TOWN OF ST. MARYS

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR WATER SYSTEM UPGRADES

SCREENING REPORT

BMROSS
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TOWN OF ST. MARYS

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR WATER SYSTEM UPGRADES

SCREENING REPORT

July 12, 2016

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File No. 13014

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendices

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SCREENING REPORT

1.0 INTRODUCTION

1.1 Purpose of the Report

The Town of St. Marys initiated a Class Environmental Assessment in January 2013 to determine if there was a requirement for any upgrades/additions to the existing municipal water system. The study process followed the procedures set out in the Municipal Class Environmental Assessment document, dated October 2000, as amended in 2007 and 2011 (Ref. 1). B.M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the Town of St. Marys.

The purpose of this report is to document the Class EA planning and design process followed for this project. This report includes the following major components:

- An overview of the general project area;
- A summary of the infrastructure deficiencies associated with the project area;
- A description of the alternative solutions considered to resolve the identified problems;
- A synopsis of the decision-making process conducted to select a preferred alternative; and
- A detailed description of the preferred alternative.

1.2 Environmental Assessment Process

Municipalities must adhere to the *Environmental Assessment Act of Ontario* (EA Act) when completing road, sewer or waterworks activities. The Act allows the use of Class Environmental Assessments for most municipal projects. A Class EA is an approved planning document which describes the process that proponents must follow in order to meet the requirements of the EA Act. The Class EA approach allows for the evaluation of alternatives to a project, alternative methods of carrying out a project, and identifies potential environmental impacts. The process involves mandatory requirements for public input.

Class EA studies are a method of dealing with projects which have the following important characteristics in common:

- They are recurring.
- They are usually similar in nature.
- They are usually limited in scale.
- They have a predictable range of environmental effects.
- They are responsive to mitigating measures.

If the Class EA planning process is followed, a proponent does not have to apply for formal approval under the EA Act. The development of this investigation has followed procedures set out in the EA Act. Figure 1.1 presents a graphical outline of the procedures.

The Class EA planning process is divided into the following phases:

- Phase 1 – Problem identification.
- Phase 2 – Evaluation of alternative solutions to the defined problem(s) and selection of a preferred solution.
- Phase 3 – Identification and evaluation of alternative design concepts in the selection of a preferred design concept.
- Phase 4 – Preparation and submission of an Environmental Screening Report (ESR) for public and government agency review.
- Phase 5 – Implementation of the preferred alternative and monitoring of any impacts.

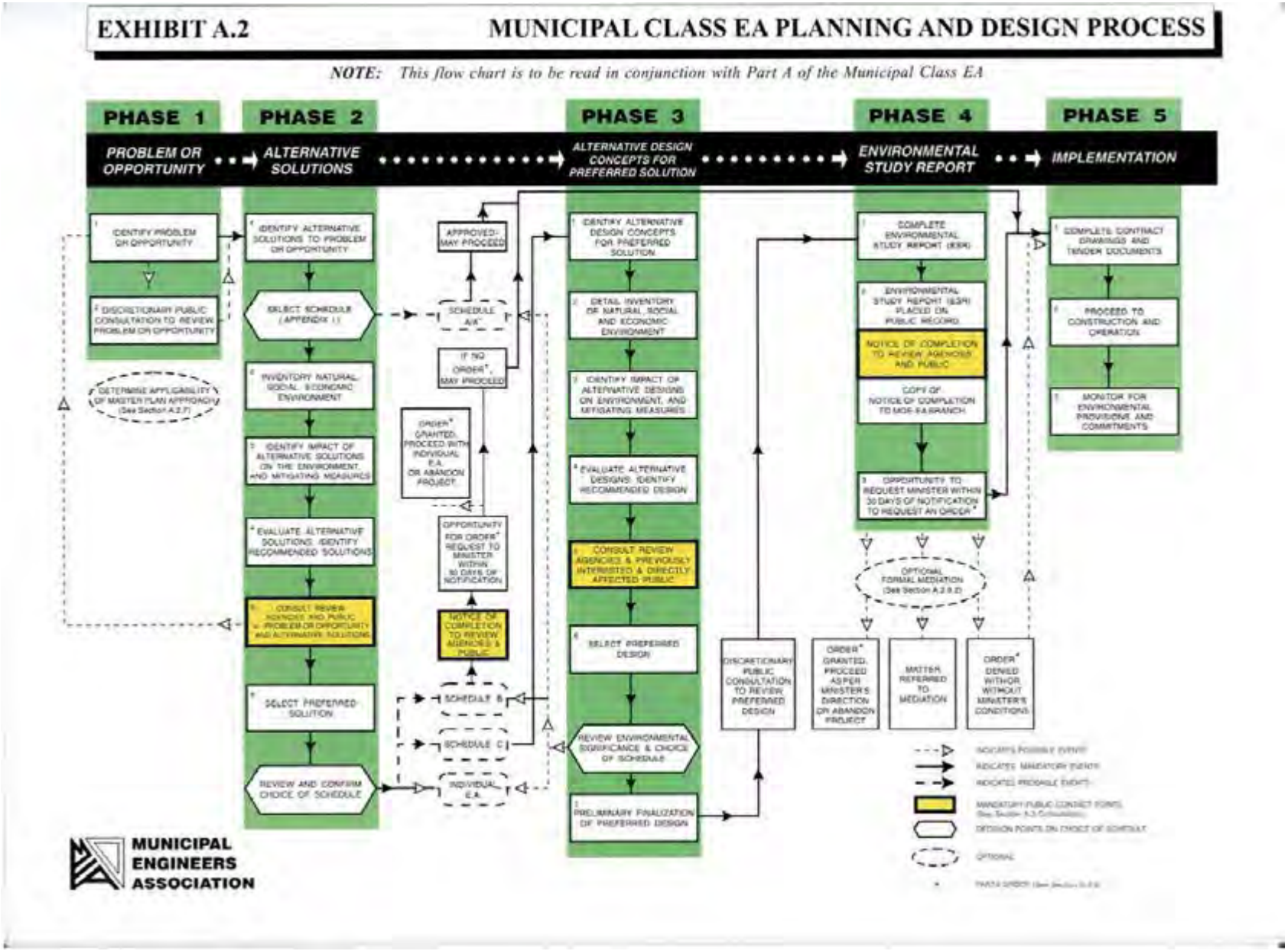
Throughout the Class EA process, proponents are responsible for the following key principles of environmental planning:

- Consultation with affected parties throughout the process.
- Examination of a reasonable range of alternatives.
- Consideration of effects on all aspects of the environment.
- Application of a systematic methodology for evaluating alternatives.
- Clear documentation of the process to permit traceability of decision-making.

1.3 Project Management

The Town of St. Marys is considered the project proponent under the terms of the Class EA document. The Town engaged BMROSS to carry out the Class EA study process on their behalf.

FIGURE 1.1 Municipal Class Environmental Assessment Process



1.4 Classification of Project Schedules

Projects are classified to different project schedules according to the potential complexity and the degree of environmental impacts that could be associated with the project. There are four schedules:

- Schedule A – Projects that are approved with no need to follow the Class EA process.
- Schedule A+ – Projects that are pre-approved but require some form of public consultation.
- Schedule B – Projects that are approved following the completion of a screening process that incorporates, as a minimum, Phases 1 and 2 of the Class EA process.
- Schedule C – Projects that are approved following the completion of the full Class EA process.

The Class EA process is self-regulating and municipalities are expected to identify the appropriate level of environmental assessment based upon the project they are considering.

1.5 Environmental Screening Report

An Environmental Screening Report (ESR) provides documentation of the decision-making process followed by the proponent of a project. Included in an ESR is a description of the problem or opportunity; pertinent background information; the rationale for the selection of the preferred solution; descriptions of the environmental considerations and impacts; any mitigating measures that will be undertaken to minimize environmental effects, a description of the consultation process; and a description of any monitoring programs to be carried out during the construction phase. Upon completion, the ESR is made available to the public and review agencies for a period of 30 calendar days.

1.6 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the Class EA, the requirement to prepare an individual environmental assessment for approval is waived. However, if it is found that a project going through the Class EA process results in significant environmental impacts, a person/party may request that the Town of St. Marys voluntarily elevate the project to a higher level of environmental assessment. If the Town declines, or if it is believed that the concerns are not properly dealt with, any individual or organization has the right to request that the Minister of the Environment and Climate Change make an order that the project comply with Part II of the Environmental Assessment Act which addresses individual environmental assessments. This request must be submitted to the Minister within 30 days of the publication of the Notice of Completion of the Class EA process.

1.7 Report Organization

This report is organized into 9 sections that follow the progression of the Class EA process. Background information on the natural environment, demographics and existing servicing within St. Marys are summarized in Section 2. The next two sections outline the Class EA framework, as well as define the problem and alternative solutions considered. Following that, the alternative solutions are evaluated and a preferred solution is identified. Details of the public consultation undertaken as part of this study are described in Section 5. Section 6 describes potential impacts and mitigation measures to minimize impacts. Lastly, Sections 7 to 9 contain the conclusions, recommendations and summary for the study and outline any necessary further approvals. References cited in this report are included in Section 10.

2.0 BACKGROUND REVIEW

2.1 Class EA Approach

The Town initiated a formal Class EA process in January 2013 to determine if there was a requirement for any upgrades/additions to the existing municipal water system. The associated investigations followed the environmental screening process prescribed for Schedule B projects under the Class EA document. In general, the screening process required to conduct a Class EA incorporates these primary components:

- Background Review and Problem Definition
- Identification of Practical Solutions
- Evaluation of Alternatives
- Project Recommendations and Implementation

The following sections of this report document the findings for each stage of the Class EA. Figure 2.1 illustrates the general tasks associated with the Schedule B screening process.

2.2 Background Review

A background review was carried out to characterize the project study area and to identify those factors that could influence the selection of alternative solutions to the defined problems. The background review for this Class EA process incorporated these activities:

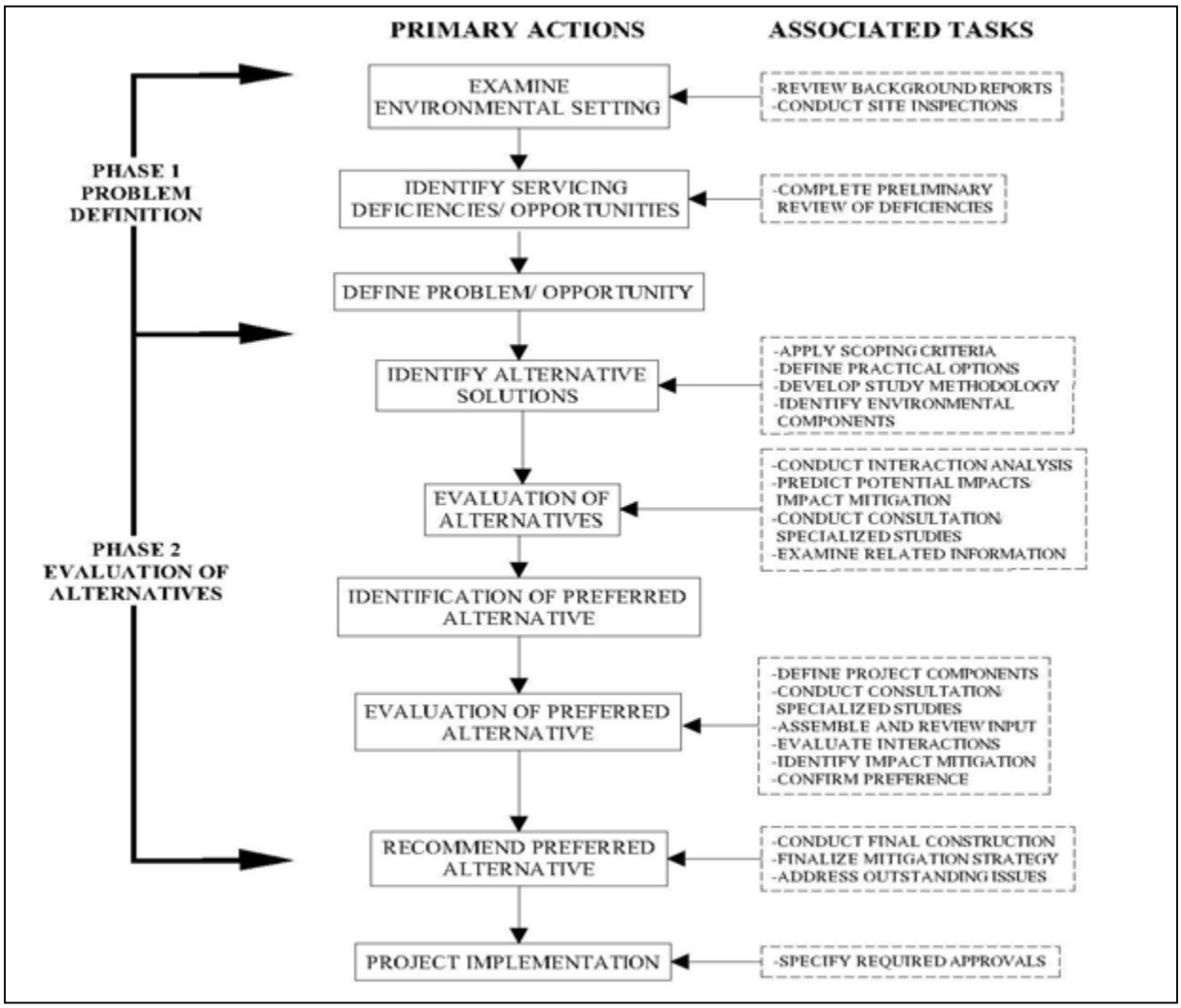
- A general description of the study area and the Town of St. Marys.
- Assembly of information on the environmental setting and the existing infrastructure.
- Review of previous studies and reports pertaining to the project study area.

