>	<p>Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development.</p> <p>Will not completely eliminate basement flooding risks.</p>	<p>Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development.</p> <p>Will not completely eliminate basement flooding risks.</p>	<p>Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development.</p> <p>Will not completely eliminate basement flooding risks.</p>	<p>Does not address existing basement flooding problems or provide opportunities for growth. Not consistent with 2008 Water/Wastewater Master Plan Update.</p>	<p>Does not address existing basement flooding problems or provide opportunities for growth. Not consistent with 2008 Water/Wastewater Master Plan Update.</p>	1,2,3
2. Design and Construction Considerations <ul style="list-style-type: none"> - Required approvals - Construction requirements 	<p>Construction of new infrastructure requires Municipal Class EA and Environmental Compliance Approval from MOE.</p>	<p>No approvals required Construction is localized.</p>	<p>No approvals required Construction is localized.</p>	<p>Similar to Alternative 1 for storm drainage system.</p> <p>Similar to Alternative 2 for sanitary collection system.</p>	<p>No approvals or construction requirements.</p>	<p>No approvals or construction requirements.</p>	2,3,5,6
3. Potential Environmental Impacts and Opportunities for Mitigation <ul style="list-style-type: none"> - Socio-Economic Environment - Natural Environment - Cultural and Heritage Features 	<p>New infrastructure may impact:</p> <ul style="list-style-type: none"> - Cultural Heritage Features (but these features can be avoided); - Lands with potential for discovery of archaeological sites (Impacts can be mitigated by completing archaeological assessments); and - Impacts during construction on nearby residents (visual, noise, odour) are short-term and can be mitigated. Benefit of reduction in basement flooding. 	<p>Limited cultural and natural environment impacts since construction is generally localized in existing disturbed areas.</p> <p>Impacts during construction on nearby residents are short-term and may be mitigated.</p>	<p>Limited cultural and natural environment impacts since construction is generally localized in existing disturbed areas.</p> <p>Impacts during construction on nearby residents are short-term and may be mitigated.</p>	<p>Measures related to the storm drainage system are similar to Alternative 1.</p>	<p>No environmental impacts, although no improvement to current risk of basement flooding.</p>	<p>No environmental impacts, although no improvement to current risk of basement flooding.</p>	2,3

Evaluation Factors	1. Expand/Upgrade Existing Sanitary Sewage Collection System	2. Rehabilitate Existing Sanitary Sewage Collection System	3. Expand Maintenance Program	4. Reduce Sewage Flows	5. Limit Community Growth	6. Do Nothing	Preferred Alternative
4. Conformity to County and Local Official Plan Land Use and Servicing Policies	Conforms to County Official Plan Policies for “Settlement Areas” and Sanitary Sewers. Conforms to St. Clair Beach and Tecumseh Official Plan policies for Growth and Storm and Sanitary Sewers.	Conforms to County Official Plan but does not meet long-term servicing needs. Conforms to local Official Plans.	Conforms to County Official Plan but does not meet long-term servicing needs. Conforms to local Official Plans.	Conforms to County Official Plan but does not meet long-term servicing needs. Conforms to local Official Plans.	Does not conform to County Plan’s policies for Settlement Areas and Sanitary Sewers. Conforms to local Official Plans.	Does not conform to County Plan’s policies for Settlement Areas and Sanitary Sewers. Conforms to local Official Plans.	1
5. Consistency with Provincial Policy Statement (PPS)	Consistent with PPS policies to protect, improve or restore water quality, integrate servicing needs with planning needs, and aim to avoid impacts on significant resources protected by the PPS.	Does not help improve water quality as much as Alternative 1. Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth.	Does not help improve water quality as much as Alternative 1. Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth.	Does not help improve water quality as much as Alternative 1. Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth. Also consistent with PPS policy to promote water conservation and efficient water use.	Does not address PPS policy requiring planning for growth.	Does not address PPS policies requiring planning for growth and optimizing use of existing infrastructure.	1
6. Property Requirements	No property required, since Town owns required lands.	No property required since work would be completed within existing public rights-of-way.	No property required since work would be completed within existing public rights-of-way.	Property may be required to implement some of the storm drainage and outlet improvements.	No property required.	No property required.	1,2,3,4
7. Project Costs	Relatively high construction cost.	Medium construction cost.	Medium construction cost.	Relatively high construction cost.	Lowest construction cost.	Lowest construction cost.	2,3,5,6
OVERALL EVALUATION	PREFERRED SOLUTION	Supplements Preferred Solution recommended as part of Town’s Comprehensive Strategy. Currently the Town is carrying out this solution as part of the 10-Year Plan.	Supplements Preferred Solution recommended as part of Town’s Comprehensive Strategy. Currently the Town is carrying out this solution as part of the 10-Year Plan.	Supplements Preferred Solution recommended as part of Town’s Comprehensive Strategy. Currently the Town is carrying out this solution as part of the 10-Year Plan.	Not Preferred.	Not Preferred.	

- Rehabilitating the existing sanitary sewage collection system (Alternative 2), expanding the maintenance program (Alternative 3) and reducing sewage flows (Alternative 4) will also be implemented to support the preferred solution as part of the Town's comprehensive strategy.

4.0 FUNCTIONAL DESIGN

4.1 Introduction

There are a range of alternative designs that may be considered within the scope of the preferred solution. The Study Team considered various design alternatives and assessed their effectiveness through the use of the Town's calibrated model of the sanitary collection system. While it is not considered practical to completely eliminate the risk of basement flooding, alternative design solutions were evaluated based on their effectiveness in reducing this risk. This section of the ESR summarizes the development of the preferred functional design.

4.2 Sanitary Sewage System Modeling

As part of this Class EA, the existing sanitary sewer system was analyzed using a computational modeling program to simulate the sewer system under dry and wet weather conditions. The model was calibrated using measured sewer flow data that was recorded at several locations within the sanitary collection system. The model was used to confirm the performance of the existing collection system and the effectiveness of alternative design solutions in improving the level of service based on a 1:2 year and 1:5 year design storm event. The memo summarizing the results of this evaluation is included in **Appendix C** (St. Clair Beach and Lakewood Infrastructure Upgrade/Improvement Options, October 1, 2012).

Based on our modeling results, it appears that most of the existing sanitary collection system in St. Clair Beach becomes surcharged to within 1.5 m of the ground surface under the following 1:5 year design storm event:

- 1:5 year return period frequency (20% chance of occurring);
- 24 hour duration;
- Chicago rainfall distribution pattern; and
- Total rainfall amount of 62.4 mm.

The effectiveness of introducing underground storage was evaluated at various locations within the sanitary collection system to accommodate varying portions of the excess extraneous flow, including the relocation and upgrading of the Lakewood sanitary pump station. The results of our initial evaluation suggest that, in addition to the relocation and upgrading of the Lakewood sanitary pump station, adding storage to the system at Lakewood Park South, as well as along Riverside Drive near Brighton Road, would effectively reduce the degree of sewer surcharging.

A subsequent evaluation was completed to identify a more optimum balance between the relative cost of alternative infrastructure upgrades and the corresponding degree of improvement in the level of sewer surcharging. Based on the results of the comparative evaluation (illustrated in **Appendix D**), the recommended functional design solution may be generally described as follows:

- Relocation of the Lakewood sanitary pump station to the west side of the Lakewood Park South property, including a 15% increase in discharge capacity;
- 2200 mm diameter sanitary sewer pipe that would serve as temporary in-line storage across the width of the Lakewood Park South property; and
- 1500 mm diameter sanitary sewer pipe that would serve as temporary in-line storage on Riverside Drive, from Kensington Boulevard to Pentilly Road.

Figure 8 illustrates the estimated sanitary sewer surcharge conditions for the 1:5 year design storm under the following scenarios:

Scenario 1: Pre- Existing Conditions (Pre-2008):

- Prior to implementing the County Road 22 sanitary relief sewer.

Scenario 2: Existing Conditions (2013):

- Following implementation of the County Road 22 sanitary relief sewer that resulted in diversion of the sanitary flows from the Tecumseh Hamlet Area at Lesperance Road, westerly to the north-east Windsor sanitary trunk sewer.

Scenario 3: Proposed Conditions - Stage 1:

- Implementation of Stage 1 of the recommended functional design, including the storage pipe across the Lakewood Park South property and the relocation and upgrading of the Lakewood sanitary pump station (**Figure B.1**).

Scenario 4: Future Conditions - Stage 2:

- Complete implementation of the recommended functional design (**Figure B.2**).

As shown on **Figure 8**, the following observations are noted:

- The County Road 22 sanitary relief sewer appears to have resulted in improvements to the sanitary sewer surcharging conditions within the former Town of Tecumseh (north of County Road 22 and west of Manning Road), as well as portions of the Tecumseh Hamlet area, south of County Road 22. Improvements were not evident in the former Village of St. Clair Beach, as well as the Dillon Drive area, south of Little River Boulevard.
- Stage 1 of the recommended functional design appears to improve the sewer surcharge levels in the majority of the St. Clair Beach area, with the exception of the easterly portion.
- Stage 2 of the recommended functional design appears to improve the sewer surcharge levels in the remaining easterly portion of the St. Clair Beach area.

While the recommended design appears to result in improved sewer surcharge levels within the St. Clair Beach area, the area on Dillon Drive and Green Valley Drive, south of Little River Boulevard remains unimproved. It is recommended that further visual examination of the sanitary sewer system in this area, including additional flow monitoring and hydraulic analysis, be undertaken to identify site specific opportunities for improvements.

4.3 Functional Design

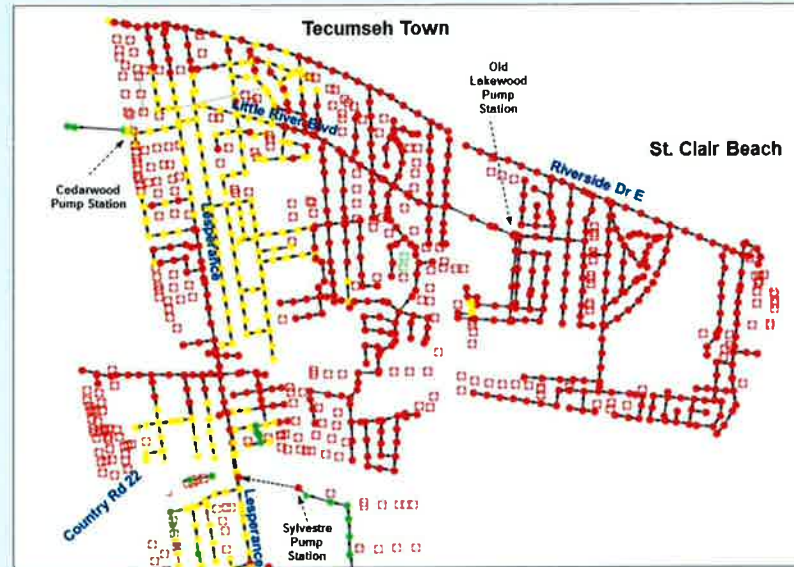
The recommended functional design was developed and presented in the PIC is shown in **Appendix B** and consists of the following improvements:

Lakewood Pump Station (PS) Improvements (2013/2014)

- Provide a new PS facility on the west side of Lakewood Park South on Manning Road, as shown on **Figure B.1** in **Appendix B**:
 - Decommission the existing Lakewood PS at Hayes Avenue.
- Increase discharge capacity by 15%.
- Provide an emergency back-up power supply.

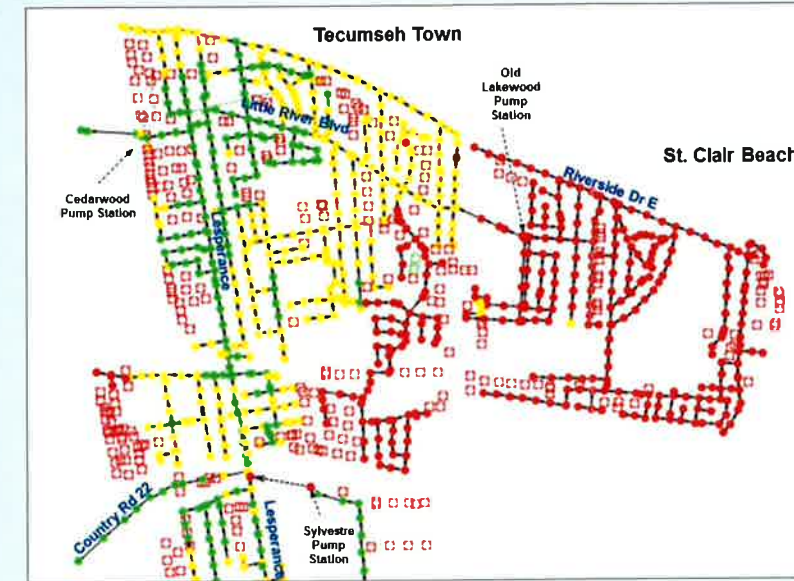
**Pre-Existing Conditions
(Pre-2008)**

Represents the system prior to implementing the County Road 22 sanitary relief sewer.



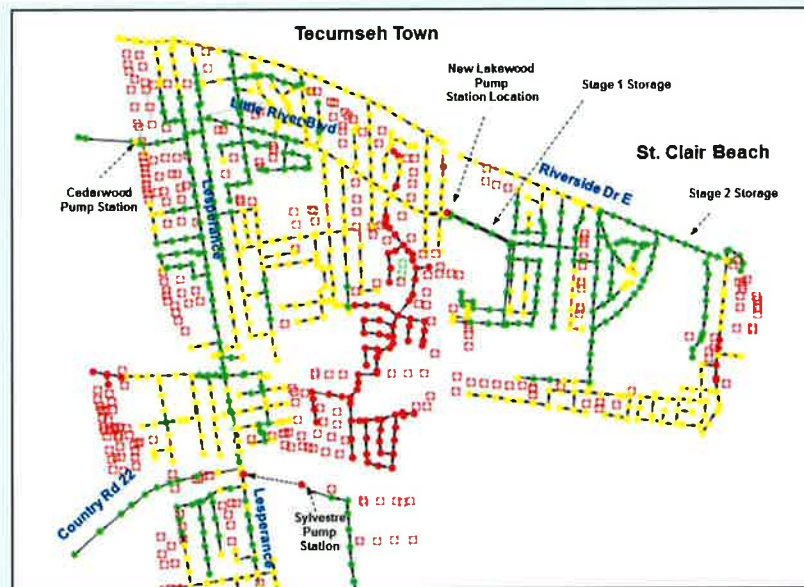
**Existing Conditions
(2013)**

Represents the system after implementing the County Road 22 sanitary relief sewer.



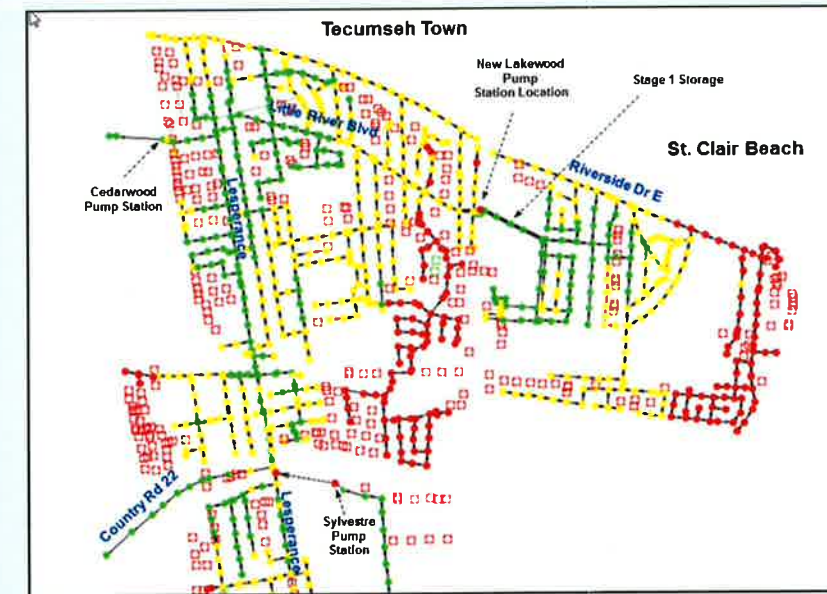
**Proposed Conditions
(Stage 1)
(2013/2014)**

Represents the system after implementing Lakewood Pump Station Improvements and surcharge storage within Lakewood Park.



**Future Conditions
(Stage 2)**

Represents the system after implementing surcharge storage along Riverside Drive, between Arlington Boulevard and Pentilly Drive.



MH COLOUR CODE	DESCRIPTION	WET WEATHER SANITARY SURCHARGE LEVELS
RED	High Water Levels	Less than 1.5 m from ground surface
YELLOW	Moderate Water Levels	1.5 m to 3.0 m from ground surface
GREEN	Low Water Levels	Greater than 3.0 m from ground surface

**Sanitary Sewage Collection
System Improvements
Municipal Class Environmental
Assessment**

TOWN OF TECUMSEH

**Sanitary Sewer
Modeling Scenarios**



FIGURE # **8.0**

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Increased Storage Capacity

- Stage 1: Lakewood Park Trunk Sewer (2013/2014):
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity. The sewer will cross Lakewood Park South, as shown on **Figure B.1**.
- Stage 2: Riverside Drive Trunk Sewer (Future Consideration):
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity on Riverside Drive from Pentilly Road to Kensington Boulevard in St. Clair Beach, as shown on **Figure B.2**.
- Stage 3: Dillon Drive Sanitary Sewer System (Future Consideration):
 - Investigate observed sewer surcharging and identify recommended mitigating measures (public and private).

In summary, the proposed functional design for the project:

- Integrates well within the existing sanitary collection system by redirecting and incorporating existing flows, and largely eliminating existing sanitary sewers located within easements.
- Addresses conflicts with existing and proposed infrastructure improvements in the area.
- Addresses the potential risk of basement flooding in the Study Area. However, the proposed improvements will not completely eliminate the risk of basement flooding, especially during more extreme rainfall events.

Further refinement to the recommended functional designs were made subsequent to the PIC and are incorporated in the preferred functional design described in more detail in Section 7 of this report.

5.0 ENVIRONMENTAL INVENTORY

5.1 Introduction

This section of the Environmental Screening Report summarizes the environmental inventory prepared as part of the Schedule “B” environmental screening process. It covers all existing and future conditions potentially affected by the alternative solutions and design options developed for the project.

5.2 Built Heritage and Cultural Landscapes

No built heritage or cultural landscapes in the Study Area are affected by the proposed sewage collection system improvements.

5.3 Archaeological Assessment

Fisher Archaeological Consulting (FAC) conducted a Stage 1 Archaeological Assessment of the proposed sewage collection system improvements. A Stage 1 assessment consists of background research and “windshield” survey to determine existing registered archaeological sites and lands with moderate and high archaeological potential requiring further, more detailed archaeological assessments prior to construction. Prepared according to the Ministry of Tourism, Culture and Sport’s (MTCS) *Standards and Guidelines* (2011), FAC’s Stage 1 assessment is documented in a report dated April 2013.

The assessment divided the Study Area into two areas, including:

- Study Area 1, consisting of the lands potentially affected by the new Lakewood Pumping Station and Lakewood Park Trunk Sewer (Stage 1 of the project)
- Study Area 2, consisting of the lands potentially affected by the proposed Riverside Drive Storage Sewer (Stage 2 of the project to be considered in the future).

The Stage 1 report concluded that Study Area 1 has low potential for Aboriginal archaeological material since it is not close to water, is located on poorly drained clay soils and has been extensively disturbed by development of the Lakewood Golf Course and existing sanitary sewer. Although it has high potential for Euro-Canadian material, this potential has been reduced by the extensive modern disturbance. No further archaeological work is recommended for Study Area 1.

Since Study Area 2 is located on sandy soils and is close to a registered archaeological site and Lake St. Clair and Pike Creek, it has high potential for Aboriginal archaeological material beyond the current footprint of Riverside Drive. This area also has high potential for Euro-Canadian material since Riverside Drive was the first dirt track to lakefront houses and cottages and the area is the site of a 19th century residence. FAC’s report recommended that a Stage 2 archaeological assessment be completed prior to construction by shovel testing until/unless

extensive disturbance is confirmed. Archaeological clearance from MTCS is required prior to construction.

5.4 Terrestrial Resources

Most of the Study Area consists of urban development with active recreational uses (park and golf course), with few natural features.

A search of the Natural Heritage Information Centre (NHIC) database found six Species at Risk have potential to be present in the Study Area. Two species, including Sessile leaved Tick-Trefoil (*Desmodium sessilifolium*) and Thyme Leaved Pinweed (*Lechea minor*), are considered to be extirpated in the Province. The habitat of three species, including Elusive Clubtail (*Stylurus notatus*), Crowned Beggars Tick (*Bidens trichosperma*) and Coast Barnyardgrass (*Echinochloa walteri*) is not present in the Study Area. No further surveys are required for these five species. Lands affected by the proposed improvements provide potential habitat for the sixth species, Shumard Oak. A detailed tree survey is recommended as part of the detailed design to ensure that there are no tree Species at Risk within or adjacent (10 metres) to the proposed work.

5.5 Socio-Economic Environment

5.5.1 Existing Land Uses

The Study Area includes lands in the former Town of Tecumseh and former Village of St. Clair Beach areas located in the Town of Tecumseh. Land uses in the portion of the Study Area affected by the proposed sewage system improvements in Lakewood Park South primarily consist of low density residential neighbourhoods with commercial uses along Manning Road, Tecumseh Road and St. Gregory's Road, and recreational uses along the Lake St. Clair shoreline. Several schools are also located in the area. The City of Windsor borders the Study Area to the west.

Lakewood Park South (formerly the Lakewood Golf Course) is surrounded by low-density residential uses on all sides. Mid-rise residential apartments, a commercial plaza and a French Catholic Secondary School are located south of the park. A retirement home is currently under construction on the north side of Riverside Drive on Lake St. Clair. Residential development has

been proposed on the south side of Christy Lane, as well as along the southerly portion of Lakewood Park South.

The portion of the Study Area affected by the proposed Riverside Drive trunk sewer consists mostly of low density residential neighbourhoods and the Beach Grove Golf and Country Club, north and south of Riverside Drive. The D.M. Eagle Public School is located south of the Beach Grove Golf Course.

5.5.2 County of Essex Official Plan

The County of Essex Official Plan was approved on July 19, 2005. It “offers fundamental broad based guidance and direction to the County and its municipalities on land use planning matters”.

The Study Area in the Town of Tecumseh is designated as a “Settlement Area” on the Official Plan’s “Land Use Plan”. The County’s long-term planning strategy encourages new development to occur within fully serviced areas. The plan includes policies to ensure that infrastructure is built and maintained in a cost-effective, environmentally sound and co-ordinated manner to meet long-term needs. It also encourages local municipalities to prepare and implement a servicing Master Plan.

As shown on “Areas Susceptible to Flooding” in the Official Plan, the northern part of the Study Area is generally designated “Lake St. Clair Floodprone Areas”. According to the plan, development and site alteration shall only be permitted if hazards can be addressed and there are no adverse environmental impacts. The plan directs lower-tier municipalities to establish development setbacks and shoreline protection measures.

5.5.3 St. Clair Beach Official Plan (Part of Town of Tecumseh)

The St. Clair Beach Official Plan (January 2011 consolidation) was adopted in 1989 and applies to the St. Clair Beach portion of the Study Area. The Town is currently preparing a new Official Plan to include all three former amalgamated municipalities within Tecumseh.

The Official Plan acknowledges that limited growth is expected to occur since developable land is limited. It also states that storm and sanitary sewers are adequate to accommodate future growth.

As shown on the plan's "Land Use Plan", the Beach Grove Golf Course and most of Lakewood Park South are designated "Parks and Open Space". Lands in the surrounding areas are mostly designated "Single Family Residential" with some areas designated "Commercial" and "Institutional". The southerly portion of Lakewood Park South is designated "Single Family Residential" but the plan requires that these lands be placed in a holding zone in the zoning by-law until the "municipality is satisfied that appropriate sanitary sewage treatment capacity is available". The Official Plan also permits the retirement home currently under construction on Riverside Drive subject to site specific provisions.

As shown on "Areas Susceptible to Flooding", most of the land north of Tecumseh Road is designated "Lake St. Clair Floodprone Area." This designation is intended to protect new and existing residents in floodprone areas, and preserve the natural capacity of floodplain areas by limiting construction and ensuring adequate flood proofing. The plan states that "the implementing zoning by-law will prescribe certain setback and elevation requirements for development within the floodprone area".

5.5.4 Town of Tecumseh Official Plan (Part of Town of Tecumseh)

The Town of Tecumseh Official Plan (January 2009 consolidation) was adopted in 1973 and applies to the Tecumseh Hamlet part of the Study Area. The Town of Tecumseh is currently preparing a new Official Plan to include all three former amalgamated municipalities within Tecumseh.

The servicing goal of the plan is to provide adequate and efficient systems for water supply, sanitary sewers and storm drainage. No new major development or plans of subdivision are permitted unless adequate municipal water and sanitary and storm sewers are available to the satisfaction of MOE.

As shown on the plan's "Land Use Plan", most of the Study Area is designated "Residential", with smaller areas designated for a range of recreational, community facilities, commercial and industrial uses.

5.5.5 Development Applications

Current development applications potentially affected by the project include the Lakewood Park South development, 10 proposed residential lots on the south side of Christy Lane, and a retirement home (115 units) on Riverside Drive.

5.6 Provincial Policy Statement

The Provincial Policy Statement (PPS) issued under the *Planning Act* requires that any municipal decisions be “consistent” with the PPS. As required by the PPS, the Town of Tecumseh is ensuring that sewage services are provided in a manner that:

- Can be sustained by the water resources upon which such services rely.
- Is financially viable and complies with all regulatory requirements.
- Protects human health and the environment.
- Promotes water conservation and water use efficiency.
- Integrates servicing and land use considerations in all stages of the planning process.

The PPS requires that infrastructure, such as a sewage collection system, shall be provided in a coordinated, efficient and cost effective manner to accommodate projected needs. The PPS also requires that planning for these facilities be integrated with planning for growth to meet current and projected needs. When planning infrastructure, the PPS requires that municipalities consider the significant resources protected by Section 2, “Wise Use and Management of Resources”. Significant resources potentially affected by the proposed sewage collection system include groundwater and surface water, vegetation Species at Risk and archaeological resources. No other significant resources are potentially affected.

6.0 PUBLIC AND AGENCY CONSULTATION

6.1 Introduction

This section of the ESR summarizes the public and agency consultation undertaken during the Class EA process. All consultation materials are included in **Appendix A**.

Throughout the project, the Town of Tecumseh's website was regularly updated to include project notices, displays from the Public Information Centre (PIC) and other related materials.

6.2 Contact List

The Contact List for the project is included in **Appendix A**. It includes approximately 55 agencies, four First Nations, nine utilities, and approximately 100 landowners in the vicinity of the proposed improvements. The names and addresses of property owners were provided by the Town of Tecumseh from the assessment roll.

The Contact List was updated throughout the project to include additional agency contacts and residents who attended the PIC.

6.3 First Nations Consultation

The list of First Nations potentially interested in the project was developed in consultation with Aboriginal Affairs and Northern Development Canada (AANDC) and the Ministry of Aboriginal Affairs (MAA). As shown in **Appendix A**, First Nations on the Contact List included Walpole Island, Caldwell, Aamjiwanaang and Moravian of the Thames (Delaware Nation).

Dillon letters dated November 29, 2012, to AANDC and MAA advised these agencies of the First Nations on the project Contact List and requested information on claims and litigation. In reply, AANDC provided information on treaties, specific claims and litigation for the four First Nations communities within 100km of the Tecumseh Study Area.

All project notices and materials, including the PIC displays, were mailed to the First Nations. In reply to the Notice of Study Commencement, the Caldwell First Nation requested a meeting to discuss the project.

A meeting was held with Chief Louise Hillier and Councillor Darryl Van Oirschot on March 21, 2013. Concerns discussed at the meeting included:

- Potential impacts on surface and groundwater, particularly those caused by an emergency by-pass of excess extraneous flows to Lake St. Clair. Dillon explained that the emergency by-pass is not part of the current recommended solution. The current project

is expected to have positive impacts on water resources by providing temporary storage of excess extraneous flows.

- The First Nation asked questions about the project, including maintenance requirements. It was confirmed that the large diameter storage pipe will be tested and monitored and any significant infiltration will be repaired. The storage pipe would also be flushed clean when required and the pump station will be an enclosed facility with little potential for odour.
- Related archaeological, cultural and heritage assessment reports completed in the area were provided, as requested by the First Nation.
- It was confirmed that opportunities to incorporate the planting of native species would be considered where vegetation restoration is required. Cottonwood and Black Willow trees were indicated as preferred species.

In reply to the Notice of Public Information Centre, the Aamjiwnaang First Nations acknowledged receipt of the notice and discussed proceeding with review of the forwarded documentation, in a letter dated April 9, 2013.

6.4 Notice of Study Commencement

On November 29, 2012, Dillon mailed a copy of the Notice of Study Commencement and comment form to the project Contact List. Comments were requested by December 21. First Nations were mailed a copy of the Notice of Commencement by covering letter on December 21, 2012. The notice was published in the November 30 and December 7, 2012, editions of the Tecumseh Shoreline newspaper, and uploaded to the Town of Tecumseh website on November 30, 2012.

Of the 13 responses received from agencies, six requested to be kept informed and did not provide any comments. This included the County of Essex, Essex Region Conservation Authority, Essex Powerlines Corporation, Town of Lakeshore, Ministry of Municipal Affairs and Housing and Tecumseh Fire Rescue.

The following comments were received:

Agencies:

- The City of Windsor requested to be kept informed and advised that sanitary flows from the area drain to the Little River Pollution Control Plant.
- The Ministry of Natural Resources provided updated contact information for the project.
- The Ministry of Tourism, Culture and Sport provided checklists to determine the need for archaeological and built heritage assessments. A Dillon letter dated January 21, 2013, indicated that Fisher Archaeological Consulting (FAC) has been retained to complete the required Stage 1 Archaeological Assessment and a built heritage assessment was not required.
- Aboriginal Affairs and Northern Development Canada (AANDC) provided information on First Nations.

First Nations Input:

- Input was received from the Caldwell First Nation, as outlined in **Section 6.3**.

Public Input

A total of four comments were received from the public. Of these, one requested to be added to the contact list and three provided comments, as follows:

- One resident advised that many homes in the area appear to have downspouts connected to the Town sewer system. The resident suggested enacting/enforcing a by-law to prohibit this and relieve demand on the sewer system capacity during heavy rain events.
- Another resident said that her home has flooded many times in the last few years, and only one insurance company in Canada will provide basement flooding insurance. Although she has installed pumps, one-way valves, etc., water still comes up the drains during heavy rain storms. The resident is frustrated and has considered leaving Tecumseh.
- A resident has experienced sanitary sewage flooding twice during February and March 2009, and once again in June 2010. His insurance for basement flooding was cancelled. The resident stated that they have followed all of the Town's recommendations to prevent future flooding and would like to be kept informed of measures the Town is considering to improve the sanitary system.

The Contact List was updated to reflect the input received to the Notice of Commencement.

6.5 Public Information Centre (PIC)

The PIC for this project was held on February 26, 2013, from 3:00 to 5:00 p.m. and 7:00 to 9:00 p.m. at the Town of Tecumseh Municipal Offices on Lesperance Road. The purpose of the PIC was to obtain public and agency input on the recommended functional design of the sewage collection system improvements. Information summarizing the work completed to date was displayed. Dillon and Town of Tecumseh staff were in attendance to explain the displays, record comments and answer questions.

Distribution of PIC Notice

Dillon mailed a copy of the PIC Notice to the project Contact List on February 8, 2013.

The notice was published in the February 15 and February 22, 2013, editions of the Tecumseh Shoreline newspaper, and uploaded to the Town of Tecumseh website prior to the PIC.

Displays and Attendance

A copy of the displays was posted on the Town's website following the PIC meeting. A comment form requesting written feedback by March 12, 2013, was handed out to all in attendance.

The copy of the displays that presented the following information is included in **Appendix A**:

- Project Background and Study Area.
- Municipal Class EA process.
- The Town's 10 Year Plan to address basement flooding problems.
- Suggested homeowner actions to reduce stormwater infiltration into the sanitary sewer system.
- Phase 1 of the Class EA process, "Problem/Opportunity Identification".
- Phase 2, "Alternative Solutions".

- A comparative evaluation of the alternative solutions identified an Expansion/Upgrading of the Existing Sewage System as the preferred solution, along with continuing efforts to rehabilitate the system, expand the maintenance program and reduce sewage flows.
- Results of sanitary system modeling.
- Drawings showing the recommended functional design.
- Environmental Screening of the functional design.
- “What’s Next” outlining the remaining steps in the Class EA process.

The PIC was attended by less than 10 people, including two representatives of the City of Windsor and homeowners in the vicinity of the project. The following comments, questions and concerns were raised at the PIC by residents that were in attendance:

- Concerns about basement flooding due to root damage, improper sewer connections or malfunctioning backflow prevention valve;
- Concerns about stormwater drainage on St. Marks Road and the need to clean out catch basins;
- Support for the recommended design and the Town’s efforts to date to reduce basement flooding; and
- Interest in the Town’s subsidy program for drain disconnections.

Following the PIC, a copy of the displays, along with a copy of the comment form, was mailed to the agencies on the Contact List. A letter dated March 11, 2013, from the Essex Region Conservation Authority (ERCA) was the only written submission received. The letter stated that the Town should consider the future orientation of the East Townline Drain and sealed manhole covers for the future sewer along Riverside Drive since this section is subject to significant road flooding. ERCA also confirmed that there are no candidate natural heritage sites in the vicinity of the proposed works.

6.6 Notice of Completion

This screening report will be placed on the “public record” for the required 30-day public and agency review period. During the review period, the Class EA entitles any person who has significant concerns, which cannot be resolved with the proponent, to request the Minister of the Environment to change the status of the project from a Class EA to an individual EA by issuing a Part II Order under the *EA Act*.

If there are no Part II Order requests, the proposed Tecumseh Sanitary Sewage Collection System may proceed to detailed design and construction.

6.7 Consultation During Detailed Design Phase

During the detailed design stage, further consultation is required with the following agencies:

- MTCS for archaeological clearance of the project.
- MOE regarding the Environmental Compliance Approval (ECA) required for construction of the sanitary sewage works.

7.0 PROJECT DESCRIPTION

7.1 Introduction

This section of the Environmental Screening Report describes the preferred functional design of the Tecumseh Sanitary Sewage Collection System improvements in further detail, as well as benefits and impacts and the environmental protection and mitigating measures which must be implemented during construction. The location of the preferred improvements is shown in **Figure 9**.

7.2 Preferred Functional Design

As shown on the functional design drawings included in **Appendix B**, the preferred functional design consists of improvements described in this section.

7.2.1 Lakewood Pump Station (PS) Improvements

The existing sanitary PS servicing St. Clair Beach is located on the easterly limits of Lakewood Park South, at the end of Hayes Avenue. It is proposed to replace this with a new PS, to be located on the east side of Manning Road, opposite Little River Boulevard.

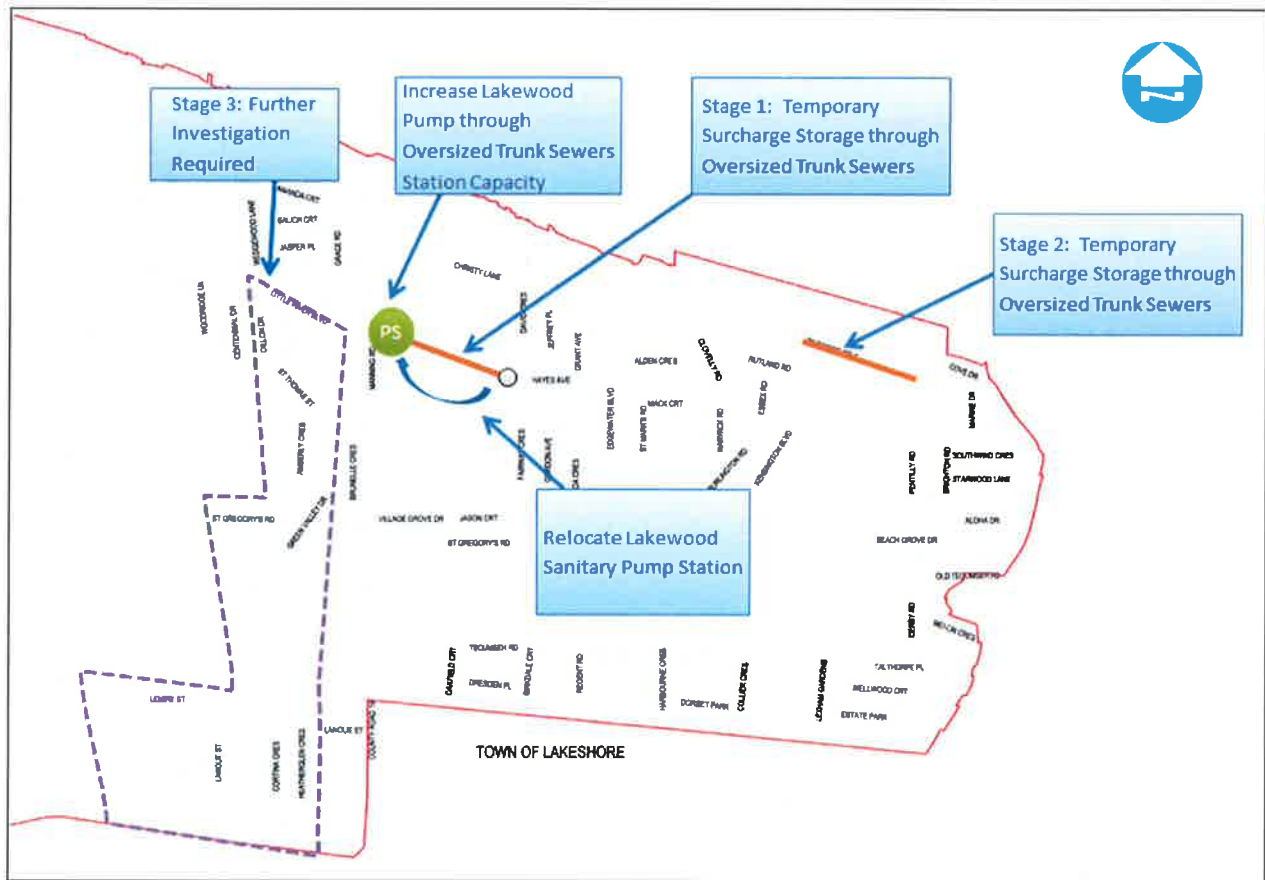


Figure 9: Proposed Infrastructure Improvements Plan

The new pump station will include the following:

- A pre-cast concrete underground wet well equipped with access hatches and a safety platform.
- Three submersible pumps (two duty, one stand-by).
- Valve chamber equipped with sump, sump pump check and isolation valves.
- PS discharge forcemain.
- Electrical building equipped with a lighting panel, motor control centre and pump station control panel.
- Back-up power diesel generator with integrated fuel tank.

The existing Lakewood PS has a capacity of 195 L/s. As part of this study, it was determined that increasing the PS capacity by 15 percent to 225 L/s would improve the level of service in the St. Clair Beach area without compromising the downstream sanitary collection system. The opportunity to consider increasing the sewage discharge rate from St. Clair Beach arises from the recent construction of the County Road 22 sanitary relief sewer, which diverted sewage flows from the Tecumseh Hamlet area south of County Road 22 and relieved the downstream sanitary collection system in Tecumseh, including the Cedarwood sanitary Pump Station. The effect of the County Road 22 sanitary relief sewer is shown on **Figure 8**.

Alternative locations were assessed to determine the location of the connection from the relocated Lakewood PS to the trunk sanitary sewer on Little River Boulevard. Based on the evaluation (included in **Appendix E**), it was determined that the proposed 500 mm diameter discharge forcemain from the relocated Lakewood PS should connect approximately 130 west of Manning Road.

Three submersible pumps are proposed to be installed within the new PS wet well. The pumps will be equipped with moisture detectors and temperature sensors to protect the pumps from seal leaks and high temperature damage. The pumps will operate in a two-duty and one standby arrangement. During normal operation, two pumps will deliver flow from the wet well to the trunk sanitary sewer on Little River Boulevard, as outlined above. The three pumps will be programmed to rotate between duty and standby designation to optimize pump run times. The pump's operations will be controlled by five level switches, including:

- Low-Low level switch (Alarm).
- Low level switch (All pumps stop).
- High level switch (First pump start).
- High level switch (Second pump start).
- High-High level switch (Alarm).

The isolation and check valves for PS operation will be housed in a separate valve chamber. The valve chamber will be equipped with a small sump pump which will drain the sump to the PS wet well when a pre-set liquid level is reached.

The pump station start and stop signals, as well as alarm signals, will be processed through the pump station control panel located in the electrical building. From the control panel, PS may be locked out, operated manually or set to resume automatic operation. The pump motor control centres and lighting panel will also be housed in the electrical building.

In the event of a power failure, the on-site back-up diesel generator will automatically provide power to the electrical building to maintain the operation of the pump station. The backup diesel generator will have an integrated fuel tank to allow for 24 hours of operation.

7.2.2 Sewage Storage Capacity

Oversized sanitary sewer pipes are proposed to provide in-line storage to accommodate a portion of the excess extraneous flows that arise during wet weather conditions. The recommended sewage storage capacity was determined based on the effectiveness in reducing the sewer surcharge levels in the sanitary collection system for a 1:5 year design storm event. It is also proposed that sewage storage capacity be provided at two separate locations.

In order to reduce the maintenance requirements associated with the settlement of solids within these oversized sewer pipes, it is recommended that consideration be given to incorporating a low flow channel to maintain flow velocities during dry weather conditions.

The following section provides more details on the proposed sewage storage facilities.

7.2.3 Lakewood Park Storage Infrastructure

Approximately 430 m of 2250 mm diameter reinforced concrete pipe is proposed to be installed across Lakewood Park South to replace the existing 600 mm diameter sanitary sewer located between the end of Hayes Avenue and the proposed Lakewood PS.

Sanitary flows will be conveyed by gravity, including a low flow channel benched into the invert to maintain flow velocities during normal, dry weather conditions (**Figure B.5**). Tee-type maintenance holes will be installed at regular intervals along the length of the pipe to provide access for periodic inspection and maintenance. The connection of the storage pipe to the new pump station wet well will be made with 1050 mm diameter reinforced concrete pipe.

In order to assist in maintaining sewage flows during construction, the existing Lakewood PS and 600 mm diameter sanitary sewer will remain in service for as long as possible. The existing infrastructure will be decommissioned once the proposed improvements are operational.

7.2.4 Riverside Drive Storage Infrastructure

Approximately 395 m of 1500 mm diameter reinforced concrete pipe is proposed to be installed on Riverside Drive between Kensington Boulevard and Pentilly Road, replacing the existing 400 mm diameter sanitary sewer. Sanitary flows will be conveyed by gravity, including a low flow channel benched into the invert for normal, dry weather flows (**Figure B.6**). Tee-type maintenance holes will be installed at regular intervals along the length of the pipe to provide access for periodic inspection and maintenance. Connections to the existing 400 mm diameter sanitary sewer will be made at both ends with precast concrete manhole structures. Temporary measures will be required to maintain sanitary flows during construction.

7.2.5 Dillon Drive/Green Valley Drive Storage Infrastructure

While the focus of the proposed improvements was on the St. Clair Beach area, the results of the sewer modeling indicate that sewer surcharging would continue to exist in the Dillon Drive/Green Valley Drive area, south of Little River Boulevard, as shown on **Figure 9**. Further visual examination of the sanitary sewer system is recommended in this area, along with additional flow monitoring and hydraulic analysis to identify site specific opportunities for improvements.

The Town continues to encourage residents to take measures to reduce stormwater inflow/infiltration into the sanitary system, including the following measures:

- Disconnect roof rainwater downspouts.
- Install a backflow prevention device on the sanitary drain connection.
- Disconnect foundation drains from the sanitary plumbing system.
- Disconnect improper storm drainage connections from the sanitary system.
- Ensure storm and sanitary private drain connections cleanouts are in good condition and caps are sealed properly.
- Seal or repair cracks in floors, walls and foundations.
- Ensure that the sump pump is working properly.

Subsidies for foundation drain disconnection and downspout disconnection are available from the Town of Tecumseh, MOE and Essex Region Conservation Authority.

7.3 Benefits, Impacts and Mitigating Measures

Table 4 summarizes the assessment of the benefits, impacts and mitigating measures associated with the proposed Tecumseh Sanitary Sewage Collection System Improvements.

7.3.1 Benefits

The proposed sewage collection system has several benefits, as shown on **Table 4**. The proposed improvements are consistent with the long-term strategy included in the Town's Water and Wastewater Master Plan (2008 Update) and other Town initiatives. As part of the Town's comprehensive solution to address excess extraneous flow, the preferred functional design increases the capacity of the sewage collection system and helps to address basement flooding that occur during significant rainfall events. This helps to address the public nuisance, health and environmental problems caused by basement flooding. The improvements also allow for future development to occur, including residential development planned for Lakewood Park South.

The planning and design of the improvements have been integrated with other projects in the area, including planned improvements to Manning Road and the East Townline Drain, as well as improvements to Lakewood Park South.

7.3.2 Impacts and Mitigation Measures

The following summarizes the project's impacts and mitigating measures:

Construction

Traffic impacts during construction are anticipated to be minor and will be mitigated by the traffic control measures included in the construction contract. Coordination with the various utility companies will be carried out and any required upgrading or relocation requirements will be incorporated as part of these improvements.

Short-term construction impacts, including air quality, noise and access disruptions will be mitigated by standard measures implemented during construction.

Cultural Resources

Impacts on archaeological resources potentially affected by the Riverside Drive Storage Sewer (Stage 2 of the project) will be avoided by the completion of a Stage 2 Archaeological Assessment prior to construction. More detailed assessments will be completed, if required. Archaeological clearance is required from the Ministry of Tourism, Culture and Sport (MTCS).

Terrestrial Resources

Overall, the project has few impacts on terrestrial resources since the works will take place within a former golf course and municipal roadways. The following measures are recommended to minimize and mitigate impacts on terrestrial resources:

- Potential habitat for Shumard Oak is present in the area. A tree survey will be completed to ensure that there are no tree Species at Risk within or adjacent (within 10 meters) to the proposed works.
- Any tree requiring removal for the project should be replaced with compensatory plantings of the same species. All disturbed areas should be restored to existing conditions.

- Tree protection measures will be employed for all trees adjacent to the work.
- All impacts on migratory and other protected birds will be avoided by timing vegetation removal. No vegetation removal will occur during the bird nesting season from **April 15 to August 15**.

Socio-Economic Environment

The Tecumseh Sanitary Sewage Collection System Improvements will have some impacts on existing land uses, as shown on **Table 4**. All impacts can be mitigated by the measures shown on the table.

It is not anticipated that property will be required for these improvements, since the Town of Tecumseh owns the Lakewood Park South lands and the Riverside Drive improvements are confined to the municipal right-of-way.

The improvements conform to the local and County of Essex Official Plans by providing adequate infrastructure to service future growth in “Settlement Areas”.

The proposed improvements are consistent with the PPS issued under the *Planning Act*, including policies for “Transportation and Infrastructure Corridors” and “Wise Use and Management of Resources”. Consistent with the Policy Statement:

- The proposed improvements will reduce adverse impacts on water resources caused by sewage flows by-passing treatment facilities during periods of high flows.

7.4 Approvals

Approvals required during detailed design and prior to construction include:

- MOE, Environmental Compliance Approval for Sanitary Sewage Works; and
- MTCS archaeological clearance.

Table 4: Benefits, Impacts and Mitigation Measures

Environmental Feature	Potential Benefits & Impacts	Avoidance, Mitigation & Monitoring Measures
1. Wastewater/Civil Engineering		
Servicing Solution	Provides a long-term, environmentally sustainable sanitary sewage collection solution for existing and future development in the area: <ul style="list-style-type: none"> • Part of comprehensive solution to address basement flooding and sanitary system capacity issues; • Mitigates potential public nuisance, health and environmental problems caused by malfunctioning systems; • Consistent with sanitary sewer design criteria in Town’s Water and Wastewater Master Plan (2008 Update); • Adds inline storage to accommodate a portion of excess extraneous flows during wet weather conditions; and • Integrated with future Manning Road Improvements, Lakewood Park South improvements, and long-term servicing for development in the area. 	Not required.
Compatibility with Existing and Proposed Infrastructure	Improvements may be designed to be compatible with existing infrastructure.	Not required.
Drainage	Infrastructure will not cause any impacts on drainage of surrounding areas.	Not required.
Traffic	Traffic impacts during construction may be managed with the implementation of effective traffic control and protection plans.	Traffic control and/or traffic detour plans will be developed prior to construction.
Utility Relocations	Proposed infrastructure may require the relocation of some utilities within the municipal right-of-way.	Detailed design of infrastructure will identify all affected utilities. Utilities will be relocated if necessary.
2. Impacts on Cultural Resources		
Archaeological Resources	Potential impacts on areas with archaeological potential.	All impacts on archaeological resources will be avoided by completing a Stage 2 Archaeological Assessment of Riverside Drive and subsequent more detailed assessments , if required, during Detailed Design. Archaeological clearance from the Ministry of Tourism, Culture and Sport required prior to construction.
Built Heritage and Cultural Landscapes	No impacts on these features.	Not required.
3. Impacts on Fisheries and Aquatic Habitat		
Groundwater and Surface Water Quality	Potential for impacts during construction of infrastructure. Proposed infrastructure will not impact groundwater or surface water quality.	Necessary precautions will be taken during construction to prevent contamination of groundwater and surface water. Erosion and sediment control measures will be implemented during construction.
4. Impacts on Terrestrial Resources		
Soils	Limited impacts on soils.	An Erosion and Sedimentation Control Plan will be prepared during Detailed Design
Natural Heritage Features	No Provincially Significant Wetlands or Environmentally Sensitive Areas located within 120m of the proposed works.	Not required.

Environmental Feature	Potential Benefits & Impacts	Avoidance, Mitigation & Monitoring Measures
Species at Risk	Potential habitat for Shumard Oak, a species of Special Concern.	A tree survey will be completed to ensure there are no tree species-at-risk within or adjacent to the proposed alignment. Tree protection measures will be employed.
Migratory and other Protected Birds	Potential harmful alteration, destruction or disruption of breeding bird habitat, nests and young caused by vegetation removal for construction.	Impacts avoided by timing of vegetation removal. No vegetation removal should occur during the bird nesting season.
5. Socio-Economic Impacts		
Existing Land Uses – Short-Term Construction Impacts	Short-term construction impacts include noise, vibrations and air quality impacts mitigated by standard measures. Access disruptions will be minimized. Potential short-term construction impacts on Lakewood Park South and Beach Grove Golf and Country Club users.	Impacts during construction mitigated by standard measures implemented during construction as required by the construction contract.
Existing Land Uses – Odour Impacts	Limited odour impacts on residential properties along Manning Road from new pump station.	Impacts will be mitigated by regular monitoring and implementation of maintenance measures, as required.
Conformity to Official Plans	Conforms to St. Clair Beach and County of Essex Official Plans by providing adequate infrastructure to service future growth in “Settlement Areas”.	Not required.
Future Development	Allows planned development to proceed. Allows planned subdivision development on Lakewood Golf Course lands.	Future development will be controlled by the County of Essex, St. Clair Beach and Town of Tecumseh Official Plans.
Consistency with Provincial Policy Statement	Consistent with servicing, “Transportation and Infrastructure Corridors” and the “Wise Use and Management of Resources” policies.	Not required.
Property Requirements	Riverside Drive Improvements will be completed in the existing right-of-way. No property is required for the improvements as the Town owns the required land.	Not required.
6. Costs		
Costs	Cost of design and implementation will be considered by the Town.	A cost-benefit evaluation will be completed to confirm the justification for these improvements. Cost sharing will be considered, where possible. Construction of these improvements will be tendered to ensure competitive prices.

7.5 Timing Restrictions

Construction must be scheduled to avoid vegetation removals during the bird nesting season from **April 15 to August 15**.

7.6 Estimated Capital Construction Costs

The reconstruction of the Lakewood pump station and installation of the surcharge storage pipes within Lakewood Park and along Riverside Drive will provide direct benefit to the St. Clair Beach area as described in **Section 4.2**. Cost estimates for these infrastructure upgrades have been developed for these projects, as summarized in **Table 5**.

Table 5: Estimated Project Costs

Description	Estimated Construction Cost	Engineering and Contingencies	Total
Stage 1			
Lakewood Pump Station	\$1.00M	\$0.35M	\$1.35M
Lakewood Park Sanitary Sewer Surcharge Storage	\$2.10M	\$0.74M	\$2.84M
Stage 1 Sub-Total			\$4.19M
Stage 2			
Sanitary Sewer Surcharge Storage	\$1.25M	\$0.45M	\$1.70M
Sub-Total Stage 2			\$1.70M
Total Project Cost Estimate			\$5.89 M

*All estimated costs above exclude applicable taxes.

7.7 Detailed Design and Construction

Subject to resolving any concerns that may arise following the Notice of Completion and the required 30-day public and agency review period, this project may proceed to detailed design and construction. Stage 1 of this project, including the new Lakewood PS and Lakewood Park South storage pipe, could be implemented as early as 2013/2014, subject to approval of the required funds by the Town of Tecumseh.



Flavio R. Forest, P.Eng.
Project Manager



Janet Smolders, MCIP
Project Planner



APPENDIX A

PUBLIC AND AGENCY CONSULTATION

Tecumseh Sanitary Sewage Collection System Class Environmental Assessment: Agency Contact List

	Surname	First Name	Organization	Department	Title	Address	City/Prov	Postal Code	Tel.	Fax	E-Mail
Local Representatives											
Hon.	Duncan	Dwight	MPP, Windsor-Tecumseh			2825 Lauzon Parkway	Windsor, ON	N8T 3H5	519-251-5199	519-251-5299	
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Mr.	Blais	Pat	Town of Tecumseh		Ward 1 Councillor	917 Lesperance Road	Tecumseh, ON	N8N 1W9	519-735-2184	519-735-6712	
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Mr.	Dorion	Guy	Town of Tecumseh		Ward 2 Councillor	917 Lesperance Road	Tecumseh, ON	N8N 1W9	519-735-2184	519-735-6712	
Mr.	Bachetti	Joe	Town of Tecumseh		Ward 3 Councillor	917 Lesperance Road	Tecumseh, ON	N8N 1W9	519-735-2184	519-735-6712	
Ms.	Jobin	Tania	Town of Tecumseh		Ward 4 Councillor	917 Lesperance Road	Tecumseh, ON	N8N 1W9	519-735-2184	519-735-6712	
Town of Tecumseh											
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County of Essex											
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Mr.	King	Bill	County of Essex		Manager of Planning Services	360 Fairview Avenue West	Essex, ON	N8M 1Y6	519-776-6441	519-776-1253	bking@county.essex.on.ca
Mr.	Bryant	James	County of Essex		EA Coordinator	360 Fairview Avenue West	Essex, ON	N8M 1Y6	519-776-6441 x385	519-776-4455	jbryant@county.essex.on.ca
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Town of Lakeshore											
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Conservation Authority											
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Tecumseh Sanitary Sewage Collection System Class Environmental Assessment: Agency Contact List

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Emergency Services										
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Staff Sgt	Marocko	Ed	Ontario Provincial Police	Essex County Detachment		1219 Hicks Road, PO Box 910	Essex, ON	N8M 2Y2	519-723-2491	519-723-2492
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Ms.	Allen	Penny	Greater Essex County District School Board			451 Park Street West, P.O. Box 210	Windsor, ON	N9A 6K1	519-255-3200	519-255-7053
Mr.	Picard	Paul	Windsor-Essex Catholic School Board		Director of Education	1325 California Avenue	Windsor, ON	N9B 1Y8	519-253-2481	519-253-8397
Ms.	Kimmerly	Denise	Windsor-Essex Catholic School Board			1325 California Avenue	Windsor, ON	N9B 1Y8	519-253-2481	519-253-8397
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			Windsor Essex-County Active Living Colaition			1005 Ouellette Ave	Windsor, ON	N9A 4J8	15192582146	519-776-5933
			Windsor-Essex Economic Development Corp	Centre for Engineering Innovation		700 California Avenue, Suite 200	Windsor, ON	N9B 2Z2	519-255-9200	519-255-9987
Mr.	Nussey	David	Ontario Clean Water Agency	Essex East (North) Hub	Manager	276 Rourke Line, RR #3	Belle River, ON	N0R 1A0	(519) 727-6256	(519) 727-3684 dnessey@ocwa.com
			Municipal Property Assessment Corporation	Region No. 27		1695 Manning Road, Unit 195	Tecumseh, ON	N8N 2L9		
Utilities										
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Mr.	Sorrell	Bill	Cogeco Cable Services			2225 Dougall Avenue	Windsor, ON	N8X 5A7	519-972-4023	519-972-6688
Mr.	Alzner	Mark	Essex Powerlines			2730 Highway 3	Oldcastle, Ontario	N0R 1L0	(519) 737-9811 x 150	(519) 737-9755 malzner@essexpower.ca
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Provincial Ministries										
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Mr.	Muller	Joseph	Ministry of Tourism, Culture, and Sport	Culture Division	Heritage Planner	401 Bay Street, Suite 1700	Toronto, ON	M7A 0A7	416-314-7145	416-314-7175 joseph.muller@ontario.ca
Ms.	Gagne	Sandra	Ministry of the Environment	Windsor Area Office	Senior Environmental Officer	4510 Rhodes Drive, Unit 620	Windsor, ON	N8W 5K5	519-948-2544	519-948-2396 sandra.gagne@ontario.ca
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Mr.	Gould	Ron	Ministry of Natural Resources	Aylmer District	Species At Risk Biologist	615 John Street North	Aylmer, ON	N5H 2S8	519-773-4745	519-773-9014 ron.gould@ontario.ca

Tecumseh Sanitary Sewage Collection System Class Environmental Assessment: First Nations Contact List

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First Nations											
Mr.	Jacobs	Dean	Walpole Island First Nation / Bkejwanong Territory		Heritage Centre Director	R.R. #3	Wallaceburg, ON	N8A 4K9			
Chief	Kewayosh	Burton	Walpole Island First Nation / Bkejwanong Territory		Chief	R.R. #3	Wallaceburg, ON	N8A 4K9	519-627-1481	519-627-0440	
Chief	Hillier	Louise	Caldwell First Nation		Chief	P.O. Box 388	Leamington, ON	N8H 3W3	519-326-1766	519-322-1533	cfhchief@live.com
Chief	Plain	Christopher	Aamjiwnaang First Nation		Chief	978 Tashmoo Avenue	Sarnia, ON	N7T 7H5	519-336-8410	519-336-0382	
Chief	Peters	Greg	Moravian of the Thames (Delaware Nation)		Chief	RR 3	Thamesville, ON	N0P 2K0	519-692-3936	519-692-5522	

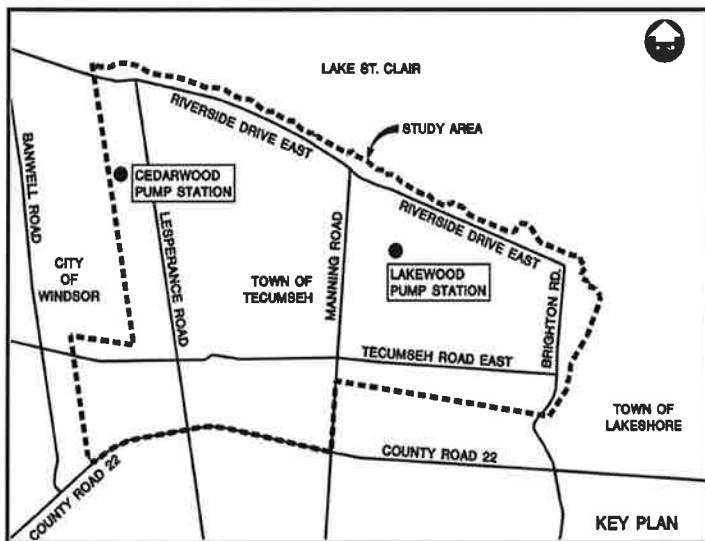


Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)
Notice of Study Commencement



Since the early 1980's, wet weather conditions have occasionally resulted in excess inflow and infiltration that has exceeded the capacity of the Town of Tecumseh's sanitary sewage collection system and caused basement flooding, particularly in the former Village of St. Clair Beach area. In order to supplement the Town's current long-term strategy of reducing inflow and infiltration as a means of addressing basement flooding and accommodating new development, the Town is considering further improvements to the sanitary sewage system. Dillon Consulting Limited has been retained to complete a Municipal Class Environmental Assessment (October 2000, as amended in 2007 & 2011) to consider a range of alternatives and identify a preferred solution.

The study area for the Municipal Class EA planning and design study is shown on the following map.



Based on a preliminary assessment, alternative solutions may include improvements to the existing Lakewood (Hayes Avenue) sanitary pump station's capacity and temporary underground storage of excess wet weather flows. The project is being planned as a Schedule "B" under the Municipal Class EA. This type of project is approved under the *Environmental Assessment Act*, provided it follows Phase 1, "Problem/Opportunity Identification", and Phase 2, "Alternative Solutions", of the Municipal Class EA process. The process involves public and agency consultation, preparation of environmental inventories, evaluation of options, and identification and impact assessment of the recommended solution. The Class EA will be documented in an Environmental Screening Report.

Public input and comments are invited at this time for incorporation into the planning and design of this project. If you have any comments, questions or concerns, or would like to be added to our Contact List, please contact the following representatives by **December 21, 2012**. A Public Information Centre (PIC) will be held early in 2013 to provide the public and agencies an opportunity to review and comment on the detailed findings of the study, including the recommended solution. A subsequent notice will be advertised with the date, time and location of the PIC meeting.

Robert Filipov, P.Eng.,
Manager, Engineering Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario, N8N 1W9
Tel: 519-735-2184, ext. 148
Fax: 519-735-6712
E-mail: rfilipov@tecumseh.ca

Flavio Forest, P.Eng.,
Project Manager
Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8
Tel: 519-948-4243, ext. 3233
Fax: 519-948-5054
E-mail: fforest@dillon.ca

This Notice issued on November 30, 2012 and December 7, 2012.

Our File: 12-5969

November 29, 2012

Aboriginal Affairs and Northern Development Canada
Consultation and Accommodations Unit
300 Sparks Street
Ottawa, Ontario
K1A 0H4

Attention: Ms. Allison Berman
Program Officer

**Town of Tecumseh Sanitary Sewer Collection System Improvements
Class Environmental Assessment**

Dear Ms. Berman:

As outlined in the enclosed Notice of Study Commencement, the Town of Tecumseh has retained Dillon Consulting Limited to complete a Class Environmental Assessment (EA) for improvements to the Town's former Tecumseh-St. Clair Beach sanitary sewer collection system, as geographically outlined in the Notice's key plan.

The study will be completed in accordance with the Municipal Class Environmental Assessment (October 2000, as amended in 2007). Input from the public, agencies and First Nations will be an important component of this study. The mailing list for the project currently includes Walpole Island First Nation and Caldwell First Nation.

Please confirm that our mailing list is appropriate. We would also appreciate information on:

- Specific claims in the area;
- Comprehensive claims in the area; and
- Any litigation or legal activity involving Aboriginal groups.

We are also contacting the Ontario Ministry of Aboriginal Affairs for input on this project. We appreciate your assistance.

Yours sincerely,

DILLON CONSULTING LIMITED

Flavio R. Forest, P. Eng.
Project Manager

LMC:ldm

Encl.

cc + Encl.: Mr. Robert Filipov, Town of Tecumseh

Our File: 12-5969

November 29, 2012

Ministry of Aboriginal Affairs
Consultation Unit
160 Bloor Street East, 9th Floor
Toronto, Ontario
M7A 2E6

Attention: Ms. Heather Levecque
Manager

**Town of Tecumseh Sanitary Sewer Collection System Improvements
Class Environmental Assessment**

Dear Ms. Levecque:

As outlined in the enclosed Notice of Study Commencement, the Town of Tecumseh has retained Dillon Consulting Limited to complete a Class Environmental Assessment (EA) for improvements to the Town's former Tecumseh-St. Clair Beach sanitary sewer collection system, as geographically outlined in the Notice's key plan.

The study will be completed in accordance with the Municipal Class Environmental Assessment (October 2000, as amended in 2007). Input from the public, agencies and First Nations will be an important component of this study. Our mailing list for the project currently includes Walpole Island First Nation and Caldwell First Nation.

Please confirm that our mailing list is appropriate. We would also appreciate information on:

- Specific claims in the area;
- Comprehensive claims in the area; and
- Any litigation or legal activity involving Aboriginal groups.

We are also contacting Aboriginal Affairs and Northern Development Canada for input on this project. Thank you for your assistance.

Yours sincerely,

DILLON CONSULTING LIMITED

Flavio R. Forest, P. Eng.
Project Manager

LMC:ldm
Encl.

cc + Encl.: Mr. Robert Filipov, Town of Tecumseh
Ms. Ashley Johnson, Ministry of Aboriginal Affairs
Ms. Lise Hansen, Ministry of Aboriginal Affairs

Our File: 12-5969

December 21, 2012

Separate Letters for:

- **Walpole Island First Nation**
- **Caldwell First Nation**
- **Aamjiwnaang First Nation**
- **Moravian of the Thames First Nation**

Insert Address (Refer to Agency Contact List)

Attention: **Insert Chief name**

**Town of Tecumseh
First Nation/Aboriginal Community Consultation
Tecumseh Sanitary Sewage Collection System Class Environmental Assessment**

Dear *Insert First Nation*:

As outlined in the enclosed Notice of Study Commencement, the Town of Tecumseh has initiated a Class Environmental Assessment (EA) for improvements to the Town's former Tecumseh-St. Clair Beach sanitary sewer collection system, as outlined in the Notice's key plan.

As a supplement to the Town's current long-term strategy of reducing inflow and infiltration as a means of addressing basement flooding and accommodating new development, the Town is considering further improvements to the sanitary sewer system. As a part of the Class EA process, alternatives will be presented for evaluation and input from the public and affected agencies, including an inventory of the natural, social, cultural and economic environment, and an assessment of impacts and proposed mitigation measures. A Public Information Centre (PIC) will be held in early 2013 to describe the above.

The Town considers consultation with First Nations and Aboriginal Communities to be an important component of the Class EA process. We would be pleased to initiate communications with your community with respect to this project and are available to meet with a representative of your community or organization to present the project in greater detail, as well as to learn about your interests and/or potential concerns. Although a PIC date has not yet been confirmed, please advise if you would like to meet with the study team at a separate meeting prior to the PIC. We will contact you with a PIC date once confirmed.

If you have questions about the project or would like to set up a meeting, please do not hesitate to contact me directly at (519) 948-5000 or via e-mail at lchadwick@dillon.ca. Additionally, please let me know if you are interested in future updates on this project or would like to receive copies of the reports/presentation material that will be prepared for this study.

Yours sincerely,

DILLON CONSULTING LIMITED

Flavio R. Forest, P. Eng.
Project Manager

LMC:
Encls.

cc: Robert Filipov, Town of Tecumseh



Chadwick, Lori <lchadwick@dillon.ca>

Fwd: Tec. Sanitary Sewage Collection Class EA

1 message

----- Forwarded message -----

From: **James Bryant** <JBryant@countyofessex.on.ca>
Date: Thu, Dec 20, 2012 at 1:43 PM
Subject: Tec. Sanitary Sewage Collection Class EA
To: fforest@dillon.ca
Cc: rfilipov@tecumseh.ca

Hi Flavio,

Please add me to the list of contacts for the *Town of Tecumseh Sanitary Sewage Collection System Improvements Municipal Class EA*; The County would like to stay informed on this project. Thanks and have a happy holiday.

Cheers,

James

James Bryant

Environmental Assessment Coordinator

Corporation of the County of Essex

360 Fairview Avenue West

Essex, ON N8M 1Y6

Tel: 519-776-6441 Ext: 385

Mob: 519-819-8466

Fax: 519-776-4455

Email: jbryant@countyofessex.on.ca



Please consider the environment before printing this e-mail



**Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)**



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Unless otherwise stated in the submission, all personal information such as name, address, and property location will become part of the public record and will be included in the final report.

- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
(If applicable) CORP OF THE CITY OF WINDSOR

Name: PLANT MANAGER, LITTLE RIVER POLLUTION CONTROL PLANT

Mailing Address: 9400 LITTLE RIVER ROAD
WINDSOR, ON
N9A 6S1

- I/we prefer to receive information by email.

E-mail: _____

Comments/ Questions/ Concerns:

AS THE SANITARY FLOWS FROM THIS AREA DRAIN TO
THE LITTLE RIVER POLLUTION CONTROL PLANT ANY INFORMATION
IS OF IMPORTANCE.



Please return this form by **December 21, 2012** to:

Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8

Tel: 519-948-5000 ext. 3232
Fax: 519-948-5054
E-mail: lchadwick@dillon.ca

Attention: Lori Chadwick, MCIP, RPP



Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)



Notice of Study Commencement – Comment Form

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- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
(If applicable) CITY OF WINDSOR

Name: MARIO SONEGO

Mailing Address: 1266 Meadowall
Windsor, Ont N8X-3M7

- I/we prefer to receive information by email.

E-mail: msonego@city.windsor.on.ca

Comments/ Questions/ Concerns:

As sanitary flow is treated at the
city's Little River Pollution Control Plant any
resultant impact on flow or loadings is of
interest to us.

Please return this form by **December 21, 2012** to:

Dillon Consulting Limited	Tel: 519-948-5000 ext. 3232
3200 Deziel Drive, Suite 608	Fax: 519-948-5054
Windsor, Ontario, N8W 5K8	E-mail: Ichadwick@dillon.ca

Attention: Lori Chadwick, MCIP, RPP





**Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)**



Notice of Study Commencement – Comment Form

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- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
(If applicable) Essex Region Conservation Authority

Name: Tim Byrne + John Henderson

Mailing Address: 360 Fairview Ave. W., Suite 311
Essex, ON N8M 1Y6

- I/we prefer to receive information by email.

E-mail: tbyrne@erca.org jhenderson@erca.org

Comments/ Questions/ Concerns:

Please return this form by **December 21, 2012** to:

Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8

Tel: 519-948-5000 ext. 3232
Fax: 519-948-5054
E-mail: lchadwick@dillon.ca

Attention: Lori Chadwick, MCIP, RPP



Chadwick, Lori <lchadwick@dillon.ca>

Town of Tecumseh - Sanitary Sewer Collection System Improvements - EA

1 message

Mark Alzner <malzner@essexpower.ca>
To: "lchadwick@dillon.ca" <lchadwick@dillon.ca>

11 December 2012 09:26

Lori,

As per your letter, I would like to be kept informed on this project.

I prefer email correspondence. My contact info is below.

Thanks

Mark Alzner
Essex Powerlines Corporation
2730 Highway 3
Oldcastle, Ontario N0R 1L0
Phone (519) 737-9811 ext 150
Fax (519) 737-9755

This e-mail contains information that maybe confidential and privileged.
If you have received this e-mail by mistake, we ask that you notify us
immediately by reply e-mail to the sender.

Ce courriel contient de l'information qui pourrait être confidentiel.
Si vous avez reçu ce courriel par erreur, svp laissez-nous savoir en
répondant à l'auteur du courriel.





Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)



Notice of Study Commencement – Comment Form

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- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
 (If applicable) Town of Lakeshore

Name: Tom Touralias & Tony Francisco

Mailing Address: 419 Notre Dame
Belle River, ON
NOR 1A0

- I/we prefer to receive information by email.

E-mail: +touralias@lakeshore.ca
+francisco@lakeshore.ca

Comments/ Questions/ Concerns:

Please return this form by **December 21, 2012** to:

Dillon Consulting Limited
 3200 Deziel Drive, Suite 608
 Windsor, Ontario, N8W 5K8

Tel: 519-948-5000 ext. 3232
 Fax: 519-948-5054
 E-mail: lchadwick@dillon.ca *

Attention: Lori Chadwick, MCIP, RPP



**Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)**



Notice of Study Commencement – Comment Form

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- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
(If applicable) _____

Tammie Ryall
Planner
Municipal Services Office - Western



Name: _____

Mailing Address: _____

Ministry of Municipal Affairs and Housing
2nd Floor, 659 Exeter Road
London ON N6E 1L3
Tel: 519 873-4031
Fax: 519 873-4018
Toll Free: 1 800 265-4736
E-mail: tammie.ryall@ontario.ca

- I/we prefer to receive information by email.

E-mail: tammie.ryall@ontario.ca

Comments/ Questions/ Concerns:

Please return this form by **December 21, 2012** to:

Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8

Tel: 519-948-5000 ext. 3232
Fax: 519-948-5054
E-mail: lchadwick@dillon.ca

Attention: Lori Chadwick, MCIP, RPP



Chadwick, Lori <lchadwick@dillon.ca>

Fwd: Town of Tecumseh, Sanitary Sewage Collection System Improvements

1 message

----- Forwarded message -----

From: **Nelson, Michael (MNR)** <Michael.Nelson@ontario.ca>

Date: Mon, Dec 10, 2012 at 9:51 AM

Subject: Town of Tecumseh, Sanitary Sewage Collection System Improvements

To: "fforest@dillon.ca" <fforest@dillon.ca>

Cc: "McCloskey, Amanda (MNR)" <Amanda.McCloskey@ontario.ca>, "Walker, Korey (MNR)" <Korey.Walker@ontario.ca>, "Richards, Dave (MNR)" <dave.richards@ontario.ca>

Project:

Town of Tecumseh

Sanitary Sewage Collection System improvements,

Municipal Class Environmental Assessment (EA)

Hello Mr Forest,

I received this notice in the mail today – please note that I am leaving my position as Management Biologist at the end of the month. For future correspondence for all planning related matters in Aylmer District please direct your correspondence through our District Planner, Amanda McCloskey.

Amanda, can you please be in touch with Mr Forest on this file?

Mike

Michael Nelson

Management Biologist, Ministry of Natural Resources

870 Richmond Street West, P.O. Box 1168, Chatham, ON N7M 5L8

Tel: [519-354-8210](tel:519-354-8210); Fax: [519-354-0313](tel:519-354-0313)

Email: michael.nelson@ontario.ca



2012-12-10-TownTecumseh-SanitarySewageEA.pdf

88K

Ministry of Tourism, Culture and Sport

Culture Services Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Tel. 416 314-7145
Fax: 416 314 7175

**Ministère du Tourisme, de la Culture
et du Sport**

Unité des services culturels
Direction des programmes et des
services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél. : 416 314-7145
Télééc. : 416 314 7175



December 17, 2012

Flavio Forest, P.Eng (By email only)
Project Manager
Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, ON N8W 5K8

Project: Sanitary Sewage Collection System Improvements Municipal Class EA
Location: Town of Tecumseh
MTC File: 37EA052

Dear Flavio Forest:

On December 4, 2012, the Ministry of Tourism, Culture and Sport (MTCS) received a Notice of Commencement for the above project as part of the Municipal Class Environmental Assessment process. For such projects, it is the mandate of the Ministry of Tourism, Culture and Sport (MTCS), under the *Ontario Heritage Act (OHA)*, to conserve, protect and preserve the heritage of Ontario including:

- Archaeological resources;
- Built heritage (including bridges and monuments); and,
- Cultural heritage landscapes.

Under the EA process, a determination of the undertaking's impact on these cultural heritage resources must be carried out, as below: please advise MTCS on whether archaeological and/or heritage impact assessments will be undertaken for your EA project, and forward them to MTCS, prior to issuing a Notice of Completion.

Archaeological Resources

Screening your EA project with the MTCS "*Criteria for Evaluating Archaeological Potential*" will determine whether it may impact archaeological resources: MTCS archaeological sites data are available at archaeologysites@ontario.ca. If so, then an archaeological assessment (AA) by an OHA licensed archaeologist is recommended, and the AA report forwarded to MTCS for review.

Built Heritage and Cultural Heritage Landscapes

The MTCS "*Screening for Impacts to Built Heritage and Cultural Heritage Landscapes*" checklist determines whether your EA project may impact these cultural heritage resources: the clerk for the municipality encompassing your EA project can provide information on property registered or designated under the *Ontario Heritage Act*. If your EA project may impact these cultural heritage resources, MTCS recommends that a Heritage Impact Assessment (HIA – see MTCS [Info Sheet #5: Heritage Impact Assessments and Conservation Plans](#)) be prepared by a qualified consultant. Please send completed HIAs to MTCS and the local municipality for review, and make it available to local heritage organizations with an interest, prior to your EA project approval.

EA and ESR Documentation

HIA and AA reports and their recommendations are part of the EA project. Determinations that no heritage resources are impacted and no technical studies are warranted should be documented and summarized as part of the EA process, and incorporated in the final EA report.

Please continue to circulate MTCS through the review process for this EA project. Thank you for the opportunity to provide comment, and please contact me for any questions or clarification.

Sincerely,

Joseph Muller
Heritage Planner

Copied: Robert Filipov, P.Eng, Town of Tecumseh

Disclaimer: The Ministry of Tourism, Culture and Sport reserves the right to review projects for their potential to impact archaeology, built heritage and cultural heritage landscapes, and recommend archaeological and/or heritage impact assessments.

Please notify MTCS at 416-212-0644 or toll free at 1-866-454-0049 if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out a determination of their nature and significance.



**Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)**



Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Unless otherwise stated in the submission, all personal information such as name, address, and property location will become part of the public record and will be included in the final report.

- I/we would like to be kept informed of this project.
- Please remove me from the project mailing list.

Agency:
(If applicable) TECUMSEH FIRE RESCUE

Name: DOUG PITRE (FIRE CHIEF)

Mailing Address: 985 LESPERANCE ROAD
TECUMSEH, ONTARIO
N8N-1W9

- I/we prefer to receive information by email.

E-mail: dpitre@tecumseh.ca

Comments/ Questions/ Concerns:

Please return this form by **December 21, 2012** to:

Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8

Tel: 519-948-5000 ext. 3232
Fax: 519-948-5054
E-mail: lchadwick@dillon.ca

Attention: Lori Chadwick, MCIP, RPP

December 18, 2012

Flavio Forest
Project Manager
Dillon Consulting Ltd.
3200 Dezeil Drive, Suite 608
Windsor, Ontario N8W 5K8
fforest@dillon.ca

Dear Mr. Forest,

Thank you for your letter of November 29 , 2012 regarding your request for information held by Aboriginal Affairs and Northern Development Canada (AANDC) on established or potential Aboriginal and treaty rights in the vicinity of the Sanitary Sewer Collection System improvements project in Tecumseh, Ontario.

Consulting with Canadians on matters of interest or concern to them is an important part of good governance, sound policy development and decision-making. In addition to good governance objectives, there may be statutory or contractual reasons for consulting, as well as the common law duty to consult with First Nations, Métis and Inuit when conduct that might adversely impact rights Aboriginal or treaty rights (established or potential) is contemplated.

It is important to note that the information held by AANDC is provided as contextual information and may or may not pertain directly to Aboriginal or treaty rights. In most cases, the Aboriginal community remains best positioned to explain their traditional use of land, their practices or claims that may fall under section 35, including claims they may have put before the courts.

AANDC has developed the Aboriginal and Treaty Rights Information System (ATRIS), which brings together information regarding Aboriginal groups such as their location, related treaty information, claims (specific, comprehensive and special) and litigation data.

The Consultation Information Service (CIS) response

The CIS of the Consultation and Accommodation Unit responds to requests sent to AANDC for information on established or potential Aboriginal and treaty rights known to the Department. The CIS has prepared the attached response which combines the resources of ATRIS and the support of sectors and regions within the AANDC. Using a 100 km radius surrounding the project location, information regarding potentially affected Aboriginal communities is presented in the attached report in the following sections for each community:

Aboriginal Community Information includes key contact information and any other information such as Tribal Council affiliation.

Treaties includes information on historic and modern treaties.

Claims includes specific, comprehensive and special claims.

Self-Government Agreements and other negotiations may be part of comprehensive claims or stand-alone negotiations.

Litigation usually refers to litigation between the Aboriginal Group and the Crown, often pertaining to section 35 rights assertions or consultation matters.

Also included, where available, is a section entitled **Other Considerations**. This may include information on Métis rights or information on the assertions of other Aboriginal groups, consultation-related protocols or agreements and other relevant information.

Should you require further assistance regarding the information provided, or if you have any questions and/or comments about the enclosed response, please do not hesitate to contact me.

Regards,

Allison Berman
Regional Subject Expert for Ontario
Consultation and Accommodation Unit
Aboriginal Affairs and Northern Development Canada
5H- 5th Floor,
Gatineau, QC K1A 0H4
Tel: 819-934-5267

Disclaimer

This information is provided as a public service by the Government of Canada. All of the information is provided "as is" without warranty of any kind, whether express or implied, including, without limitation, implied warranties as to the accuracy or reliability of any of the information provided, its fitness for a particular purpose or use, or non-infringement, which implied warranties are hereby expressly disclaimed. References to any website are provided for information only shall not be taken as endorsement of any kind. The Government of Canada is not responsible for the content or reliability of any referenced website and does not endorse the content, products, services or views expressed within them.

Limitation of Liabilities

Under no circumstances will the Government of Canada be liable to any person or business entity for any reliance on the completeness or accuracy of this information or for any direct, indirect, special, incidental, consequential, or other damages based on any use of this information including, without limitation, any lost profits, business interruption, or loss of programs or information, even if the Government of Canada has been specifically advised of the possibility of such damages.

Within a 100 km radius of your project there are 4 First Nation communities. The following information should assist you in planning any consultation that may be required.



In general, where historic treaties have been signed, the rights of signatory First Nation's are defined by the terms of the Treaty. In many cases, however, there are divergent views between First Nations and the Crown as to what the treaty provisions imply or signify. For each First Nation below, the relevant treaty area is provided.

In areas where no historic treaty exists or where such treaties were limited in scope (i.e. where only certain rights were addressed by the treaty, such as the Peace and Friendship Treaties), there may be comprehensive claims that are asserted or being negotiated. Comprehensive claim negotiations are the means by which modern treaties are achieved.