A desktop analysis of the project setting was completed as part of the background review. The following represent the key sources of information for this analysis:

- B.M. Ross and Associates' files and related studies.
- Town of St. Marys files and discussions with staff
- Ministry of Natural Resources. Natural Heritage Information Centre (website)

- Environment Canada. Species at Risk Public Registry
- Upper Thames River Conservation Authority (website)
- Thames-Sydenham and Region Drinking Water Source Protection (website)

Figure 2.1
Class EA Schedule B Screening Process and Related Tasks



2.3 Description of General Study Area

2.3.1 Town of St. Marys

The Town of St. Marys was founded in 1839. The first street was formed in 1841 and in 1858 the first Town Plan for St. Marys was prepared. The Town limits were made official in 1854 when the municipality was incorporated.

Although independent from the Township of Perth South, the Town of St. Marys is geographically located within the limits of the Township and within the County of Perth. The Town of St. Marys has a population of more than 6,600 persons and a land base of approximately 1,250 ha (Ref. 2).

The community is located around the main intersection of Queen Street E/W and James Street S/N (refer to Figure 2.2). The Town is located north of Highway 7 and is situated around the junction of Trout Creek and the Thames River. It is located approximately 30 km north of London and 18 km southeast of Stratford.

2.4 Natural Heritage Features

2.4.1 General Physiography

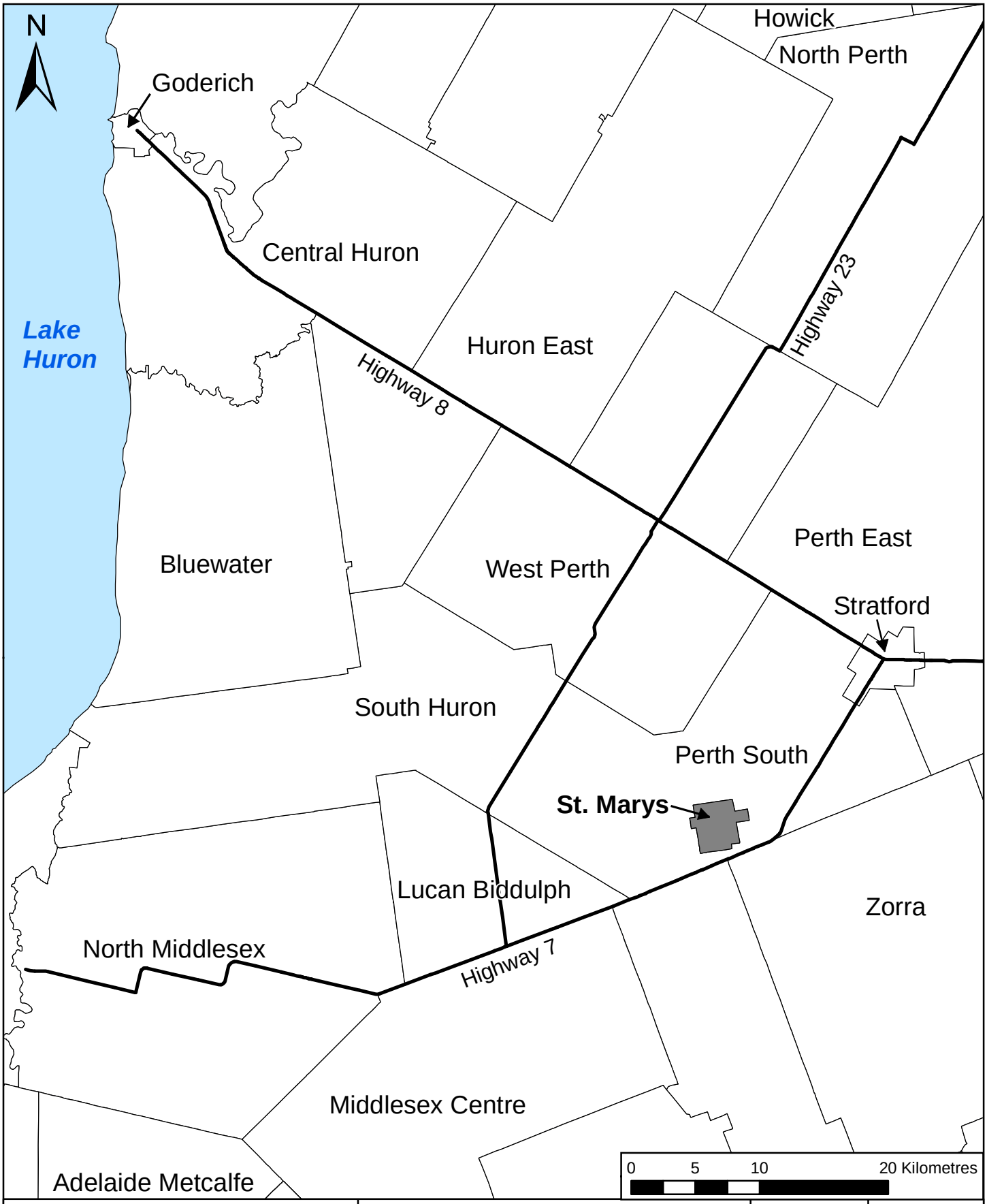
St. Marys is situated within the Stratford Till Plain geologic formation, which incorporates a land base of approximately 3,550 km^2 extending across the Counties of Middlesex, Huron, Perth and Wellington (Ref. 3). The till plain is characterized as an area of ground moraines interrupted by several terminal moraines. The till in the Stratford Till Plain formation is predominately a brown calcareous silty clay (being derived from the Huron Ice Lobe). Sand or gravel is often present in the intermorainal valleys south of St. Marys.

Topographic relief in Perth County is relatively minimal, with the exception of moraine ridges which extend across various parts of the region. Prominent topographic features in the County are largely the result of glacial deposition (moraines, eskers) and erosion (river valleys) during the Quaternary Period. One landform feature in the St. Marys area is a fragmented moraine of intermingled kames and till, travelling along the Trout Creek basin. The dominant landform feature is the North Thames River with a gradient of approximately 1.9 m of fall per kilometre. It is joined by Trout Creek in St. Marys. Trout Creek follows a wide valley originally carved by a glacial stream.

Soils in the vicinity of St. Marys are classified as Perth clay loam; a series of the Grey-Brown Podzolic soil group. These till loams are typically comprised of 15 cm of dark grey/brown clay or silt loam, mottled most intensely above the parent material. Natural drainage within the Perth clay loam series is poor to imperfect. The overall slope of the land in the Perth South area is to the southwest.

2.4.2 Natural Heritage Features: Areas of Natural and Scientific Interest (ANSI)

A review of the Ministry of Natural Resources and Forestry inventory of natural heritage sites indicates that there is one sensitive natural area, the St. Marys Cement Company South Quarry ANSI, located just outside the boundary of the Town of St. Marys. This ANSI area is located within the property limits of St. Marys Cement, on the north bank of the Thames River at the western edge of the Town boundary (see Figure 2.3). The ANSI is classified as an earth science ANSI, which means that it is geological in nature, containing significant examples of bedrock, fossils, landforms or ongoing geological processes.



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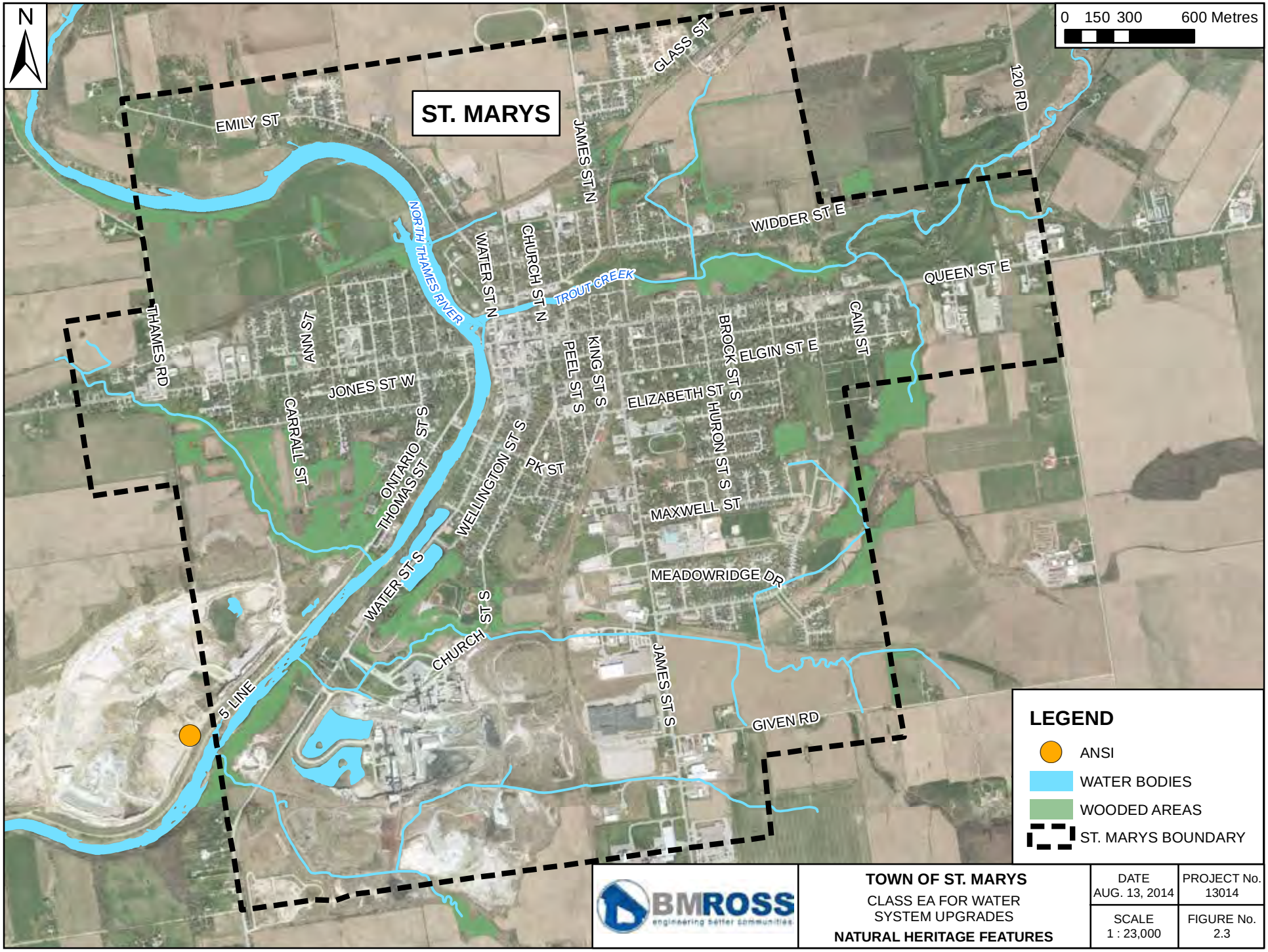
TOWN OF ST. MARYS

CLASS EA FOR WATER SYSTEM UPGRADES

LOCATION PLAN

DATE	PROJECT No.
AUG. 13, 2014	13014
SCALE	FIGURE No.
1 : 400,000	2.2


N
0 150 300 600 Metres
ST. MARYS
EMILY ST
GLASS ST
120 RD
JAMES ST N
WIDDER ST E
NORTH THAMES RIVER
WATER ST N
CHURCH ST N
TROUT CREEK
QUEEN ST E
THAMES RD
ANN ST
JONES ST W
CARRALL ST
ONTARIO ST S
THOMAS ST
WELLINGTON ST S
PK ST
PEEL ST S
KING ST S
BROCK ST S
ELGIN ST E
CAIN ST
ELIZABETH ST
HURON ST S
MAXWELL ST
MEADOWRIDGE DR
WATER ST S
CHURCH ST S
JAMES ST S
GIVEN RD
5 LINE
LEGEND
ANSI
WATER BODIES
WOODED AREAS
ST. MARYS BOUNDARY
BMROSS
engineering better communities
TOWN OF ST. MARYS
CLASS EA FOR WATER SYSTEM UPGRADES
NATURAL HERITAGE FEATURES
DATE AUG. 13, 2014
PROJECT No. 13014
SCALE 1 : 23,000
FIGURE No. 2.3

In addition to the ANSI, the North Thames River and Trout Creek corridors represent the most prominent natural heritage features within the community. These corridors, which generally bisect the community in a north-south and east-west direction respectively, incorporate riparian zones comprised of various grasses, shrubs and mixed forest vegetation. It is noted that the Thames River was designated a Canadian Heritage River in 2000. Figure 2.3 illustrates the extent of natural heritage features in the vicinity of the project study area.

2.4.3 Species at Risk

The Ontario Ministry of Natural Resources and Forestry Natural Heritage Information Centre (NHIC) mapping tool was consulted to verify the current status of threatened, special concern or endangered species in the project area. The search incorporated a review of species of conservation interest within the Town limits of St. Marys. The search area incorporated a large land base, including both terrestrial and aquatic habitat. The 1 km^2 squares included in the search are: 17MH8790, 17MH8890, 17MH8990, 17MH8789, 17MH8889, 17MH8989, 17MH8788, 17MH8888, and 17MH8988. It is noted that the majority of land within St. Marys is utilized for urban purposes. The species identified from the search are summarized in Table 2.1 below.