Specific claims refer to claims made by a First Nation against the federal government related to outstanding lawful obligations, such as the administration of land and other First Nation assets, and to the fulfillment of Indian treaties, although the treaties themselves are not open to re-negotiation. The below response provides summaries of relevant claims that are current to the date of the response. Claims that have been settled or closed may also be included to give a sense of the First Nation's claims history with the Crown.

As the claims progress regularly, it is recommended that the status of each claim be reviewed through the Reporting Centre on Specific Claims at:
http://pse5-esd5.ainc-inac.gc.ca/SCBRI_E/Main/ReportingCentre/External/externalreporting.aspx

Self-government agreements set out arrangements for Aboriginal groups to govern their internal affairs and assume greater responsibility and control over the decision making that affects their communities. Many comprehensive claims settlements also include various self-government arrangements. Self-government agreements address: the structure and accountability of Aboriginal governments, their law-making powers, financial arrangements and their responsibilities for providing programs and services to their members. Self-government enables Aboriginal governments to work in partnership with other governments and the private sector to promote economic development and improve social conditions.

First Nation/Aboriginal Communities

Aamjiwnaang

Chief Christopher Plain
978 Tashmoo Avenue
Sarnia, Ontario, N7T 7H5
Phone: (519) 336-8410 Fax: (519) 336-0382
www.aamjiwnaang.ca

Treaty Area - Southern Ontario Treaties to open the Interior: 1815 to 1862
For more information on the treaties, see "Other Considerations" below.

Membership

Union of Ontario Indians
Chiefs of Ontario
Southern First Nations Secretariat (London District Chiefs Council)
For more information, see "Other Considerations" below.

Specific Claims

Name: Clench Defalcation
Status: in negotiations
Description: The Plaintiffs claim a misappropriation of sale proceeds.

Name: Enniskillen (Split #01) Aamjiwnaang
Status: settled through negotiation
Description: Alleged that certain lands in Enniskillen Township were sold without surrender between 1866 and 1918.

Agreement negotiations

Anishinabek Nation (UOI) negotiations on Governance and Education
Please see "Other Considerations" below for more details.

Litigation

Name: Ada Lockridge v. Ministry of the Environment, HMTQ in Right of Ontario, Suncor Energy Products Inc., Attorney General of Ontario, Minister of the Environment Ontario
Status: active
Court File No.: 528/10

Description: The Plaintiffs allege that the Ministry of the Environment has granted permits and licenses resulting in the release of pollutants in an area south of Sarnia which surrounds the territory around the Applicants' reserve.

Name: Chippewas of Sarnia v. Attorney General of Canada et al, Attorney General of Canada, CN Realties, Great Western Railway

Status: active

Court File No.: not available

Description: In 1995 the Sarnia First Nation launched a lawsuit against Canada, Ontario, several thousand property owners, and business and industries, regarding an 1839 sale of 1/3 of the Sarnia reserve to Malcolm Cameron. On Dec 21, 2000, the Ontario Court of Appeal found that although there was no formal surrender, the actions of the First Nation indicated their intent to surrender the land. In these exceptional circumstances, the Court ruled that the rights of the innocent third parties who have relied on the patent must prevail. The patent was therefore found to be valid. The Court left open the right of the Chippewas to proceed with a claim for damages against the Crown.

Community background

In September of 2011, the First Nation launched the above lawsuit (*Ada Lockridge v. Ministry of the Environment et al*) against Ontario's Ministry of the Environment. Two members of the First Nation assert that by permitting a recent 25 % increase in production at a Suncor refinery, the government has violated Section 7 of the Canadian Charter of Rights and Freedoms: the right to life, liberty and the security of the person. Lawyers also cite a violation of equality rights under Section 15 of the Charter, saying the First Nation bears a disproportionate environmental burden. Within 25 kilometres of the Aamjiwnaang reserve, there are more than 60 industrial facilities, about 46 of them on the Canadian side of the border. These concerns are of great importance to the Aamjiwnaang First Nation, and should be taken in to consideration when contacting the community.

Caldwell First Nation

Chief Louise Hillier

P.O. Box 388

Leamington, Ontario, N8H 3W3

Phone: 519-322-1766 Fax: 519-322-1533

Treaty area – Southern Ontario Treaties for Settlement: 1783 to 1815

In the early part of the 20th century, the Department of Indian Affairs took some preliminary steps to provide a reserve for this First Nation. None of these attempts were completed, and the First Nation remained without a land base and other benefits under Treaty 2 of 1790. The Caldwell land claim is being settled through the Specific Claims process. For more information on the treaties, see "Other Considerations" below.

Membership

Association of Iroquois and Allied Indians

Southern First Nations Secretariat (London District Chiefs Council)

Chiefs of Ontario

For more information, see "Other Considerations" below.

Specific Claims

Name: Land Entitlement

Status: settling through negotiations as of 2011

Description: The First Nation alleged that their members are the original inhabitants, occupants and owners of Point Pelee & Pelee Island. They contended that they never surrendered Point Pelee in 1790, and that the 999 year lease to Pelee Island was invalid.

Name: Pelee Island

Status: concluded – no lawful obligation found

Description: The First Nation alleged that they did not surrender Pelee Island and that the 999 year lease is invalid since the Crown's patent is void.

Litigation

Name: Peter Welch v. HMTQ in Right of Ontario

Status: active (as of 23/11/2011)

Court File No.: not yet available

Description: This is a Fish and Wildlife Conservation Act prosecution involving a member of the Caldwell First Nation. The case involves an investigation regarding the shooting of a deer in 2011. The applicant is claiming Aboriginal and treaty rights to hunt, and will argue that his Charter rights were breached in the investigation.

Moravian of the Thames (Delaware Nation)
Chief Greg Peters (tenure expires May 31, 2013)
RR 3
Thamesville, Ontario, N0P 2K0
Phone: (519) 692-3936 Fax: (519) 692-5522

Treaty Area – Southern Ontario treaties for settlement: 1783 to 1815
For more information on the treaty, see “Other Considerations” below.

Membership

Southern First Nations Secretariat
Association of Iroquois and Allied Indians
See “Other Considerations” below for further information.

Specific Claims

Name: Orford Township

Status: concluded – no lawful obligation found

Description: Alleged unlawful alienation of 26,325 acres in Orford township.

Litigation

No litigation to report.

Walpole Island

Chief Burton Kewayosh Jr. (tenure expires June 23, 2014)

RR 3

Wallaceburg, Ontario, N8A 4K9

Phone: (519) 627-1481 Fax: (519) 627-0440

Treaty Area

There is no treaty establishing the Walpole Island reserve. Walpole Island is unsurrendered land of the First Nation which was granted reserve status through the 1850 Proclamation intended to protect the "lands and property of the Indians in Lower Canada". The following specific claims and litigation refers to land outside of the Walpole Island reserve. The Federal Government's position is that it does not recognize Aboriginal rights and title to these off-reserve areas.

Membership

Southern First Nations Secretariat

Chiefs of Ontario

See "Other Considerations" below for more information.

Specific Claims

Many of the below claims are listed as 'active litigation'. This means that the First Nation may have chosen to pursue these claims through the courts after submitting them to the Specific Claims process, or, to refer them to the Specific Claims Tribunal for a binding decision.

Name: Anderdon

Status: active litigation

Description: The First Nation alleges that the Crown failed to carry out the terms of the surrender of 300 acres in Anderdon Township in 1848.

Name: Bob Lo (Bois Blanc) Island

Status: active litigation

Description: The First Nation alleges that the surrender in 1786 was invalid and that no compensation was ever paid.

Name: East Sister Island

Status: active litigation

Description: The First Nation alleges that the Crown breached its fiduciary obligations regarding the use, license and disposition of the island.

Name: Fighting Island

Status: active litigation

Description: The First Nation alleges that Fighting Island and the adjacent fishery and waters have never been lawfully surrendered by Walpole Island First Nation.

Name: Grass Island

Status: active litigation

Description: The First Nation alleges that Canada illegally patented Grass Island in 1890, and that the island was never surrendered. Furthermore, no compensation for it was paid to Walpole Island.

Name: Hen and Chicken Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island.

Name: Lower Indian Reserve

Status: active negotiations

Description: The First Nation seeks the return of lower reserve, or compensation and questions the price paid for the land. The claim is located in the township of Moore.

Name: Middle Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations permitting Middle Island to be occupied pursuant to a license of occupation with no remuneration to the First Nation. The Crown also failed to advertise the sale of Middle Island.

Name: North Harbour Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island

Name: Peche Island (Fishing / Peach Island)

Status: active litigation

Description: The First Nation alleges licenses and leases were issued to Peche Island without any compensation paid to First Nation. Claimant also alleges that they did not receive fair market value for Peche Island at time of surrender in 1857.

Name: Pelee Island

Status: active litigation

Description: The First Nation alleges Pelee Island was never surrendered, and that 1870 surrender did not include Pelee Island. Furthermore, no compensation has been paid to the First Nation for the island.

Name: St. Clair Flats

Status: active litigation

Description: The First Nation alleges that in 1892 Ontario illegally sold and patented part of St. Clair Flats.

Name: Turkey Island

Status: active litigation

Description: The First Nation alleged that Walpole Island Indians and the Chippewas of Anderdon were the rightful owners of Turkey Island. They claim that Canada erred in seeking a surrender from the Wyandotts of Anderdon in 1874.

Name: Chenail Ecarte Reserve

Status: concluded – no lawful obligation found

Description: The First Nation alleged that Chenail Ecarte Reserve was intended to be 144 sq. miles, while the Surrender #7 document specified on 12 sq. miles. Furthermore, it is claimed that as per the terms of treaty, payment were never fulfilled. (Sombra Townships)

Name: Sawmill and Dock Lease Surrender (Surrender Project)

Status: concluded - no lawful obligation found

Description: The First Nation alleged the Crown broke its fiduciary obligations to the Band regarding a 5 year lease of 3 acres of reserve land in 1883, for the purposes of constructing a dock and lumber mill.

Name: Enniskillen (SPLIT #03) Walpole Island

Status: concluded - file closed

Description: The First Nation alleged that certain lands in Enniskillen Township were sold without surrender. Other Claimants - Kettle and Stony Point and Aamjiwnaang First Nations have settled this claim.

Name: 1958 Seaway Treaty (Surrender Project)

Status: concluded – no lawful obligation found

Description: This claim concerns construction of 16mi x 1000ft channel on Indian Reserve #46. The First Nation alleged that the Crown: did not conduct sufficient evaluation or impact studies prior to surrender; provided inadequate compensation; created injurious affection to remaining lands; created loss of economic opportunity related to the lands and damages resulting from construction of the channel. They also alleged no consideration was given to a lease rather than a surrender.

Name: Attempted Survey

Status: settled through negotiations

Description: The First Nation alleged the government attempted to survey Walpole Island 1890-1910 against the wishes of the First Nation. They sought return of First Nation trust funds used to pay for the survey, which was never completed.

Name: Fawn Island

Status: concluded – no lawful obligation found

Description: The Walpole Island First Nation claims that Canada was negligent in breach of its fiduciary duty regarding the deposition of Fawn Island and that the lands were sold for less than their fair market value. The island was surrender in 1857, but only sold in 1875.

Name: Middle Sister Island

Status: no lawful obligation found

Description: Alleged the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island, and sold the island for less than fair market value.

Name: Surrender for Timber on Walpole Island

Status: no lawful obligation found

Description: The First Nation alleges that Canada breached its fiduciary obligation by upholding the Jan. 30, 1883 vote when the Indian Act Agent provided only one proposal for consideration and in suggesting or threatening that if the First Nation didn't value in favour of the proposal, the timber would be surrendered to the Crown for sale by tender.

Litigation

Name: Walpole Island First Nation, Bkejwanong Territory v. Attorney General of Canada, HMTQ in Right of Ontario

Status: active

Court File No.: 00-CV-189329

Description: The Plaintiff is asserting their unextinguished Aboriginal title and claiming the Aboriginal right to hunt, access and preserve sacred sites to the Three Fires Confederacy Unceded Traditional Lands. The claimed area includes land that is subject to treaty 25 (1822) which was not signed by the Plaintiff. These lands also include lands subject to treaties 2,6,7,12,29 and the Township of Anderdon. The Plaintiff excludes islands or water lots that were encompassed by treaties signed by them or their predecessors, as well as any land that is owned in fee simple by private parties.

Name: HMTQ in Right of Canada v. Clark Peters, Paul Tooshkenig Jr., William Shipman, Lonni Shipman, Clark Peters Jr.

Status: active

Court File No.: not available

Description: The Notice of Constitutional Question deals with the Robinson-Superior Treaty that provides that "its Aboriginal beneficiaries the full and free privilege to hunt". The Defendants are members of the Walpole First Nation, and were hunting moose in the Robinson-Superior Treaty area, with the permission of the Michipicoten First Nation. They are challenging Section 6 of the Fish and Wildlife Conservation Act, alleging that it gives no priority to any persons having Treaty or Aboriginal rights, and is inconsistent with section 35 of the Constitution Act, 1982, and it is therefore inapplicable to Aboriginal persons.

Name: William Shipman, Clark Peters Jr., Clark Peters, Paul Tooshkenig, Lonnie Shipman v. HMTQ in Right of Canada

Status: active

Court File No.: 260-91; 260-92; 260-94; 260-25

Description: The Defendants intend to question the validity of s.6 of the Fish and Wildlife Conservation Act made pursuant to the Interim Enforcement Policy, generally and in regard to the application to the Defendants. The Defendants were charged with hunting moose for food purposes, within the boundaries of the Robinson-Superior Treaty. The Defendants assert that they were exercising their Aboriginal and/or treaty right to hunt within their traditional territory.

Name: William Shipman, Clark Peters Jr., Clark Peters, Paul Tooshkenig, Lonnie Shipman v. HMTQ in Right of Canada

Status: active

Court File No.: C44543

Description: The Appellants intend to question the constitutional validity and applicability of s.6 of the Fish and Wildlife Conservation Act. The Appellants assert that the Ontario licensing system for the issuance of moose hunting licences gives no priority to any persons having Treaty or Aboriginal rights. They will argue, inter alia, that s.6 of the Fish and Wildlife Conservation Act is inconsistent with s. 35 of the Constitution Act as it does not give priority to persons having Treaty or Aboriginal rights, and that prosecutorial discretion cannot be exercised if the constitutional priority of Treaty and Aboriginal rights is not respected. They will also argue that they are entitled to the benefits of the hunting rights protected by the Robinson-Superior Treaty and by s. 35 of the Constitution Act, and that these hunting rights are unjustifiably infringed by s. 6 of the Fish and Wildlife Conservation Act.

Name: Chief Daniel R. Miskokomon v. Minister of Transport

Status: closed

Court File No.: T-1920-93

Description: The plaintiffs claim Aboriginal and treaty rights and aboriginal title to the waters and beds under the waters of portions of Lake Huron, the St. Clair River, Lake St. Clair, and Lake Erie stemming from the Royal Proclamation of 1763. The plaintiffs further state that Canada is in breach of its fiduciary duty to the First Nation for granting easements to permit construction of the CN tunnel, which will directly interfere with the rights and title of the First Nation.

Name: Walpole Island First Nation v. Attorney General of Canada, Minister of Environment, ICI Canada Inc.

Status: closed

Court File No.: T-272-97

Description: Imperial Chemical Industries Canada (ICI) operated a fertilizer plant on the St. Clair River from 1967-1968. On 10 Feb 1995, ICI applied for approval to discharge waste into the river - approval was granted. The Walpole Island First Nation (WIFN) commenced actions to have the decision rescinded. The Minister of Environment refused because, among other things, the proposed discharge posed no threat to public health or environment. On May 29, 1997 WIFN filed a Memorandum of Argument, claiming that the Minister's decision constituted an infringement of their Charter rights i.e. enjoyment of life and health.

Walpole Island First Nation Consultation Protocol

The Walpole Island First Nation passed its own consultation protocol. It states their expectations from government and proponents in any activities or decision making undertaken in their traditional territory. It is recommended that this protocol be reviewed in advance of consultation to better understand the First Nation's expectations. However, the federal government is not a party to this agreement and does not endorse the content. A link to the protocol is:

http://indigenouspeoplesissues.com/attachments/article/2576/2576_WalpoleIsland_Consultation_Protocol2009.pdf

Public Notice of Aboriginal title assertion

The Council of the Three Fires published a notice (2005) asserting Aboriginal title by Walpole Island First Nation- Bkejwanong Territory. Walpole Island First Nation gives notice to all Crown departments and agencies, federal or provincial and to municipalities that it wishes to be notified and consulted with in relation to any actions taken in respect of the claimed territory.

Other Considerations

Aboriginal Rights Assertions: the Métis

The inclusion of the Métis in s.35 represents Canada's commitment to recognize and value their distinctive cultures, which can only survive if they are protected along with other Aboriginal communities. In 2003, the Supreme Court of Canada affirmed Métis rights under s.35 of the Constitution Act, 1982, in the Sault St. Marie area, in the *Powley* decision. For more information on the *Powley* decision visit the following link: www.aadnc-aandc.gc.ca/eng/1100100014419

The Office of the Federal Interlocutor for Métis and Non-Status Indians (OFI) is aware that the Métis Nation of Ontario (MNO), its regional and community councils, have asserted a Métis right to harvest in a large section of the province.

The provincial government has accommodated Métis rights on a regional basis within Métis harvesting territories identified by the MNO. These accommodations are based on credible

Métis rights assertions. An interim agreement (2004) between the MNO and the Ministry of Natural Resources (MNR) recognizes the MNO's Harvest Card system. This means that Harvester's Certificate holders engage in traditional Métis harvest activities within identified Métis traditional territories across the province. For a map of Métis traditional harvesting territories visit the MNO website at: <http://www.metisnation.org/harvesting/harvesting-map.aspx>

The MNO maintains that Aboriginal 'rights-holders' are Métis communities which are collectively represented through the MNO and its community councils. In partnership with community councils, MNO has established a consultation process. The MNO has published regional consultation protocols on their website which offer pre-consultation stage instructions on engaging the Métis through their community councils (via the consultation committee made up of an MNO regional councilor, a community councilor representative and a Captain of the Hunt). Please note however, that this organization does not represent all Métis in Ontario.

Métis Nation of Ontario

Métis Consultation Unit is located within the MNO head office.

500 Old St. Patrick Street, Unit 3

Ottawa, Ontario, K1N 9G4

Phone: (613) 798-1488 Fax: (613) 725-4225

www.metisnation.org/home.aspx

Métis National Council

4-340 MacLaren Street,

Ottawa, Ontario, K2P 0M6

Phone: (613) 232-3216 Fax: (613) 232-4262

www.metisnation.ca

For an indication of the population in Ontario who self-identify as Métis, visit the Statistics Canada website. The Ontario map indicates populations as small as 250 up to over 2,000 within its borders.

http://geodepot.statcan.gc.ca/2006/13011619/200805130120090313011619/16181522091403090112_13011619/151401021518090709140112_201520011213052009190904161516_0503-eng.pdf

Métis Litigation in Ontario

Name: HMTQ in Right of Canada v. Michel Blais

Status: active

Court File No.: 08-213

Description: The Applicant is charged with unlawfully harvesting forest resources in a Crown forest without a license contrary to the Crown Forest Sustainability Act, 1994. The Applicant, a Métis, asserts that he is an Aboriginal person within the meaning of s. 35 of the Constitution Act, 1982 and that the alleged harvesting occurred in lands set apart for the Batchewana Band pursuant to the Robinson Treaty of 1850. He claims that the Batchewana First Nation may permit Métis persons to exercise the same Aboriginal and treaty rights as its members pursuant to this treaty.

Name: HMTQ in Right of Canada, Laurie Desautels v. Henry Wetelainen Jr.

Status: active

Court File No.: CV-08-151

Description: The defendant, Henry Wetelainen Jr., intends to question the constitutional validity of sections 28, 31 and 40 of the Crown Forest Sustainability Act (1994), S.O. 1994, c. 25 and Ontario Regulation 167/95, as amended, in relation to an act or omission of the government of

Ontario. The defendant claims that he was exercising Aboriginal and treaty rights afforded by the Adhesion to Treaty 3, by harvesting wood within his traditional territory. He claims that he is a Métis/Non-Status Indian and that the imposition of payment for harvesting or use of the forest resource is an infringement and violates his constitutional rights.

Name: Ministry of Natural Resources v. Kenneth Sr. Paquette

Status: active

Court File No.: to be determined

Description: This Notice of Constitutional Question relates to a provincial prosecution involving a charge pertaining to hunting moose. The Defendant intends to assert his s. 35 right as a Métis person to hunt moose, and he also intends to seek a Charter remedy under s. 15 of the *Charter*.

Court Decisions concerning Métis in Ontario

R. v. Laurin, Lemieux, Lemieux - 2007

Court No.: ONCJ 265

Three Métis defendants were charged with fishing violations and claimed that the decision of the Ministry of Natural Resources (MNR) to prosecute them violated the terms of the Interim Agreement (2004) between the MNR and the Métis Nation of Ontario (MNO). As the defendants were indeed Harvester Card holders authorized to fish in the Mattawa/Nipissing territory, therefore, they were entitled to the exemption in the agreement.

The Court concluded that laying of charges against any valid Harvester Card holder who is harvesting in the territory designated on the card within 2 years of the 2004 agreement was a breach. The Interim Agreement itself was silent as to any geographic limitations. There was no mention of the Agreement only applying north and east of Sudbury. Further, the reliance on Harvester Cards, which explicitly contained the territorial designation of the cardholder, signified that the MNR accepted such designations for the purpose of the agreement. The Court was clear to note that this case did not make any ruling regarding the merits of any claim that the Mattawa/Nipissing area contains section 35 rights bearing Métis communities.

Membership

First Nations may or may not delegate certain authority and/or powers to tribal councils to administer programs, funding and/or services on their behalf. The best source of information with respect to consultation is through individual First Nations themselves.

Association of Iroquois and Allied Indians

This is a political organization which advocates the interests of its eight members. Using political lines the members form a collective to protect their Aboriginal and treaty rights.

www.aiai.on.ca

387 Princess Avenue

London, Ontario, N6B 2A7

Phone: (519) 434-2761

Chiefs of Ontario

The Chiefs of Ontario is a coordinating body for 133 First Nation communities in Ontario. The main objective of this body is to facilitate the discussion, planning, implementation and evaluation of all local, regional and national matters affecting its members.

www.chiefs-of-ontario.org

Administrative Office:
111 Peter Street, Suite 804
Toronto, Ontario, M5V 2H1
Phone: (416) 597-1266
Fax: (416) 597-8365

Political Office:
Fort William First Nation
RR 4, Suite 101, 9- Anemki Drive
Thunder Bay, Ontario, P7J 1A5
Phone: (807) 626-9339
Fax: (807) 626-9404

Southern First Nations Secretariat

The Secretariat is a non-profit, non-political corporate support body. It provides service delivery for the London District Chiefs Council (association of 7 First Nation governments), and facilitates communications amongst member First Nations, their organizations and other similar service providers.

<http://www.sfns.on.ca>

22361 Austin Line
Bothwell, Ontario, N0P 1C0
Phone: 519-692-5868 Fax: 519-692-5972

The Union of Ontario Indians (UOI)

The UOI is a political advocate for approximately 40 member First Nations across Ontario. Its headquarters is located on Nipissing First Nation, just outside of North Bay Ontario, and has satellite offices in Thunder Bay, Curve Lake First Nation and Munsee-Delaware First Nation. The UOI delivers a variety of programs and services. The Anishinabek Nation incorporated the Union of Ontario Indians (UOI) as its secretariat in 1949.

www.anishinabek.ca

Head Office:

1 Miigizi Mikan
North Bay, Ontario, P1B 8J8
Phone: (705) 497-9127
Fax: (705) 497-9135

Regional Office

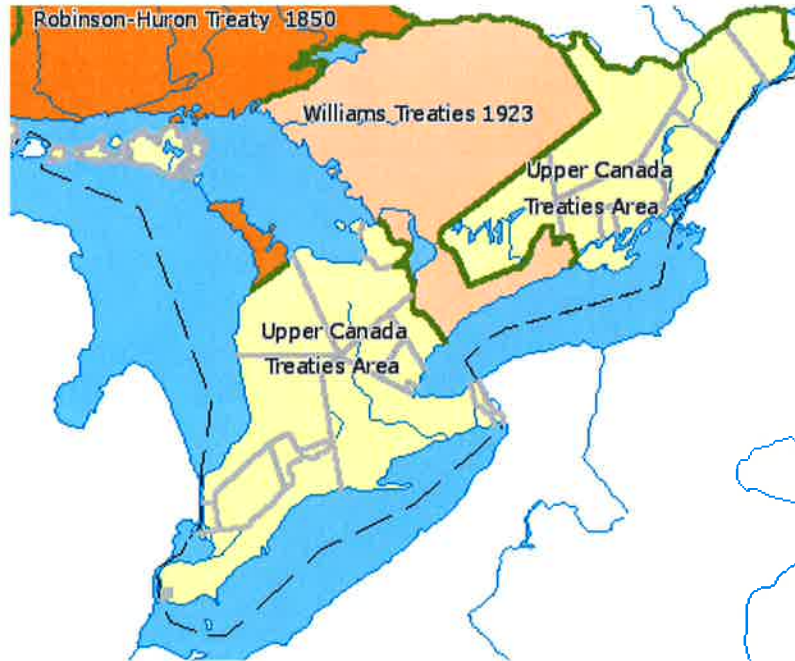
300 Anemki Place
Thunder Bay, Ontario, P7J 1H9
Phone: (807) 623-8887

Treaties of Southern Ontario- The Upper Canada Treaties

There are several treaty making eras which impact the province of Ontario. These eras are known as the Upper Canada Land Surrenders from 1764 to 1862. These surrenders are seen as treaties which transfer all Aboriginal rights and title to the Crown in exchange for one-time payments or annuities. They tended to be made with individual First Nation groups for tracts of land. In light of the evolution of Aboriginal law over the past twenty years, this position may not be as clear as believed. There may be residual rights remaining especially relating to hunting and fishing.

1764-1782 – Early Land Surrenders

The Royal Proclamation of 1763 established the protection from encroachment of an Aboriginal territory outside of the colonial boundaries. Rules and protocols for the acquisition of Aboriginal lands by Crown officials were set out and became the basis for all future land treaties. In response to military and defensive needs around the Great Lakes, the Indian Department negotiated several land surrender treaties in the Niagara region.



*Atlas of Canada

1783-1815- Treaties for Settlement

As part of the plan to resettle some 30,000 United Empire Loyalists who refused to accept American rule, and fled to Montreal, the Indian Department undertook a series of land surrenders west of the Ottawa River with the Mississauga and the Chippewa of the southern Great Lakes. These tended to be uncomplicated arrangements whereby for a particular Aboriginal group was paid a specific sum paid in trade goods, to surrender a stated amount of land.

1815-1862- Treaties to Open the Interior

After the war of 1812, the colonial administration of Upper Canada focused on greater settlement of the colony. The Indian Department completed the last of the over 30 Upper Canada Land Surrenders around the Kawartha, Georgian Bay, and the Rideau and Ottawa Rivers. All of this land which today is known as Southern Ontario, was ceded to the Crown.

Self Government Agreement Negotiations

Anishinabek Nation (Union of Ontario Indians) negotiations on Governance and Education

In 1995, the Anishinabek Nation's Grand Council authorized its secretariat arm, the Union of Ontario Indians (UOI), to begin self-government negotiations with Canada. Negotiations towards agreements in the areas of education and governance began in 1998.

An agreement-in-principle (AIP) on education was signed in November 2002. In February 2007, the parties signed the AIP with respect to governance. Final agreement negotiations are proceeding in parallel, and together these agreements would mark important steps towards the Anishinabek Nation's long-term objective of supporting participating First Nations to move out from under the *Indian Act*.

The governance agreement will provide the establishment of the Anishinabek Nation government and the recognition of participating First Nation lawmaking authority in four core governance areas: leadership selection, citizenship, culture and language, and management and operations of government.

The education AIP authorized the parties to negotiate a final agreement with respect to lawmaking authority for primary, elementary and secondary education for on-reserve members, and to administer AANDC's post-secondary education assistance program. Negotiations towards a final agreement with respect to education are nearing conclusion. The Province of Ontario is not a party to these negotiations but is engaged in tripartite discussions on particular issues that would assist in the implementation of the final agreement.

To prepare for self-government in member communities, the Union of Ontario Indians has undertaken a range of activities including a Community Engagement Strategy, the development of an appeal and redress process, a constitutional development process and a number of capacity development activities.

Provincial guidelines

Under its responsibility to promote stronger Aboriginal relationships, the Ontario Ministry of Aboriginal Affairs has produced *Draft Guidelines on Consultation with Aboriginal Peoples Related to Aboriginal Rights and Treaty Rights*. These guidelines are for use by ministries who seek input from key First Nations and Métis organizations, all Ontario First Nations and selected non-Aboriginal stakeholders. To review the guidelines, visit:

<http://www.aboriginalaffairs.gov.on.ca/english/policy/draftconsultjune2006.pdf>



Chadwick, Lori <lchadwick@dillon.ca>

FW: Sanitary Sewage Collection Assessment

1 message

From:
Sent: December-02-12 11:07 AM
To: Robert Filipov
Subject: Sanitary Sewage Collection Assessment

This is in response to the published Notice of Study Commencement

I live on _____ It appears to me that many homes in my area still have their downspouts connected to the town sewer system. If there is a bylaw against this, I think that the bylaw should be enforced. If there is no bylaw covering this situation, I think that it would be beneficial to enact one, to relieve the demand on the capacity of the sewer system during heavy rain events.

Thank you for your consideration.



Robert Filipov
Manager, Engineering Services
rfilipov@tecumseh.ca

Town of Tecumseh - 917 Lesperance Rd. - Tecumseh, ON. - N8N1W9
519.735-2184 x148 - 519-735-6712 -www.tecumseh.ca

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Fwd: Sanitary Sewage Collection System Improvements - Municipal Class EA

1 message

----- Forwarded message -----

From:

Date: Mon, Dec 17, 2012 at 3:45 PM

Subject: Sanitary Sewage Collection System Improvements - Municipal Class EA

To: "rfilipov@tecumseh.ca" <rfilipov@tecumseh.ca>, "fforest@dillon.ca" <fforest@dillon.ca>

Robert / Flavio,

Further to the "Notice of Study Commencement" for the above reference EA I would like to be able to provide input and comments into the planning and design of this project. Please add me to the contact list and find my contact information below:

This message (including any attachment) is confidential, may be privileged and is intended for the above-named recipient(s) only. If you have received this message in error, please notify the sender by the telephone number listed in this e-mail and delete this message from your system. Any unauthorized distribution, disclosure or use of this message is strictly prohibited.



Chadwick, Lori <lchadwick@dillon.ca>

Fwd: contact list1 message

----- Forwarded message -----

From:

Date: Thu, Dec 6, 2012 at 11:06 AM

Subject: contact list

To: rfilipov@tecumseh.ca, fforest@dillon.ca

Hello Mr. Filipov and Mr. Forest,
please add my name to the Contact List regarding the Sanitary Sewage Collection System Improvements. I would like to attend meetings or give any needed input in the months to come.

My home has flooded so many times in the last few years, that my husband and I can only get insurance for our basement with one company in all of Canada! I am told that the _____ area is not available for basement insurance due to the water levels or sewage drainage problems in the area. Even though we paid various plumbers to install battery backup pumps, and one way valves, etc. we still have water coming up from the drains during heavy rain storms. My frustration was so high at one point that I considered selling my home and moving out of Tecumseh!

Thanks for keeping me in informed,



Chadwick, Lori <lchadwick@dillon.ca>

FW: Sanitary Sewage Collection System Study

1 message

From:
Sent: December-02-12 4:32 PM
To: Robert Filipov
Subject: Sanitary Sewage Collection System Study

Good Morning Mr. Filipov,

My wife and myself have a residence at

We have experienced sanitary sewage flooding in between Febr - March 2009, twice and again in June 2010. Following repairs of repeat floodings, our insurance for basement flooding was cancelled.

We have followed all of the recommendations to prevent any future flooding, as advised by the town of Tecumseh.

We would very much like to follow the measures the Town is considering in the improvements to the sanitary sewage system.

We would also like to be added to your Contact List.

Thank you for your attention,

Robert Filipov
Manager, Engineering Services
rfilioov@tecumseh.ca



Town of Tecumseh - 917 Lesperance Rd. - Tecumseh, ON. - N8N1W9
519.735-2184 x148 - 519-735-6712 -www.tecumseh.ca

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Our File No.: 12-5969-8000

January 21, 2013

Ministry of Tourism, Culture and Sport
Culture Division, Programs and Services Branch
401 Bay Street, Suite 1700
Toronto, Ontario
M7A 0A7

Attention: Mr. Joseph Muller, MCIP
Heritage Planner

**Town of Tecumseh
Sanitary Sewage Collection System
Municipal Class Environmental Assessment**

Dear Mr. Muller,

Thank you for your letter of December 17, 2012 regarding the project's potential impacts on cultural heritage resources.

Please find enclosed the completed "Screening for Impacts to Built Heritage and Cultural Heritage Landscapes" form. As shown, no built heritage or cultural heritage landscapes will be affected by the project.

A Stage 1 Archaeological Assessment is required for the project. Fisher Archaeological Consulting (FAC) has been retained to complete the assessment.

Yours sincerely,

DILLON CONSULTING LIMITED

Flavio Forest, P. Eng.
Project Manager

LH:hh

Encl.

cc: Mr. Robert Filipov, Town of Tecumseh

Screening for Impacts to Built Heritage and Cultural Heritage Landscapes

This checklist is intended to help proponents determine whether their project could affect known or potential cultural heritage resources. The completed checklist should be returned to the appropriate Heritage Planner or Heritage Advisor at the Ministry of Tourism and Culture.

Step 1 – Screening for Recognized Cultural Heritage Value			
YES	NO	Unknown	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Is the subject property designated or adjacent* to a property designated under the <i>Ontario Heritage Act</i> ?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Is the subject property listed on the municipal heritage register or a provincial register/list? (e.g. Ontario Heritage Bridge List)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Is the subject property within or adjacent to a Heritage Conservation District?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Does the subject property have an Ontario Heritage Trust easement or is it adjacent to such a property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Is there a provincial or federal plaque on or near the subject property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Is the subject property a National Historic Site?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Is the subject property recognized or valued by an Aboriginal community?
Step 2 – Screening Potential Resources			
YES	NO	Unknown	Built heritage resources
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Does the subject property or an adjacent property contain any buildings or structures over forty years old[†] that are:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Residential structures (e.g. house, apartment building, shanty or trap line shelter)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Farm buildings (e.g. barns, outbuildings, silos, windmills)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Industrial, commercial or institutional buildings (e.g. a factory, school, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Engineering works (e.g. bridges, water or communications towers, roads, water/sewer systems, dams, earthworks, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Monuments or Landmark Features (e.g. cairns, statues, obelisks, fountains, reflecting pools, retaining walls, boundary or claim markers, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Is the subject property or an adjacent property associated with a known architect or builder?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Is the subject property or an adjacent property associated with a person or event of historic interest?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. When the municipal heritage planner was contacted regarding potential cultural heritage value of the subject property, did they express interest or concern?
YES	NO	Unknown	Cultural heritage landscapes
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Does the subject property contain landscape features such as:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Burial sites and/or cemeteries
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Parks or gardens
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Quarries, mining, industrial or farming operations
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Canals
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Prominent natural features that could have special value to people (such as waterfalls, rocky outcrops, large specimen trees, caves, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Evidence of other human-made alterations to the natural landscape (such as trails, boundary or way-finding markers, mounds, earthworks, cultivation, non-native species, etc.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Is the subject property within a Canadian Heritage River watershed?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Is the subject property near the Rideau Canal Corridor UNESCO World Heritage Site?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Is there any evidence from documentary sources (e.g., local histories, a local recognition program, research studies, previous heritage impact assessment reports, etc.) or local knowledge or Aboriginal oral history, associating the subject property/ area with historic events, activities or persons?

Note:

If the answer is "yes" to any question in Step 1, proceed to Step 3.

The following resources can assist in answering questions in Step 1:

Municipal Clerk or Planning Department – Information on properties designated under the Ontario Heritage Act (individual properties or Heritage Conservation Districts) and properties listed on a Municipal Heritage register.

Ontario Heritage Trust – Contact the OHT directly regarding easement properties. A list of OHT plaques can be found on the website: [Ontario Heritage Trust](http://OntarioHeritageTrust.com)

Parks Canada – A list of National Historic Sites can be found on the website: [Parks Canada](http://ParksCanada.com)

Ministry of Tourism and Culture – The Ontario Heritage Properties Database includes close to 8000 identified heritage properties. Note while this database is a valuable resource, it has not been updated since 2005, and therefore is not comprehensive or exhaustive. [Ontario Heritage Properties Database](http://OntarioHeritagePropertiesDatabase.com)

Local or Provincial archives

Local heritage organizations, such as the municipal heritage committee, historical society, local branch of the Architectural Conservancy of Ontario, etc.

Consideration should also be given to obtaining oral evidence of CHRs. For example, in many Aboriginal communities, an important means of maintaining knowledge of cultural heritage resources is through oral tradition.

If the answer is "yes" to any question in Step 2, an evaluation of cultural heritage value is required. If cultural heritage resources are identified, proceed to Step 3.

If the answer to any question in Step 1 or to questions 2-4, 6-8 in Step 2, is "unknown", further research is required.

If the answer is "yes" to any of the questions in Step 3, a heritage impact assessment is required.

If uncertainty exists at any point, the services of a qualified person should be retained to assist in completing this checklist. All cultural heritage evaluation reports and heritage impact assessment reports must be prepared by a qualified person. Qualified persons means individuals (professional engineers, architects, archaeologists, etc.) having relevant, recent experience in the identification and conservation of cultural heritage resources. Appropriate evaluation involves gathering and recording information about the property sufficient to understand and substantiate its heritage value; determining cultural heritage value or interest based on the advice of qualified persons and with appropriate community input. If the property meets the criteria in Ontario Regulation 9/06 under the Ontario Heritage Act, it is a cultural heritage resource.

[†] The 40 year old threshold is an indicator of potential when conducting a preliminary survey for identification of cultural heritage resources. While the presence of a built feature that is 40 or more years old does not automatically signify cultural heritage value, it does make it more likely that the property could have cultural heritage value or interest. Similarly, if all the built features on a property are less than 40 years old, this does not automatically mean the property has no cultural heritage value. Note that age is not a criterion for designation under the *Ontario Heritage Act*.

Step 3 – Screening for Potential Impacts		
YES	NO	<p>Will the proposed undertaking/project involve or result in any of the following potential impacts to the subject property or an adjacent* property?</p> <p><input type="checkbox"/> <input type="checkbox"/> Destruction, removal or relocation of any, or part of any, heritage attribute or feature.</p> <p><input type="checkbox"/> <input type="checkbox"/> Alteration (which means a change in any manner and includes restoration, renovation, repair or disturbance).</p> <p><input type="checkbox"/> <input type="checkbox"/> Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature or plantings, such as a garden.</p> <p><input type="checkbox"/> <input type="checkbox"/> Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.</p> <p><input type="checkbox"/> <input type="checkbox"/> Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature.</p> <p><input type="checkbox"/> <input type="checkbox"/> A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces.</p> <p><input type="checkbox"/> <input type="checkbox"/> Soil disturbance such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.</p>

* For the purposes of evaluating potential impacts of development and site alteration "adjacent" means: contiguous properties as well as properties that are separated from a heritage property by narrow strip of land used as a public or private road, highway, street, lane, trail, right-of way, walkway, green space, park, and/or easement or as otherwise defined in the municipal official plan.

Ministry of Tourism and Culture Criteria for Determining Archaeological Potential

A Checklist for the Non-Specialist

Feature of Archaeological Potential		Yes	No	Unknown
1.	Known archaeological sites within 300 m of property	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Features		Yes	No	Unknown
2.	Water on or near the property If yes, what kind of water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	a) Primary water source (lake, river, large creek, etc) <ul style="list-style-type: none"> ▪ within 300 m, OR ▪ 50 m for properties in northern Ontario and Canadian Shield terrain* 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b) Secondary water source (stream, spring, marsh, swamp, etc) <ul style="list-style-type: none"> ▪ within 300 m, OR ▪ 50 m for properties in northern Ontario and Canadian Shield terrain* 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c) Past water source (beach ridge, river bed, relic creek, ancient shoreline, etc) <ul style="list-style-type: none"> ▪ within 300 m, OR ▪ 150 m for properties in northern Ontario and Canadian Shield terrain* 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Elevated topography on property (knolls, drumlins, eskers, plateaus, etc)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	Pockets of sandy soil in a clay or rocky area on property	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.	Distinctive land formations on property (mounds, caverns, waterfalls, peninsulas, etc)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cultural Features		Yes	No	Unknown
6.	Known burial site or cemetery on or adjacent to the property (cemetery is registered with the Cemeteries Regulation Unit)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	Food or scarce resource harvest areas on property (traditional fishing locations, agricultural/berry extraction areas, etc)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	Indications of early Euro-Canadian settlement within 300 m of property (monuments, cemeteries, structures, etc)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Early historic transportation routes within 100 m of property (historic road, trail, portage, rail corridor, etc)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Property-specific Information		Yes	No	Unknown
10.	Property is designated and/or listed under the <i>Ontario Heritage Act</i> (municipal register and lands described in Reg. 875 of the <i>Ontario Heritage Act</i>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11.	Local knowledge of archaeological potential of property (from aboriginal communities, heritage organisations, municipal heritage committees, etc)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Recent ground disturbance [†] (post-1960, extensive and deep land alterations)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The entire property should be screened for archaeological potential, not only the footprint where work is proposed.

*Northern Ontario is defined as Manitoulin Island, the Districts of Muskoka, Haliburton and Nipissing, and areas to the north. The Canadian Shield is defined as the area of Ontario underlain by the Precambrian Shield.

[†] Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as 'disturbed' or 'disturbance', and may include: quarrying, major landscaping involving grading below topsoil, building footprints, sewage and infrastructure development. Activities such as agricultural cultivation, gardening, minor grading and landscaping do not necessarily affect archaeological potential.

Scoring the results:

If **Yes** to any of 1, 2a-c, 6 or 11

→ archaeological potential is **determined** – assessment is required

If **Yes** to two or more of 3 to 5 or 7-10

→ archaeological potential is **determined** – assessment is required

If **Yes** to 12 or **No** to 1 to 10

→ **low** archaeological potential is **determined** – assessment may or may not be required (depending on answers from 1-11)

If 3 or more **Unknown**

→ more research is required (**See note below for more information**)

Note: If archaeological potential features are unknown, a professional archaeologist licensed under the *Ontario Heritage Act* should be retained to carry out a minimum Stage 1 archaeological assessment report confirming potential or low potential. All reports are to be in compliance with provincial archaeological assessment standards and guidelines.

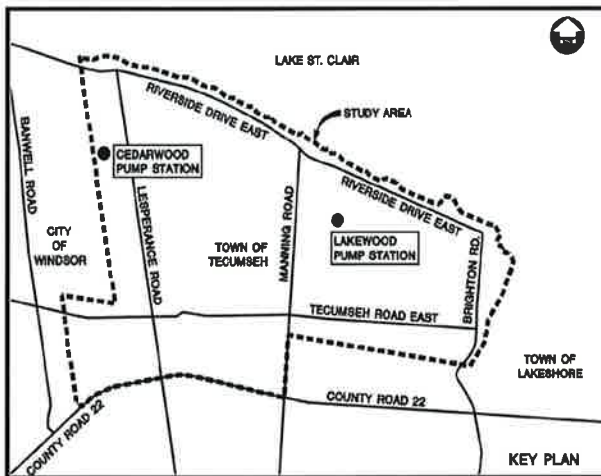


Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment (EA)
Notice of Public Information Centre



Since the early 1980's, wet weather conditions have occasionally resulted in excess inflow and infiltration that has exceeded the capacity of the Town of Tecumseh's sanitary sewage collection system and caused basement flooding, particularly in the former Village of St. Clair Beach area. In order to supplement the Town's current long-term strategy of reducing inflow and infiltration as a means of addressing basement flooding and accommodating new development, the Town is considering further improvements to the sanitary sewage system. Dillon Consulting Limited has been retained to complete a Municipal Class Environmental Assessment (October 2000, as amended in 2007 & 2011) to consider a range of alternatives and identify a preferred solution.

The study area for the Municipal Class EA planning and design study is shown on the adjacent map.



This project is being planned as a Schedule "B" undertaking under the Municipal Class EA. This type of project is approved under the *Environmental Assessment Act*, provided it follows Phase 1, "Problem/Opportunity Identification", and Phase 2, "Alternative Solutions", of the Municipal Class EA process. The process involves public and agency consultation, preparation of environmental inventories, evaluation of options, and identification and impact assessment of the recommended solution.

The study team has completed a detailed evaluation of alternative solutions based on various factors, as well as input received from agencies and the public to date. Based on this evaluation, a recommended solution has been identified, along with a preliminary functional design of the proposed sanitary sewage system improvements.

A **Public Information Centre (PIC)** will be held to provide the public and agencies with an opportunity to review and comment on the detailed findings of the study, including the recommended solution and functional design. The PIC has been scheduled as follows:

DATE: Tuesday, February 26, 2013
LOCATION: Town of Tecumseh Municipal Offices, 917 Lesperance Road, Tecumseh, Ontario
TIMES: 3:00pm to 5:00pm and 7:00pm to 9:00pm

At the completion of the study, the Class EA will be documented in an Environmental Screening Report that will placed on the public record for a 30-day public and agency review period.

There is an opportunity to provide comments at any time during the EA process. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and, with the exception of personal information, comments will become part of the public record. If you have any comments, questions or concerns, or wish to be added to the mailing list, please contact:

Robert Filipov, P.Eng., Manager, Engineering Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario, N8N 1W9
Tel: 519-735-2184, ext. 148
Fax: 519-735-6712
E-mail: rfilipov@tecumseh.ca

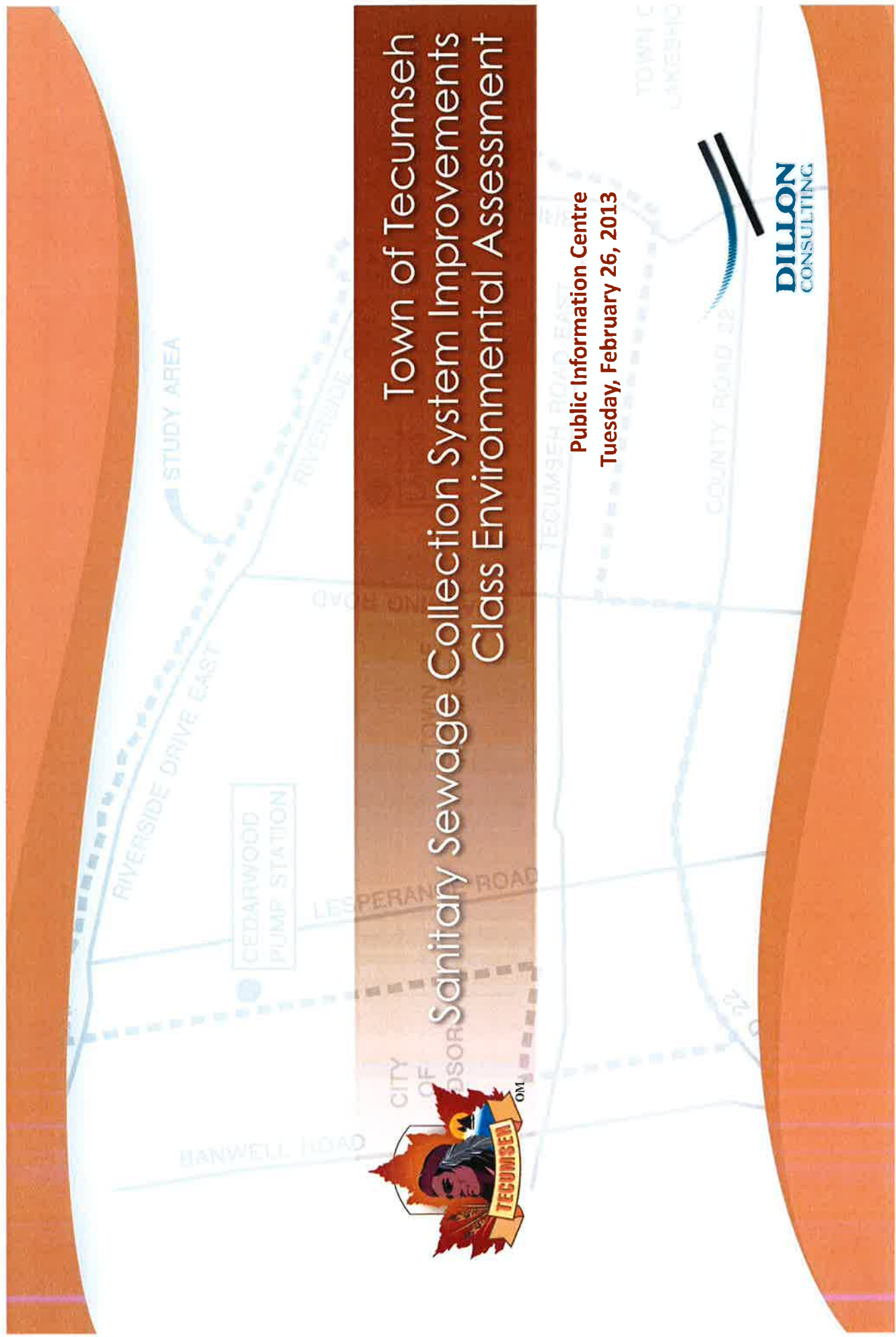
Flavio Forest, P.Eng., Project Manager
Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8
Tel: 519-948-4243, ext. 3233
Fax: 519-948-5054
E-mail: fforest@dillon.ca

This Notice issued on February 15, 2013 and February 22, 2013.



Town of Tecumseh Sanitary Sewage Collection System Improvements Class Environmental Assessment

Public Information Centre
Tuesday, February 26, 2013



Project Background

Since the early 1980s, wet weather conditions have occasionally resulted in excess inflow and infiltration that has exceeded the capacity of the Town of Tecumseh's sanitary sewage collection system. This has caused basement flooding, particularly in the former Village of St. Clair Beach.

The Town of Tecumseh has completed various studies and implemented numerous improvements to date.

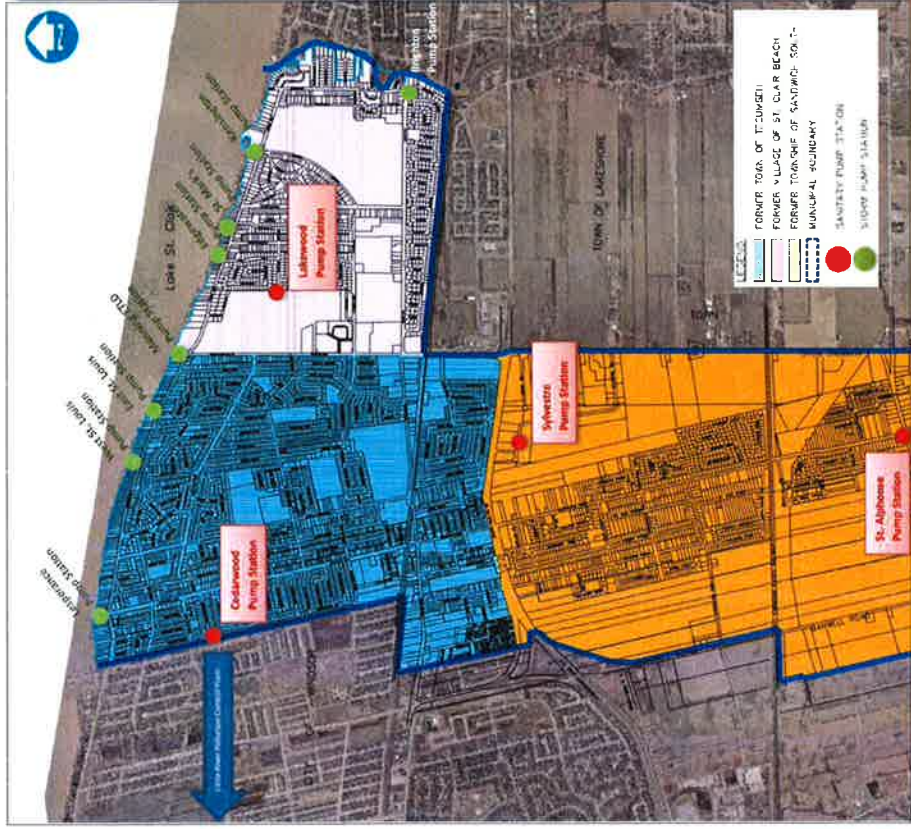
To continue to address basement flooding and accommodate new development, the Town is considering further improvements to the sanitary sewage system.

The Town retained Dillon Consulting to complete a Municipal Class Environmental Assessment (EA) to consider a range of alternatives and identify a preferred solution.



Study Area, Town of Tecumseh

Project Background

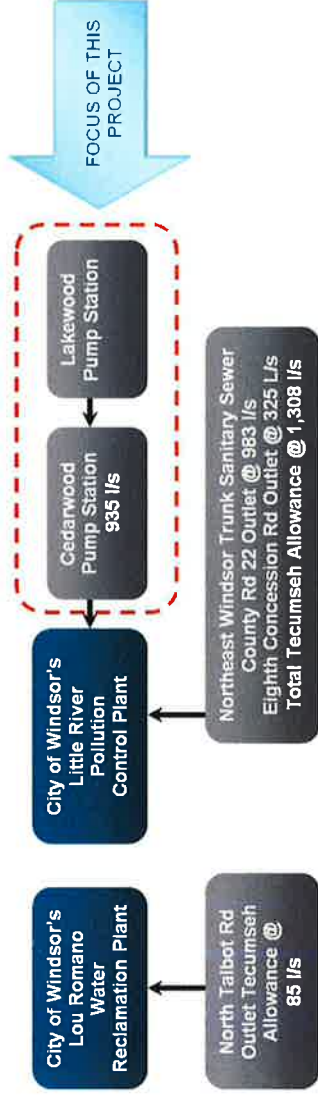


History of the Existing Sanitary Collection System

- In the 1970's, the Ministry of Environment implemented sanitary collection systems in the former Village of St. Clair Beach, a portion of the former Township of Sandwich South (Tecumseh Hamlet) and the former Town of Tecumseh.
- These sanitary collection systems were separately monitored and controlled to limit their sewage flow contributions, which were all directed to the City of Windsor's Little River Pollution Control Plant.
- These communities were amalgamated in 1999 to form the current Town of Tecumseh.

Project Background

- History of the Existing Sanitary Collection System
 - The Town of Tecumseh completed a Master Plan of their water and wastewater systems in 2002, including a 2008 update, which identified opportunities to accommodate growth.
 - The City and the Town entered into a new wastewater agreement in 2004, which allowed for increased sewage flows to the City's Little River PCP.
 - The recent construction of the Northeast Windsor trunk sanitary sewer on Banwell Road resulted in:
 - Diversion of the Tecumseh Hamlet sewage flows at County Road 22
 - Relieves Lesperance Road sanitary sewer and the Cedarwood pump station north of County Road 22
 - Ability to accommodate further growth in the Tecumseh Hamlet, south of County Road 22
 - Sewage outlet at Eighth Concession Road to serve a portion of the Oldcastle Industrial Park area



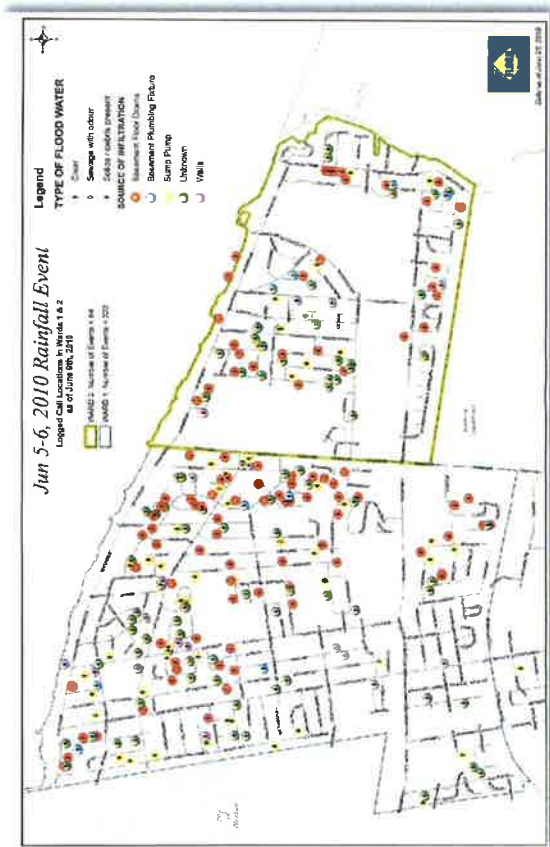
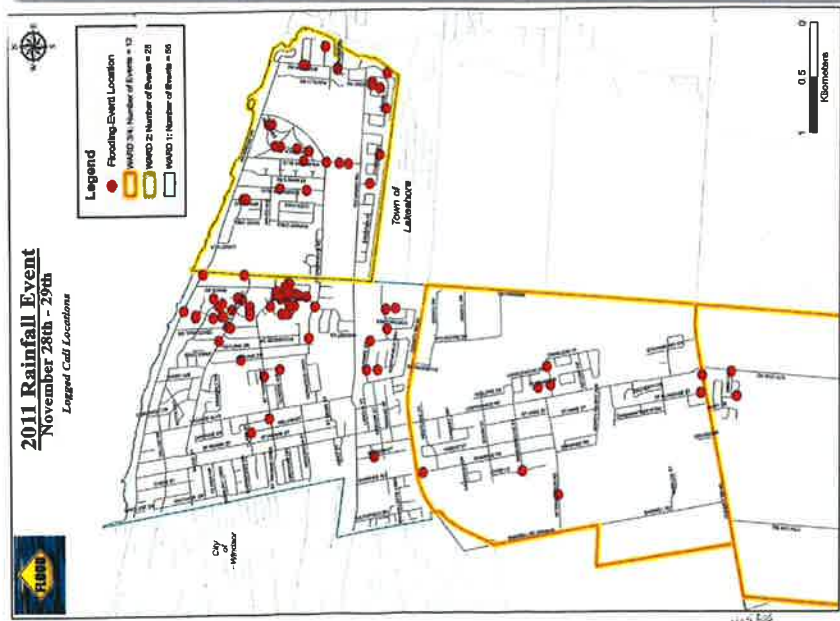
Sanitary Collection System Trunk Sewers

Project Background

- History of Basement Flooding
 - Widespread basement flooding has been experienced during extreme wet weather conditions.
 - Majority of basement flooding appears to be concentrated in the former Village of St. Clair Beach.

Basement Flooding Event	Source of Rainfall Data	Total Rainfall Amount (mm)	Remarks
September 1981	Environment Canada, Windsor Airport	89.0 mm	Basement flooding reported throughout the Village of St. Clair Beach and the Town of Tecumseh, with few reported cases of basement flooding in the Tecumseh Hamlet. Flooding in Tecumseh occurred during a period of significant house construction.
July 1983	Environment Canada, Windsor Airport	82.0 mm	Available records suggest that the majority of the basement flooding occurred in St. Clair Beach.
February 1985	Environment Canada, Windsor Airport	34.6 mm	More concentrated flooding reported in St. Clair Beach, particularly in the new development area south of Tecumseh Road. Stormwater pumping station improvements were identified and completed later that year.
February 1990	Environment Canada, Windsor Airport	70.6 mm	Available records suggest that the majority of the basement flooding occurred in St. Clair Beach, though fewer than previous events. There were no records of basement flooding in the Town of Tecumseh.
1998 – 2000	N/A	Unknown	Basement flooding occurred at some point during this period, but there are insufficient records regarding the specific date and/or severity of the basement flooding that occurred.
June 2010	Environment Canada, Windsor Riverside Ontario (Volunteer Site)	89.8 mm	Widespread basement flooding reported, primarily north of County Road 22. The new sanitary relief sewer on County Road 22 may have contributed to the reduced basement flooding in the Tecumseh Hamlet area.
September 2011	Environment Canada, Windsor Riverside Ontario (Volunteer Site)	81.6 mm	Flooding reported primarily in the eastern portion of the former Village of St. Clair Beach.
November 2011	Environment Canada, Windsor Riverside Ontario (Volunteer Site)	76.2 mm	Basement flooding occurred mostly in Tecumseh north of County Road 22. A reduction in total reported cases by 1/3, compared to the June 2010 event was recorded.

History of Basement Flooding



Project Background



- Infiltration
 - Groundwater that enters the sanitary sewer system through cracks or leaks in sewer pipes, and/or improperly connected private drains.
 - May occur as a result of age-related infrastructure deterioration, loose joints, improper installation or maintenance, damage, or root penetration.
 - Infiltration to a sanitary collection system is typically characterized by a constant baseflow (during normal groundwater conditions), or a relatively delayed, longer duration flow pattern during wet weather conditions.

SANITARY SYSTEM AGE	PORTION OF SANITARY SYSTEM			PIPE MATERIAL		
	Length (metres)	% of Total System	% Asbestos Cement Sewers	% PVC Sewers	% Concrete Sewers	
> 30 years (Prior to 1980)	65,540	58.5	48.4	3.3	6.8	
15 to 30 years (1980 to 1995)	33,591	30.4	1.1	28.6	0.7	
< 15 years (After 1995)	12,281	11.1	0	9.9	1.2	
Total	110,412	100.0	49.5	41.7	8.8	

Project Background

- Inflow
 - Stormwater flows that are directly connected to a sanitary sewer system, including:
 - Roof rainwater downspouts
 - Basement foundation drains
 - Surface drains (window wells, catchbasins, broken cleanout caps, etc)
 - Improper plumbing connections
 - Manhole covers
 - Inflows to a sanitary collection system are typically characterized by more instantaneous, shorter duration, and higher peak flow patterns.



INFLOW THROUGH SANITARY MANHOLE COVERS



DAMAGED CLEANOUT CAPS



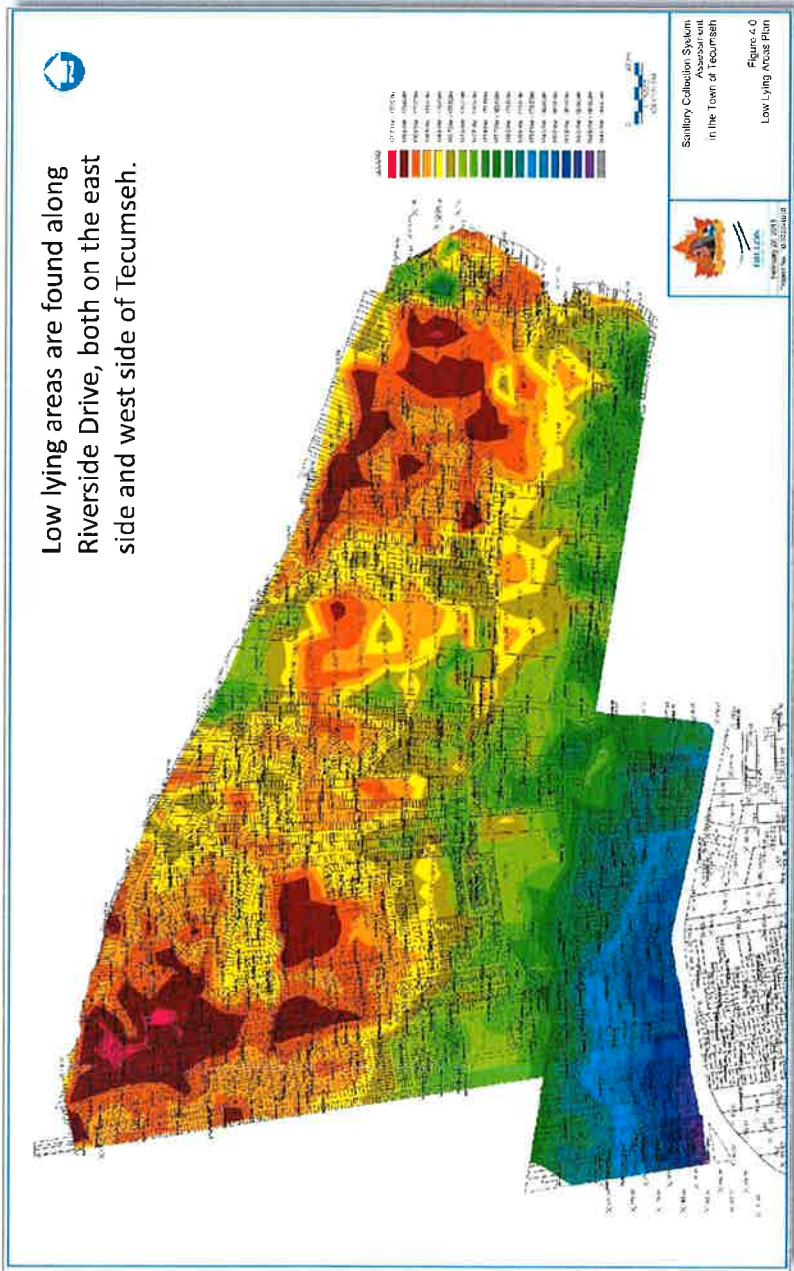
EXPOSED FOUNDATION/POOR GRADING



Project Background

Low Lying Areas in the Town of Tecumseh

Low lying areas are found along Riverside Drive, both on the east side and west side of Tecumseh.



STORMWATER PONDING AT SANITARY MANHOLES



ROAD FLOODING IN LOW LYING AREAS CAUSING INFLOW INTO SANITARY SEWER MANHOLE

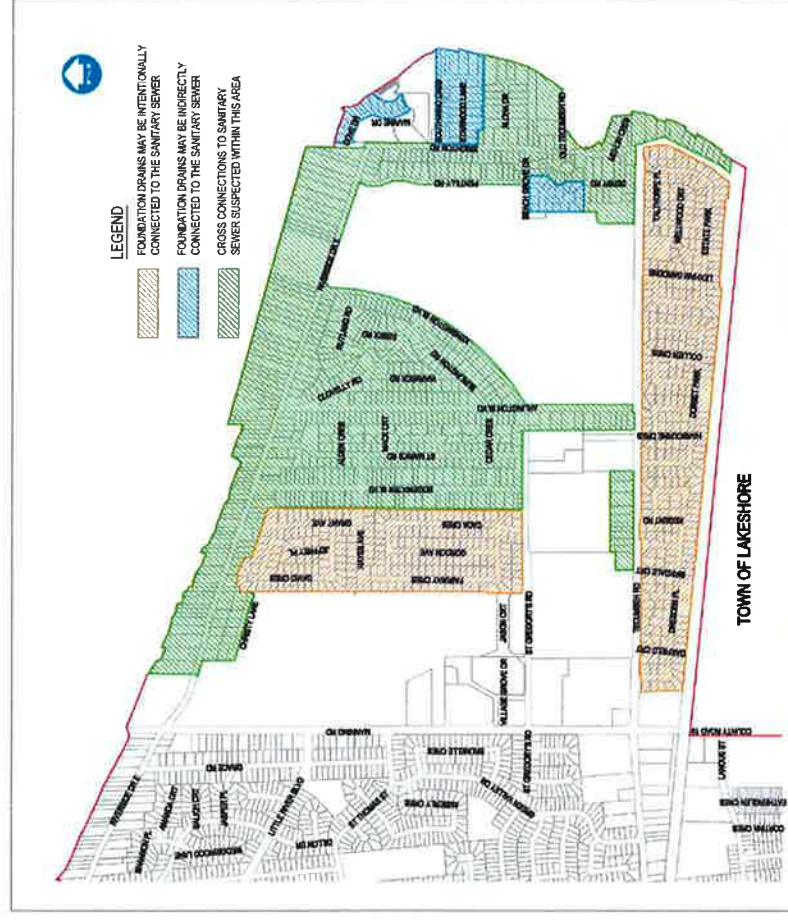


Project Background

The former Village of St. Clair Beach permitted the direct connection of foundation drains to the sanitary plumbing system for a period of time as new developments were being implemented.

Foundation drains connected to the sanitary sewer system have the potential to contribute significant inflows to the sanitary sewer.

In some instances, improper connections exist where sump pumps, roof leaders or other stormwater sources are connected to the home's sanitary plumbing system.



Basement Flooding

What Causes Basement Flooding?

Private Property

- Infiltration due to cracks in basement walls/floors from high groundwater levels
- Poor lot grading, ponding at house
- Clogged weeping tiles
- Clogged or damaged private drain connections
- Inflow from damaged roof downspouts
- Failure of sump pumps and/or backflow prevention devices
- Incorrect sump pump and/or backflow preventer installation

Municipal Sewer System

- Backup of municipal storm and sanitary sewer systems which become surcharged during heavy rainfall events
- Blockages or damage within the storm or sanitary sewers



INFLOW FROM DOWNSPOUTS

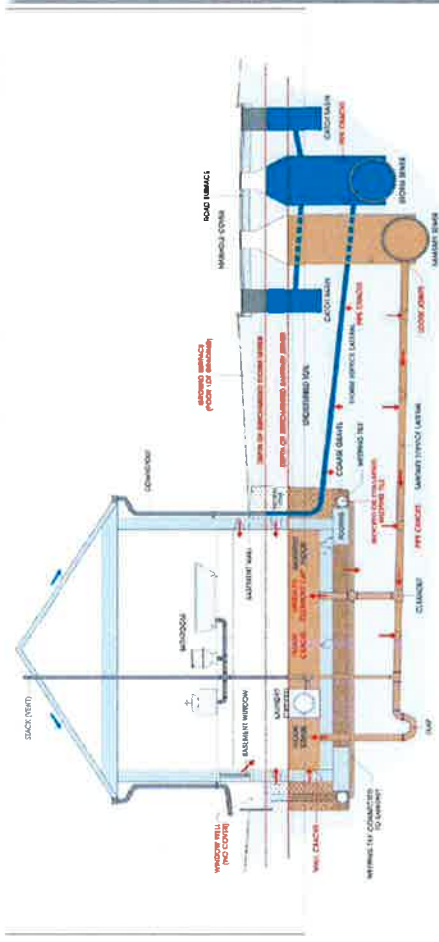


SUMP PUMP CONNECTED TO A
SANITARY DRAIN CONNECTION



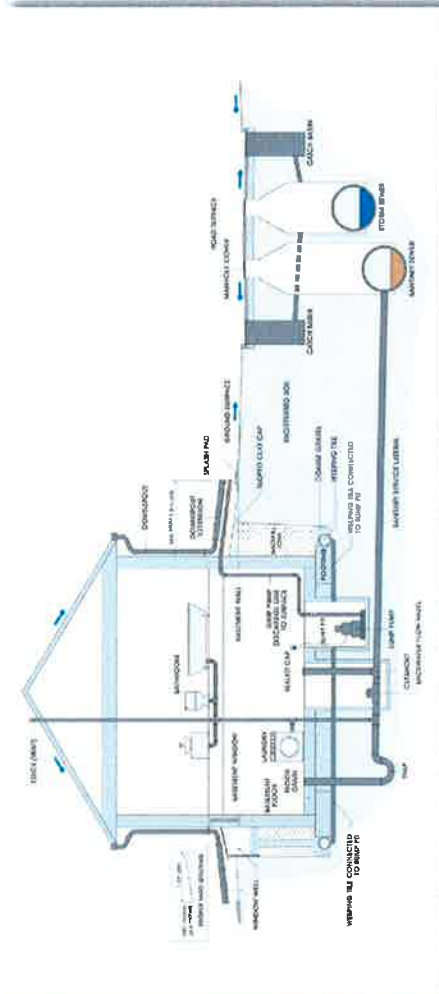
STORM SEWER SURCHARGE
ESCAPING MANHOLE COVER

Basement Flooding



- What to look for in this diagram**
- This diagram shows how sewer back-up can enter a home in the diagram.
 - The sanitary sewer is surcharging and pushing sewage back into the home through the sanitary sewer laterals.
 - Sewage is entering the basement through plumbing fixtures, including the basement floor drain and the unsealed sewer clean-out.
 - Because the weeping tiles are connected to the sanitary sewer, sewage has been forced into the weeping tiles and is infiltrating into the basement through cracks in the basement walls.

Effects of Sewer Back-up



- What to look for in this diagram**
- This diagram has been identified with common recommendations in this handbook.
 - A properly graded yard directs water away from the home.
 - The backfill, since it is being capped with an impermeable soil.
 - The downspouts have been disconnected from the municipal sewer system.
 - Excavations on the east side of downspouts and sump-pumps discharge pipe keep water away from the home.
 - A door has been placed on the window well.

Basement Flood Reduction Measures



Source: Images used by permission from the Institute for Catastrophic Loss Reduction Handbook for Reducing Basement Flooding, 2009

A Comprehensive, Cooperative Approach

TOWN'S 10-YEAR PLAN

- In May 2011, the Town of Tecumseh adopted a comprehensive approach to addressing the sanitary collection system problems that includes partnering with homeowners.

RECOMMENDED PROGRAM TO ADDRESS EXTRANEANOUS FLOWS TECUMSEH SANITARY SEWER SYSTEM		PROJECTED BUDGET
IMPROVEMENTS TO REDUCE EXTRANEANOUS FLOWS	Reduce Sources of Infiltration in the Town's Sanitary Collection System	Budget \$150,000 annually for infrastructure assessment and repairs and monitor effectiveness.
	Reduce Inflow from Sanitary Manhole Covers	Budget \$15,000 for purchase and installation of rain catcher devices.
	Reduce Inflow from Roof Rainwater Downspouts	Town by-law providing authority to inspect and require homeowners to disconnect downspouts at their cost.
	Reduce Inflow from Improper/Illegal Connections	Town by-law providing authority to inspect and require homeowner to correct plumbing at their cost.
PARTNERING WITH HOMEOWNERS TO MANAGE RISK	Public Education and Awareness Program	Budget \$5,000 for the Town to conduct a public education and awareness program.
	Support Installation of Backflow Prevention Devices	Budget \$30,000 annually for the Town's subsidy in support of these installations.
ASSESSMENT AND MANAGEMENT OF PUBLIC INFRASTRUCTURE	Support Disconnection of Foundation Drains	Budget \$30,000 annually for the Town's subsidy in support of these disconnections.
	Sanitary Sewer Modeling and Flow Monitoring	Budget \$70,000 for initial update of the Town's model, with \$30,000 update costs every 3 years.
	Implement Measures to Manage Extraneous Flows *FOCUS OF THIS PROJECT*	Cost will depend on solutions arising from program effectiveness and results of sewer modeling.
STORM DRAINAGE IMPROVEMENTS	Asset Management Program for the Sanitary Collection System	This asset management program may be considered separately by the Town.
	Improve Storm Drainage Outlets	Upgrade storm pump station outlets within older parts of the Town as funding permits.

What Has the Town of Tecumseh Done?

The Town of Tecumseh has undertaken various efforts to improve the collection systems within the public right-of-way, including:

- Various studies and investigations
 - Various sewer system repairs and improvements
 - Sanitary and Storm collection system improvements
 - Road reconstruction projects
 - Regular sewer camera investigations and repair programs
 - Construction of the County Road 22 Sanitary Interceptor Sewer in 2008
 - Installation of sanitary manhole rainshields in low lying areas
 - Enforce mandatory installation of Back Flow Preventers on sanitary sewer connections for new home construction
 - Approved subsidy program for residents to disconnect foundation drains from sanitary sewers and to disconnect downspouts from storm and sanitary connections
- Town of Tecumseh:
- Foundation Drain Subsidy
- Ministry of the Environment Subsidy:
- Ontario Drinking Water Stewardship Program (ODWSP) Foundation Drain & Downspout Disconnection Subsidy

What Can Homeowners Do?

The following can be done to assist in the reduction of stormwater infiltration into the sanitary sewer system:

- Disconnect roof rainwater downspouts from private drain connection and direct water away from home
- Ensure proper grading around home to allow rainwater to flow away from the home
- Installation of backflow prevention device onto sanitary drain connection
- Disconnect foundation drains connected to the sanitary plumbing system
- Disconnect improper storm drainage connections from the sanitary system
- Ensure storm and sanitary private drain connections cleanouts are in good condition and caps are sealed properly
- Seal or repair cracks in floors, walls, and foundations
- Ensure that sump pump is in working properly and not connected to the sanitary service connection
- Consult your plumber to determine what measures need to be taken with your home



Municipal Class Environmental Assessment

This Class EA project is part of the Town's Comprehensive 10 Year Plan to further improve the level of service in terms of reducing the risk of basement flooding, by addressing:

- **Assessment and Management of Public Infrastructure, specifically by Implementing Measures to Manage Extraneous Flows.**

The Municipal Class Environmental Assessment (EA) planning and design process applies to municipal roads, water, and wastewater infrastructure projects.

This project has been classified as a **Schedule "B"**, which generally includes improvements and minor expansions to existing facilities. A Schedule "B" project is approved under the *Environmental Assessment Act*, provided it follows the Schedule B screening process.

At the completion of the study, the Class EA will be documented in an **Environmental Screening Report** placed on the public record for a 30-day review period.



Phase 1: Problem/Opportunity Identification

To reduce the risk of basement flooding and accommodate future growth, the Town of Tecumseh plans to continue improving the sewage collection system. This Class EA Study is addressing the following issues:

1. Public Health

- Public health and nuisance caused by the inability of the sewage system to accommodate excessive extraneous flows, resulting in:
 - The backup of sewage into basements.
 - Bypassing of sanitary sewage flows to the Detroit River at the City of Windsor's Little River Pollution Control Plant.

2. Sewage System Capacity

- The existing sewage collection system is not capable of providing an adequate level of service during wet weather conditions due to excessive extraneous flows arising from:
 - Outdated design/construction of the system, including:
 - Pipe materials and fittings.
 - Construction practices.
 - The period during which foundation drains were permitted to connect to the sanitary sewer system.
 - Deterioration in the condition of the sanitary sewer collection system, allowing increased infiltration of groundwater.
 - Inappropriate private plumbing and drainage connections, resulting in increased inflows to the sanitary collection system.
 - Surface water inflows to the sanitary collection system in low-lying areas and/or areas having deficient storm drainage systems.

Phase 2: Alternative Solutions

1. Expansion or Upgrading of Existing Sanitary Sewage System

- Improve operation and maintenance of existing system
- Management of peak flows by providing:
 - SCADA monitoring
 - Improved pump station operation and capacity
 - On-line storage
 - Emergency overflow to receiving waters (*Future Consideration*)
- Support the installation of backflow prevention devices through municipal subsidies to homeowners
- Implement regular flow monitoring and update the Town's sanitary model
- Provide improved stormwater drainage system to discourage or correct improper connections.

2. Rehabilitate Existing Sanitary Sewage System

- Re-line and/or seal existing sewers and private drain connections
- Reconstruct existing sewers
- Identify and correct hydraulic deficiencies in the system.

3. Expand Maintenance Program

- Clean the sewage system to improve hydraulic characteristics
- Undertake maintenance activities
- Implement an asset management program for the sanitary collection system.

4. Reduce Sewage Flows

- Enforce municipal by-laws with respect to permitted connections to the sewage collection system
- Support measures to minimize groundwater infiltration and stormwater in-flow, including:
 - Reduce inflow from sanitary manhole covers
 - Reduce inflow from roof rainwater downspouts
 - Support disconnection of foundation drains through municipal subsidies to homeowners
 - Provide resources for public education and awareness
- Improve storm drainage outlets and stormwater collection systems.

5. Limit Community Growth

- Limit the ultimate extent and/or location of proposed residential, industrial and commercial growth in the community.

6. Do Nothing

- No improvements or changes made to solve the identified problems. The Problems will remain in the system.