Table 2.1
Species at Risk with Potential Habitat in St. Marys
(Provincial Ranks – 'S Ranks')

Taxonomic Group	Common Name	S-Rank
Mammals	-	-
Herpetiles	Spiny Softshell Northern Map Turtle	S3 S3
Birds	Chimney Swift Eastern Meadowlark	S4B/S4N S4B
Insects	-	-
Fishes	-	-
Molluscs	-	-
Plants	Shining-branch Hawthorn Harbinger of Spring Scarlett Beebalm	S3 S3 S3

Notes:
S1: A species that is critically imperiled
S2: A species that is imperiled due to very restricted range, very few populations and steep declines, or other factors
S3: A species that is vulnerable due to restricted range, relatively few populations, recent and widespread declines or other factors
S4: A species that is apparently secure, uncommon but not rare with some cause for long-term concern
S5: A species that is secure, widespread and abundant
B: Conservation status refers to breeding population
N: Conservation status refers to non-breeding population

A search of the Environment Canada Species at Risk website identified the following Schedule 1 Species that have population distributions that include the Perth County/St. Marys area (Table 2.2). It is noted that the information in this table is based on general distribution maps for species at risk.

Table 2.2
Species at Risk with Potential Habitat in St. Marys
(National Ranks – Schedule 1 Species)

Taxonomic Group	Status		
	Endangered	**Threatened**	**Special Concern**
Mammal	Tri-coloured Bat Little Brown Myotis Northern Myotis		
Birds	Northern Bobwhite Yellow Breasted Chat	Least Bittern Eastern Meadowlark Common Nighthawk Bank Swallow Chimney Swift Wood Thrush Canada Warbler Eastern Whip-poor-will	Short Eared Owl Grasshopper Sparrow Louisiana Water Thrush
Reptile	Queensnake	Eastern Hog-nosed Snake Spiny Softshell	Eastern Milksnake Northern Map Turtle Snapping Turtle
Amphibians		Western Chorus Frog	
Arthropods	Gypsy Cuckoo Bumble Bee Rusty-Patched Bumble Bee		Monarch
Plants	Butternut American Ginseng	Willowleaf Aster	Green Dragon
Fishes	Redside Dace	Eastern Sand Darter Pugnose Minnow Silver Shiner	Northern Brook Lamprey Silver Lamprey River Redhorse Spotted Sucker
Molluscs	Fawnsfoot Rayed Bean Round Pietoe Rainbow	Mapleleaf Threehorn Wartyback	Wavy-rayed Lampmussel

2.4.4 Breeding Bird Habitat

From the most recent Ontario Breeding Bird Atlas (2001-2005) the study area is within the geographic survey area entitled 17MH88, in the Perth Region. A total of 42 birds, including species such as the Canada Goose, Mallard, Blue Jay, American Robin and Baltimore Oriole, have confirmed breeding status in the survey region. An additional 28 species were categorized as having probable breeding status and 15 are considered to have possible breeding status in the area.

The survey area is 100 km^2 and includes key habitat for the identified species, such as forests (in all stages of growth), riverine areas and wetlands. The project area forms a relatively small portion of this region and habitat opportunities are further limited since the subject lands are within an urban area.

2.5 Local Heritage

St. Marys was established by the Canada Company in 1839 as a centre to serve the surrounding agricultural area (Ref. 4). In 1859 a railway was established through St. Marys and with this, growth of the import/export business promoted growth of the community as a whole. St. Marys, known as the Stone Town, is located on a large limestone outcrop. The Town is known for its numerous historic limestone buildings dating from the late ninetieth and early twentieth centuries. The use of local limestone to construct residential, commercial and institutional buildings is a defining feature of the Town, especially in the downtown core. St. Marys also has heritage and cultural features related to the railroad. The most prominent railroad features are the two large trestle bridges and the railway stations.

The Town completed a Heritage Conservation District Plan in 2012, which examined the physical, architectural and the cultural character of the Town. The study also established a Heritage Conservation District within the Town, which encompasses the downtown core between the Thames River and Trout Creek from Elgin Street East to Peel Street South. The intent of the Heritage Conservation District is to protect and preserve heritage assets and character within that area.

The Town of St. Marys has established a heritage committee that advises Council on heritage matters. Additionally, heritage conservation policies and cultural heritage sites are identified within the Town's Official Plan.

2.6 Historical Growth and Development

2.6.1 Existing Development Pattern

Development in St. Marys began near the centre of town and moved outwards. Generally, residential development in the community now consists of single detached dwellings focused around the centre of town, which has now become the commercial core. According to the 2011 Development Charges Background Study (Ref. 5), it is anticipated that the Town of St. Marys will gradually move towards a housing mix of 75% low density (single family and semi-detached), 15% medium density (multiples except apartments) and 10% high density (apartments).

Commercial development in St. Marys has generally occurred within or in close proximity to the centre of the community, known as the Heritage Conservation District. The majority of commercial land uses are found on Queen Street, generally between Peel and Water Street and on Water Street between Queen and Elgin Street, or adjacent to these roads. The majority of industrial development has occurred further to the south (i.e. south of Elizabeth Street on both sides of James Street South).

2.6.2 Recent Development Activity

St. Marys has experienced steady residential and non-residential growth in recent years. Data from the 2011 Development Charges Background Study shows that between 2001 and 2010 an average of 44 new residential units in St. Marys were constructed each year (Ref. 5). This equates to a 1.7% annual increase in households. Historically, single detached units have been the dominant type of residential development, followed by apartment buildings (high density). In recent years, there has been very few townhouses/semi-detached units constructed (medium density). Residential development in St. Marys occurs primarily on lots created by Plans of Subdivision. As of August 2014, there were 94 units approved through registered Plans of Subdivisions, 91 units shown in proposed draft Plans of Subdivision and 30 units shown in proposed Site Plans, totaling 215 units (development commitments).

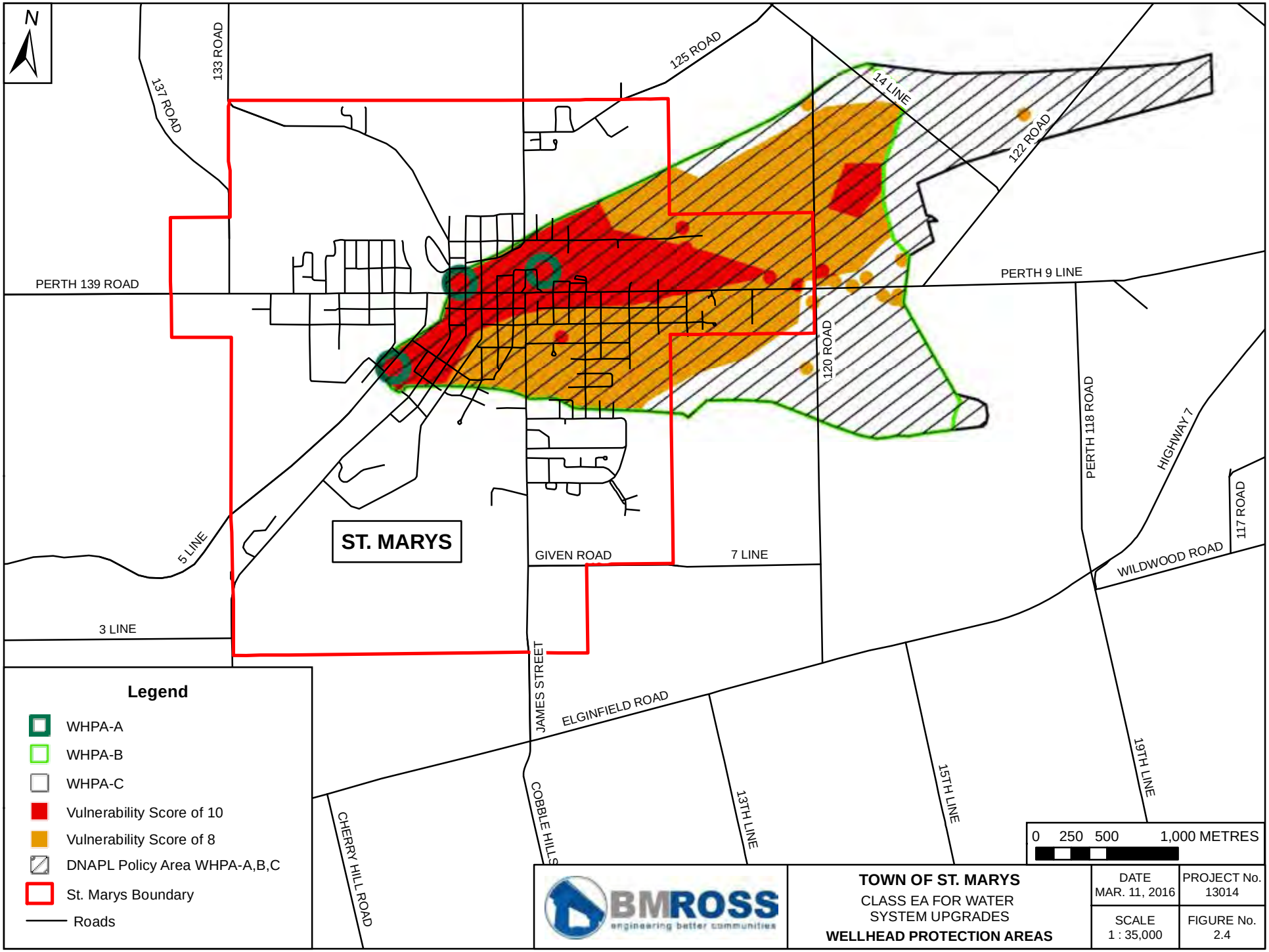
Non-residential development in St. Marys has also increased over the past 10 years. The Development Charges Background Study (Ref. 5) estimates that the 10-year average non-residential growth will be approximately 1,800 m^2 per year. Furthermore, it estimates that approximately 58% of this growth will occur over the industrial sector, 25% over the commercial sector and 17% over the institutional sector.

2.7 Source Water Protection

St. Marys is located within the Thames-Sydenham Source Protection Region. Specifically, it is located within the Upper Thames Watershed and as such, is included in the Upper Thames River Source Protection Area Assessment Report (Approved September 16, 2015). The Assessment Report provides an overview of water quality and quantity analyses for the St. Marys Water System, as well as source water protection interests such as Significant Groundwater Recharge Areas and Wellhead Protection Area (WHPA) A to D.

In the Assessment Report, the St. Marys Water System is described as Groundwater Under Direct Influence of Surface Water (GUDI) (Ref. 6). Given this, WHPA E for the two GUDI wells (Wells 1 and 3) were also delineated for the Assessment Report. The Assessment Report notes that the interaction of surface water and groundwater in Well 1 has been extensively investigated in the past and that the cause of the interaction or location of the water interaction could not be determined. However, from the data available, a reach along Trout Creek was identified to likely contribute surface water to groundwater near Well 1. The WHPA A to E and vulnerable areas surrounding the St. Marys wells are shown in Figures 2.4 and 2.5.

Transport pathways in WHPA A to D for the St. Marys wells were also examined for the Assessment Report. It was identified that there are a number of wells, including a monitoring well near Well 1 and numerous private wells within the WHPA that should be considered transport pathways. The presence of these transport pathways is reflected in increased vulnerability scores for the WHPAs. For St. Marys, the vulnerability scores can be summarized as having areas of high, medium and low vulnerability in WHPA A, B and D, and areas of medium and low vulnerability in WHPA C. The vulnerability of WHPA E area is medium.