Evaluation of Alternative Solutions

Evaluation Factors	1. Expand/Upgrade Existing Sanitary Sewage Collection System	2. Rehabilitate Existing Sanitary Sewage Collection System	3. Expand Maintenance Program	4. Reduce Sewage Flows	5. Limit Community Growth	6. Do Nothing	Preferred Alternative	
1. Ability to Address Problem/Opportunity -Ability to reduce risk of basement flooding -Ability to service new development	More immediate effect on reducing risk of basement flooding Will not completely eliminate basement flooding risks More immediate effect on accommodating new development	Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development Will not completely eliminate basement flooding risks	Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development Will not completely eliminate basement flooding risks	Longer-term strategy to reduce extraneous flows that may ultimately reduce risk of basement flooding and accommodate new development Will not completely eliminate basement flooding risks	Does not address existing basement flooding problems or provide opportunities for growth. Not consistent with 2008 Water/Wastewater Master Plan Update	Does not address existing basement flooding problems or provide opportunities for growth. Not consistent with 2008 Water/Wastewater Master Plan Update	1,2,3	
2. Design and Construction Considerations -Required approvals -Construction requirements	Requires Municipal Class EA, Environmental Compliance Approval from MOE, construction of new infrastructure	No approvals required Construction is localized	No approvals required Construction is localized	Similar to Alternative 1 for storm drainage system Similar to Alternative 2 for sanitary collections system	No approvals or construction requirements	No approvals or construction requirements	2,3,5,6	
3. Potential Environmental Impacts and Opportunities for Mitigation Socio-Economic Environment Natural Environment -Cultural and Heritage Features	New infrastructure may impact: -Cultural Heritage Features (but these features can be avoided) -Lands with potential for discovery of archaeological sites (impacts can be mitigated by completing archaeological assessments) -Impacts during construction on nearby residents (visual, noise, odour) are short-term and can be mitigated. Benefit of reduction in basement flooding	Limited cultural and natural environment impacts since construction is generally localized in existing disturbed areas Impacts during construction on nearby residents are short-term and may be mitigated	Limited cultural and natural environment impacts since construction is generally localized in existing disturbed areas Impacts during construction on nearby residents are short-term and may be mitigated	Measures related to the storm drainage system are similar to Alternative 1	No environmental impacts, although no improvement to current risk of basement flooding	No environmental impacts, although no improvement to current risk of basement flooding	2,3	
4. Conformity to County and Local Official Plan Land Use and Servicing Policies	Conforms to County Official Plan Policies for "Settlement Areas" and Sanitary Sewers Conforms to St. Clair Beach Official Plan policies for Growth and Storm and Sanitary Sewers Tecumseh is preparing a new Official Plan	Conforms to County Official Plan but does not meet long-term servicing needs Conforms to St. Clair Beach Official Plan	Conforms to County Official Plan but does not meet long-term servicing needs Conforms to St. Clair Beach Official Plan	Conforms to County Official Plan but does not meet long-term servicing needs Conforms to St. Clair Beach Official Plan	Does not conform to County Plan's policies for Settlement Areas and Sanitary Sewers Conforms to County Official Plan but does not meet long-term servicing needs	Does not conform to County Plan's policies for Settlement Areas and Sanitary Sewers Conforms to County Official Plan but does not meet long-term servicing needs	Equal	
5. Consistency with Provincial Policy Statement (PPS)	Consistent with PPS policies to protect, improve or restore water quality, integrate servicing needs with planning needs, and aim to avoid impacts on significant resources protected by the PPS	Does not help improve water quality as much as Alternative 1 Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth	Does not help improve water quality as much as Alternative 1 Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth	Does not help improve water quality as much as Alternative 1 Optimizes use of existing infrastructure, but does not address PPS policy requiring planning for growth	Does not address PPS policy requiring planning for growth	Does not address PPS policies for growth and optimizing use of existing infrastructure	1	
6. Property Requirements	No property required, since town owns required lands	No property required since work would be completed within existing public rights-of-way	No property required since work would be completed within existing public rights-of-way	Property may be required to implement some of the storm drainage and outlet improvements	No property required	No property required	1,2,3,4	
7. Project Costs	Relatively high construction cost	Medium construction cost	Medium construction cost	Relatively high construction cost	Lowest construction cost	Lowest construction cost	2,3,5,6	
OVERALL EVALUATION	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	SUPPLEMENTS PREFERRED SOLUTION Recommended as part of Town's Comprehensive Strategy Currently the Town is carrying out this solution as part of the 10-Year Plan.	Not Recommended Not Recommended

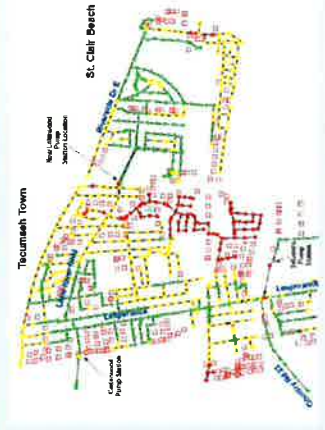
Functional Design

Modeling of the Town's sanitary system was completed to confirm the performance of the existing sanitary collection system, and the effectiveness of alternative design solutions.

The figures below illustrate the estimated sanitary surcharge levels resulting from a 1:5 year (62.4 mm) return period storm event (20% chance of occurring within a year).

Note: More extreme events would result in greater sewer surcharge levels and may still result in basement flooding.

Pre-Existing Conditions (Pre-2008)	Existing Conditions (2013)	Proposed Conditions (Stage 1) (2013/2014)	Future Conditions (Stage 2)
Represents the system prior to implementing the County Road 22 sanitary relief sewer.	Represents the system after implementing the County Road 22 sanitary relief sewer.	Represents the system after implementing Lakewood Pump Station Improvements and surcharge storage within Lakewood Park.	Represents the system after implementing surcharge storage along Riverside Drive, between Arlington Blvd and Pentilly Dr.



MH COLOUR CODE	DESCRIPTION	WET WEATHER SANITARY SURCHARGE LEVELS
RED	High Water Levels	Less than 1.5 m from ground surface
YELLOW	Moderate Water Levels	1.5 m to 3.0 m from ground surface
GREEN	Low Water Levels	Greater than 3.0 m from ground surface

Functional Design for the Preferred Solution

The Study Team has developed a Functional Design for improvements to the sanitary collection system that will reduce the risk of basement flooding and accommodate new development.

These improvements would not completely eliminate the risk of basement flooding, particularly during more extreme rainfall events.

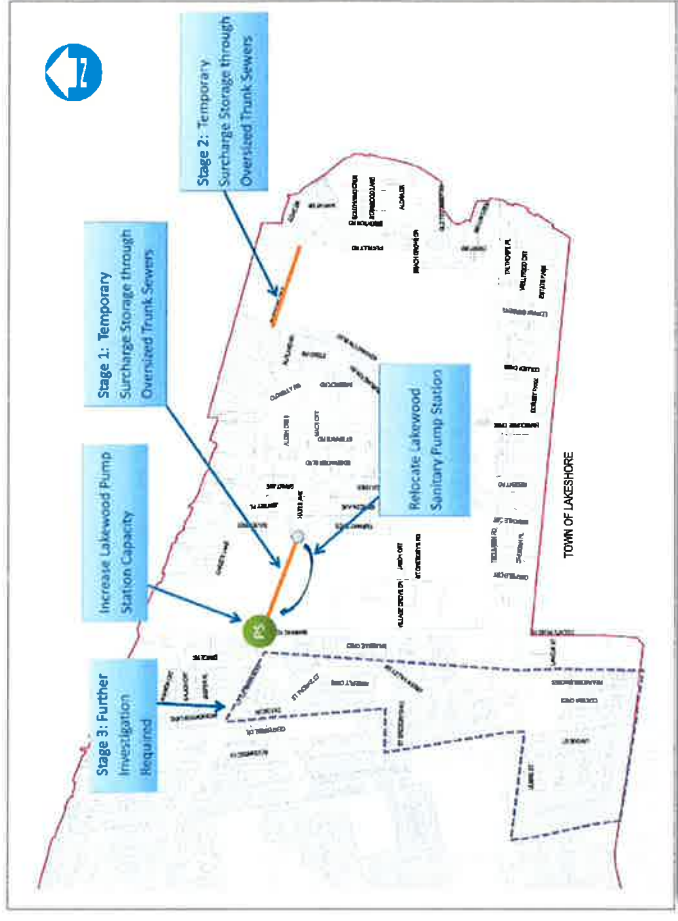
These proposed improvements include:

Lakewood Pump Station (PS) Improvements

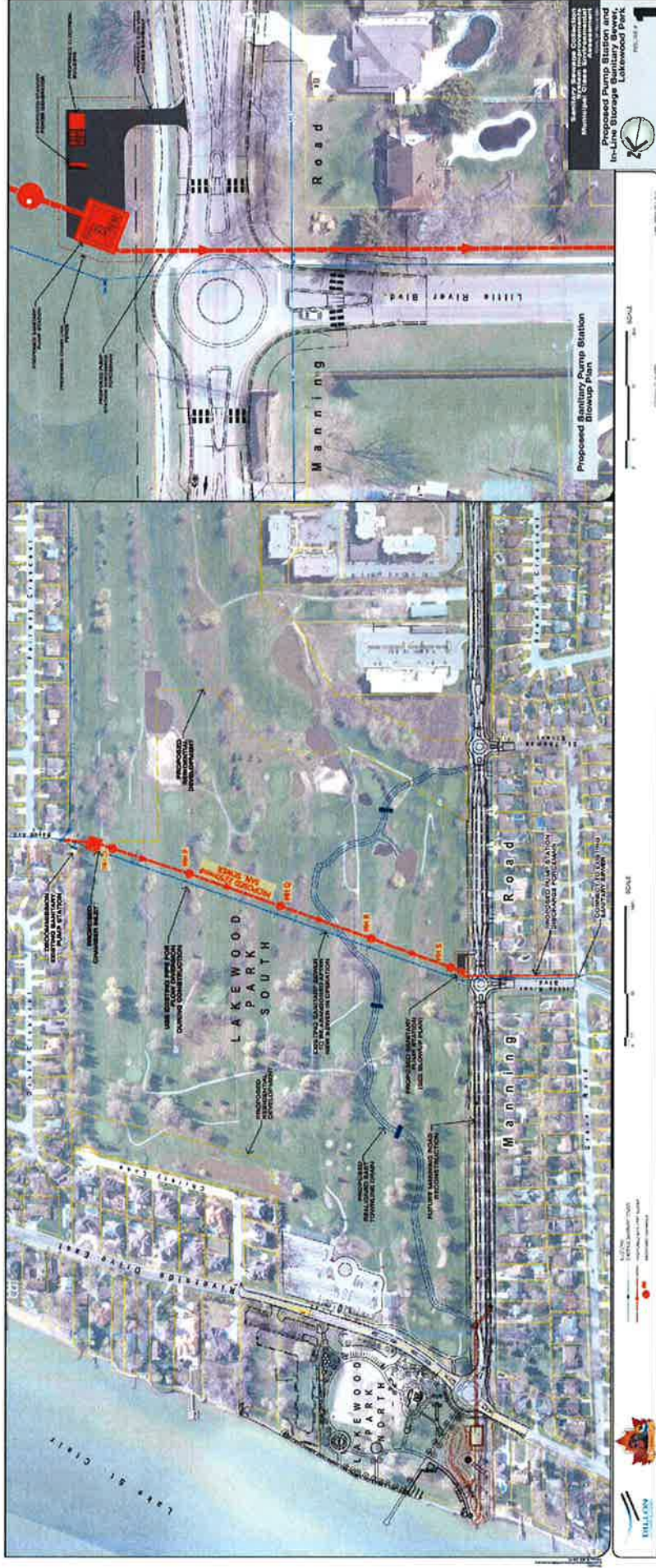
- Provide a new PS facility at the west side of Lakewood Park
 - Decommission the existing Lakewood PS at Hayes Ave
- Increase discharge capacity by 15%
- Provide an emergency back-up power supply

Increased Storage Capacity

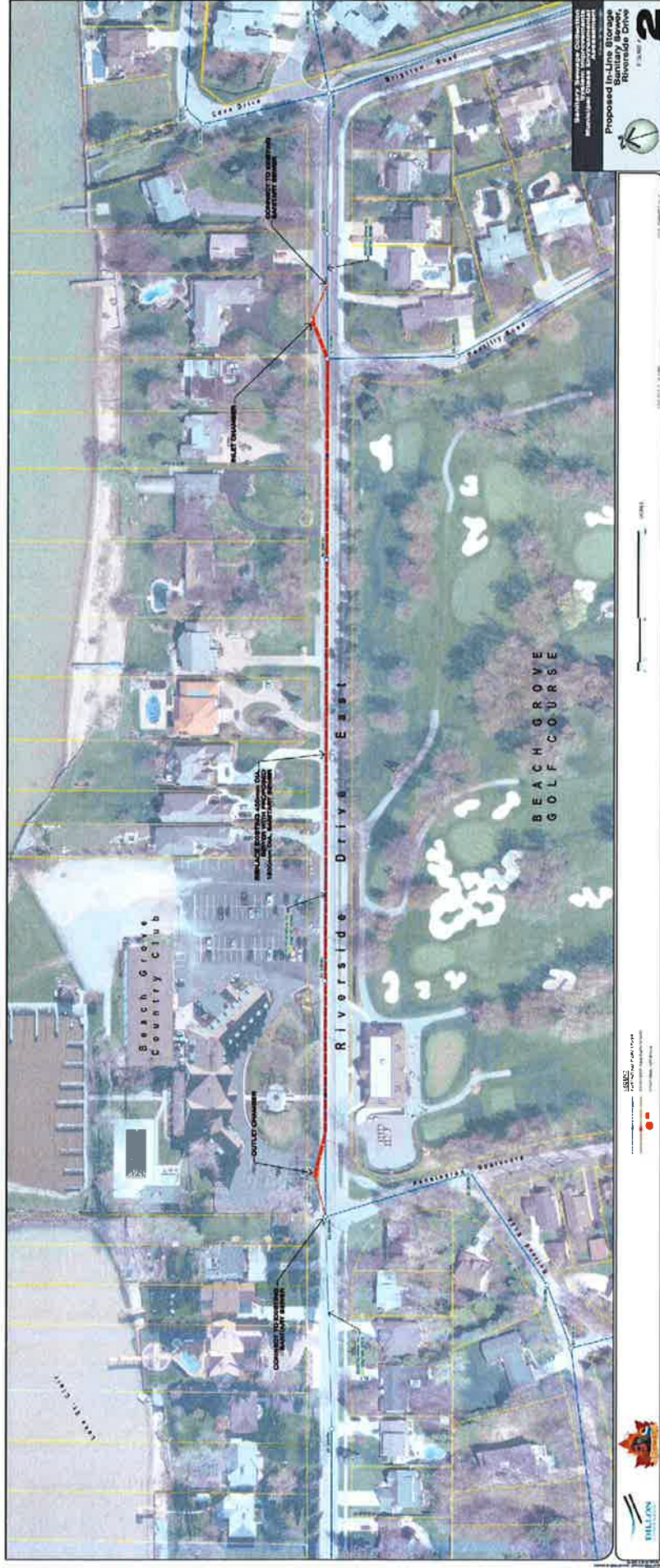
- Stage 1: Lakewood Park Trunk Sewer (2013/2014)
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity
- Stage 2: Riverside Drive Trunk Sewer (Future Consideration)
 - Replace the existing sanitary sewer with a large diameter pipe with adequate depth and storage capacity
- Stage 3: Dillon Drive Sanitary Sewer System (Future Consideration)
 - Investigate observed sewer surcharging and identify recommended mitigating measures (public and private).



Functional Design – Lakewood Park Area



Functional Design – Riverside Drive Area



Environmental Screening of Functional Design

Environmental Feature	Potential Benefits & Impacts	Avoidance, Mitigation & Monitoring Measures
1. Wastewater/Civil Engineering Servicing Solution	Provides a long-term environmentally sustainable sanitary sewage collection solution for existing and future development in the area: <ul style="list-style-type: none"> Part of comprehensive solution to address basement flooding and sanitary system capacity issues Mitigates potential public nuisance, health and environmental problems caused by malfunctioning systems Consistent with sanitary sewer design criteria in Town's Water and Wastewater Master Plan (2008 Update) Adds in-line storage in areas identified as system bottlenecks, including upstream of new pump station and on Riverside Drive Integrated with future Manning Road Improvements and long-term servicing for development in Lakewood Park lands. 	Not required.
Compatibility with Existing and Proposed Infrastructure	Will not impact or be in conflict with existing infrastructure.	Not required.
Drainage	Will improve overall drainage during heavy rainfall events. Infrastructure will not cause any impacts on drainage of surrounding areas.	Not required.
Traffic	Traffic impacts during construction are anticipated to be minor	Traffic control and/or traffic detour plans will be developed prior to construction.
Utility Relocations	Proposed infrastructure will require the relocation of some utilities within the municipal right-of-way.	Detailed design of infrastructure will identify all affected utilities. Utilities will be relocated if necessary.
2. Impacts on Cultural Resources Archaeological Resources	Potential impacts on areas with archaeological potential.	All impacts on archaeological resources will be avoided by completing a Stage 1 Archaeological Assessment and subsequent more detailed assessments, if required, during Detailed Design
Built Heritage and Cultural Landscapes Impacts on Fisheries and Aquatic Habitat Groundwater and Surface Water Quality	No impacts on these features.	Archaeological clearance from the Ministry of Tourism, Culture and Sport required prior to construction Not required.
4. Impacts on Terrestrial Resources Soils Natural Heritage Features Species at Risk	Limited impacts on soils as work will take place within an existing golf course and roadway. No Provincially Significant Wetlands or Environmentally Sensitive Areas located within 120m of the proposed works. Potential habitat for Shumard Oak, a species of Special Concern.	Necessary precautions will be taken during construction to prevent contamination of groundwater and surface water. Erosion and sediment control measures will be implemented during construction. An Erosion and Sedimentation Control Plan will be prepared during Detailed Design Not required. A tree survey will be completed to ensure there are no tree species at risk within or adjacent to the proposed alignment. Tree protection measures will be employed. Impacts avoided by timing of vegetation removal. No vegetation removal should occur during the bird nesting season.
5. Socio-Economic Impacts Existing Land Uses – Short-term Construction Impacts	Short-term construction impacts include noise, vibrations and air quality impacts mitigated by standard measures. Access disruptions will be minimized. Potential short-term construction impacts on Lakewood Park and Beach Grove Golf and Country Club users.	Impacts during construction mitigated by standard measures implemented during construction as required by the construction contract.
Existing Land Uses – Odour Impacts Conformity with Official Plans Future Development	Potential odour impacts on residential properties along Manning Road from new pump station. Conforms to St. Clair Beach and County of Essex Official Plans by providing adequate infrastructure to service future growth in "Settlement Areas". Allows future development to proceed based on full municipal services. Allows planned subdivision development on Lakewood Golf Course lands.	Impacts will be mitigated by regular monitoring and implementation of maintenance measures, as required. Not required. Future development will be controlled by the County of Essex, St. Clair Beach and Town of Tecumseh Official Plans.
Conformity with Provincial Policy Statement Property Requirements	Consistent with servicing, "Transportation and Infrastructure Corridors" and the "Wise Use and Management of Resources" policies. Riverside Drive Improvements will be completed in the existing right-of-way. No properties required for the improvements as the Town owns the required land.	Not required.
6. Costs	Cost of design and implementation will be considered by the Town.	A cost-benefit evaluation will be completed to confirm the justification for these improvements. Cost sharing will be considered, where possible. Construction of these improvements will be tendered to ensure competitive prices.

Next Steps

- Input received at this PIC will be used to refine the preferred design solution
- The Study Team will finalize the preferred design solution and complete the Environmental Screening Report by April 2013
- The Environmental Screening Report will be available for the required 30-day public review period. The Notice of Study Completion will be published in the Tecumseh Shoreline and sent to the study Contact List
- Assuming any comments raised during the 30-day review period can be resolved, the Town will proceed with detailed design and implementation of these improvements:
 - Stage 1: Lakewood PS and Lakewood Park Storage (2013-2014)
 - Stage 2: Riverside Drive Storage (Future Consideration)
 - Stage 3: Dillon Drive Storage (Future Consideration)
- Subject to approval, funding and the outcome of this Class EA, construction of Stage 1 is anticipated to begin in 2013.

THANK YOU FOR ATTENDING

Please complete a comment sheet and place in the comment box today or submit by **March 12, 2013.**





March 11, 2013

2013 Board of Directors

Town of Amherstburg
Robert Pillon
John Sutton

Town of Essex
Sherry Bondy
John Scott

Town of Kingsville
Gord Queen
Tamara Stomp

Town of Lakeshore
Al Fazio
Len Janisse

Town of Lasalle
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Township of Pelee
Rick Masse

Town of Tecumseh
Joe Bachetti - Chair
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Percy Hatfield - Vice Chair
Ron Jones
Hilary Payne
Ed Sleiman

**General Manager /
Secretary Treasurer**
Richard Wyma

Mr Flavio Forest
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8

Dear Mr Forest:

**RE: Town of Tecumseh
Sanitary Sewage Collection System Improvements
Municipal Class Environmental Assessment
Dillon File: 12-5969-8000**

Thank you for submitting a copy of the displays presented at the Public Information Centre held for the project on February 26, 2013 at the Town of Tecumseh Municipal Office. The following is provided for your information and consideration as a result of our review of the above referenced Sanitary Sewage Collection System Improvements Class Environmental Assessment.

General Comments:

We remain committed to assisting the Town of Tecumseh in any way possible – for example, in providing technical reviews of storm water management practices through being circulated on Site Plan Control applications.

Lakewood Pump Station (PS) Improvements:

We suggest that the Town of Tecumseh take into consideration the future orientation of East Townline Drain which is proposed to bisect the Lakewood Golf Course.

Riverside Drive Pump Station (PS):

We suggest that the functional design of along Riverside Drive needs consideration to sealed manhole covers as this section is subject to significant road flooding.

Environmental Screening of Functional Design:

We note that the Town of Tecumseh in partnership with ERCA developed the “Town of Tecumseh Natural Heritage Inventory” in 2011. ERCA would suggest that in the future the assessed natural heritage sites surveyed as part of this survey be included in the screening of these environmental features. There were no candidate sites surveyed within the vicinity of the proposed works.

Member of



**Conservation
ONTARIO**
Natural Champions



Mr. Flavio Forest
March 11, 2013
Page 2

We would like to be circulated on the outcomes of the study and for the distribution of the Environmental Screening Report.

If you should have any questions or require any additional information, please do not hesitate to contact the ERCA office by phone at (519) 776-5209 or by fax at (519) 776-8688.

Thank you.

Sincerely,



Michael Nelson
Watershed Planner

/mn

C: Tim Byrne, Director of Watershed Management
Robert Filipov, Town of Tecumseh



Our File: 12-5969

C.F.

March 27, 2013

Caldwell First Nation
PO Box 388,
14 Orange Street
Leamington, Ontario
N8H 3W3

Attention: Ms. Louise Hillier,
Chief

**Town of Tecumseh Sanitary Sewer Collection System Improvements
Class Environmental Assessment**

Dear Chief Hillier:

We appreciated the opportunity for Robert Filipov (Town of Tecumseh) and I to meet with you and Councillor Darryl Van Oirschot on Thursday, March 21, 2013 to conduct a consultation meeting for this project. We completed a brief overview of the presentation materials from the Public Information Centre that was held on February 26, 2013 (copies of which were left for your use).

Based on our consultation meeting, we hereby confirm that the following matters related to this project were addressed:

- We understand that a primary concern of the Caldwell First Nation relating to any project is its potential negative impacts to groundwater and surface water.
 - In this regard, we highlighted that our project would have the following positive impacts:
 - Temporary storage of excess extraneous flows, thereby reducing the peak sewage flows that would be directed to the City of Windsor's Little River Pollution Control Plant for treatment.
 - At the same time, the Town is continuing with their inspection and maintenance efforts to improve the condition of their sanitary collection system and reduce extraneous flows.
 - It was clearly confirmed that the Caldwell First Nation would have significant concerns with any future consideration that may be given to allowing emergency by-pass of excess extraneous flows directly to Lake St. Clair.
 - It was confirmed that an emergency by-pass is **not** part of the current recommended solution, and that if this alternative were ever to be considered in the future, a separate study would be required to confirm environmental impacts, including further opportunities for public, agency and First Nation input.

...continued



3200
Deziel Drive
Suite 608
Windsor, Ontario
Canada
N8W 5K8
Telephone
(519) 948-5000
Fax
(519) 948-5054

Dillon Consulting
Limited

- The following physical characteristics and maintenance requirements of the recommended solution were confirmed:
 - Concrete pipe materials would be used for the large diameter storage pipe, including rubber gasket joints. This sewer pipe would be tested following construction and any significant infiltration of groundwater would be repaired.
 - The large diameter storage pipe would be regularly monitored, and the sewer would be flushed clean of accumulated solids. In addition, the Town is considering incorporating a low flow channel to limit the risk of solids deposition in these sewer pipes.
 - The proposed sanitary pump station would be an enclosed facility with limited potential for odour concerns.

- As requested, we are enclosing copies of the following archaeological and cultural heritage studies that have been completed in the area of these improvements:
 - Lakewood Golf Club, Town of Tecumseh, Report on the Advisability of a Heritage Designation under Part IV of the Ontario Heritage Act, Wendy Shearer Landscape Architect, February 2009.
 - Stage 1 & 2 Archaeological Assessment, Manning Road Drain and Road Improvements, Timmins Martelle Heritage Consultants Inc, May 2009.
 - Lakewood Golf Course Subdivision Plan, Stage 1: Archaeological Background Study & Stage 2: Assessment, Fisher Archaeological Consulting, October 2012.

- During the subsequent stages of detailed design and implementation of this project, the Town will give consideration to the planting of native species where opportunities might arise, including:
 - Cottonwood and Black Willow trees as preferred native tree plantings.
 - Native plantings as part of the restoration or redevelopment of the Lakewood Park South property in appropriate areas to suit the Park improvement plans.

The Town of Tecumseh is now finalizing the Class Environmental Assessment (EA) process for this project. You will receive a copy of the Notice of Completion, following which there will be a 30 day review period for the public and agencies to provide any final comments. Assuming that all comments may be satisfactorily resolved, the Town will be in a position to proceed with the detailed design and construction of the recommended solution.

Caldwell First Nation
Page 3
March 27, 2013

We trust that this confirms the results of our consultation meeting. Should you have any further questions regarding this project, please contact the undersigned.

Yours sincerely,

DILLON CONSULTING LIMITED



Flavio R. Forest, P. Eng.
Project Manager

LMH:ldm

cc: Mr. Robert Filipov, Town of Tecumseh



**AAMJIWNAANG FIRST NATION
CHIPPEWAS OF SARNIA
Band Council**

978 TASHMOO AVENUE
SARNIA, ONTARIO
N7T 7H5
Phone: (519) 336-8410
Fax: (519) 336-0382

April 9, 2013

File # 2013-0015

Dillon Consulting
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8

Attention: Flavio Forest

Re: Tecumseh Sanitary Sewage Collection System
Class Environmental Assessment

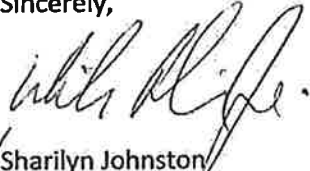


Dear Mr. Forest:

Thank you for the information regarding this project dated December 21, 2012 and Notice of Public Information Centre issued Feb 5, 2013. Our staff has recorded this information in our log. Over the next few weeks it will be forwarded to our Chief and Council for their review. Upon further direction from our council, we will contact you to inform you of the next step.

Aamjiwnaang First Nation continues to assert and exercise our Aboriginal Rights and Title to all parts of our Reserve and Traditional Territory in regards to lands and resource issues.

Sincerely,

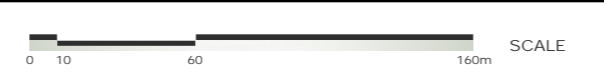
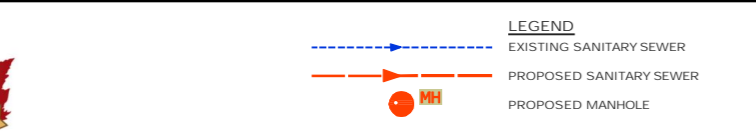
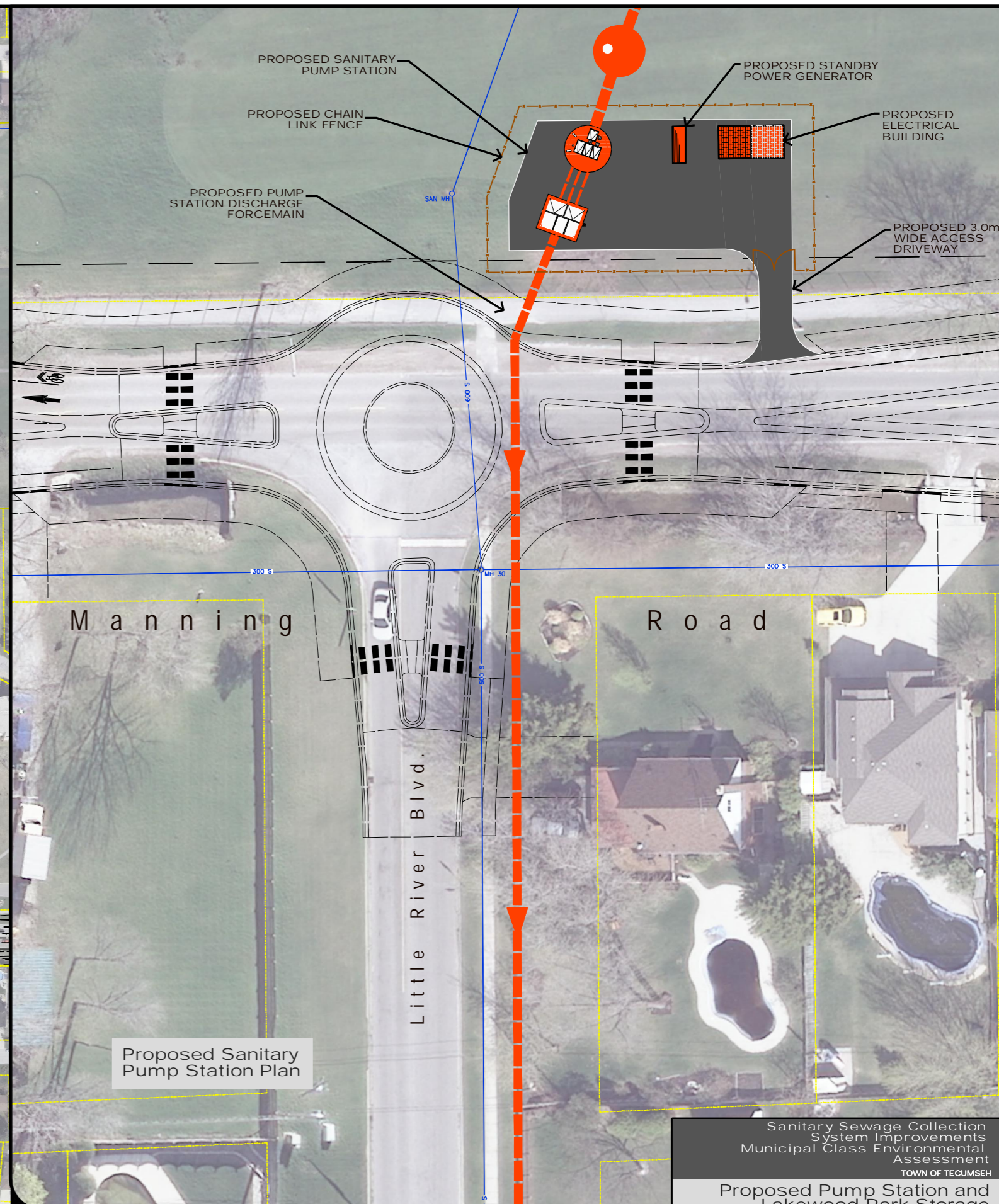
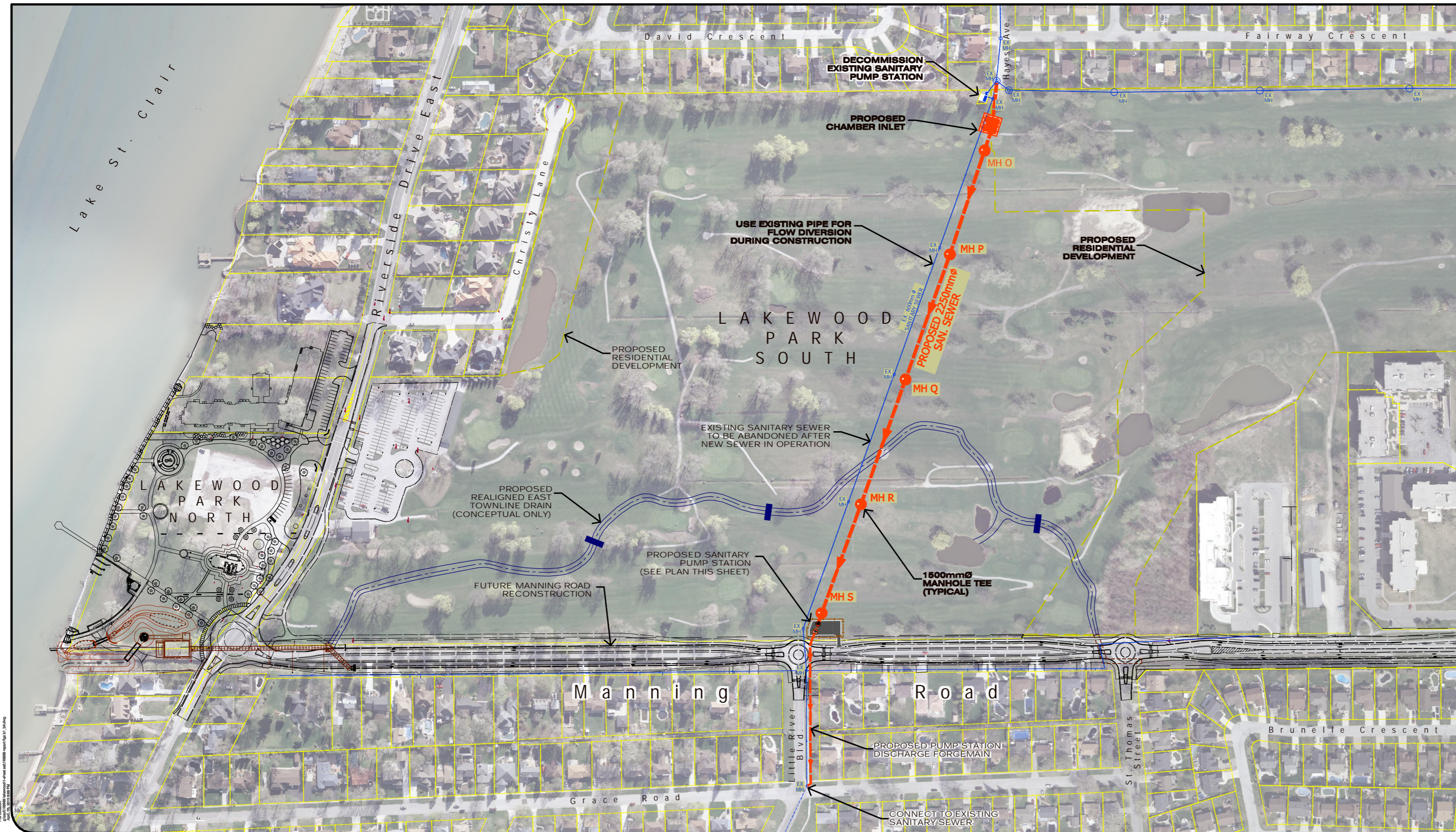

for Sharilyn Johnston
Environmental Coordinator
Aamjiwnaang First Nation

Cc: Mr. Robert Filipov, Town of Tecumseh, 917 Lesperance Road, Tecumseh, Ontario N8N 1W9

"Saving our Home and Native Land"

APPENDIX B

FUNCTIONAL DESIGN FIGURES



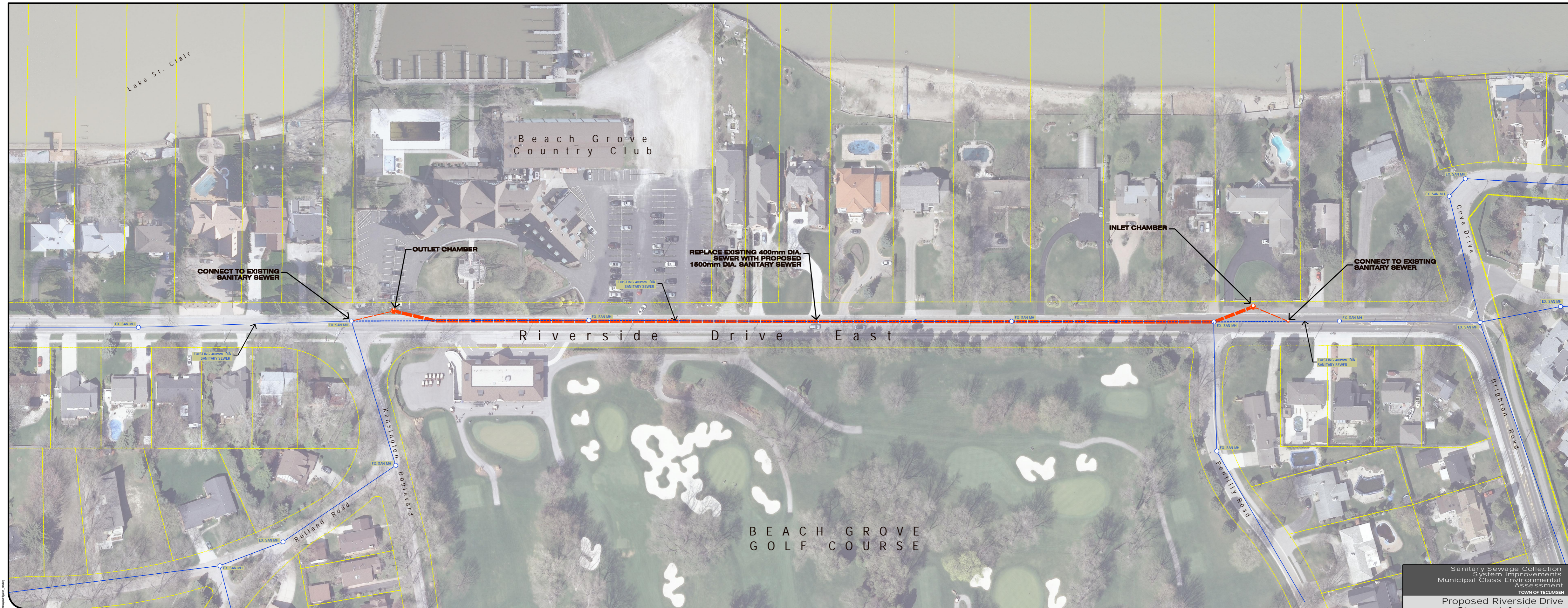
PROJECT #: 12-5969 Date: MARCH 2013

Sanitary Sewer Collection System Improvements
Municipal Class Environmental Assessment
TOWN OF TECUMSEH

Proposed Pump Station and Lakewood Park Storage Infrastructure

Recommended Solution

FIGURE # **B.1**



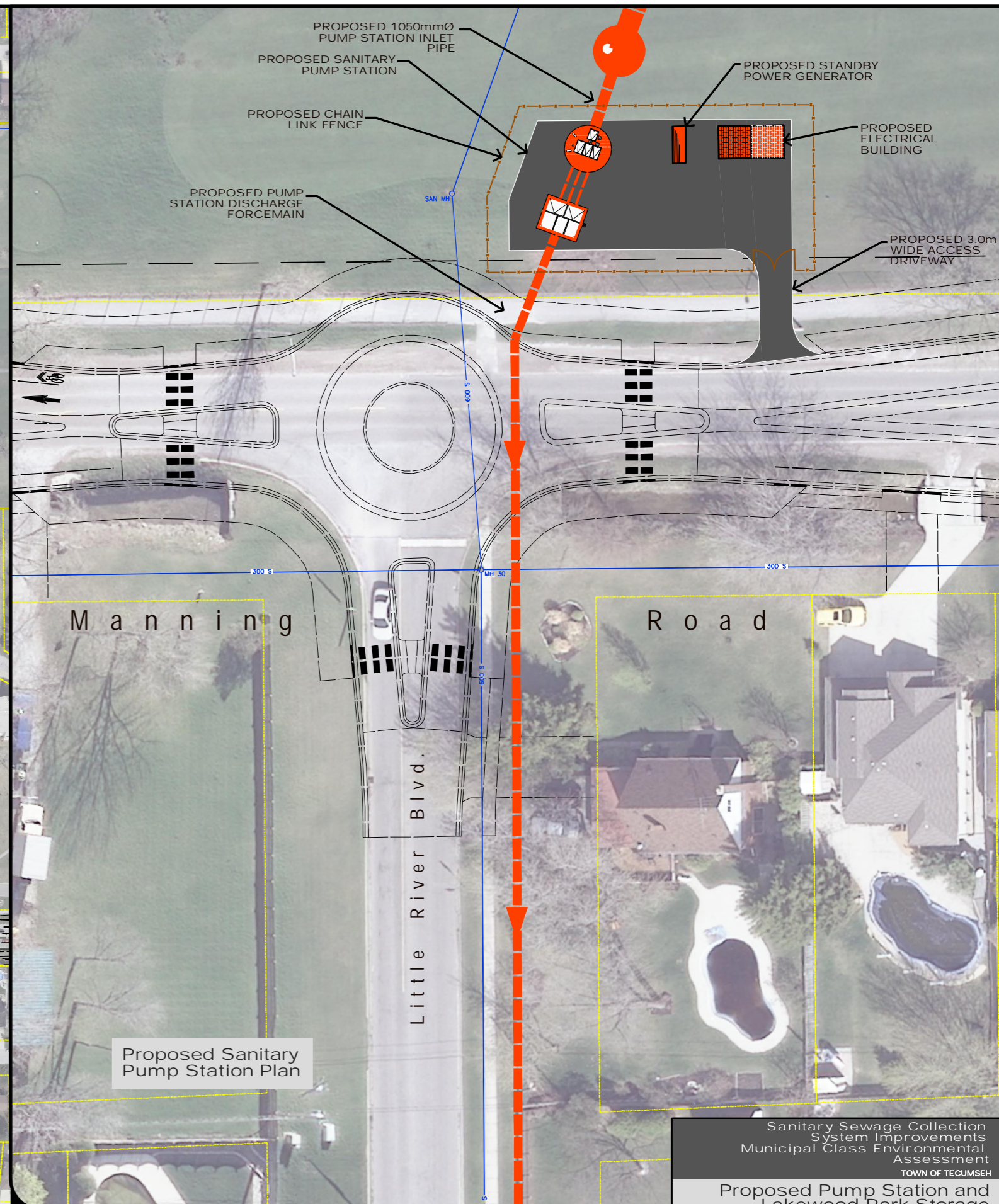
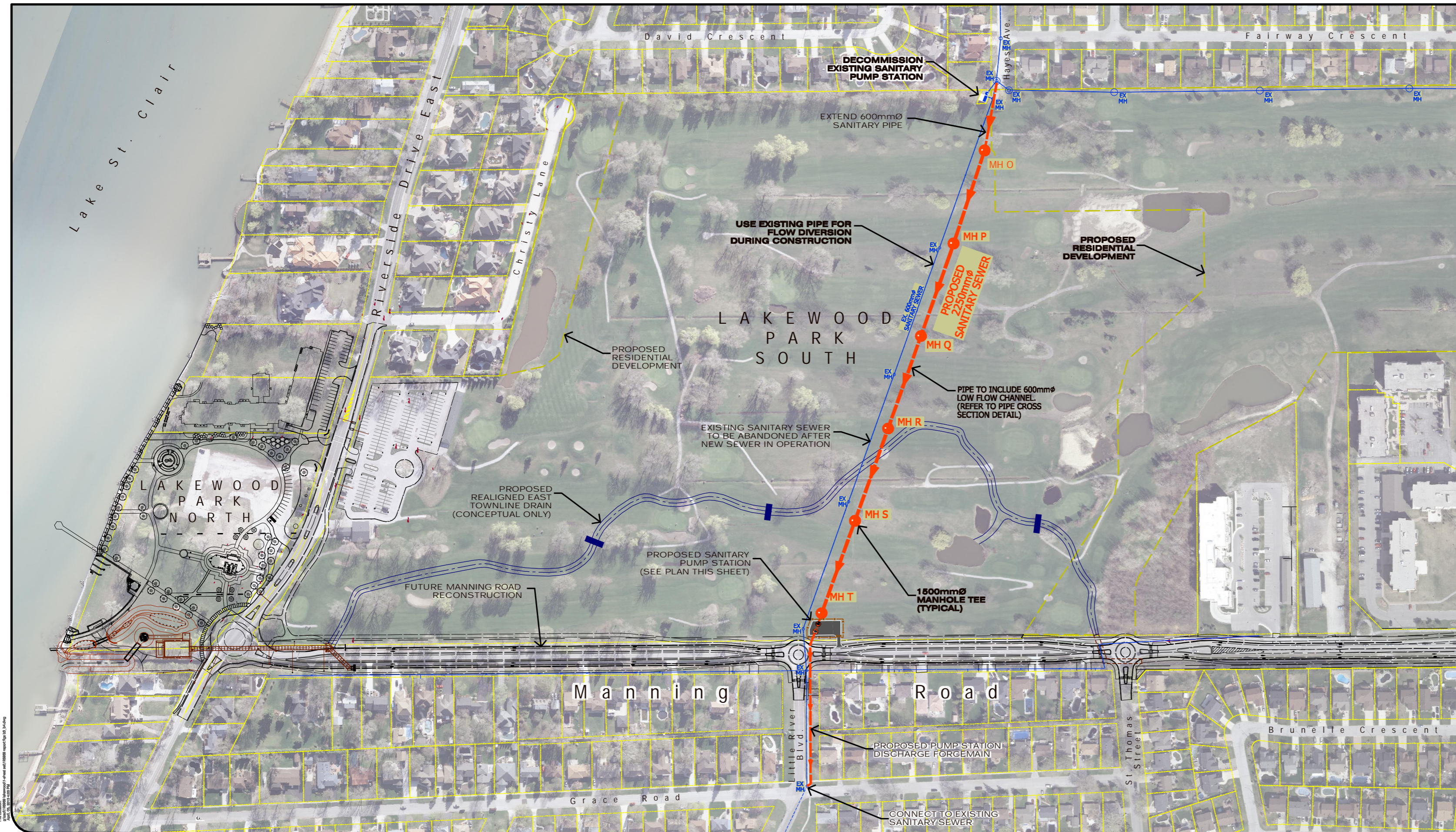
LEGEND
 - - - - - EXISTING SANITARY SEWER
 - - - - - PROPOSED SANITARY SEWER
 ○ MH PROPOSED MANHOLE

0 10 60 160m SCALE

Sanitary Sewage Collection System Improvements
 Municipal Class Environmental Assessment
 TOWN OF TECUMSEH

Proposed Riverside Drive Storage Infrastructure Recommended Solution

FIGURE # **B.2**



LEGEND
 - - - - - EXISTING SANITARY SEWER
 - - - - - PROPOSED SANITARY SEWER
 ○ MH PROPOSED MANHOLE



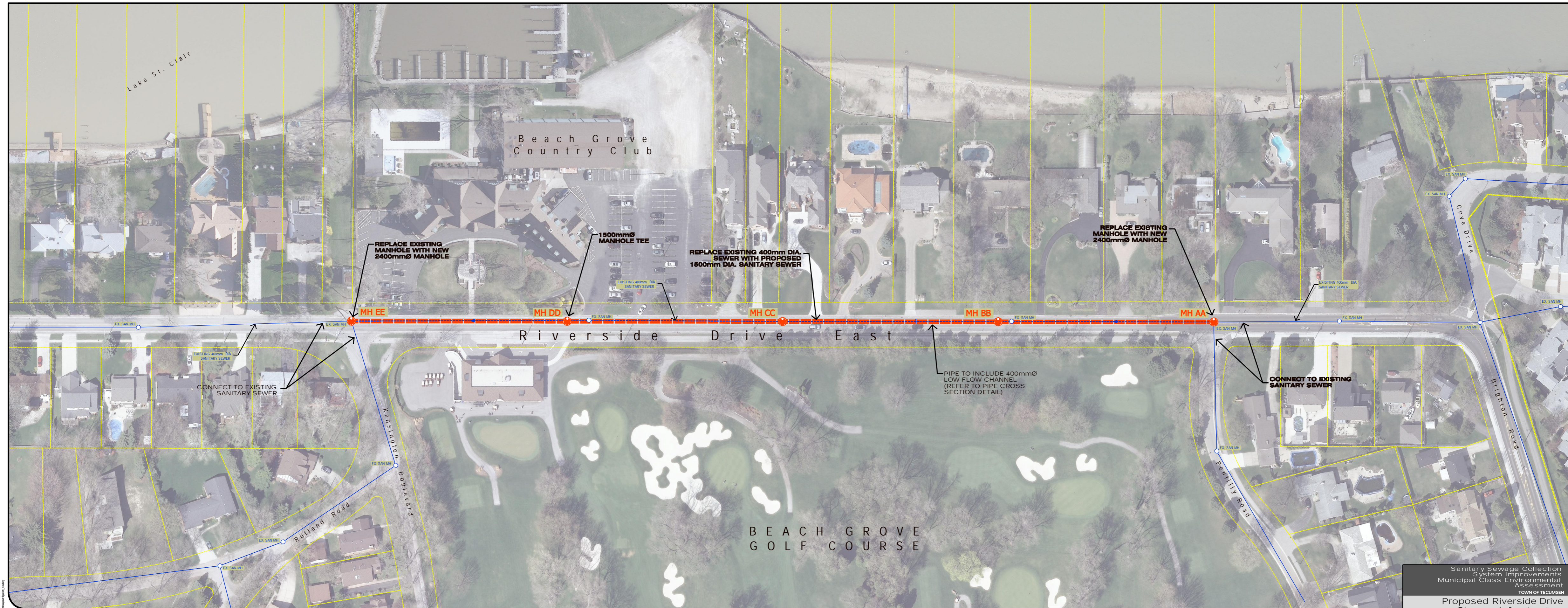
PROJECT #: 12-5969 Date: MARCH 2013

Sanitary Sewer Collection System Improvements
 Municipal Class Environmental Assessment
 TOWN OF TECUMSEH

Proposed Pump Station and Lakewood Park Storage Infrastructure

Preferred Solution

FIGURE # **B.3**



REPLACE EXISTING MANHOLE WITH NEW 2400mmØ MANHOLE

1500mmØ MANHOLE TEE

REPLACE EXISTING 400mm DIA. SEWER WITH PROPOSED 1500mm DIA. SANITARY SEWER

REPLACE EXISTING MANHOLE WITH NEW 2400mmØ MANHOLE

CONNECT TO EXISTING SANITARY SEWER

PIPE TO INCLUDE 400mmØ LOW FLOW CHANNEL (REFER TO PIPE CROSS SECTION DETAIL)

CONNECT TO EXISTING SANITARY SEWER



LEGEND
 - - - - - EXISTING SANITARY SEWER
 - - - - - PROPOSED SANITARY SEWER
 ● MH PROPOSED MANHOLE

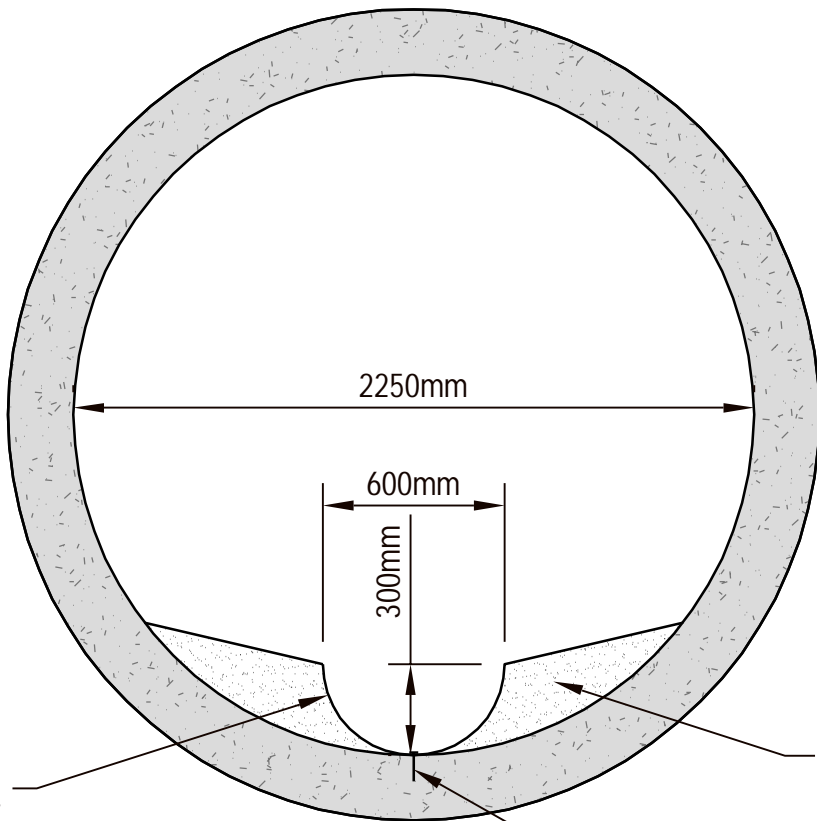


PROJECT #: 12-5969 Date: MARCH 2013

Sanitary Sewage Collection System Improvements
 Municipal Class Environmental Assessment
 TOWN OF TECUMSEH

Proposed Riverside Drive Storage Infrastructure Preferred Solution

FIGURE # **B.4**



LOW FLOW CHANNEL
600mmØ PVC PIPE

CONCRETE GROUT
BENCHING (TYPICAL)

ANCHOR TO
CONCRETE PIPE

**PROPOSED 2250mmØ
SANITARY SEWER**

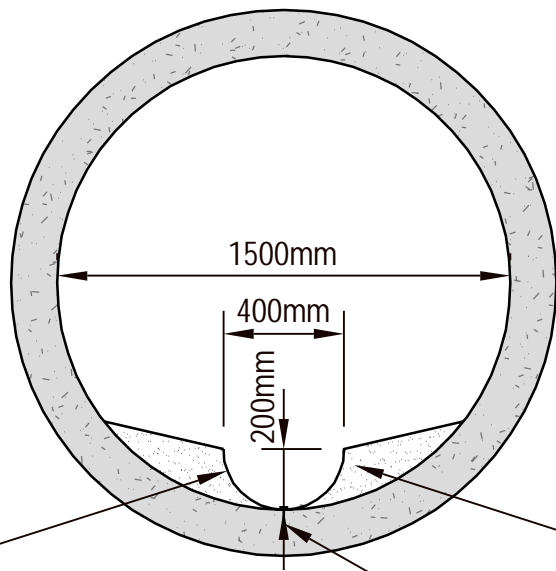
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March 15, 2013 2:52 PM

Sanitary Sewage Collection
System Improvements
Municipal Class Environmental
Assessment
TOWN OF TECUMSEH

Propose In-Line Storage
Sanitary Sewer, Lakewood Park
Cross Section Detail

FIGURE # **B.5**





LOW FLOW CHANNEL
400mmØ PVC PIPE

CONCRETE GROUT
BENCHING (TYPICAL)

ANCHOR TO
CONCRETE PIPE

**PROPOSED 1500mmØ
SANITARY SEWER**

File Location: c:\projects\125969\125969\125969\125969\report\figs_alpha\alpha06.png
 March 23, 2013 10:11 AM

Sanitary Sewage Collection
System Improvements
Municipal Class Environmental
Assessment
TOWN OF TECUMSEH

Propose In-Line Storage
Sanitary Sewer, Riverside Drive
Cross Section Detail

FIGURE # **B.6**



APPENDIX C

**ST. CLAIR BEACH AND LAKEWOOD
INFRASTRUCTURE UPGRADE/
IMPROVEMENT OPTIONS MEMO**

MEMO



TO: Flavio Forest

FROM: Ivy Poon

DATE: October 1, 2012

SUBJECT: St Clair Beach and Lakewood Infrastructure Upgrade/Improvement Options

OUR FILE: 12-5969

Following on previous discussions, areas of potential sanitary sewer infrastructure upgrades in the St. Clair Beach area were further investigated using the XPSWMM model to address the opportunities for servicing the proposed development of the Lakewood Golf Course property, while also considering opportunities to reduce the risk of basement flooding. These included:

- re-locating Lakewood Pump Station (PS) further downstream (to the west side of Lakewood Golf Course) and upsizing the existing 600mm diameter pipe to 1200mm (approx. length ~ 470m) as a mean of providing online storage;
- adding an online storage element at Riverside Drive near Brighton Road (approx. volume 350 m³);
- adding a storage tank at Lakewood PS (approx. volume 500 m³); and,
- increasing pump capacity at Lakewood PS.

To investigate the hydraulic implications of the various potential upgrades, several modeling scenarios had been developed. The XPSWMM model evaluated these scenarios as summarized below.

TABLE 1 – MODEL SCENARIOS

Scenario ID	Condition	Infrastructure Upgrade				
		PS Re-located to west side of Lakewood Golf Course	Upsized Pipe from 600mm dia. to 1200mm?	Riverside Dr. Storage Tank	Lakewood PS Storage Tank	Increased Existing Pump Capacity
2-year, 24-hour Chicago Design Storm						
Base (2-yr)	Existing	No	-	-	-	-
Scenario 1	Proposed	Yes	Yes	-	-	-
Scenario 2	Proposed	Yes	Yes	Yes	-	-
Scenario 3	Proposed	Yes	Yes	-	Yes	-
Scenario 4	Proposed	Yes	Yes	Yes	Yes	-
5-year, 24-hour Chicago Design Storm						
Base (5-yr)	Existing	No	-	-	-	-
Scenario 4A	Proposed	Yes	Yes	Yes	Yes	-
Scenario 4B	Proposed	Yes	Yes	Yes	Yes	+ 15% (~28L/s)
Scenario 4C	Proposed	Yes	Yes	Yes	Yes	+ 20% (~38L/s)

The sanitary system was first evaluated for the 2-year design event under different proposed scenarios (1 to 4). Comparisons of the change in hydraulic grade line (HGL) were made and illustrated in Figure 1. Table 2 summarizes the results.

Additional scenarios were simulated by increasing the existing pump capacity by 15% and 20% respectively and evaluating the system for the 5-year design event, as presented in Scenarios 4B and 4C. This is summarized and shown schematically in Figure 2. The opportunity to increase the release rate of the Lakewood pump station arises from the relief provided by the recent diversion of the Tecumseh Hamlet area from this downstream portion of the system at County Road 22. Plots of the depth of HGL below ground for all scenarios are presented in Appendix A.

**TABLE 2
HYDRAULIC IMPACTS OF PROPOSED UPGRADES IN ST. CLAIR BEACH**

Scenario ID	Condition	HGL Elevation at Select Locations along Main Sewers (in St. Clair Beach) ¹		
		Infrastructure Upgrade Description	Manhole ID SB114 (near Riverside Storage)	Manhole ID SB006 (near Lakewood Storage)
2-year, 24-hour Chicago Design Storm				
Base Scenario (2-yr)	Existing	-	HGL = 174.4m Δ HGL = 0 m	HGL = 173.3m Δ HGL = 0 m
Scenario 1	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade	HGL = 173.6m Δ HGL = -0.8m	HGL = 172.4m Δ HGL = -0.9m
Scenario 2	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Riverside Storage (350m ³)	HGL = 173.1m Δ HGL = -1.3m	HGL = 171.9m Δ HGL = -1.4m
Scenario 3	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Lakewood PS Storage (500m ³)	HGL = 173.1m Δ HGL = -1.3m	HGL = 171.4m Δ HGL = -1.9m
Scenario 4	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Riverside Storage (350m ³) + Lakewood PS Storage (500m ³)	HGL = 172.3m Δ HGL = -2.1m	HGL = 170.9m Δ HGL = -2.4m
5-year, 24-hour Chicago Design Storm				
Base Scenario (5-yr)	Existing	-	HGL = 175.8m Δ HGL = 0 m	HGL = 175.0m Δ HGL = 0 m
Scenario 4A	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Riverside Storage (350m ³) + Lakewood PS Storage (500m ³)	HGL = 175.2m Δ HGL = -0.6m	HGL = 174.0m Δ HGL = -1.0m
Scenario 4B	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Riverside Storage (350m ³) + Lakewood PS Storage (500m ³) + 15 % Increase of PS Capacity	HGL = 174.5m Δ HGL = -1.3m	HGL = 173.0m Δ HGL = -2.0m
Scenario 4C	Proposed	- New PS Location + 1200mm dia. Pipe Upgrade + Riverside Storage (350m ³) + Lakewood PS Storage (500m ³) + 20 % Increase of PS Capacity	HGL = 174.4m Δ HGL = -1.4m	HGL = 172.6m Δ HGL = -2.4m

1. ΔHGL is estimated based on HGL elevation relative to the base scenario (e.g. Scenario 4 at SB006 has Δ HGL = 170.9m – 173.3m= -2.4m.)

Figure 1 shows the HGL profile of scenarios simulated for the 2-year event. Manhole SB114 is located immediately downstream of the Riverside Dr storage, while manhole SB006 is near the location of the existing Lakewood PS. Comparison of each scenario to the base scenario for the 2-year storm (existing condition) indicates:

- As shown in Scenario 1, the relocation of the Lakewood PS to allow for the upgraded 1200mm dia. pipe to provide online storage produced moderate relief to the downstream area (downstream of SB114 to SB006) close to the PS. A drop of 0.8m to 0.9m in HGL was noted relative to existing condition between manholes SB114 and SB116 (Table 2);
- The storage at Lakewood PS alone (Scenario 3) was demonstrated to provide more relief to the downstream area than having Riverside storage alone (Scenario 2);
- The combined benefit of having several infrastructure upgrades (Scenario 4) is shown to reduce the HGL elevation by as much as 2.4m at SB006;
- The Riverside storage is important to providing dual relief functions, by lowering HGL upstream in the Brighton Road area and by storing online flows that would otherwise impact the downstream area close to the PS.

Figure 2 shows the HGL profile of several scenarios simulated for the 5-year event. Comparison of each scenario to the base scenario (existing condition) for the 5-year storm indicates:

- The combined benefit of several infrastructure upgrades (Scenario 4A) can reduce the HGL elevation by much as 0.6m to 1.0m between SB114 and SB006;
- As shown in Scenario 4B, increasing the existing pump capacity by 15% (~ 28 L/s) with the aforementioned infrastructure upgrades/storages can result in significant improvement relative to existing conditions for the 5-year event. As much as 2.0m and 1.3m drop in HGL was noted at SB006 and SB114 respectively (Table 2);
- Additional increase in pump capacity (Scenario 4C) to 20% (~38 L/s) resulted in moderate improvement; however, the immediate downstream side of Lakewood PS in the town of Tecumseh began to notice potential areas at risk of flooding.

Findings and Recommendations

Based on the above modelling results, by re-locating Lakewood PS to allow for online storage via upgrading the existing 600mm diameter pipe to a 1200mm, a moderate relief in HGL is noted for the 2-year event. With the addition of both storage elements at Lakewood PS and at Riverside Dr, the St. Clair Beach sanitary system is able to provide an improved level of service for the 2-year event (Scenario 4), while partially relieving the areas close to Lakewood PS for the 5-year design storm. If existing pump capacity can be increased by 15%, additional areas are benefited for the 5-year storm but these benefits remain downstream of Riverside Dr.

Based on the preliminary evaluation of infrastructure improvements within St. Clair Beach to identify potential locations and storage sizes under existing conditions, the next steps to be considered are to also include new developments within the Lakewood area. They include:

- Incorporating new development flows, with scenarios looking at different entry points into the sanitary system (e.g. upstream or partially downstream of Lakewood PS). Hydraulic implications are to be determined by considering potential infrastructure upgrades on the Tecumseh side immediately downstream of Lakewood PS (such as twinning sewers and/or bypassing certain areas);
- Undertaking detailed evaluation of the preferred storage options in St. Clair Beach to provide hydraulic details in support of functional design activities. This encompasses evaluating the feasibility of storage options at the Riverside Dr location;
- Performing modelling evaluations to support operational assessments of PS (e.g. refine PS settings), in collaboration with PS design team, in support of functional design activities;
- Determining the storm magnitude thresholds and system performance to assist in identifying the location to implement emergency bypass to Lake St. Clair. This includes evaluating the effects of the bypass on the sanitary system at selected locations, with specific configurations and storm intensities.

Figure 1: HGL Profile of Main Sewer for Various Scenarios in St. Clair Beach (2-yr, 24-hr Chicago Design Storm)

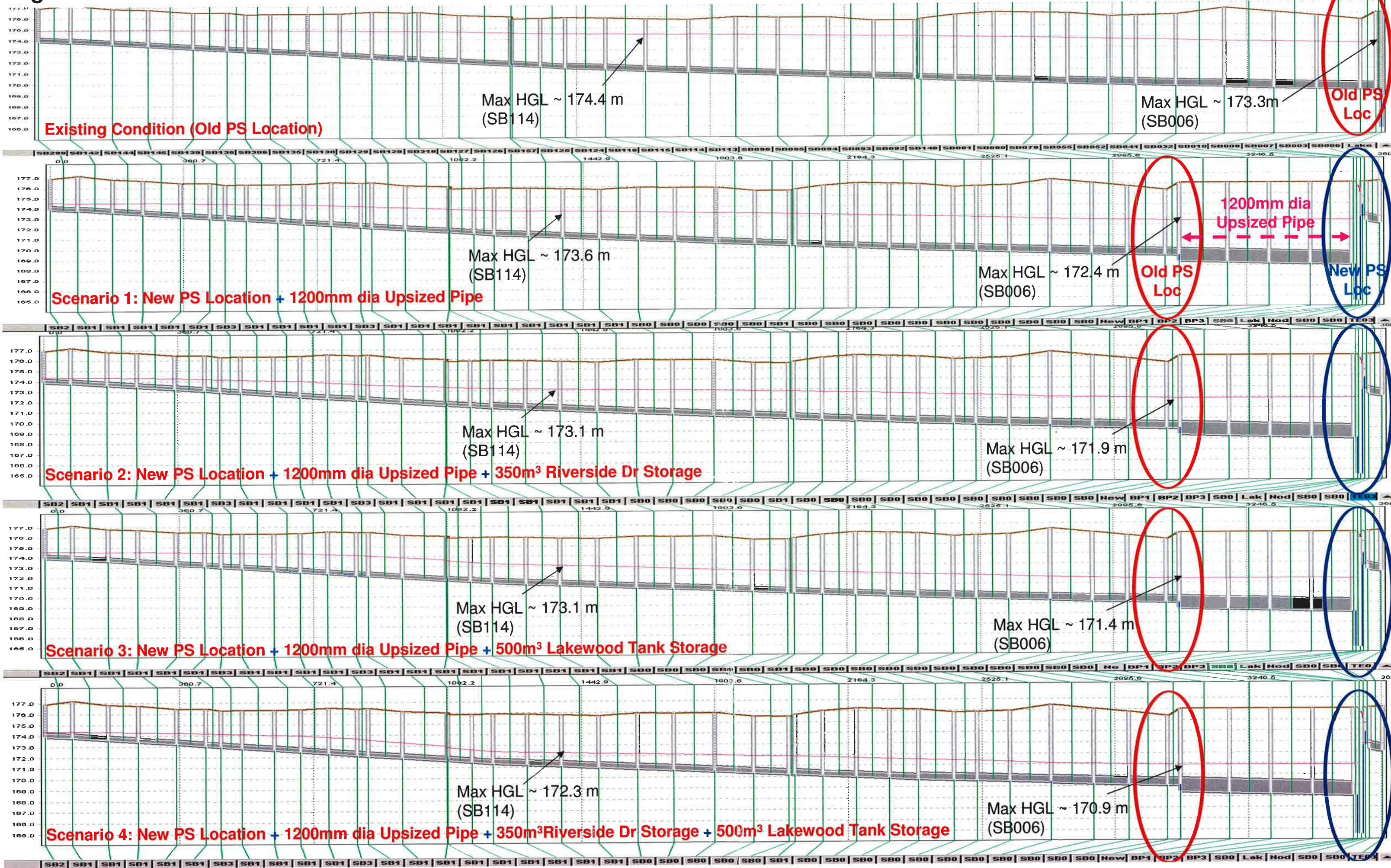
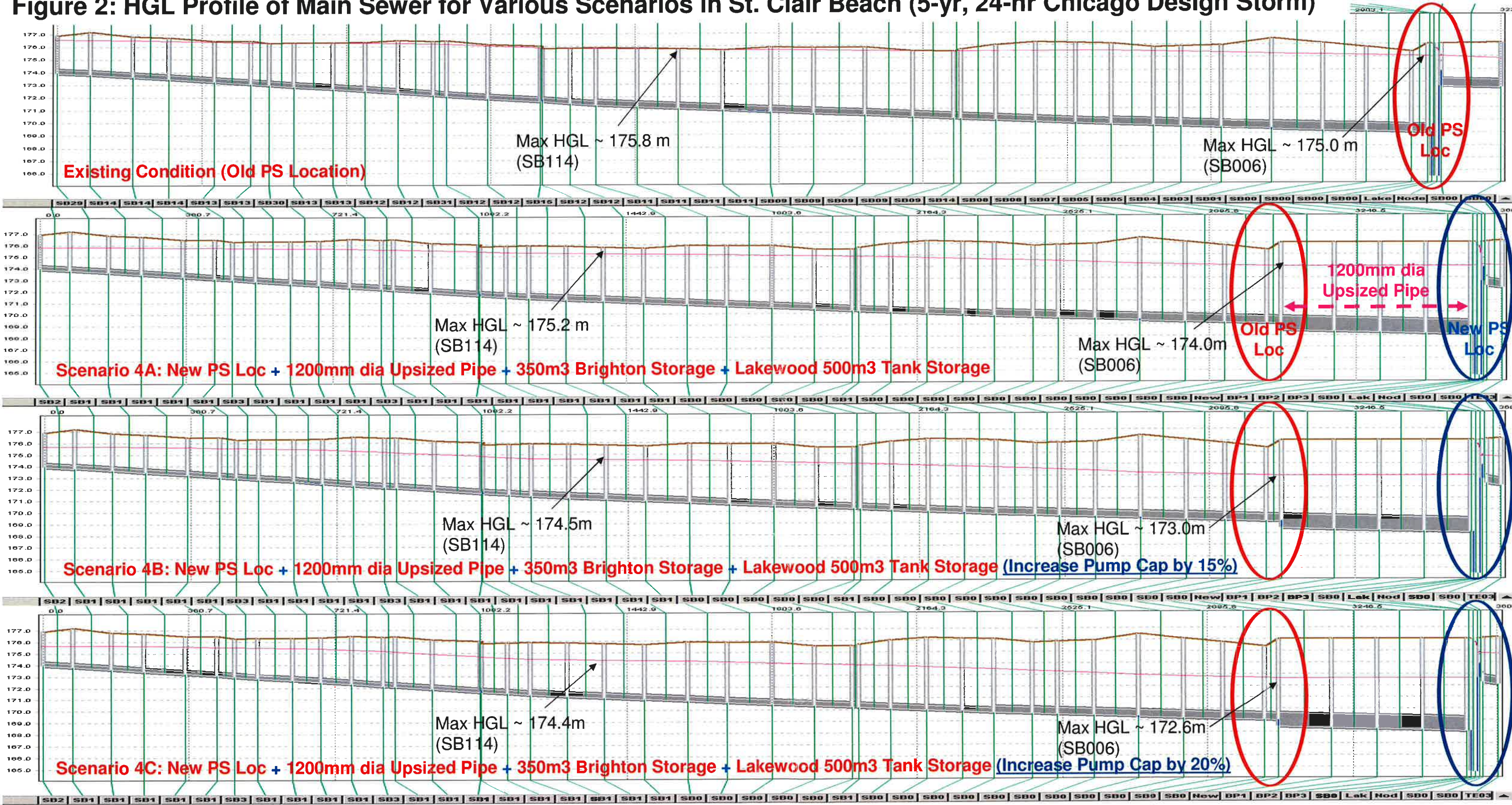


Figure 2: HGL Profile of Main Sewer for Various Scenarios in St. Clair Beach (5-yr, 24-hr Chicago Design Storm)

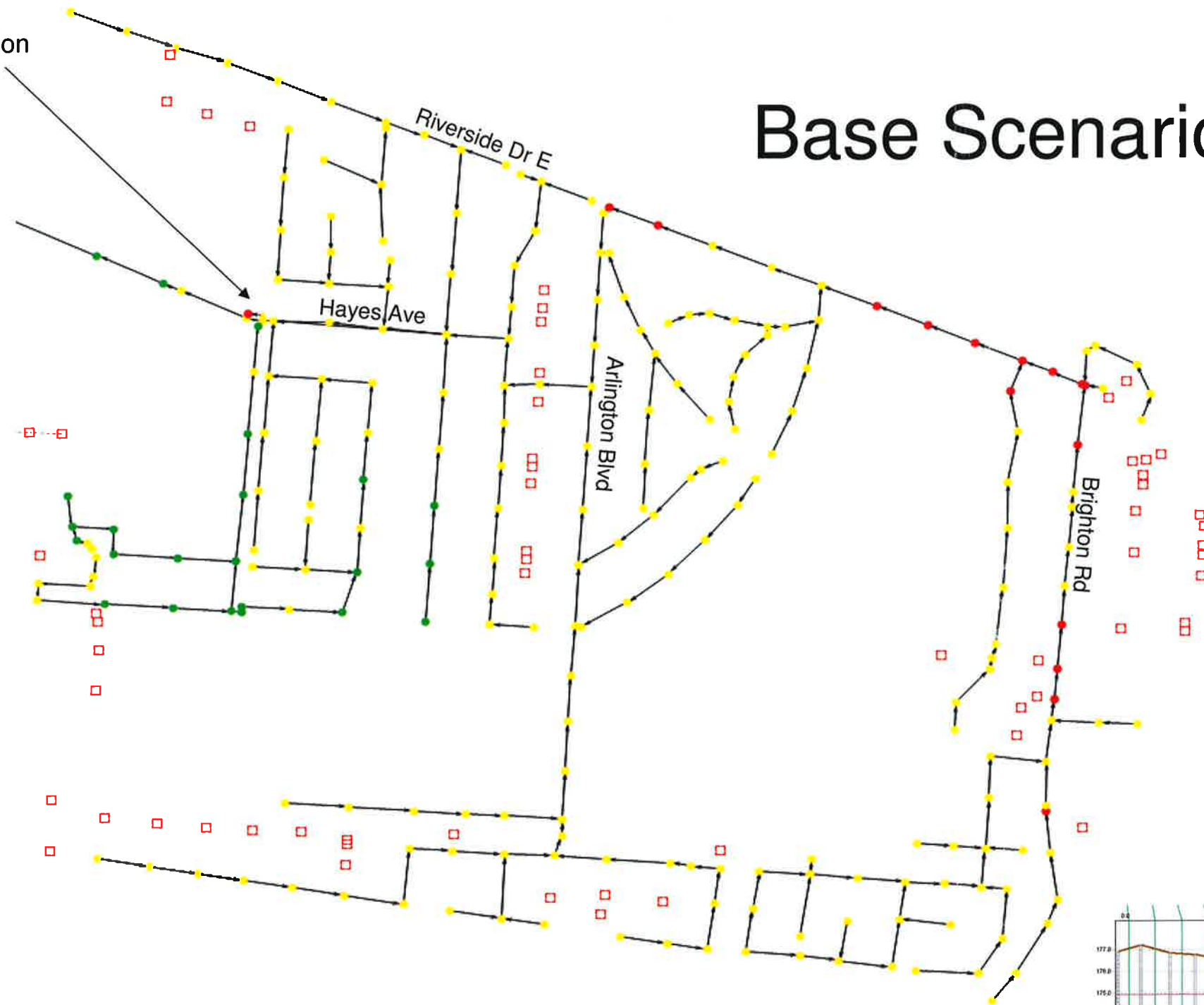


APPENDIX A
PLOT OF DEPTH OF HGL BELOW GROUND
FOR ST. CLAIR BEACH
(SCENARIOS 1 TO 4C)

2-yr, 24-hr Chicago Design Storm

Figure A-1: Base Scenario (2-Yr) - Existing Condition (Old Lakewood PS Location)

Lakewood Pump Station



Base Scenario (2-yr, 24-hr)

Plot of HGL below ground (m):

Color	Low	High
■	-100.	1.5
■	1.51	3.0
■	3.01	10.

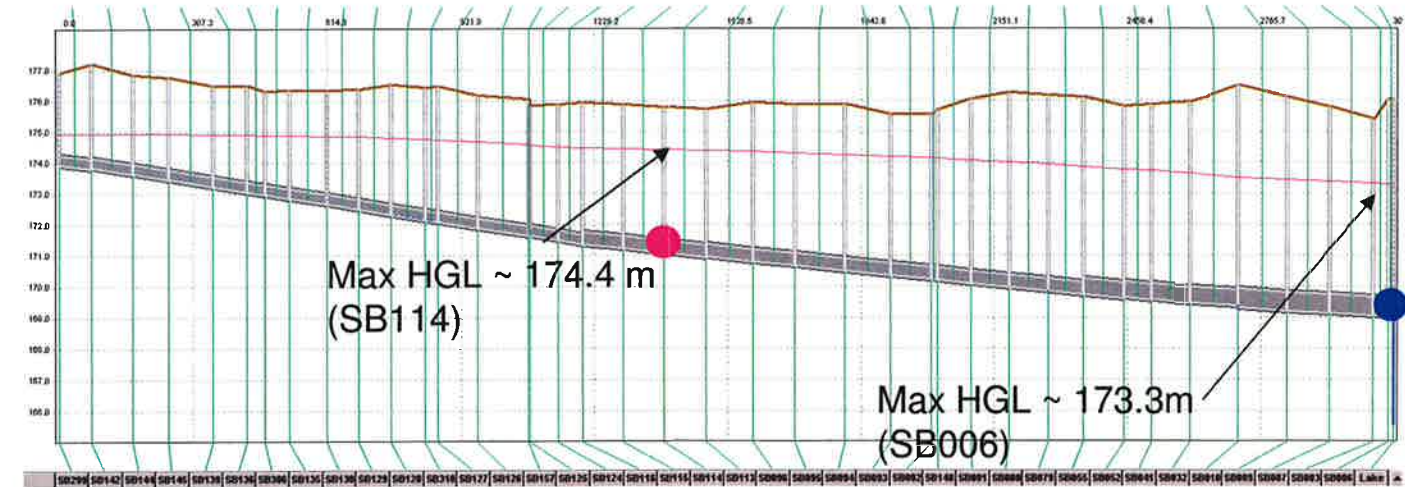
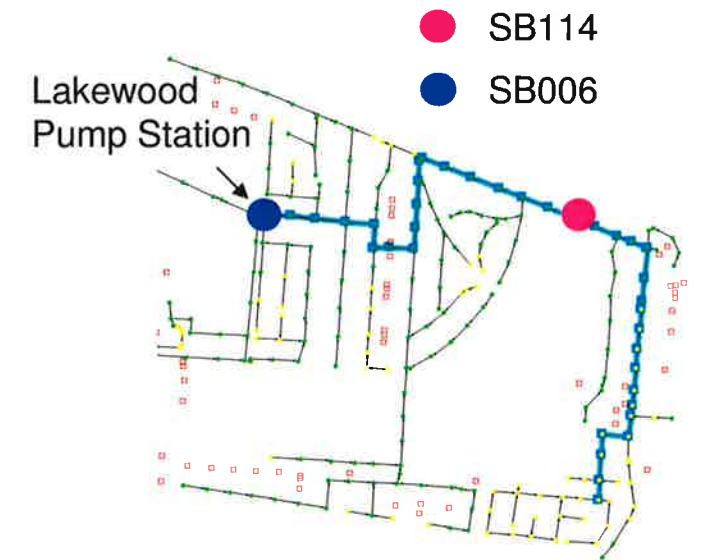


Figure A-2: Scenario 1 – New PS Location + 1200mm dia. Pipe Upgrade

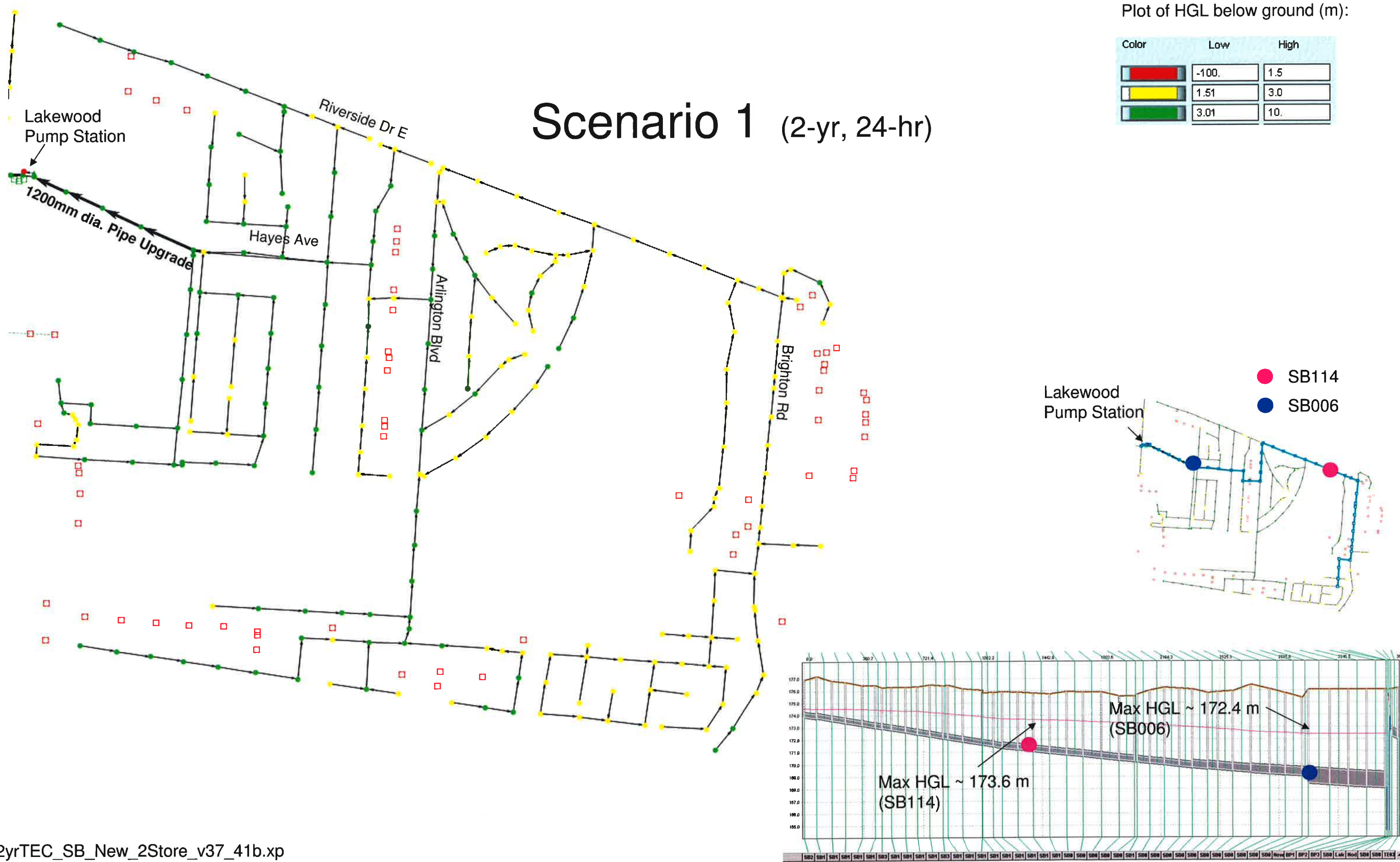


Figure A-3: Scenario 2 – New PS Location + 1200mm dia. Pipe Upgrade + Riverside Dr Storage (350m³)