N
133 ROAD
137 ROAD
125 ROAD
14 LINE
122 ROAD
PERTH 139 ROAD
PERTH 9 LINE
120 ROAD
PERTH 118 ROAD
HIGHWAY 7
117 ROAD
ST. MARYS
GIVEN ROAD
7 LINE
WILDWOOD ROAD
5 LINE
3 LINE
JAMES STREET
ELGINFIELD ROAD
COBBLE HILL ST
13TH LINE
15TH LINE
19TH LINE
CHERRY HILL ROAD
Legend
WHPA-A
WHPA-B
WHPA-C
Vulnerability Score of 10
Vulnerability Score of 8
DNAPL Policy Area WHPA-A,B,C
St. Marys Boundary
Roads
0 250 500 1,000 METRES
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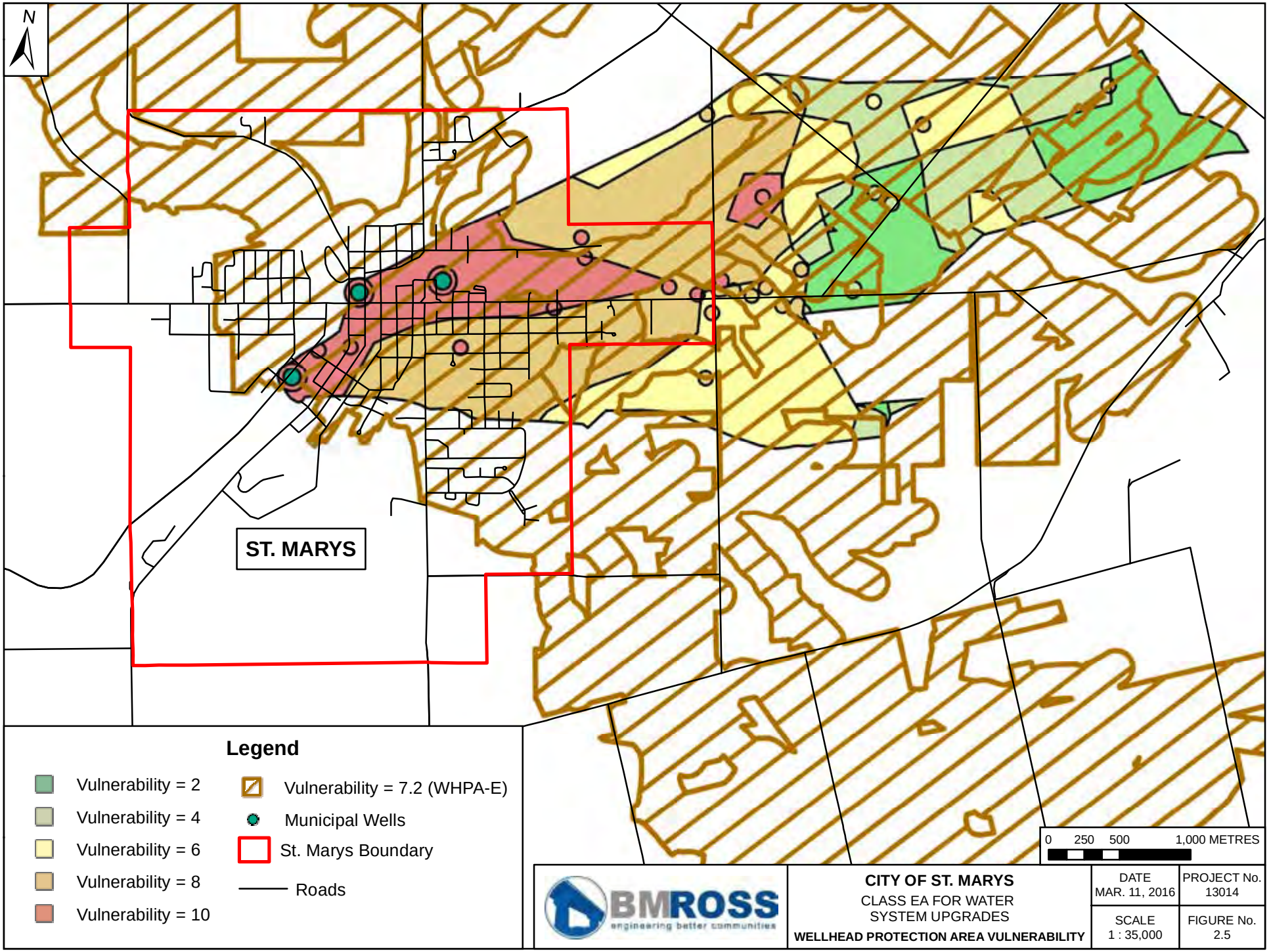
TOWN OF ST. MARYS
CLASS EA FOR WATER SYSTEM UPGRADES
WELLHEAD PROTECTION AREAS
DATE MAR. 11, 2016
PROJECT No. 13014
SCALE 1 : 35,000
FIGURE No. 2.4



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CITY OF ST. MARYS
CLASS EA FOR WATER SYSTEM UPGRADES
WELLHEAD PROTECTION AREA VULNERABILITY

DATE	PROJECT No.
MAR. 11, 2016	13014
SCALE	FIGURE No.
1 : 35,000	2.5

There were no drinking water quality issues identified for St. Marys. With respect to water quantity, a Tier II Water Quality Stress Analysis identified the Trout Creek/North Thames River watershed as having moderate potential for groundwater stress and as a result a Tier III study was completed. The Tier III study did not identify any threats to water quantity. The Assessment Report noted 52 locations with significant threats identified within WHPA A and B of the St. Marys wells.

The Source Protection Plan for the Thames-Syndenham Source Protection Region was approved on September 17, 2015 and came into force on December 31, 2015. The Plan contains policies related to existing and future threats to drinking water sources.

2.8 Growth Projection

2.8.1 Purpose of the Forecast

Upgrades to the St. Marys Water System will be designed to serve the existing population of the Town of St. Marys as well as future development. To ensure the system is able to provide the required water supply, future designs must consider development through use of a growth forecast. The growth forecast will examine past trends in population, residential and non-residential development and household size to provide an estimate of future development over a 50-year planning period.

2.8.2 St. Marys Population Forecast

The population forecasts used for the purposes of this study were based on population data for St. Marys from 1976 to 2011 collected by Statistics Canada through censuses (Ref. 7). Based on that resource the population in 2011 for St. Marys was 6,655. For the purposes of this study, this is considered to be the existing population. Three residential growth scenarios, representing low, medium and high growth, were developed from the census data. These scenarios provide options with regard to the water supply needed by the community.

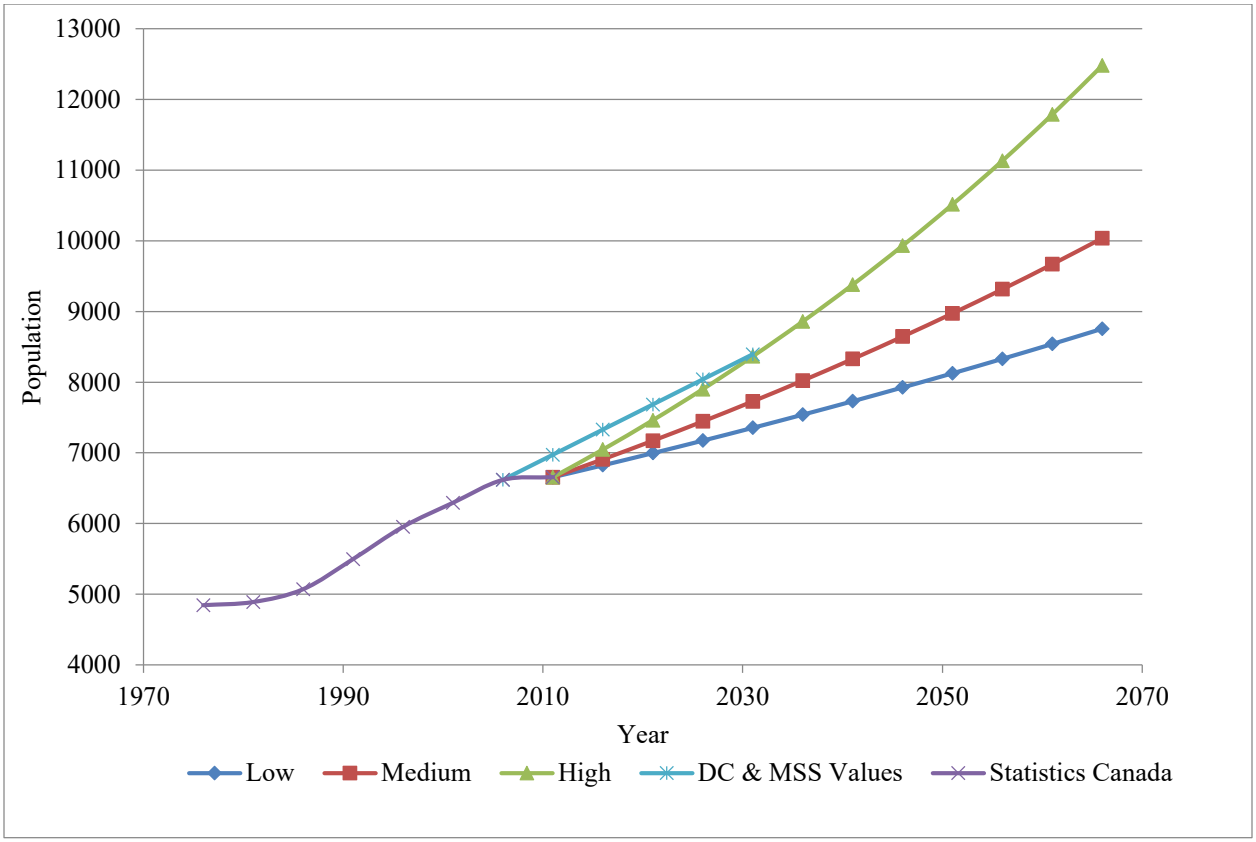
From 1976 to 2011 (35 year period), the population of St. Marys increased by 1,812 persons, which equates to an average annual growth rate of 0.91%. By comparison, from 1986 to 2011 (25 year period) the population increased by 1,586 persons or 1.09%, from 1996 to 2011 (15 year period) the population increased by 703 persons or 0.75% and from 2001 to 2011 (10 year period) the population increased by 362 persons or 0.56%.

The low growth scenario assumes that future growth will continue at the same rate that has been evident over the past 10 years. The medium growth scenario assumes a relatively moderate rate that is higher than what has occurred over the last 10 years but lower than the maximum sustained rate over the last 35 years. The high growth scenario assumes a sustained period of significant growth and development within the community, slightly exceeding the highest sustained growth rate evidenced during the past 35 years.

Based on the above, population growth forecast values were generated for: a low scenario of 0.50%, a medium scenario of 0.75%, and a high scenario of 1.15%. Using these values generates a 2066 projected population of: 8,756 persons (low scenario), 10,038 persons (medium scenario) and 12,482 (high scenario).

Figure 2.6 displays the three population growth forecasts. For comparison purposes, Figure 2.6 also shows the growth projections used in both the Master Servicing Study (Ref. 8) and the Development Charges Background Study (Ref. 5). It can be seen that they correspond to the high growth projection.

Figure 2.6
Growth Scenarios for St. Marys



Note: DC=Development Charge, MCC=Master Servicing Study Forecast

To ensure that all of these growth projections are possible, it is important to understand any limitations imposed by the extent of the existing urban boundary. There is approximately 1,290 ha of land identified within the Official Plan boundaries. Additionally, there is a preliminary servicing plan in place which proposes servicing an additional 90 ha of Perth South beyond the south limits of the Town of St. Marys. This land is proposed for industrial development and will be discussed in more detail in Section 2.10 of this Report.

The 1,290 ha of land currently includes approximately 320 ha of residential development. It also currently includes approximately 323 ha of agricultural land or open space. Assuming that all agricultural/open land is available for future residential development, the quantity of residential land could potentially double. In addition to this new residential land, there will be infill opportunities on undeveloped land within existing residential areas. In other words, using current Official Plan boundaries, it is possible that the existing population could potentially double based on available undeveloped land. Given that the high growth scenario projects a population (12,482 persons) less than two times the existing population (2 x 6,655 = 13,310); each of the three proposed growth scenarios could realistically occur without having to expand the current Official Plan boundaries.

2.8.3 Selection of a Population Growth Scenario

The three growth projection values were presented to Council in Technical Memorandum #2 (Ref. 9), dated August 18, 2014. It was Council's decision to proceed with the Class EA Study using the medium growth projection to project future needs.

2.9 Water Works Facilities

2.9.1 Existing Facilities

The water supply system for the Town of St. Marys currently consists of three wells, each with a vertical turbine well pump. All three (Well 1, 2A and 3) discharge to chlorine contact mains before entering the water distribution system. Each well site is equipped with a pumphouse which houses the disinfection system and various other appurtenances common to this type of operation. Each disinfection system consists of gas chlorination and ultraviolet disinfection. The permitted capacity of each well is as follows; Well 1 - 60 L/s, Well 2A - 60 L/s and Well 3 - 60 L/s.

Following the introduction of extensive new drinking water legislation in the early 2000's, BMROSS completed a Class EA focused on determining the best approach to upgrade the St. Marys water works system to ensure a safe and secure supply of water for the present and future. In addition to the Class EA activities, extensive hydrogeologic studies (Ref. 11 & 12) were undertaken to investigate the existing wells and to determine possible additional sources of water. As part of the Class EA completed in 2002, three potential well sites were investigated for the development of a fourth, high capacity municipal well. Well TW2/02 (herein referred to as Well 4) located on the west side of James Street, north of Glass Street, was determined to be a viable option based on reported water quality and quantity. Well 4 was found to have a capacity of 22.7 L/s. The original test well still remains on this site, but no further site development has occurred.

Storage for the system consists of an elevated storage tank located west of James Street South and south of Victoria Street. The elevated tank was constructed in 1987. It was designed with a top water level of 365.8 masl and a diameter of 17 m. The existing ground elevation at the site is approximately 326.5 masl. The design principle for an elevated tank is that the top portion of storage volume provides equalization flow to the system (maintaining the system at a minimum pressure of 275 kPa), the middle portion of stored water is designated for fire protection and the lowest portion of stored water is designated for emergency situations. Using the design low water level of 356.6 masl, the elevated tank has 1,820 m^3 of available storage.

Additionally, there is a booster pumping station located east of James Street South and north of Meadowridge Drive with a rated capacity of 154 L/s at 52 m TDH. This booster station was designed to boost flows to the industrial developments on James Street South, south of Meadowridge Drive during fire situations. The elevated tank, on its own, is not able to provide adequate fire flows to this industrial area.

Figure 2.7 is a general location plan of the Town of St. Marys, highlighting the four wells, the elevated tank and the booster pumping station.

2.9.2 System Capacity

The firm capacity of a water system is defined as the capacity with the largest pump or source out of service. In the case of St. Marys, all three well sources have an equal capacity, so the firm capacity would consider any one of those well supplies out of service.

The supply capacity of the remaining two wells is defined in the existing Permit to Take Water as 10,368 m^3/day (120 L/s).

2.9.3 Existing Flows

After analyzing flow data from 2011-2013, the average day flow (ADF) and maximum day flow (MDF) values for the entire system were determined to be 3,034 m^3/day and 4,910 m^3/day, respectively.

Based on the same time period, it was determined that the top 4 industrial customers account for an ADF of 849 m^3/day and an MDF of 1,455 m^3/day.