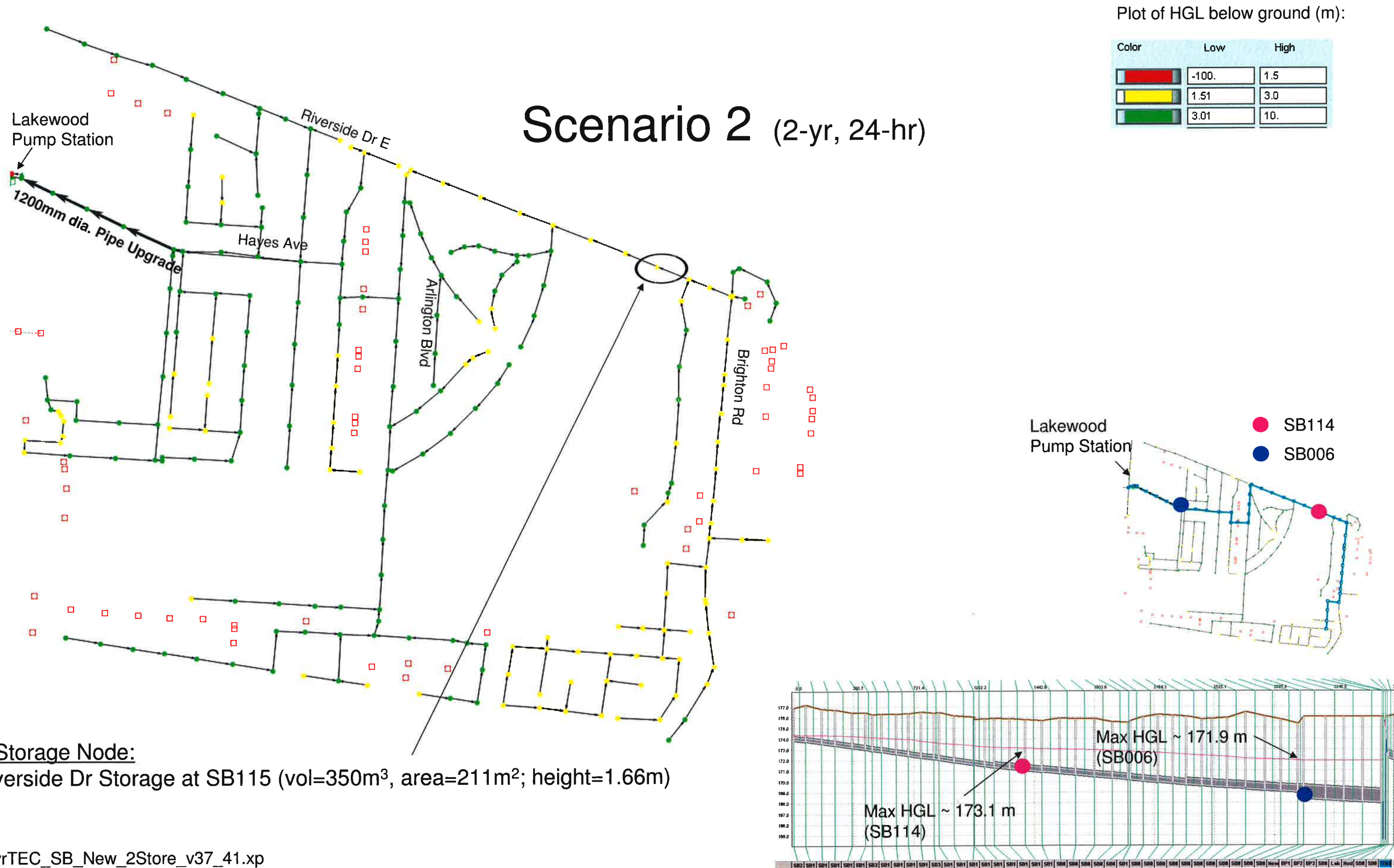
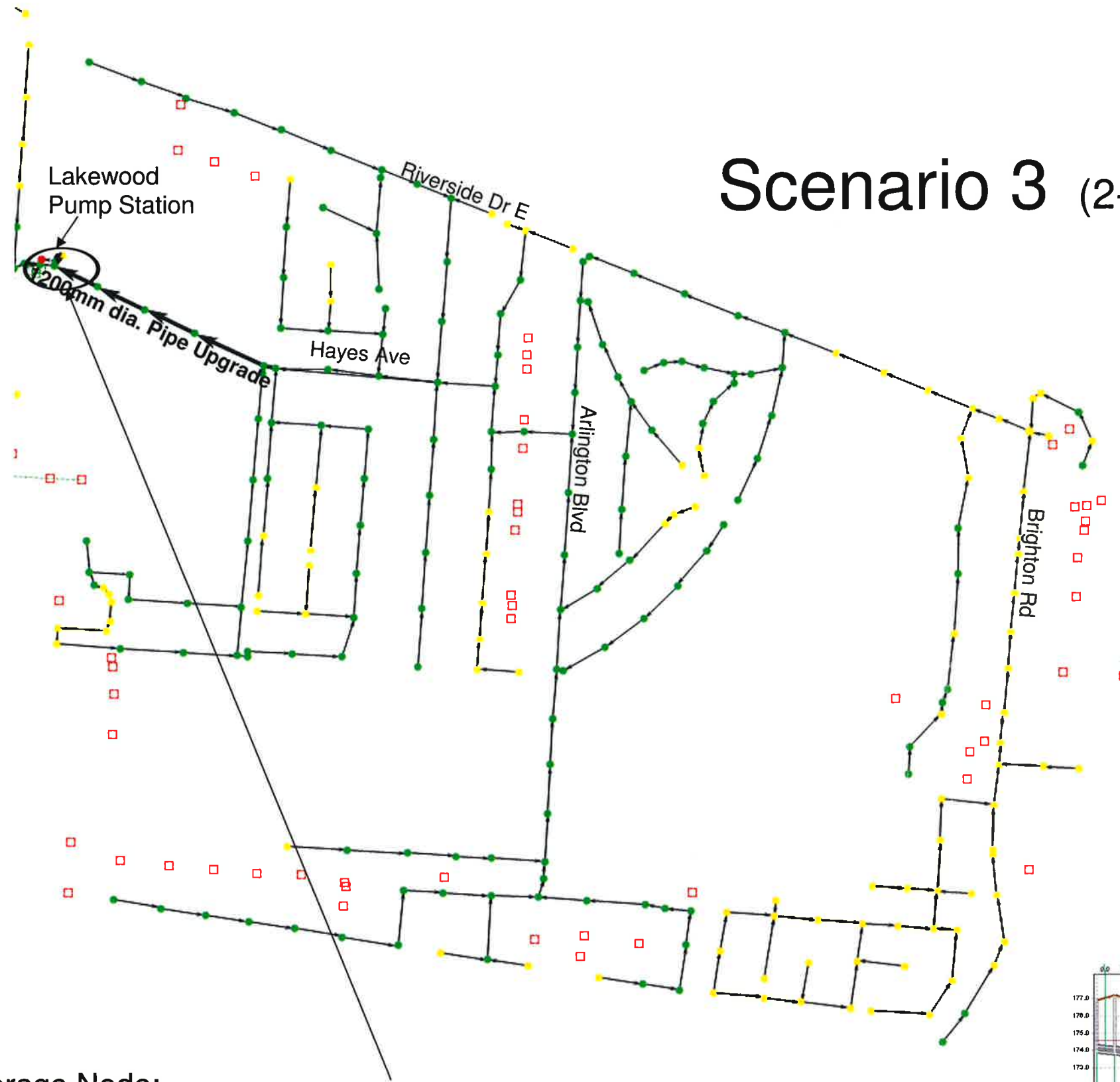


Figure A-4: Scenario 3 – New PS Location + 1200mm dia. Pipe Upgrade + Lakewood Storage (500m³)

Plot of HGL below ground (m):

Color	Low	High
Red	-100.	1.5
Yellow	1.51	3.0
Green	3.01	10.

Scenario 3 (2-yr, 24-hr)



One Storage Node:

- 1) Lakewood Storage Tank (vol=500m³, area=67m²; height=7.5m)
(Tank Pump turns on at 170.0m in Lakewood wet well)

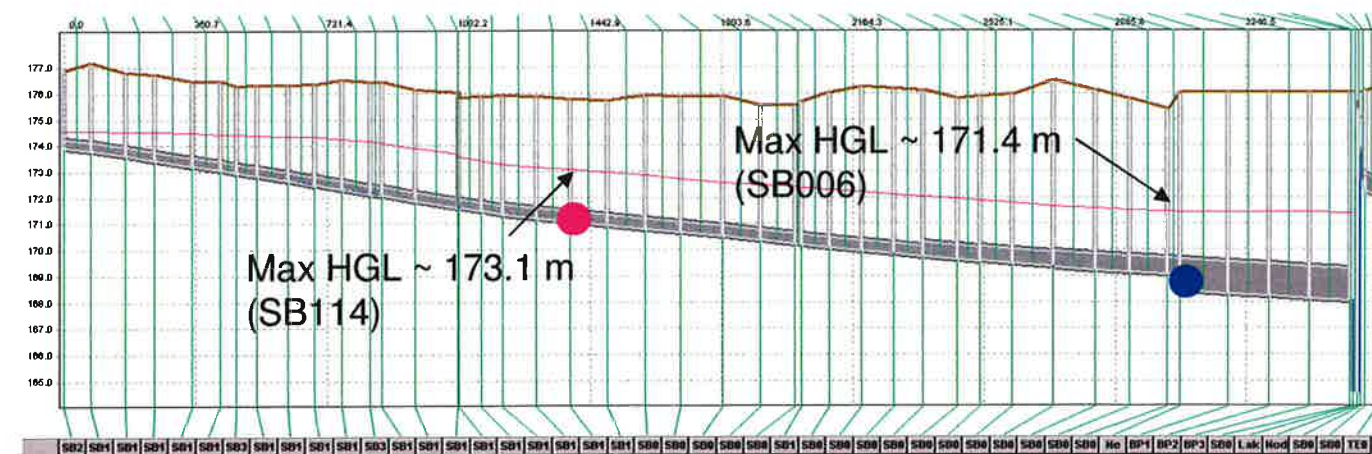
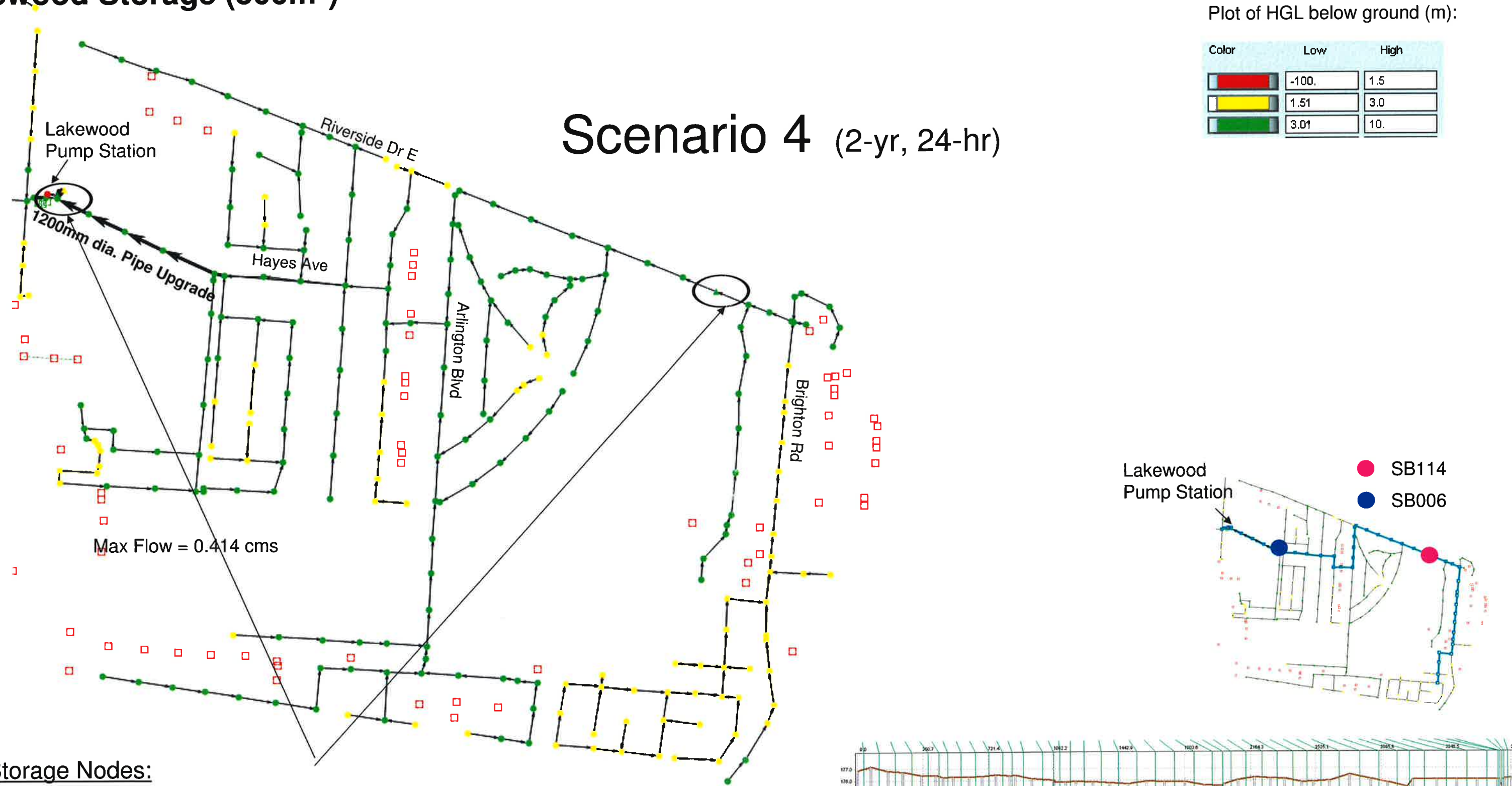
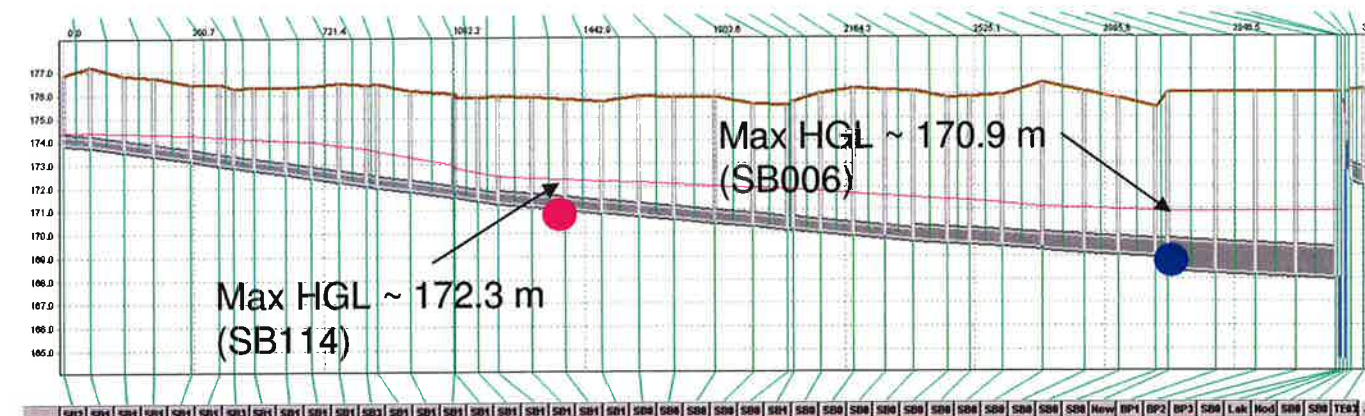


Figure A-5: Scenario 4 – New PS Location + 1200mm dia. Pipe Upgrade + Riverside Dr Storage (350m³) + Lakewood Storage (500m³)



Two Storage Nodes:

- 1) Lakewood Storage Tank (vol=500m³, area=67m²; height=7.5m)
(Tank Pump turns on at 170.0m in Lakewood wet well)
- 2) Riverside Dr Storage at SB115 (vol=350m³, area=211m²; height=1.66m)



5-yr, 24-hr Chicago Design Storm

Figure A-6: Base Scenario (5-Yr) - Existing Condition (Old Lakewood PS Location)

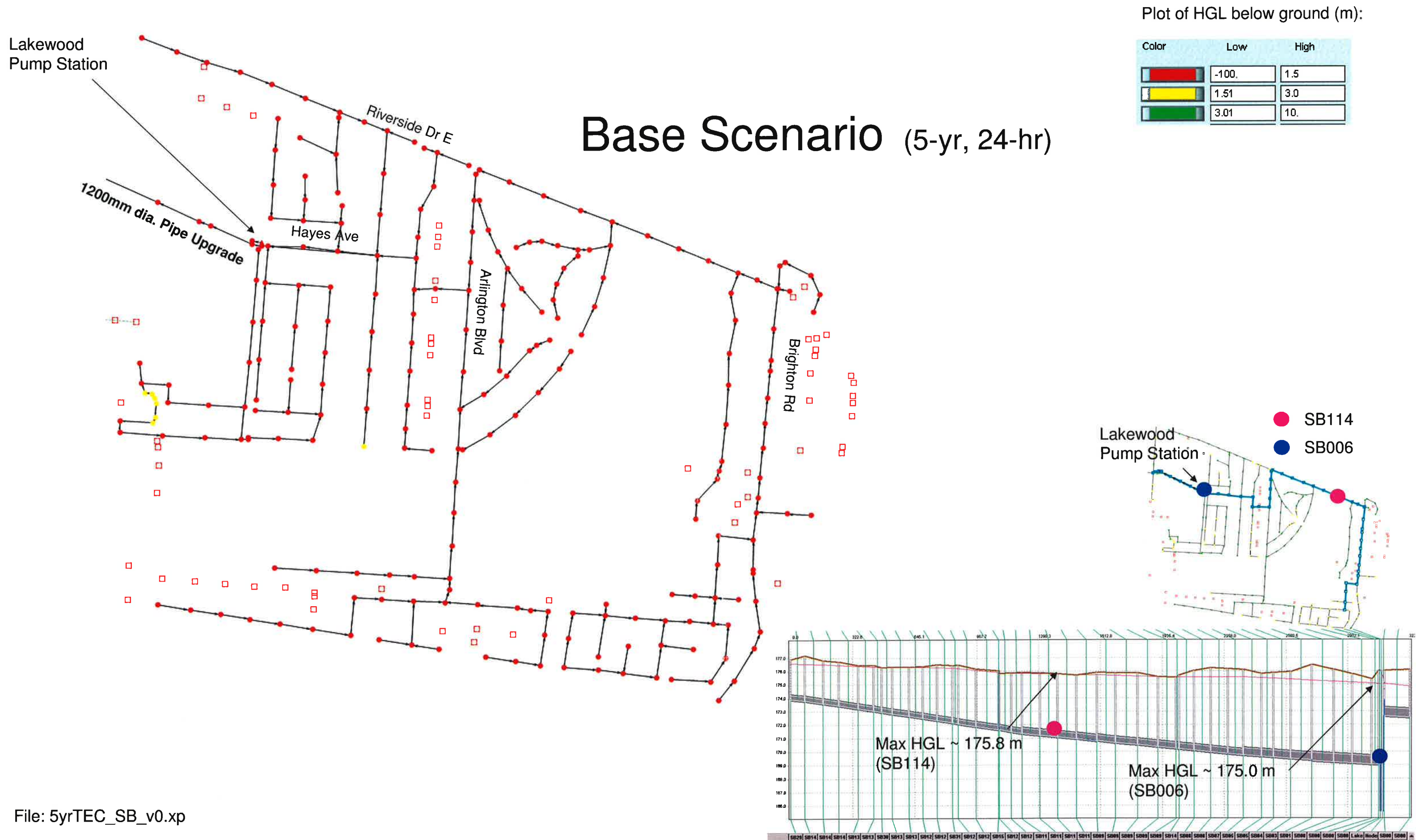


Figure A-7: Scenario 4A – New PS Location + 1200mm dia. Pipe Upgrade + Riverside Dr Storage (350m³) + Lakewood Storage (500m³)

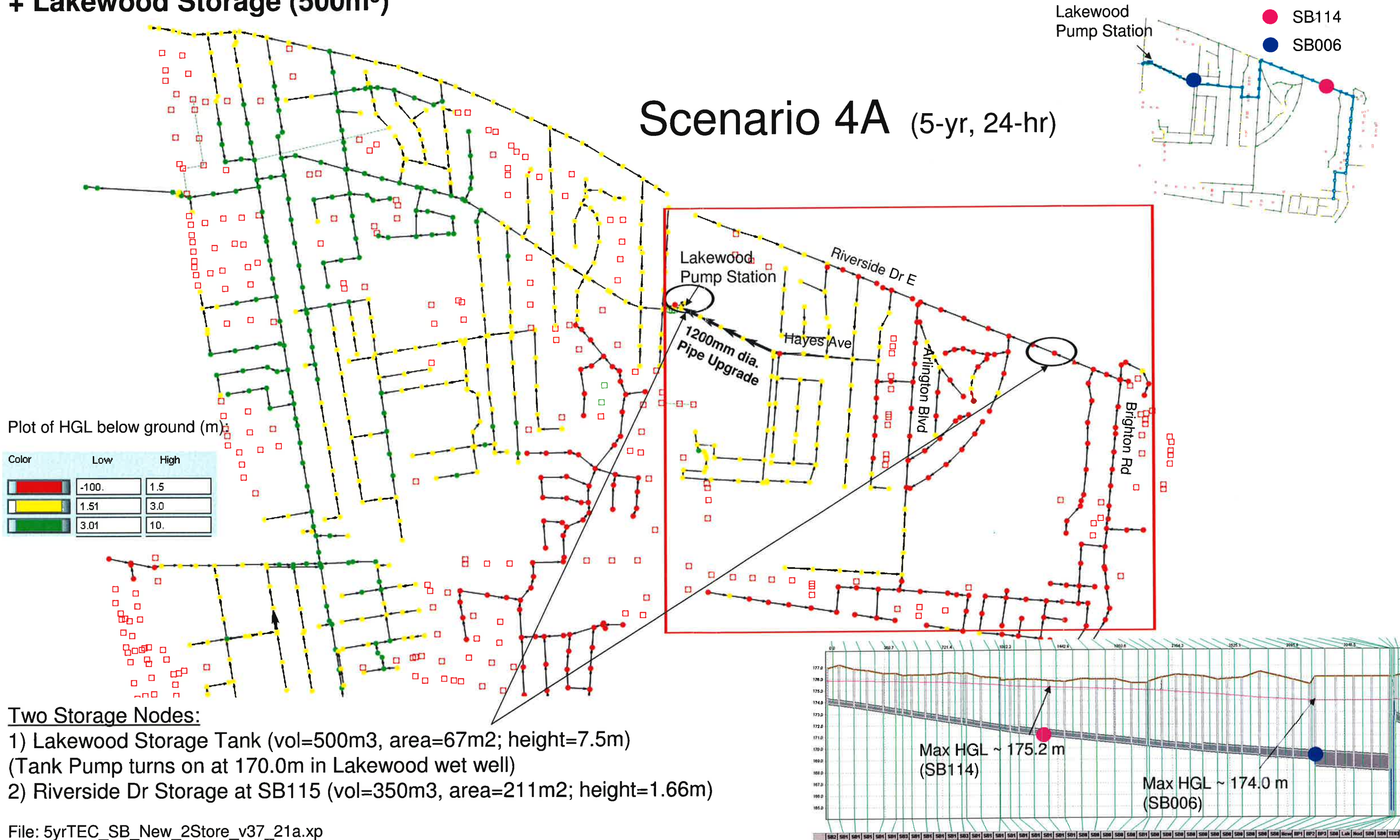
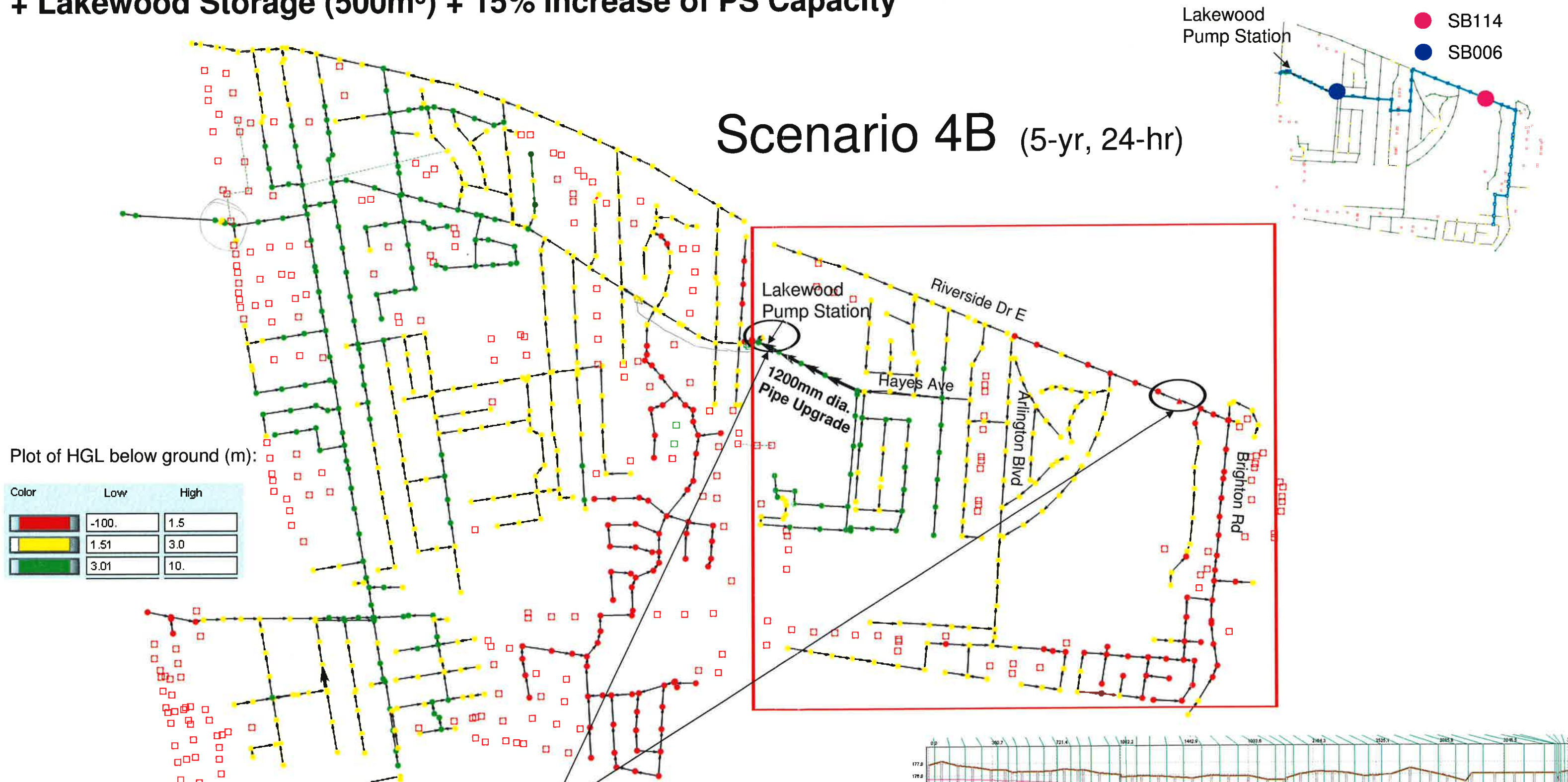


Figure A-8: Scenario 4B – New PS Location + 1200mm dia. Pipe Upgrade + Riverside Dr Storage (350m³) + Lakewood Storage (500m³) + 15% Increase of PS Capacity



Two Storage Nodes:

- 1) Lakewood Storage Tank (vol=500m³, area=67m²; height=7.5m)
(Tank Pump turns on at 170.0m in Lakewood wet well)
- 2) Riverside Dr Storage at SB115 (vol=350m³, area=211m²; height=1.66m)

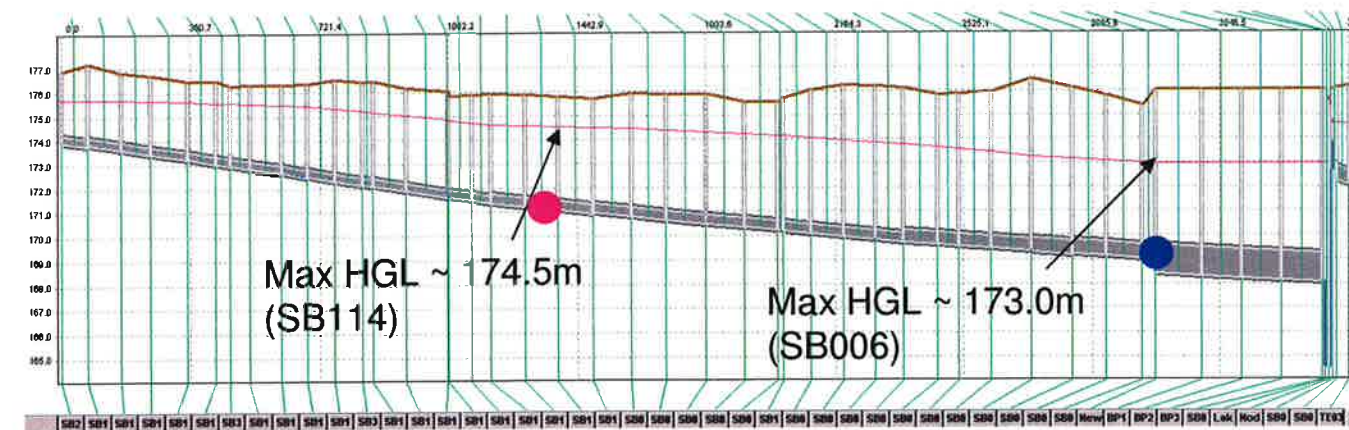
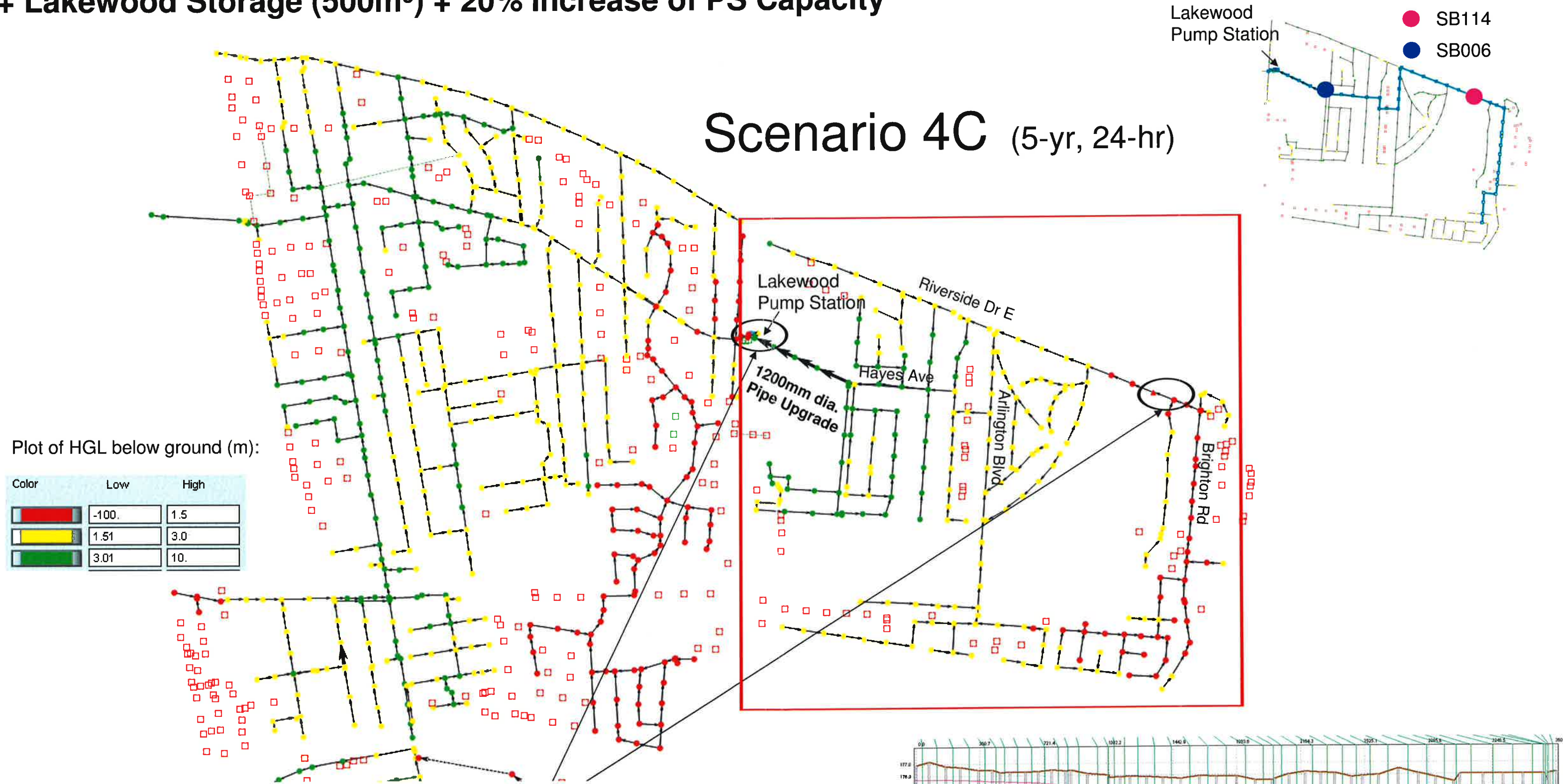
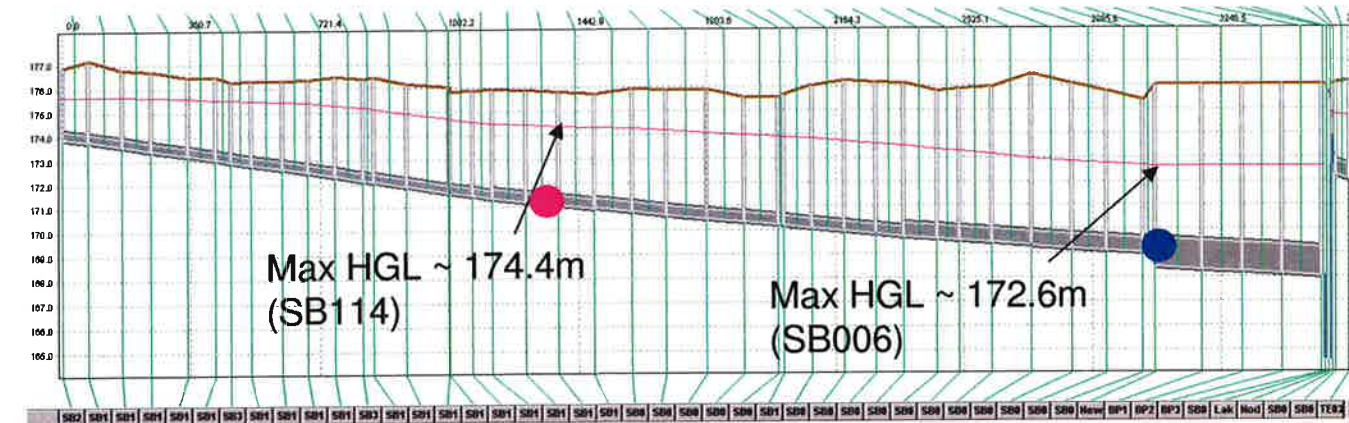


Figure A-9: Scenario 4C – New PS Location + 1200mm dia. Pipe Upgrade + Riverside Dr Storage (350m³) + Lakewood Storage (500m³) + 20% Increase of PS Capacity



Two Storage Nodes:

- 1) Lakewood Storage Tank (vol=500m³, area=67m²; height=7.5m)
(Tank Pump turns on at 170.0m in Lakewood wet well)
- 2) Riverside Dr Storage at SB115 (vol=350m³, area=211m²; height=1.66m)



APPENDIX D

**RIVERSIDE DRIVE AND LAKEWOOD
PARK STORAGE SCENARIOS**

5-yr, 24-hr - Riverside & Lakewood Storage

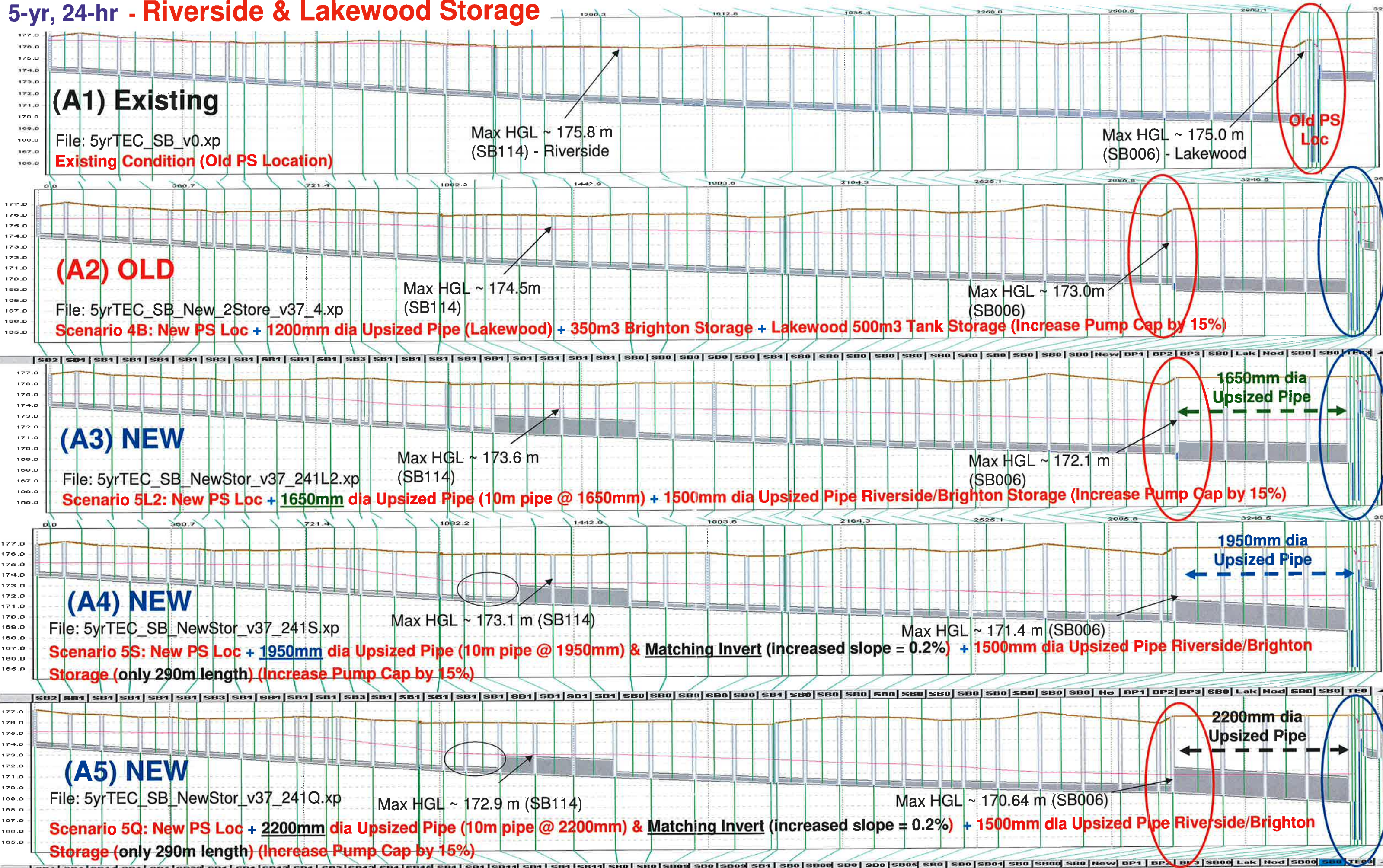
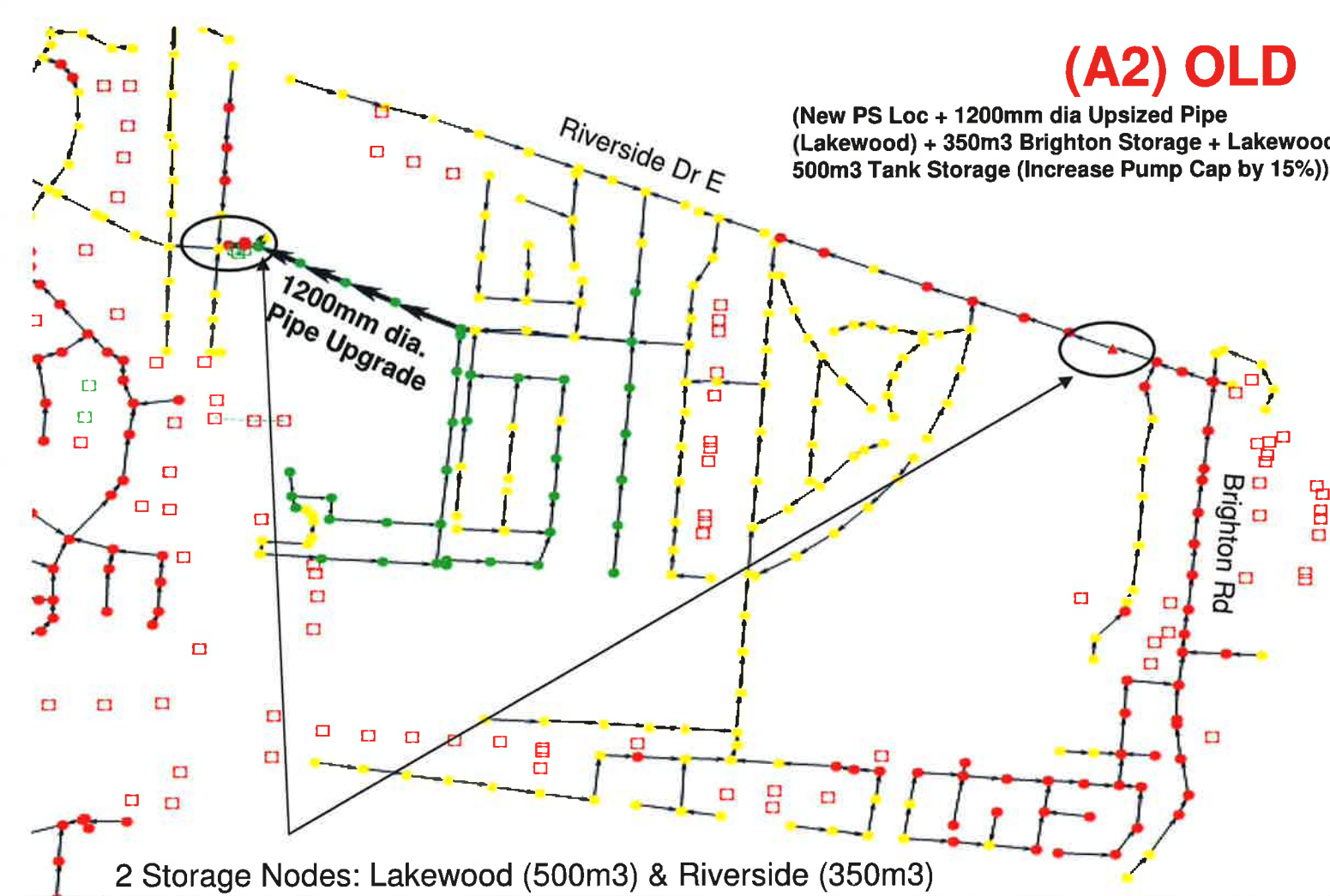