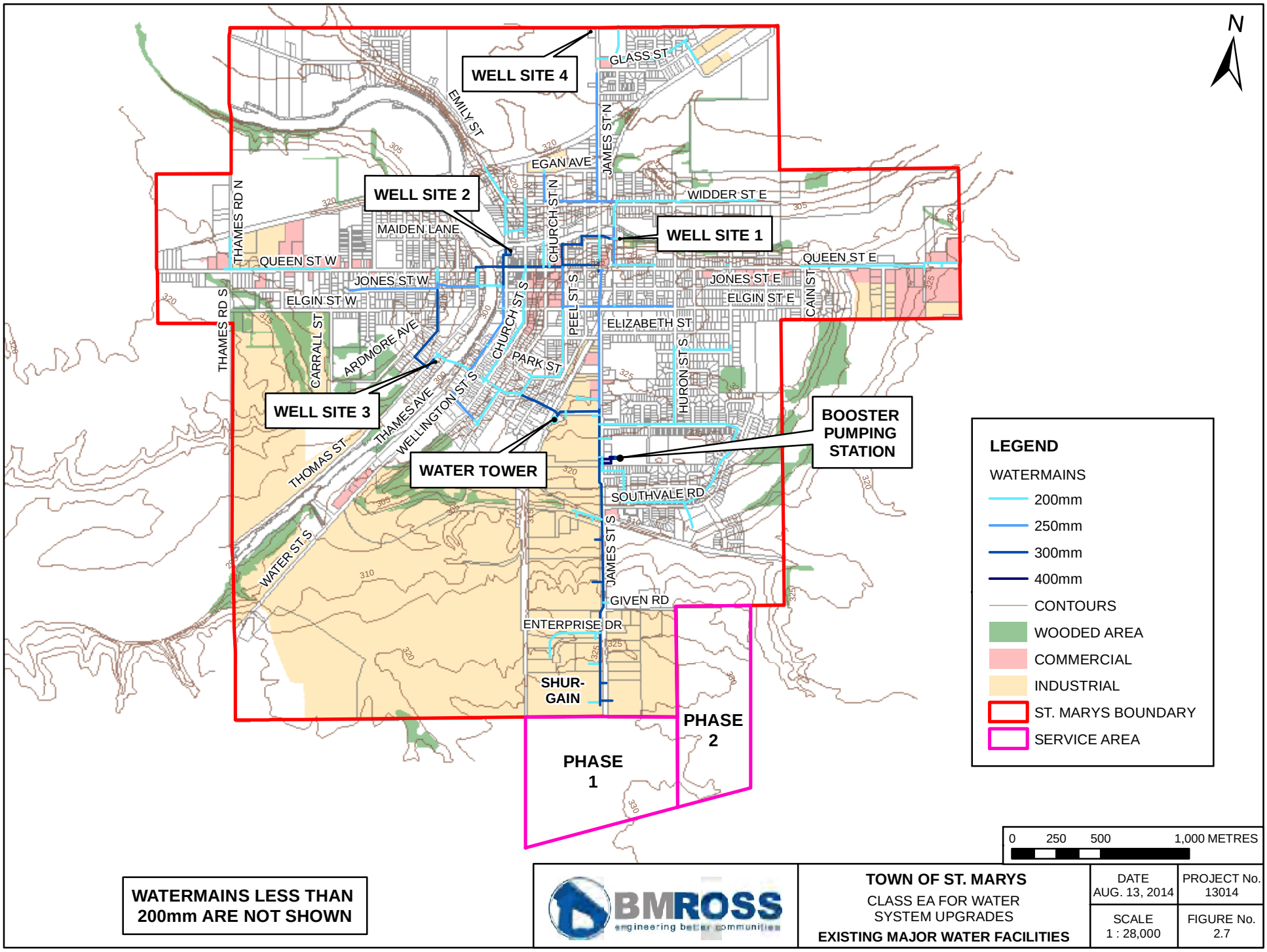
After the demand of the four largest industrial customers is removed from the total system flow values, the net resultant flows (ADF of 2,185 m^3/day and MDF of 3,455 m^3/day) are mostly related to residential and small Industrial/Commercial/Institutional (ICI) demands. Generally, it is assumed the number of smaller ICI customers will grow in proportion to population growth, while larger industrial customers will remain the same size over time. As such, the net flow values will be applied to growth projections and then the current demands of the larger industrial customers will be added on to the projected values (refer to Section 2.9.4).

The industry at 25 South Service Road announced their closure in late 2015. The calculations/projections in this screening report assume that a similarly sized company will purchase and continue using the building in the future.

Additionally, the industry at 500 James Street South began closing its doors in 2008. Prior to that (2004-2007) it was consuming an ADF of 273 m^3/day and MDF of 324 m^3/day. Based on a news release from May2016, it appears to be the intention of a new industry to use the building as its new headquarters. For the purposes of this study, the flow values of the former industry will be carried forward in future flow projections.

It follows that the existing average day demand per capita can be considered to be:

Average Day Demand per Capita = ADF ÷ Population
= 2,185 m^3/d ÷ 6,655 x 1000 L/m^3
= 328 L/day per capita



WATERMAINS LESS THAN 200mm ARE NOT SHOWN

BMROSS engineering better communities

TOWN OF ST. MARYS
CLASS EA FOR WATER SYSTEM UPGRADES
EXISTING MAJOR WATER FACILITIES

DATE	PROJECT No.
AUG. 13, 2014	13014
SCALE	FIGURE No.
1 : 28,000	2.7

The existing maximum day demand per capita can be considered to be:

Max Day Demand per Capita = MDF ÷ Population
= 3,455 m^3/d ÷ 6,655 x 1,000 L/m^3
= 519 L/day per capita

with an existing maximum day peaking factor of:

Max Day Peak Factor = MDF ÷ ADF
= 3,455 ÷ 2,185
= 1.58

2.9.4 Projected Water Demand

As described earlier, the future ADF for the design year 2066 is determined by applying the existing ADF for residential and smaller ICI customers to future projected populations and then adding this value to the existing ADF for the larger industrial customers. In this case, the existing ADF for the larger industrial customers will consider the top four users plus the former industry located at 500 James Street South consumption values (i.e. 849 + 273 = 1,122 m³/day).

Using the medium population projection identified in Section 2.8.3, the future ADF is:

Future ADF = (Existing ADF x Future Population) + Larger Industry's Existing ADF
= (328 L/cap·day x 10,038 x 0.001 m³/L) + 1,122 m³/day
= 3,293 m³/day + 1,122 m³/day
= 4,415 m³/day

The future MDF is determined in a similar way, by applying the MDF for residential and smaller ICI customers to future projected populations and then adding this value to the existing MDF for the larger industrial customers. The existing MDF for the larger industrial customers will consider the top four users plus former industry located at 500 James Street South consumption values (i.e. 1,455 + 324 = 1,779 m³/day).

Future MDF = (Existing MDF x Future Population) + Larger Industry's Existing MDF
= (519 L/cap·day x 10,038 x 0.001 m³/L) + 1,779 m³/day
= 5,210 m³/day + 1,779 m³/day
= 6,989 m³/day

2.9.5 Storage Requirements

As recommended by the Ministry of the Environment and Climate Change (MOECC) (Ref. 10), the required storage facilities in St. Marys should be designed to allow maintenance of adequate flows and pressures in the distribution system during peak hour water demand, and to meet critical water demands during fire flow and emergency situations.

The Total Treated Water Storage Requirement = A + B + C

Where: A = Fire Storage;
B = Equalization Storage (25% of max. day demand); and
C = Emergency Storage (25% of A + B)

Using the population projection identified earlier and the maximum day demand calculated in Section 2.9.4, storage requirements for 2066 can be determined as follows.

A = Fire Storage
= 189 L/s for 3 hours for 10,038 people
= 2,041 m^3

B = Equalization Storage (25% of max. day demand)
= 0.25 x 6,989 m^3/day
= 1,748 m^3

C = Emergency Storage (25% of A + B)
= 0.25 x (2,041 m^3 + 1,748 m^3)
= 948 m^3

Total Treated Water Storage Requirement = A + B + C
= 4,737 m^3

However, according to the MOECC Design Guidelines the calculation presented above is to be used for systems capable of satisfying only the maximum day demand. Where the water supply system can supply more, the storage requirement can be reduced accordingly.

2.9.6 Current Storage Requirement Considering Surplus Well Capacity

From Sections 2.9.2 and 2.9.3, the existing firm capacity of the system is 10,368 m^3/day and the existing MDF can be considered to be 4,910 m^3/day plus the former industry at 500 James Street South demands (i.e. 4,910 + 324 = 5,234 m^3/day). Therefore, the system currently has surplus capacity of approximately 5,134 m^3/day beyond what is required at maximum day demand. Surplus capacity offsets the need for storage capacity.

The system's surplus supply capacity can be subtracted from the fire storage requirement ("A") or the equalization flow requirement ("B") to determine the actual storage deficit. The following revised MOECC formula was used to determine water storage requirements:

The Total Treated Water Storage Requirement = A + B + C

Where: A = Fire Storage;
B = Equalization Storage (25% of maximum day demand);
C = Emergency Storage (25% of A + B)
And: Fire Storage = (Q_F – Supply Surplus) x fire flow duration;

Q_F in the above formula is an MOECC recommended fire flow rate and duration. Both the flow and duration depend on the population of the community. Values can be found in the *Design Guidelines for Drinking-Water Systems 2008* (Ref. 10).

Applying values consistent with the existing serviced population yields:

A = (164 L/s – (5134 x 1000/3600/24) L/s) x 3 hrs x 3600/1100 $\frac{m^3 \cdot s}{L \cdot hrs}$

= 1129.5 m^3

B = (5234 x 0.25)
= 1308.5 m^3

C = (1129.5 + 1308.5) x 0.25
= 609.5 m^3

Total Treated Water Storage Requirement for 2016 = A+B+C

Total Treated Water Storage Requirement for 2016 = 3048 m³

According to Section 2.9.1, the existing elevated tank provides 1,820 m³ of storage, so the current storage deficiency is:

Total Treated Water Storage Requirement (for 2016) – Existing Storage
= 3,049 m³ - 1,820 m³
= 1,229 m³

2.9.7 Future Storage Requirement Considering Surplus Well Capacity

Using the concept explained in Section 2.9.6, the next step is to project the storage deficit for the future (i.e. 2066).

A = ((189 - 3379 x 1000/3600/24) L/s) x 3 hrs x 3600/1100 $\frac{m^3 \cdot s}{L \cdot hrs}$

= 1618.8 m^3

B = (6989 x 0.25)
= 1747.3 m^3

C = (1618.8 + 1747.3) x 0.25
= 841.5

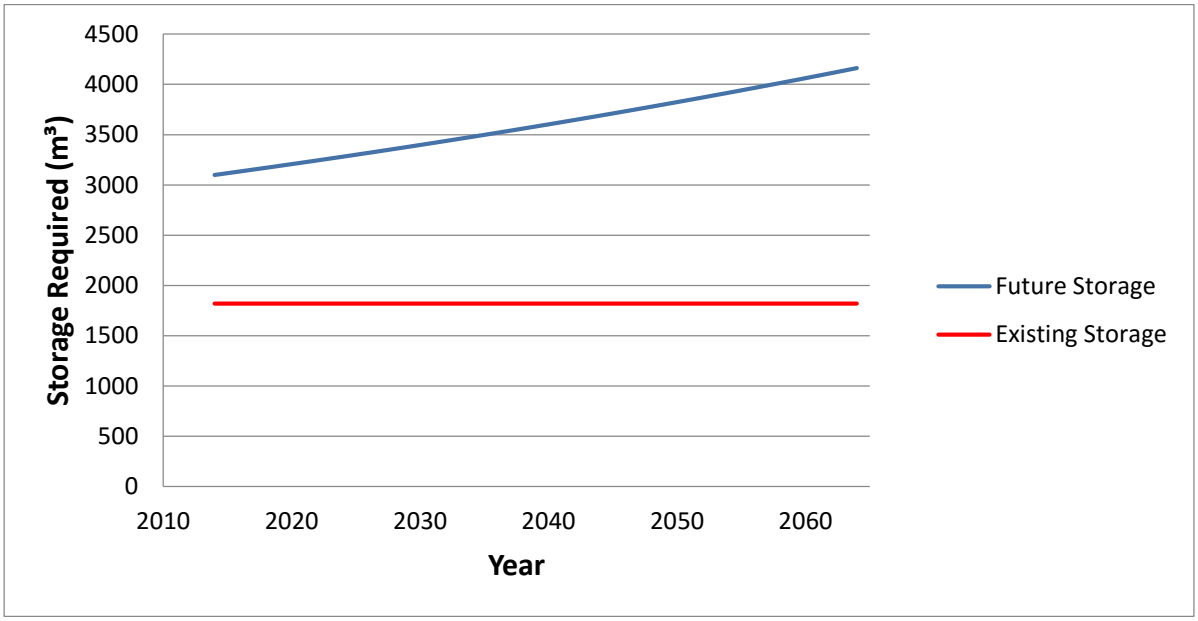
It follows that the total Treated Water Storage Requirement for 2066 = 4208 m³

Resulting in a future storage deficiency of:

Total Treated Water Storage Requirement (for 2064) – Existing Storage
= 4,209 m³ - 1,820 m³
= 2,389 m³

Figure 2.8 presents the current and anticipated future storage requirements and compares them with the existing available storage.

Figure 2.8
Existing and Future Storage Requirements



The storage projection detailed in Figure 2.8 predicts that approximately 4,200 m^3 of storage will be required by 2066. Given the existing elevated tank has 1,820 m^3 of available storage, there will be a future storage shortage of approximately 2,380 m^3. New storage facilities should be planned for at least this amount.

Section 2.9.3 described how the industry at 25 South Service Road announced their closure at the end of 2015 and this Class EA assumes another industry will replace them. To understand the impact of this assumption on the above numbers, the storage requirements were recalculated assuming no new industry in the building at 25 South Service Road. Under this assumption, the storage requirement is 3,915 m^3 by 2066, or a future storage shortage of 2,100 m^3. This equates to a decrease in required storage of approximately 10%. Given the relatively small change in size and probable cost, this Class EA will continue to assume a new industry will operate at 25 South Service Road and the required future storage shortage will be 2,380 m^3.

2.10 Consideration of Perth South Lands

2.10.1 Description of the Perth South Lands

In an effort to encourage development of additional employment lands, the Township of Perth South amended the County of Perth's Official Plan in 2005 to allow light industrial and specific commercial development to occur within a 90 hectare parcel of land south of St. Marys. The lands are depicted on Figure 2.7 and are located generally at the intersection of James Street South and Highway 7.

The Perth South Lands are located outside of the Town of St. Marys' Official Plan boundaries but an Agreement for servicing, dated June 22, 2010, was reached between the Town and the Township. The Agreement stipulates that "an extension of municipal services from St. Marys to service lands in Perth South will be a developer-led initiative", but also that "Servicing of lands in Perth South will be subject to the availability of sufficient capacities in the water and waste water system provided by St. Marys."

It is not known when or how quickly these lands will be developed. The lands have been divided into two phases. Phase 1 is approximately 48 ha and is located on the north side of the intersection. Phase 2 is approximately 42 ha and is located east of Phase 1. The Agreement identifies that Phase 1 will require servicing before Phase 2.

2.10.2 Future Demands for the Perth South Lands

The Master Servicing Study (Ref. 8) assumed that this entire 90 ha parcel of land will be fully developed by the year 2031 and at 55 m^3/ha•day, the area will ultimately require 57 L/s at ADF and 113 L/s at MDF.

The Preliminary Servicing Plan for James Street South Employment Lands (Ref. 13) took a different approach. This document indicates that the Town of St. Marys' Official Plan will limit development in the Perth South Lands to dry industrial uses and as a result considers 15 m^3/ha•day as a reasonable ADF projection. Using that rate and 80 ha of available development land (some of the land will be developed into roads, stormponds, etc.), it predicts that this area will ultimately require approximately 14 L/s for ADF and 28 L/s for MDF.

After analyzing historical consumption records, the existing industrial consumers in St. Marys appear to be consuming approximately 1600 m^3/day exclusive of the former industry at 500 James Street South and 1900 m^3/day inclusive of that former industry. All of the existing industrial lands account for approximately 130 ha. Existing demands are therefore in the range of 12 m^3/ha•day to 15 m^3/ha•day. For the purposes of this Study, we will assume that future development of the Perth South Lands will demand 15 m^3/ha•day of average daily flow and 30 m^3/ha•day of maximum daily flow (an MDF peak factor of 2 is considered conservative based on the existing industrial values).

2.10.3 Storage and Flow Considerations

The Perth South lands create an opportunity for additional industrial development. They are currently unserviced and there is only a commitment to service them if capacity is available.

For the purposes of determining water supply and storage requirements we have assumed that their rate of development will be included in the municipal growth projections, as described in Section 2.9.4. In other words, no specific allocation will be made for those lands in terms of supply or storage needs, as set out by a resolution made by the Town of St. Marys Council on December 15, 2015.

For purposes of the water distribution analysis, we will use the flow rate values identified in Section 2.10.2 (i.e., 15 m^3/ ha•day ADF).

2.10.4 Perth South Lands Impact on Future Well Capacity

The Master Servicing Study (Ref. 8) indicates the increase in demand to the system that would result from the development of the Perth South Lands would be a requirement for additional well supplies and upgrades to the existing James Street Booster Pumping Station.

As indicated by Section 2.10.2, should the development be limited to "dry industrial activities" and an average demand of 15 m^3/ha•day, it is anticipated that the existing well supplies will remain adequate for the entire 50-year design period. If the future demands in the Perth South lands approach the values identified in the Master Servicing Study (55 m^3/ha•day), additional supply capacity will be necessary. However, it is again noted that significant work has been completed in the past to identify additional, potential well supplies and Well 4 (22.7 L/s) was the only viable source that was found.

2.11 Water Distribution System

2.11.1 WaterCAD Modelling and Hydrant Flow Testing

BMROSS completed a technical analysis using a WaterCAD model that was originally created as part of the Master Servicing Study (Ref. 8). BMROSS updated the model and calibrated it according to hydrant flow tests that were completed on November 27, 2013, April 30, 2014 and June 12, 2014. Following calibration, a number of simulations were carried out resulting in the following findings:

1. Two "areas of concern" were originally identified. The areas of concern were where the model or actual flow data indicated multiple locations, in close proximity, exhibiting low pressures and/or an inability to achieve minimum fire flow requirements. The MOECC recommended minimum fire flow rate for residential areas is 38 L/s while maintaining a minimum residual pressure in the remainder of the system of 140 kPa. BMROSS typically designs supply to new residential areas such that the distribution system is capable of achieving a minimum of 50 L/s. One of the "areas of concern" that was identified was the east portion of St. Marys including the watermains generally east of Cain Street, the other was along the north portion of Emily Street, including the Thamesview Crescent area. The areas are discussed in more detail in the following sections.

2. Recognizing that there is currently a storage deficiency in the system, simulations were carried out with new storage facilities at either the proposed Well 4 site or at the existing Well 1 site (refer to Figure 2.7). Conclusions were:

    - Constructing storage at the Well 4 site would provide some marginal improvement to the existing pressures and flows in the north end of Town. The improvements to the system would not be enough to achieve the minimum fire flow conditions required along Emily Street. Additional watermain improvements would also be necessary.
    - There appears to be adequate flow in the north end of Town to fill a new elevated tank at that location.

2.11.2 East Portion of St. Marys

One of the "areas of concern" that was identified during the WaterCAD modelling and hydrant flow testing was the east portion of St. Marys. Available fire flows in this area were predicted by the model to be at or slightly below 50 L/s in some locations. Development in this area includes a mixture of residential, industrial and commercial activity.

The hydrant flow testing completed in November, 2013 demonstrated that available fire flows in the east end of Town may actually be slightly higher than what the model was predicting. Flows generally appeared to be at or in excess of 50 L/s in this area and because the Town has not indicated this area to be of concern at this time, no upgrades are being proposed. Even though the hydrant flow testing results were at or above 50 L/s, the flows that were demonstrated are more suited for residential protection and not for medium-to-large industrial/commercial development.

A number of watermain upgrade scenarios were simulated to determine what would be required to raise the available fire flows in this area. The results indicated that upgrading a large amount of watermain (i.e. strategically upsizing approximately 1 km of 150 mm dia. watermain to 200 mm dia. watermain) could increase fire flows to the east end by at least 20%. Prior to completing any improvements, it is recommended that the Town fully examine this area to identify what the problems are, what the improvement goals are and how best to accomplish this.

2.11.3 Emily Street

The second "area of concern" that was identified includes portions of Emily Street at and to the west of Thamesview Crescent, including Thamesview Crescent. The model predicted available fire flows in this area to be in the range of 23 – 28 L/s.

We were not able to complete hydrant flow tests in this area of Town during the November 2013 flow event as flows were inadequate – much lower than what the model predicted. As a result, St. Marys began a valving exercise on selected valves in the north portion of Town in April of 2014 and found one valve closed on Widder Street. Once this valve was opened, repeat hydrant flow testing was completed on April 30, 2014. Although the flows improved, there continued to be large discrepancies between the model's predictions and the hydrant flow test results.

Additional investigations by the Town in May 2014 found another valve closed on Station Street. Repeat hydrant flow tests were completed on June 12, 2014 and the results were comparable to model predictions.

Based on the calibrated WaterCAD model and the results of the three hydrant flow testing events, available flows in the Thamesview Crescent area and to the northwest along Emily Street are below 38 L/s. Several watermain upgrade scenarios were carried out in the WaterCAD model and the preferred solution identified was:

- To provide looping through the installation of a new 200 mm dia. watermain between Emily Street and James Street North (near Glass Street). This is preferred as it offers redundancy and operational flexibility to the system while improving flow conditions to the Thamesview Crescent area. It also provides the opportunity to service the land between Emily Street and James Street North with water.

- To replace the 150 mm dia. watermain on Emily Street from Water Street to Thamesview Crescent with a 200 mm dia. watermain.

Both upgrades are shown on Figure 2.9. The model predicts that if the above two recommendations are completed, available fire flows in the Thamesview Crescent area will exceed 50 L/s. There would be marginal benefit in upsizing either of the proposed watermains to 200 mm dia. This may be worth considering if only one of the above upgrades will be completed in the short term.

2.11.4 Perth South Lands

The Perth South Lands were also considered in the WaterCAD model using the flow rates developed in Section 2.10.2.

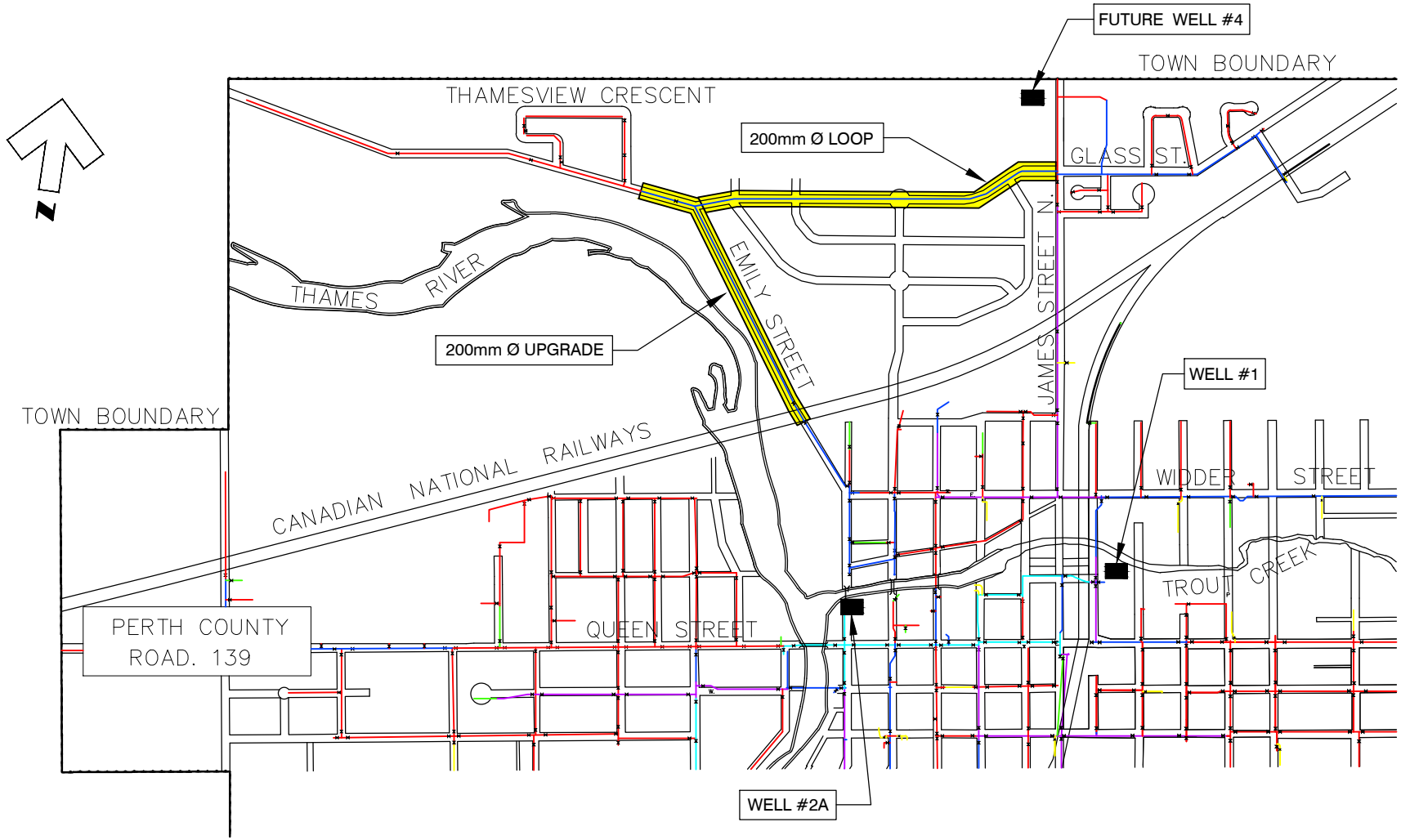
The Preliminary Servicing Plan (Ref. 13) indicated that "with a fire flow requirement of 38 L/s for the entire James Street South Employment lands and a booster pumping station servicing the area with a rated capacity of 154 L/s at 52m TDH, the fire flow demands in the James Street South Employment Lands can be met."

This was confirmed by our modeling with the provision that the watermains are adequately sized and looped. However, 38 L/s is typically not considered to be adequate for industrial development and 150 L/s is often used for design purposes. The existing booster pumping station is not adequately sized to provide 150 L/s of fire flow to the entire development area. It would need to be upgraded at some point in the future.

2.11.5 Water Distribution System Summary

The WaterCAD modelling and hydrant flow testing identified two "areas of concern" where multiple adjacent locations exhibited low pressures and/or an inability to achieve minimum fire flow requirements. Upon further investigation it was determined that the low pressure and fire flow areas could be addressed with the progressive installation or replacement of watermains.

Provided these improvements are carried out on lands owned by the Municipality, they do not require further Class EA activities or MOECC approval; rather, they are pre-approved through the Town's Drinking Water Works Permit.



LEGEND

WELL

LESS THAN 50mm DIA
100 mm WATERMAIN
150 mm WATERMAIN
200 mm WATERMAIN
250 mm WATERMAIN
300 mm WATERMAIN
400 mm WATERMAIN

BMROSS
engineering better communities

Town of St. Marys

Watermain Upgrades

DATE	PROJECT No.
Mar. 22, 2016	13014
SCALE	FIGURE No.
N.T.S.	2.9

3.0 IDENTIFICATION OF THE PROBLEM AND PRACTICAL ALTERNATIVES

3.1 Study Initiation

The Town of St. Marys initiated this Class EA Study to determine if any upgrades or expansion to the existing municipal water system were required.