Figure A-6: Base Scenario (5-Yr) - Existing Condition (Old Lakewood PS Location)



(A2) OLD

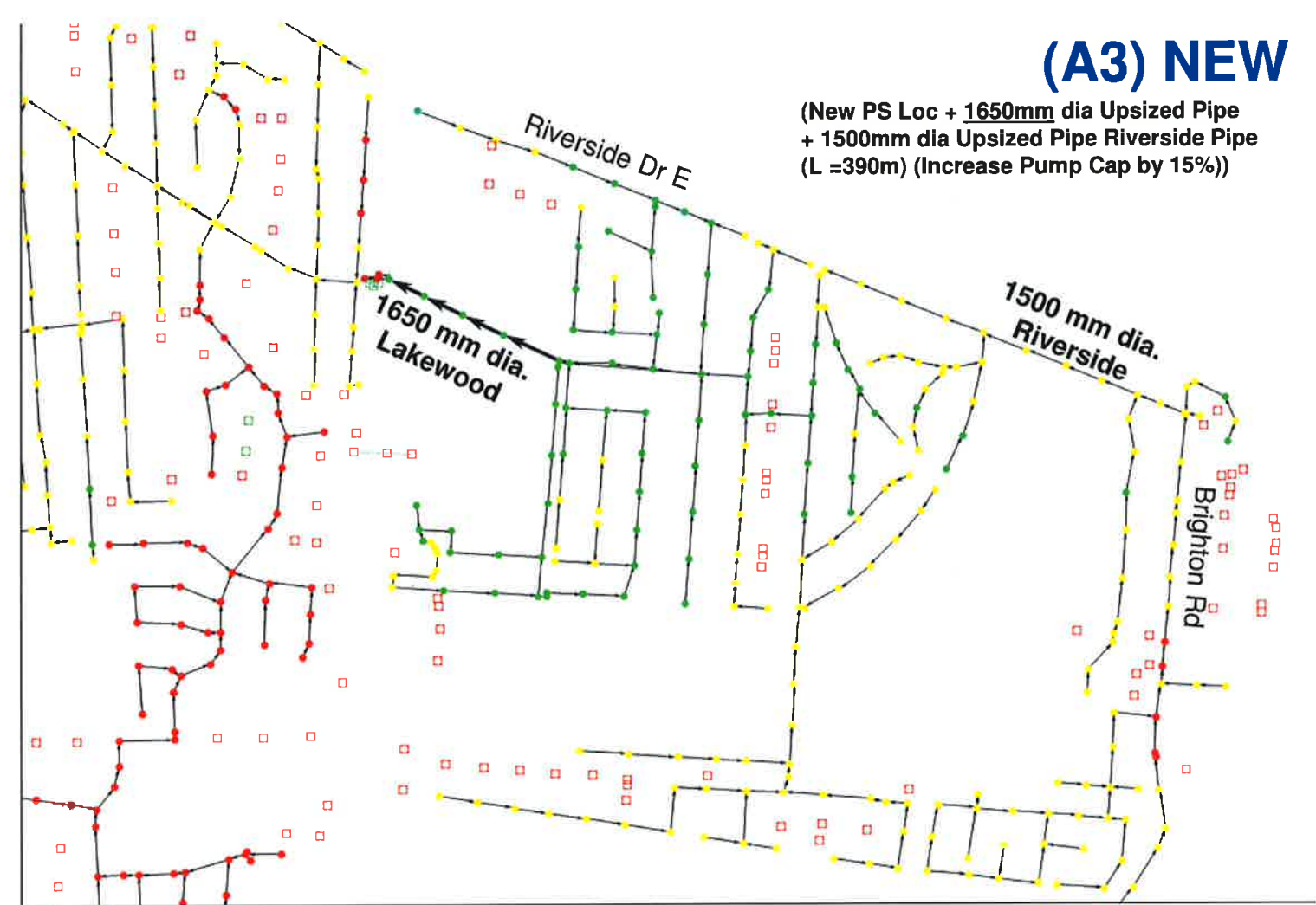
(New PS Loc + 1200mm dia Upsized Pipe (Lakewood) + 350m3 Brighton Storage + Lakewood 500m3 Tank Storage (Increase Pump Cap by 15%))



2 Storage Nodes: Lakewood (500m3) & Riverside (350m3)

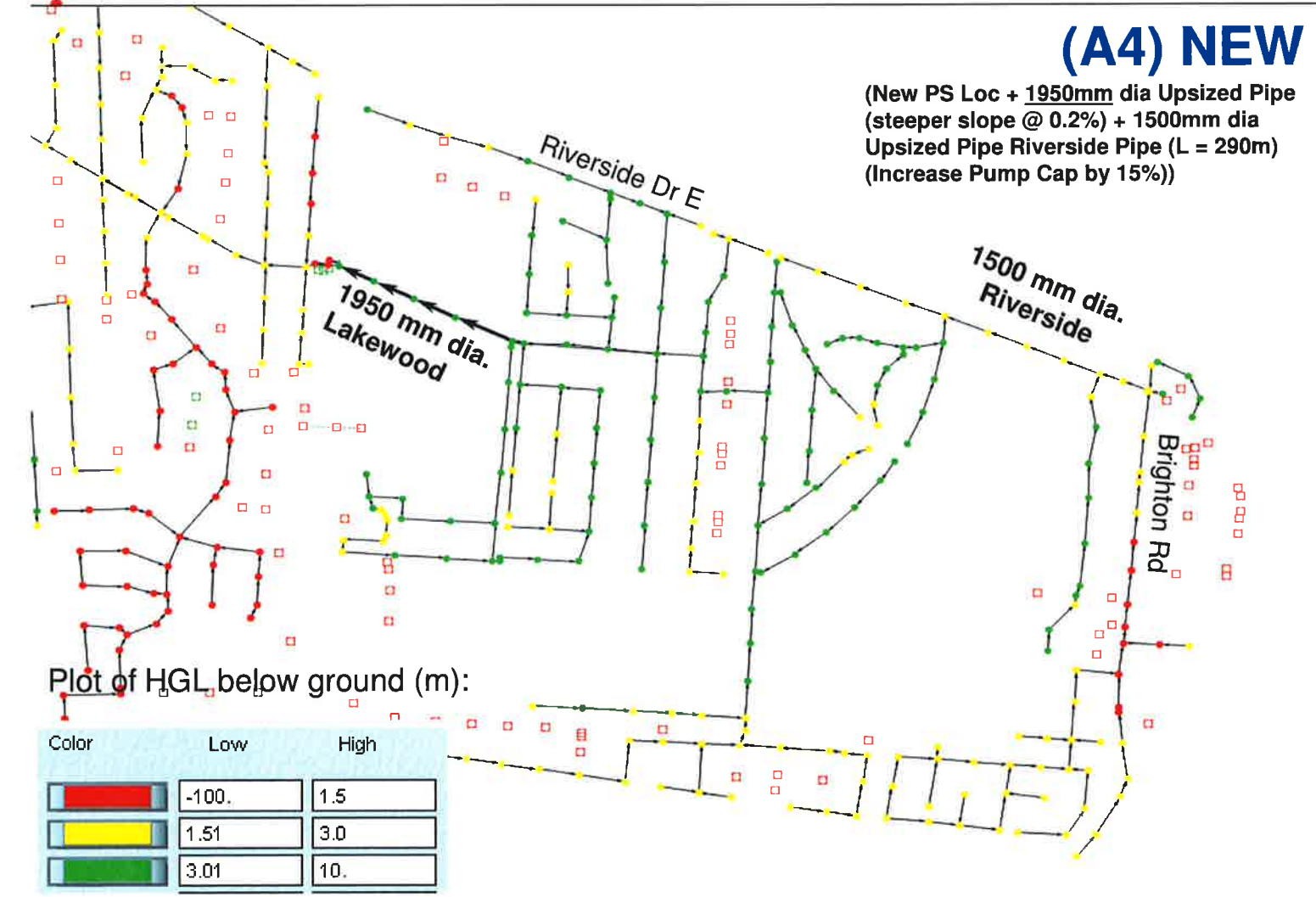
(A3) NEW

(New PS Loc + 1650mm dia Upsized Pipe + 1500mm dia Upsized Pipe Riverside Pipe (L = 390m) (Increase Pump Cap by 15%))



(A4) NEW

(New PS Loc + 1950mm dia Upsized Pipe (steeper slope @ 0.2%) + 1500mm dia Upsized Pipe Riverside Pipe (L = 290m) (Increase Pump Cap by 15%))

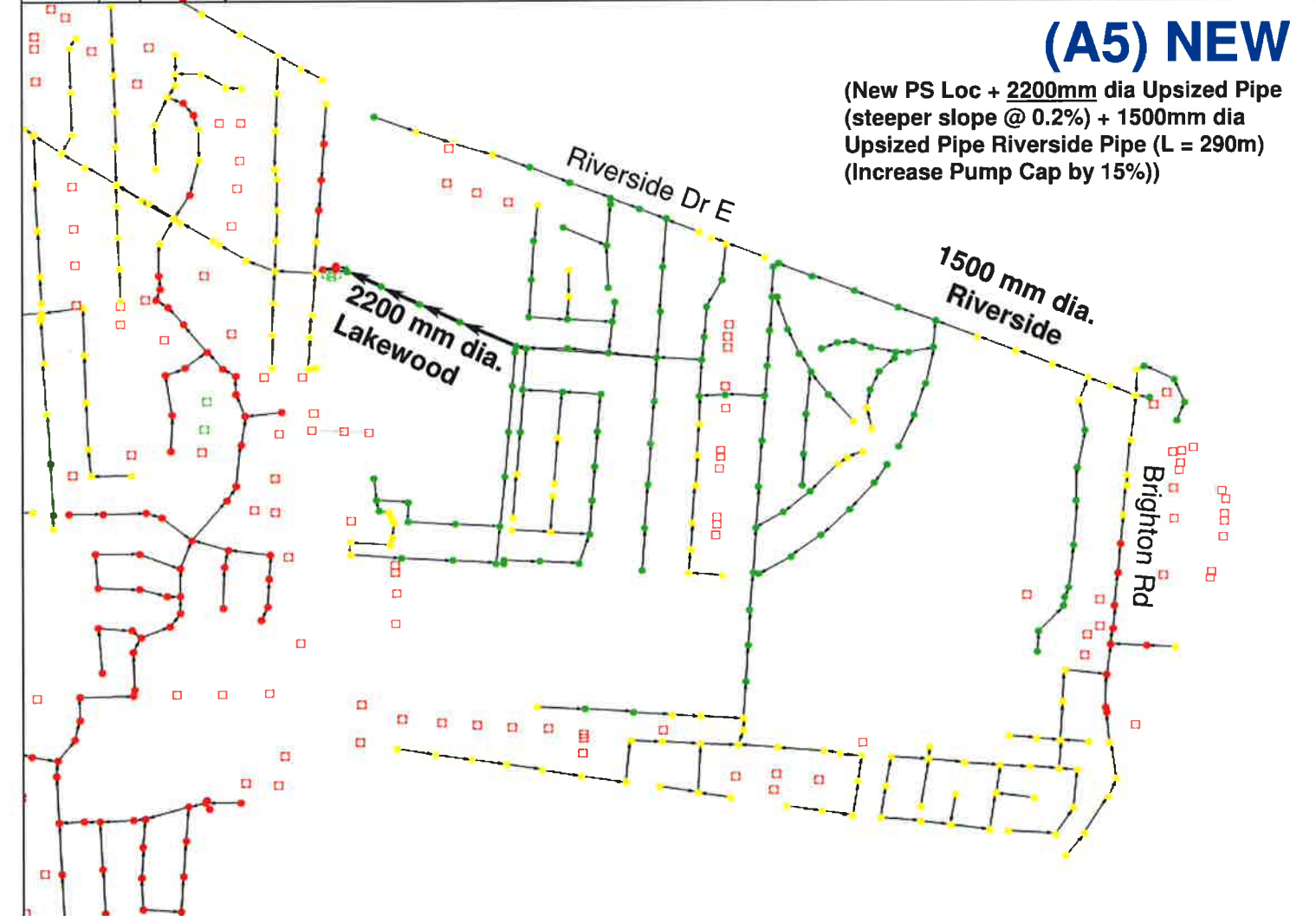


Plot of H_{GL} below ground (m):

Color	Low	High
	-100.	1.5
	1.51	3.0
	3.01	10.

(A5) NEW

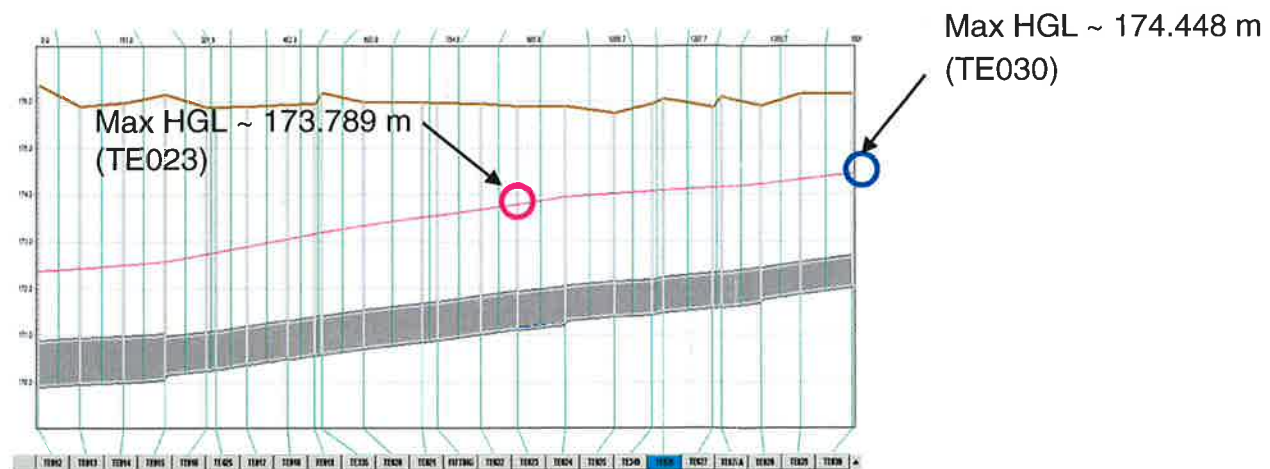
(New PS Loc + 2200mm dia Upsized Pipe (steeper slope @ 0.2%) + 1500mm dia Upsized Pipe Riverside Pipe (L = 290m) (Increase Pump Cap by 15%))



APPENDIX E

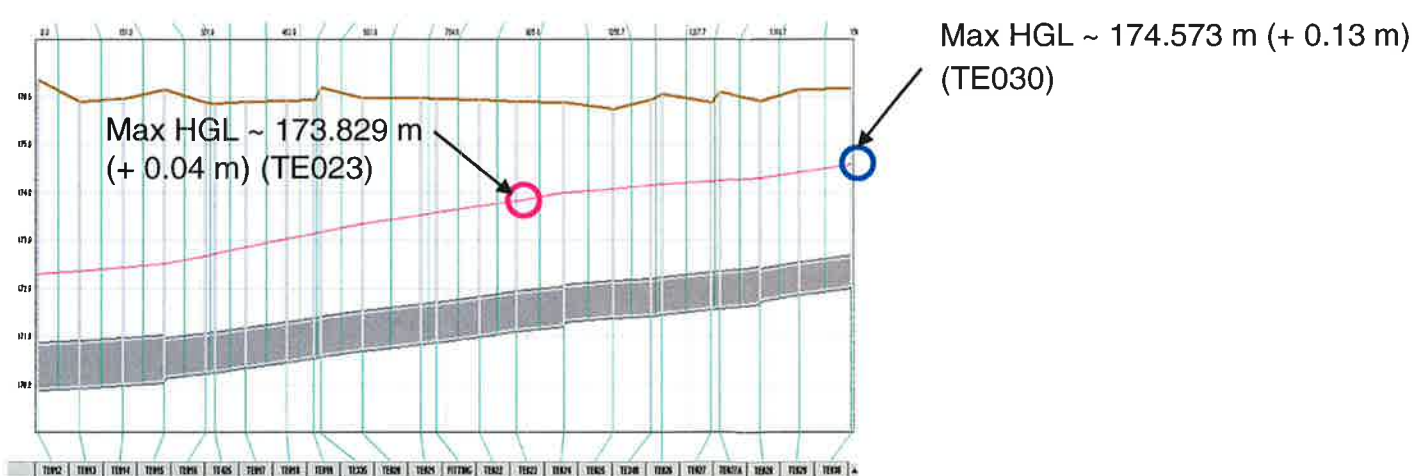
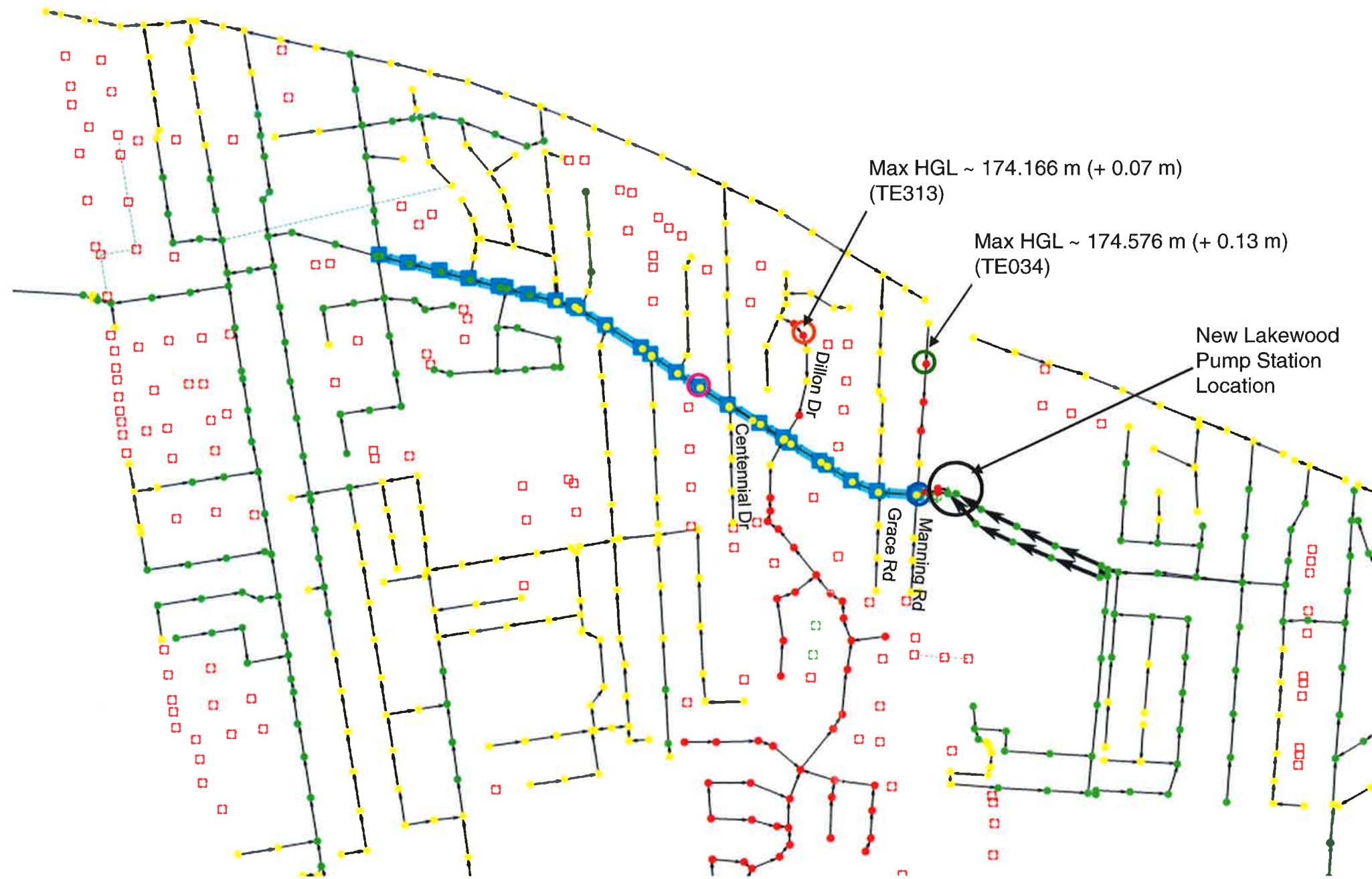
**LAKWOOD PUMP STATION
DISCHARGE SCENARIOS**

Existing Conditions: Old Lakewood PS Location



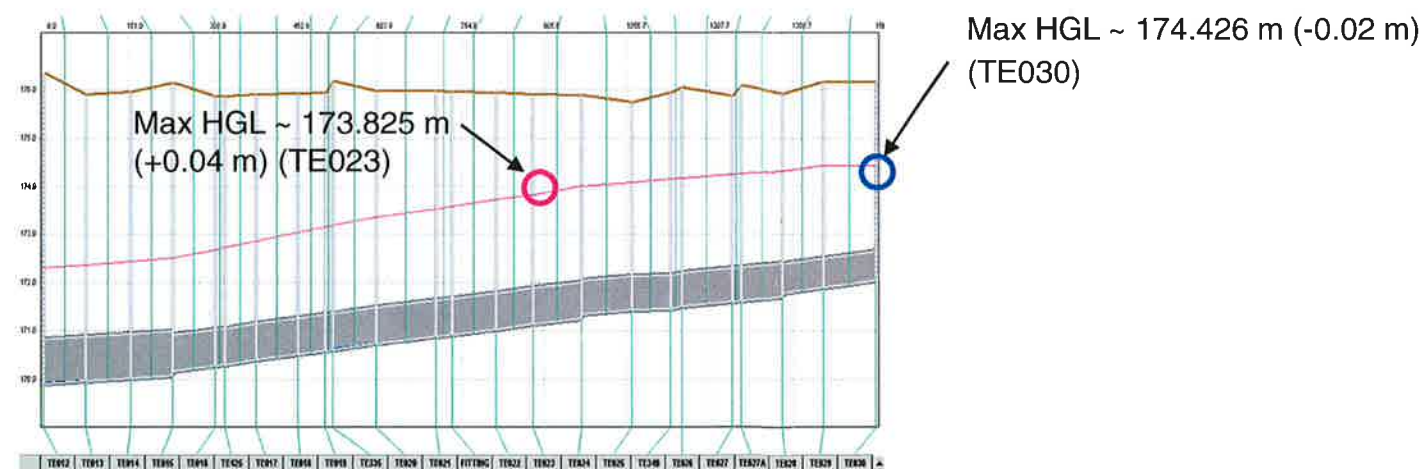
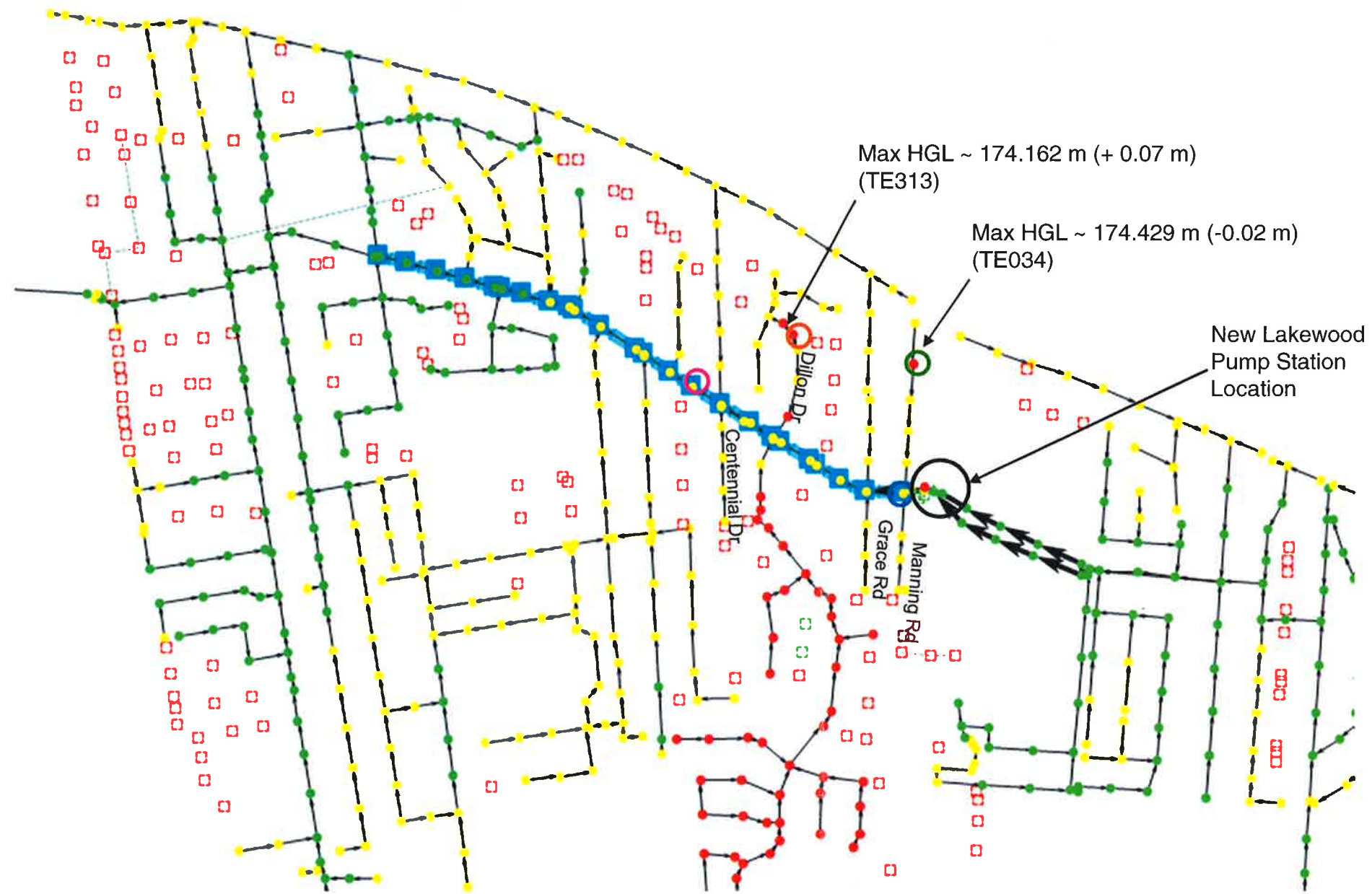
Scenario D0: Discharge at Manning Road (no forcemain)

Note: The change in HGL is relative to "Existing Conditions"



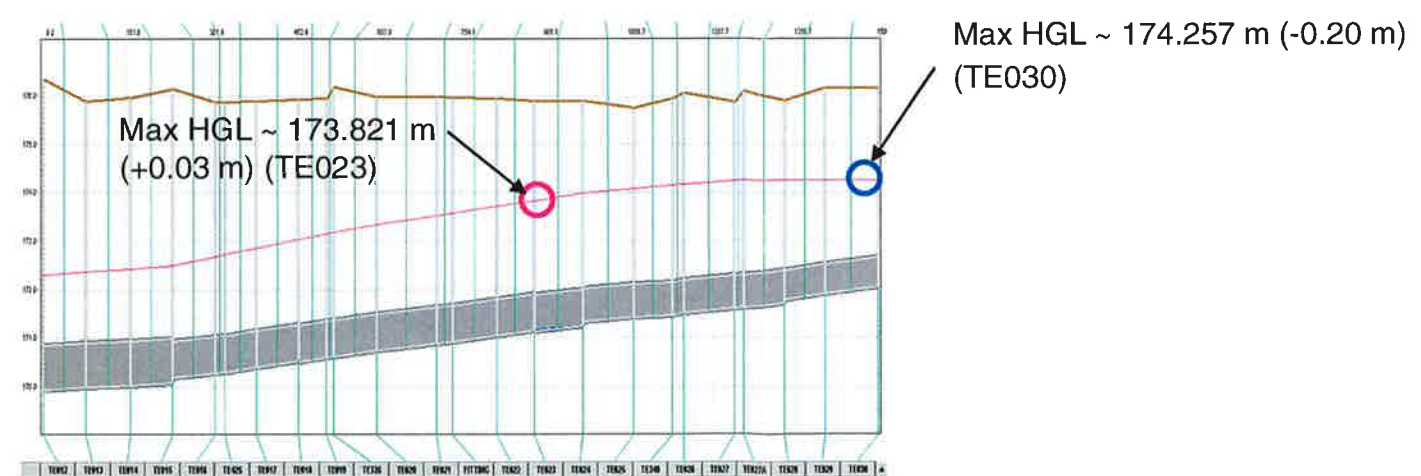
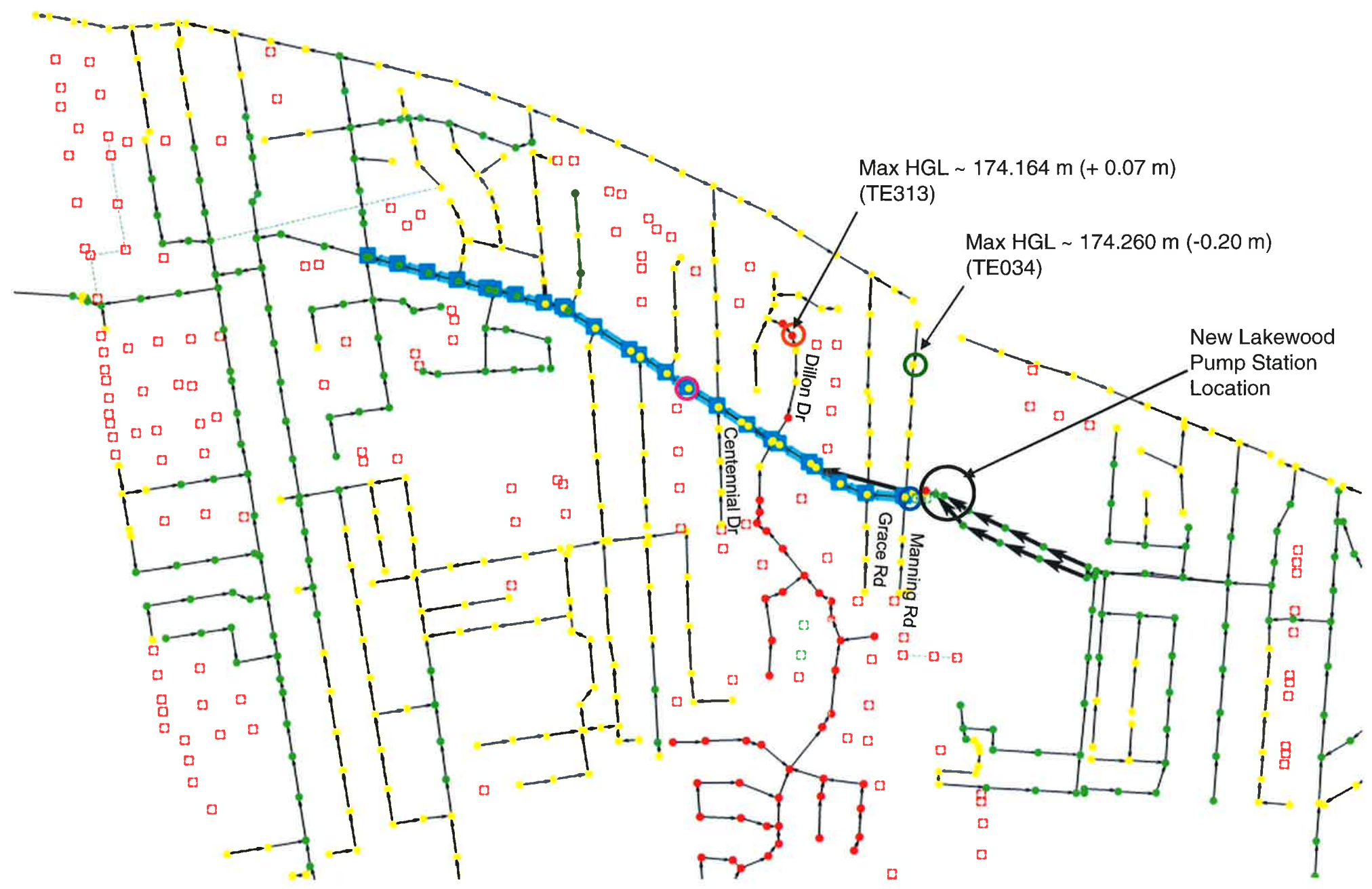
Scenario D1: Discharge 130 m downstream of New PS Location

Note: The change in HGL is relative to "Existing Conditions"



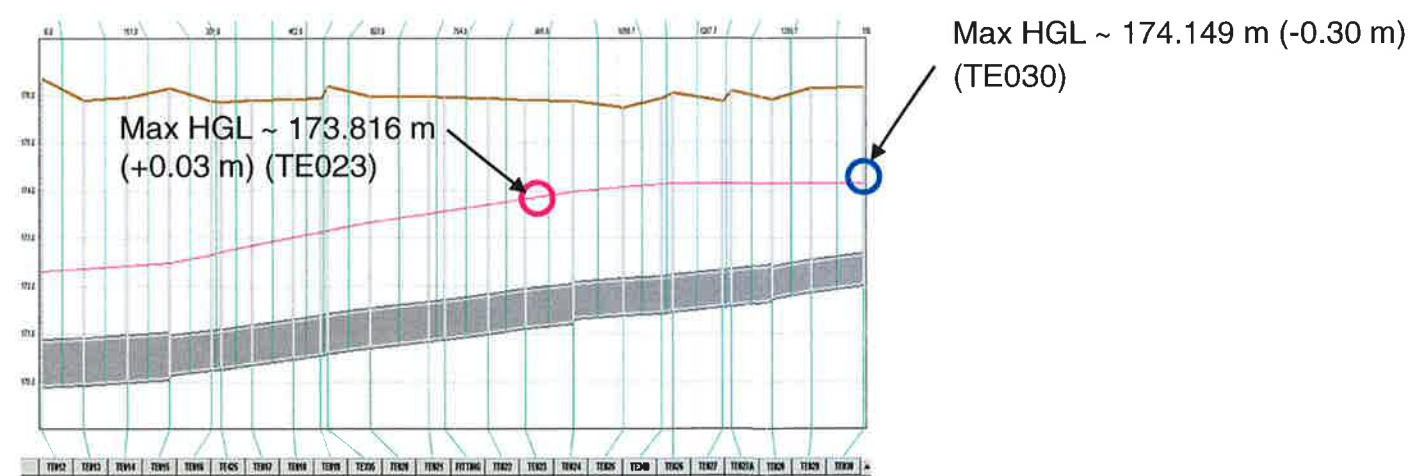
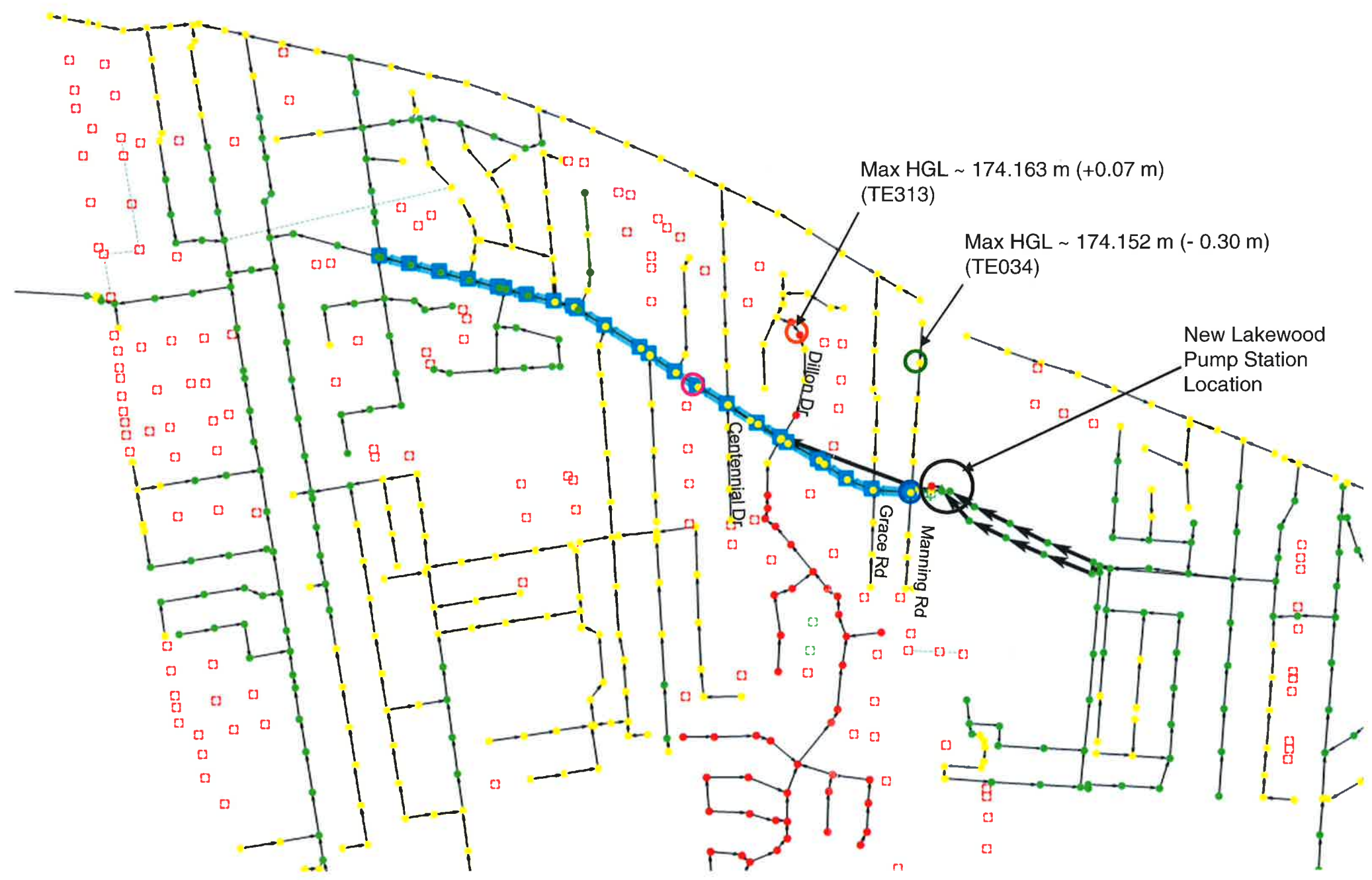
Scenario D2: Discharge 280 m downstream of New PS Location

Note: The change in HGL is relative to "Existing Conditions"



Scenario D3: Discharge 410 m downstream of New Lakewood PS

Note: The change in HGL is relative to "Existing Conditions"



Scenario D4: Discharge 660 m downstream of New Lakewood PS

Note: The change in HGL is relative to "Existing Conditions"