3.2 Problem Definition

In Section 2.9 it was determined that St. Marys currently has a shortage of available water storage for its current population. Forecasts indicate that the population of St. Marys is expected to continue to grow and require additional storage. If additional storage is not incorporated into the water system, the current water storage deficiency will become greater.

Section 2.11 explains that in addition to a storage deficiency, there are two locations in Town where the existing flow/pressure conditions may require attention. In the east end of Town, flow/pressure generally appears sufficient for residential and light industrial/commercial activities. In the northwest portion of Town (along Emily Street and Thamesview Crescent) flow/pressure appears to be inadequate. Either or both areas of Town can be improved through the progressive installation or replacement of select watermains.

Given that work required to address the concerns identified in Section 2.11 can be completed without further Class EA activities, the problem that is the focus of this Class EA is:

According to MOECC guidelines, the St. Marys Drinking Water System does not have sufficient water storage. The storage deficit will become greater as the community grows.

3.3 Identification of Practical Alternatives

The second phase of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problem. A number of possible solutions to the defined problem were identified at the outset of this Class EA process. The alternatives, stated below, build upon the findings of a preliminary engineering assessment completed at the start of the Class EA process.

Alternative 1: Construction of additional storage facilities

This alternative involves the construction of a new water storage facility. After some investigation, two potential locations were identified (the rationale behind the selection of these two sites is further discussed in Section 4.5). One location is at the site of future Well 4 and the other is at the existing Well 1 Site. For each alternative site, consideration will also be given to alternative types of storage facilities.

Alternative 2: Increasing well supply capacity to offset storage needs

This alternative involves developing new wells and increasing the surplus capacity of the drinking water system. With enough surplus supply capacity, water storage needs could be adequately supplied by the existing elevated storage tank.

Alternative 3: Do Nothing

This option proposes that no improvements or changes be made to address the identified problems. The Do Nothing Alternative may be implemented at any time in the design process prior to construction. This decision is typically made when the costs of all alternatives, both financial and environmental, significantly outweigh the benefits.

4.0 EVALUATION OF ALTERNATIVE SOLUTIONS

4.1 Evaluation of Alternatives

The third phase of the investigation involved the evaluation of the identified alternatives. The purpose of this stage was to examine the potential environmental impacts associated with the proposed alternatives and to examine potential mitigation for any identified impacts. The evaluation stage generally involved the following activities:

- Preliminary review of the alternatives
- Preliminary selection of a preferred alternative
- Consultation with the general public and review agencies
- Final selection of a preferred alternative

4.2 Preliminary Review of Alternatives

4.2.1 Alternative 1: Construct a New Water Storage Facility

Implementation of Alternative 1 will involve the construction of a new municipal water storage facility, either near the site of a possible future Well 4 or at the existing Well 1 site (both sites are shown on Figure 2.7). As indicated in Section 2.9.1 the Well 4 site is located on the west side of James Street, north of Glass Street. The Well 1 site is located east of St. George Street North and north of Queen Street East.

This alternative will require, in addition to the construction of a storage facility, the installation of transmission watermain to and from the existing distribution system. The construction of a new water storage facility would provide the community with modern facilities capable of accommodating water storage needs for up to the next 50 years.

Alternative 1 includes an evaluation of the two possible sites for a new water storage facility (Well 4 and Well 1). The evaluation criteria include, but are not limited to: capital costs; impacts during construction; impacts to adjacent properties; presence of significant features; and site location relative to the wells. The review of the two alternative sites is presented in Section 4.5.

In addition to the consideration of potential sites for a storage facility, this alternative also requires a comparison of the different types of facilities. Three types of water storage facilities were evaluated in relation to this alternative: elevated tanks, reservoirs and standpipes. The requirements and considerations for each type of storage facility are further discussed in Section 4.6.

4.2.2 Alternative 2: Increasing well supply capacity to offset storage needs

An alternative method of addressing the water storage shortage is to develop a new well(s) and increase the surplus capacity of the drinking water system. This option was investigated in significant detail prior to 2002 where it was determined that the only other viable source of groundwater in the area would be from the future Well 4 site. Even there, it was found that only 22.7 L/s could be achieved.

Adding Well 4 to the distribution system would bring the firm supply capacity of the system up to 12,329 m^3/day and the surplus capacity of the system up to 7,095 m^3/day. Based on MOECC design guidelines (Ref. 10), for the existing population (6,655 people) a surplus capacity of approximately 13,000 m^3/day would be necessary before the existing elevated storage tank could be considered as an adequate supply of water storage.

The above values are only for the existing population and do not consider the effects of growth over the next 50 years. Given this, Well 4 cannot be considered as an adequate substitute for additional water storage. As this alternative will not be feasible, as demonstrated above, it will not be considered further in the evaluation of the alternatives. There may still be some benefit in developing Well 4 in the future as it will bring additional redundancy to the drinking water system and particularly to the north portion of Town.

4.2.3 Alternative 3: Do Nothing

The Do Nothing Alternative represents the least expensive alternative. It does not, however, resolve the issue of inadequate water storage in St. Marys. This option would only be considered if the negative impacts of implementation of other alternatives were considerable and could not be mitigated to an acceptable degree.

4.3 Environmental Considerations

Section 3.1 of this report listed the alternative solutions that were identified to resolve issues relating to a water storage deficiency in St. Marys. As part of the evaluation process, it is necessary to determine what effect or impact each alternative will have on the environment and what measures can be taken to mitigate the impact. The two main purposes of this exercise are to:

- Minimize or avoid adverse environmental effects associated with a project
- Incorporate environmental factors into the decision making process.

Under the terms of the EA Act, the environment is divided into five general components:

- Natural environment
- Social environment
- Cultural environment
- Economic environment
- Technical environment

The identified environmental component can be further subdivided into specific elements that have the potential to be affected by the implementation of a solution. Potential impacts are noted in the following section of the report. Table 4.1 provides an overview of the specific environmental components considered relevant to this investigation. These components were identified following the initial round of public and agency input and following a preliminary review of each alternative with respect to technical considerations and the environmental setting of the project.

Table 4.1
Evaluation of Alternatives: Identification of Environmental Components

Environmental Component	Sub-Components	Specific Components
Natural Environment	Aquatic Environment	• Aquatic habitat • Water Quality • Species at Risk
	Terrestrial Habitat	• Vegetation • Significant Natural Features • Species at Risk
	Geology	• Physiographic Features and Soils • Drainage Characteristics • Source Water Protection
Social Environment	Community	• Quality of Life • Visual Impacts and Aesthetics • Disruption During Construction • Adjacent Land Uses • Noise
Cultural Environment	Heritage	• Heritage/Cultural Resources • Archaeological Features
Economic Environment	Municipal	• Capital and Operating Costs • Land Purchasing Costs
	Community	• Property Values and Water Rates
Technical Environment	Infrastructure	• Siting Requirements • Utilities

The environmental effects of each alternative on the specific components are generally determined through an assessment of various impact predictors (i.e. impact criteria). Given the works associated with the alternative solutions, the following key impact criteria were examined during the course of this assessment:

- Magnitude – including the scale, intensity, geographic scope, frequency and duration of potential impacts
- Technical complexity
- Mitigation potential – which considers avoidance, compensation and degree of reversibility
- Public perception
- Scarcity and uniqueness of affected components
- Compliance with applicable regulations and public policy objectives

Using the above criteria, the potential impacts of each alternative solution were systematically evaluated. The significance of the potential impacts posed by each alternative were evaluated considering the anticipated severity of the following:

- Direct changes occurring at the time of project completion
- Indirect effects following project completion
- Induced changes resulting from a project

For the purposes of this Class EA, impact determination criteria developed by Natural Resources Canada have been applied to predict the magnitude of environmental effects resulting from the implementation of the project. Table 4.2 summarizes the impact criteria.

Table 4.2
Criteria for Impact Determination

Level of Effect	General Criteria
High	Implementation of the project could threaten sustainability of feature and should be considered a management concern. Additional remediation, monitoring and research may be required to reduce impact potential.
Moderate	Implementation of the project could result in a resource decline below baseline, but impact levels should stabilize following project completion and into the foreseeable future. Additional management actions may be required for mitigation purposes.
Low	Implementation of the project could have a limited impact upon the resource during the lifespan of the project. Research, monitoring and/or recovery initiatives may be required for mitigation purposes.
Minimal/Nil	Implementation of the project could impact upon the resource during the construction phase of the project but would have negligible impact on the resource during the operation phase.

Given the criteria defined in Table 4.2, the significance of adverse effects is predicated on the following assumptions:

- Impacts from a proposed alternative assessed as having a Moderate or High level of effect on a given feature would be considered significant.
- Impacts from a proposed alternative assessed as having a Minimal/Nil to Low level of effect on a given feature would not be considered significant.

4.3.1 Environmental Effects Analysis

The potential interactions between the two alternatives (Alternative 1: Construct a New Water Storage Facility and Alternative 3: Do Nothing) and environmental features were examined as part of the evaluation of alternatives. The purpose of this analysis was to determine, in relative terms, the environmental effects of the identified, practical alternatives on each of the environmental components and factors, using the impact criteria described in Table 4.2.

Table 4.3 summarizes the outcome of the environmental effects analysis. This analysis forms the basis for the identification of significant impacts discussed in further detail, later in this report.

Table 4.3
Summary of Environmental Effects Analysis

Alternative	Environmental Component	Factor Under Consideration	Level of Effect	Potential Impacts
Alternative 1 – Construct a New Water Storage Facility	Natural Environment	Aquatic Habitat	Low	• Well 1 site is adjacent to Trout Creek, but the water storage facility at this site is proposed to be sited above the floodplain. • Deleterious materials could be released during the construction phase at the Well 1 site, which could impact aquatic habitat • Well 4 site is not located near any watercourses. • Operation of a water storage facility will not impact aquatic habitat
		Water Quality	Low	• At the Well 1 site deleterious materials could be released during the construction phase which could impact water quality • Well 4 site is not located near any watercourses.
		Species at Risk	Low	• Both sites are currently maintained, grassed areas with little potential for habitat. • Construction and operation of a storage facility is not expected to impact any species at risk.
		Vegetation	Low	• Construction-related activities may result in temporary removal of vegetation. • Majority of vegetation removal at either site will be grasses. • The Town recently planted 43 trees at the Well 4 site.
		Wildlife Habitat	Low	• Well 1 is adjacent to Trout Creek, but the water storage facility at this site is proposed to be sited above the floodplain. There are no natural watercourses near the Well 4 site. • Both sites are maintained grassy areas, with minimal habitat.
		Significant Natural Features	Low	• May be impacts to landscape resulting from possible removal of vegetation.

Alternative	Environmental Component	Factor Under Consideration	Level of Effect	Potential Impacts
Alternative 1 – Construct a New Water Storage Facility	Natural Environment			• Well 1 site is located adjacent to Trout Creek but construction of a water storage facility is not expected to impact the creek. • Landscape may be somewhat to significantly altered depending on the type of storage facility.
		Physiographic Features and Soils	Low	• Soil disturbances related to construction of the storage facility.
		Drainage Characteristics	Low	• Deleterious materials could be released during construction phase. • Onsite drainage may be altered due to storage facility location.
		Source Water Protection	Moderate	• Facility proposed to be located next to an existing well site (Well 1 or Well 4) and is expected to be within vulnerable area. • There may be threats (as identified within the Source Protection Plan) related to construction activities, such as fuel storage. • New facility may include back up generator which will require fuel storage. Will have to adhere to Policy 2.42 of the Source Protection Plan. • Construction and operation is not expected to impact existing transport pathways, or impact the size or shape of vulnerable areas, as pumping from the existing wells will not change substantially.
	Social Environment	Quality of Life	Moderate	• Traffic generated by the facility will be minimal. • Adjacent properties may be impacted by shading, depending on the type of storage facility constructed. • New storage facility will provide additional storage capacity for the system and may locally improve flows and pressures.
		Visual Impacts and Aesthetics	Moderate	• A new water storage facility may represent visual intrusion for adjacent property owners and the larger community. • Facility may also be used for economic promotion.

Alternative	Environmental Component	Factor Under Consideration	Level of Effect	Potential Impacts
Alternative 1 – Construct a New Water Storage Facility	Social Environment	Disruption During Construction	Low	• Construction-related activities will generate minor increases in air pollution and noise levels in the vicinity of the site. • Construction-related activities may result in minor traffic disruptions in the vicinity of the site.
		Adjacent Land Uses	Moderate	• May be impacted by shading and visual intrusion.
		Noise	Low	• Development of an elevated storage tank will result in negligible impacts to ambient noise levels (after the construction phase). Pumping facilities associated with in-ground facilities could increase ambient noise levels marginally.
	Cultural Environment	Heritage/Cultural Resources	Low	• Neither site is identified in the Town of St. Marys Official Plan – Schedule D as a 'Heritage Conservation Site' • Well 1 site is located adjacent to the original Waterworks Building, however construction and operation of a water storage facility is not expected to impact the Waterworks Building • Well 1 site is also adjacent to a high railroad bridge that is part of the Canadian National Railway. Construction and operation of water storage facility is not expected to impact the railroad bridge.
		Archaeological Features	Low	• The Well 1 site has been historically disturbed for infrastructure construction in the past. • The Well 4 site has low potential for archaeological features.
	Economic Environment	Capital and Operating Costs	Moderate	• High capital costs. • Increased operating costs.
		Land Purchasing Costs	Nil	• Land at both sites is already Town owned.
		Property Values and Water Rates	Nil	• Not expected to impact property values.

Alternative	Environmental Component	Factor Under Consideration	Level of Effect	Potential Impacts
Alternative 1 – Construct a New Water Storage Facility	Technical Environment	Siting Requirements	Moderate	• May impact adjacent property owners with respect to visual impacts. • Site impacts are discussed further in Section 6.0.
		Utilities	Low	• May impact underground utilities, depending on site. • May require the availability of three-phase power.
Alternative 3 – Do Nothing	Natural Environment	Soils and Vegetation	Nil	• No expected impacts.
		Wildlife Habitat	Nil	• No expected impacts.
		Landscape Features	Nil	• No expected impacts.
		Source Water Protection	Nil	• No expected impacts.
		Drainage Characteristics	Nil	• No expected impacts.
	Social Environment	Quality of Life	High	• Will not solve the problem of inadequate water storage in the Town of St. Marys.
		Visual Impacts and Aesthetics	Nil	• No expected impacts.
		Disruption During Construction	Nil	• No expected impacts.
		Adjacent Land Users	Nil	• No expected impacts.
		Noise	Nil	• No expected impacts.
	Cultural Environment	Heritage Resources	Nil	• No expected impacts.
		Archaeological Features	Nil	• No expected impacts.
	Economic Environment	Capital and Operating Costs	Nil	• No expected impacts.
		Land Purchasing Costs	Nil	• No expected impacts.
		Property Values and Water Rates	High	• No expected impacts.
	Technical Environment	Siting Requirements	Nil	• No expected impacts.

Alternative	Environmental Component	Factor Under Consideration	Level of Effect	Potential Impacts
Alternative 3 – Do Nothing	Technical Environment	Utilities	Nil	• No expected impacts

4.3.2 Comparative Analysis

Table 4.4 provides a summary of the key considerations for each alternative with respect to the environmental components described in Table 4.3. The table outlines the benefits and impacts that were identified as significant during the initial evaluation of alternatives. Potential mitigation measures for the identified impacts are also presented.

Table 4.4
Preliminary Evaluation of Alternatives

Alternative Solution	Anticipated Benefit	Potential Impacts	Potential Mitigation
Alternative 1 – Construct a water storage facility	• Will provide a modern storage facility capable of supplying water storage needs for up to 50 years. • Will provide storage for servicing of the Perth South lands. • Will allow St. Marys to meet MOECC guidelines for storage. • The two potential sites for a storage facility are located on municipally owned lands (no property acquisition costs).	• Terrestrial habitat may be affected by construction activities – i.e. removal of vegetation	• Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). • Consult with regulatory agencies to assess the level of impact resulting from construction of the planned works. Provide suitable mitigation to address any identified concerns.

Alternative Solution	Anticipated Benefit	Potential Impacts	Potential Mitigation
Alternative 1 – Construct a water storage facility	• It is expected that there will be minimal impacts related to air quality, noise levels and local aesthetics (following construction).	• Local traffic construction – increased truck traffic	• Implement traffic control measures to limit disruptions during the construction phase.
		• The magnitude of visual impacts will depend on the type of facility constructed (elevated tank or in-ground reservoir).	• Design features such as tank style, painting, etc. can be considered and incorporated to mitigate some of the visual impacts, especially with respect to an elevated tank. • Visual impacts of in-ground reservoir may be mitigated by using trees or fencing to hide the facility.
		• One of the potential sites (Well Site 1) is located adjacent to Trout Creek.	• The reservoir is proposed to be located above the floodplain.
		• Construction of a water storage facility may include activities that have been identified as threats in the Source Protection Plan	• Impacts may be mitigated by following the policies outlined in the Source Protection Plan. • Consult with the Risk Management Official for specific as required.

Alternative Solution	Anticipated Benefit	Potential Impacts	Potential Mitigation
Alternative 3 – Do Nothing	• Represents the least expensive option	• Fails to address the defined problem. • May have impacts to water flow and pressure during some situations.	• The identified impact cannot be mitigated.

4.4 Review of Alternative Storage Types

4.4.1 Alternative Storage Types – General Introduction

Alternative 1 involves the construction of a new water storage facility. Accordingly, consideration must be given to the different types of facilities. The choice of the type of facility is influenced by factors including, but not necessarily limited to: function, topography, life cycle, costs, and the amount of storage required. Any water storage facility built, regardless of type, will be designed in accordance with MOECC Design Guidelines.

Water storage facilities are designed to maintain adequate flows and pressures during peak hour demand. Additionally, storage facilities must be designed to meet critical water demands during periods of fire flow. To meet current and future needs, the design capacity of water storage facilities is typically based on 25 to 50 year population projections. The three types of water storage facilities most frequently used in Ontario are listed below and further examined in the following sections:

- Elevated Tank;
- Reservoir and Booster Pumping Station; and
- Standpipe.

The advantages and disadvantages of each type of storage facility are discussed below. It is noted that for the different types of facilities, pumping from the existing wells is not expected to change substantially.

Elevated Tank

Elevated tanks provide water storage in a steel vessel mounted on a support system, typically a concrete pedestal. Earlier versions had steel leg systems or other forms of steel support. This type of facility has the significant advantage of being able to store the entire contents of the structure at an elevation where it is available by gravity. However, filling of an elevated tank requires the water supply source (i.e. wells) to be operated at a higher pressure than when pumping to a reservoir. In addition to storage, they are typically used to control the start/stop operation of pumps at well supply locations.

Ideally, elevated tanks are located at a high point in the community to shorten the required height of the support system and reduce construction costs. Elevated tanks can be a focal point for the community if located in a visible location. The key advantages are gravity supply and energy efficiency. An elevated tank also generally involves lower operation and maintenance costs, relative to a reservoir and booster pumping station due to:

- No pumping is required to meet peak demands resulting in lower energy costs and reduced maintenance for operators.
- Relatively simple mechanical (e.g. valves) and control equipment reduces the need for operator presence at the site to perform checks.

- Less mechanical equipment results in fewer significant capital cost expenditures for equipment replacement in the future.

The interior and exterior of most elevated tanks require periodic recoating. The initial capital cost of an elevated tank, relative to a reservoir and booster pumping station, is typically higher as most elevated tanks are designed and constructed based on a longer design period. This relates to the principal disadvantage of elevated tanks: the inability to expand for a greater storage volume. Another disadvantage of an elevated tank is the possibility for impacts related to shading of adjacent properties.

Reservoir and Booster Pumping Station

Reservoirs store water at or near grade. They may be fully exposed, sitting on a concrete pad, or fully or partially buried. Typically, these facilities require a larger site footprint compared to an elevated tank. Unless a significant topographic highpoint is available, reservoirs require pumps (generally referred to as 'booster pumps') to maintain pressures in the system. When there is no elevated storage, the booster pumps must operate continuously. Reservoirs are typically constructed with a minimum of two cells. Multiple pumps, some with variable capacity, are usually provided in a pumphouse.

The key advantages for reservoirs are expandability (by adding more cells) and minimal visual impact. Key disadvantages are the operating (energy) and maintenance costs associated with pumping equipment and the need for a larger area to place the structure. Generally, reservoirs and booster pumping stations include more mechanical components than other storage facility types, resulting in greater operating, maintenance and future replacement costs.

Standpipe

Standpipes are cylindrical and usually contain water from the base to the top. Typically, only the water in the top few metres of the structure is available by gravity for normal water system operation. Pumping stations are frequently provided at the base of standpipes to make most of the volume useable during emergency and fire conditions. Subject to the need and cost of pumping systems, a standpipe can sometimes be a less costly alternative to an elevated tank, while providing energy saving opportunities and advantages over a reservoir. The disadvantages of standpipes are similar to those for elevated tanks: no expandability and potential shading. Due to smaller volumes in the highest part of the structure, they are not as energy efficient as elevated tanks.

Since the advent of concrete pedestals for elevated tanks, few standpipes have been determined to be as cost efficient as elevated tanks. Given this, a standpipe was not considered as a practical alternative storage type and is not included in further evaluations.

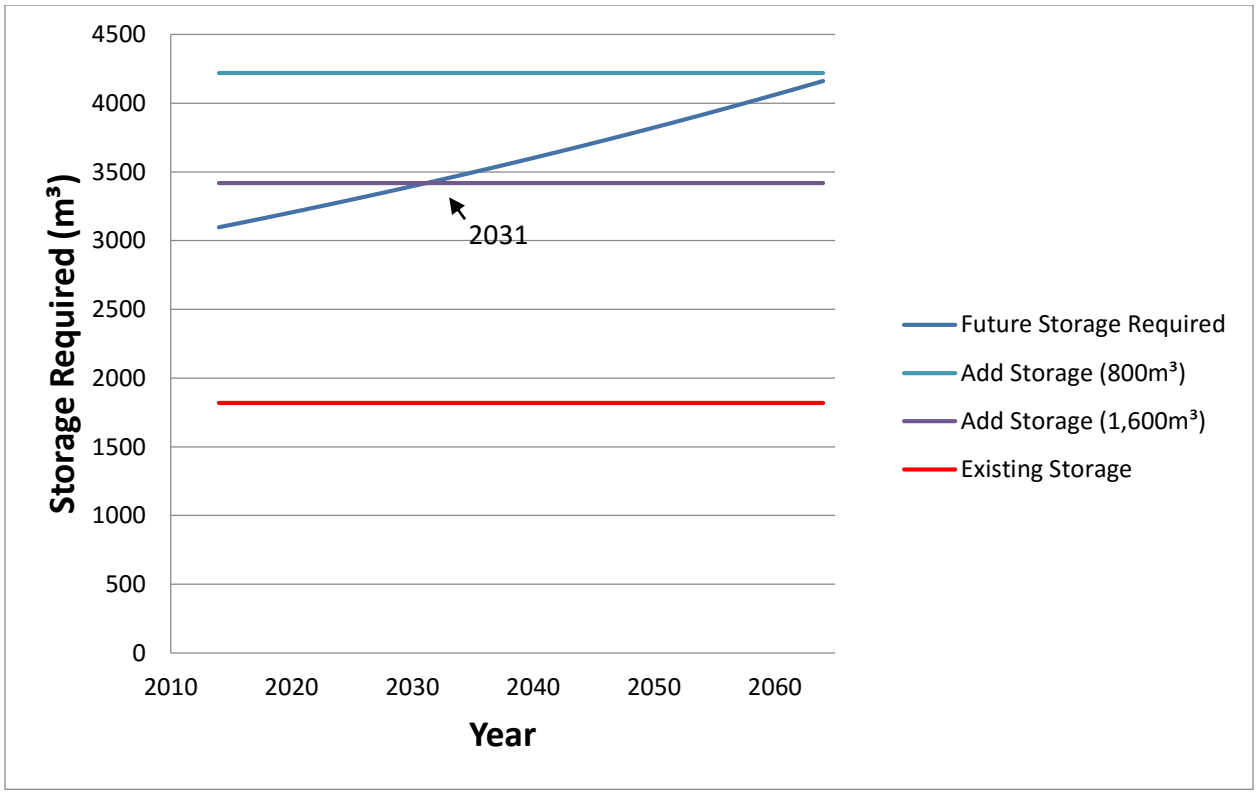
4.4.2 Proposed Storage Volumes

Future storage requirements were discussed in Section 2.9 and it was identified that for a 50 year design period an additional 2,400 m^3 of storage would be required. Section 4.4.1 identified that there may be opportunity to stage the construction of the storage structures, depending on the type of facility.

Elevated tanks are not expandable so if this is selected as the preferred storage type, it would need to be designed for at least 2,400 m^3 of storage.

A reservoir is expandable and based on a preliminary analysis of the Well 1 Site it was determined that a reasonable approach would be to construct three equal-sized cells. At 800 m^3 each, 2 cells (1,600 m^3) would be required immediately to meet existing storage deficits and to provide storage for the immediate future. Figure 2.8 in Section 2.9.7 is revised below as Figure 4.1 to demonstrate how this staging would look. As the figure indicates, it is anticipated that 1,600 m^3 of storage will provide adequate storage until approximately 2031.

Figure 4.1
Existing and Future Storage Requirements



4.4.3 Matching Storage Types to the Alternative Sites

Rather than compare four alternatives (i.e. an elevated tank at the Well 1 Site, a reservoir at the Well 1 Site, an elevated tank at the Well 4 Site, and a reservoir at the Well 4 Site), two of the alternatives were eliminated for the following reasons:

1. Regardless of whether a reservoir or an elevated tank is constructed, the construction footprint will be similar in size for both facilities. Hence, the area of environmental impact will be similar at each site regardless of the type of facility constructed. It is expected that constructing a reservoir at the Well 1 Site will have a similar environmental impact as constructing an elevated tank at the Well 1 Site. The same could be said about constructing the two alternative storage types at the Well 4 Site. Each site however, will have impacts related specifically to that location.

2. There is a significant elevation difference between the two sites (i.e. approximately 307 masl at the Well 1 Site versus 328 masl at the Well 4 Site). Given the much lower elevation of the Well 1 Site, the pedestal of the elevated tank would need to be 21 m higher if it were constructed there instead of at the Well 4 Site. The additional costs for the higher pedestal at the Well 1 Site would have a significant impact on the overall cost of the project.

3. Alternatively, there would be cost savings in constructing a reservoir at the Well 1 Site versus the Well 4 Site. Cost savings would come from the fact that a power supply and SCADA system have already been brought in to the existing water treatment building at Well 1 and they could be extended to any new buildings proposed; whereas, a new power supply and SCADA system would need to be established at the Well 4 Site.

In summary, we will consider two options for Alternative 1:

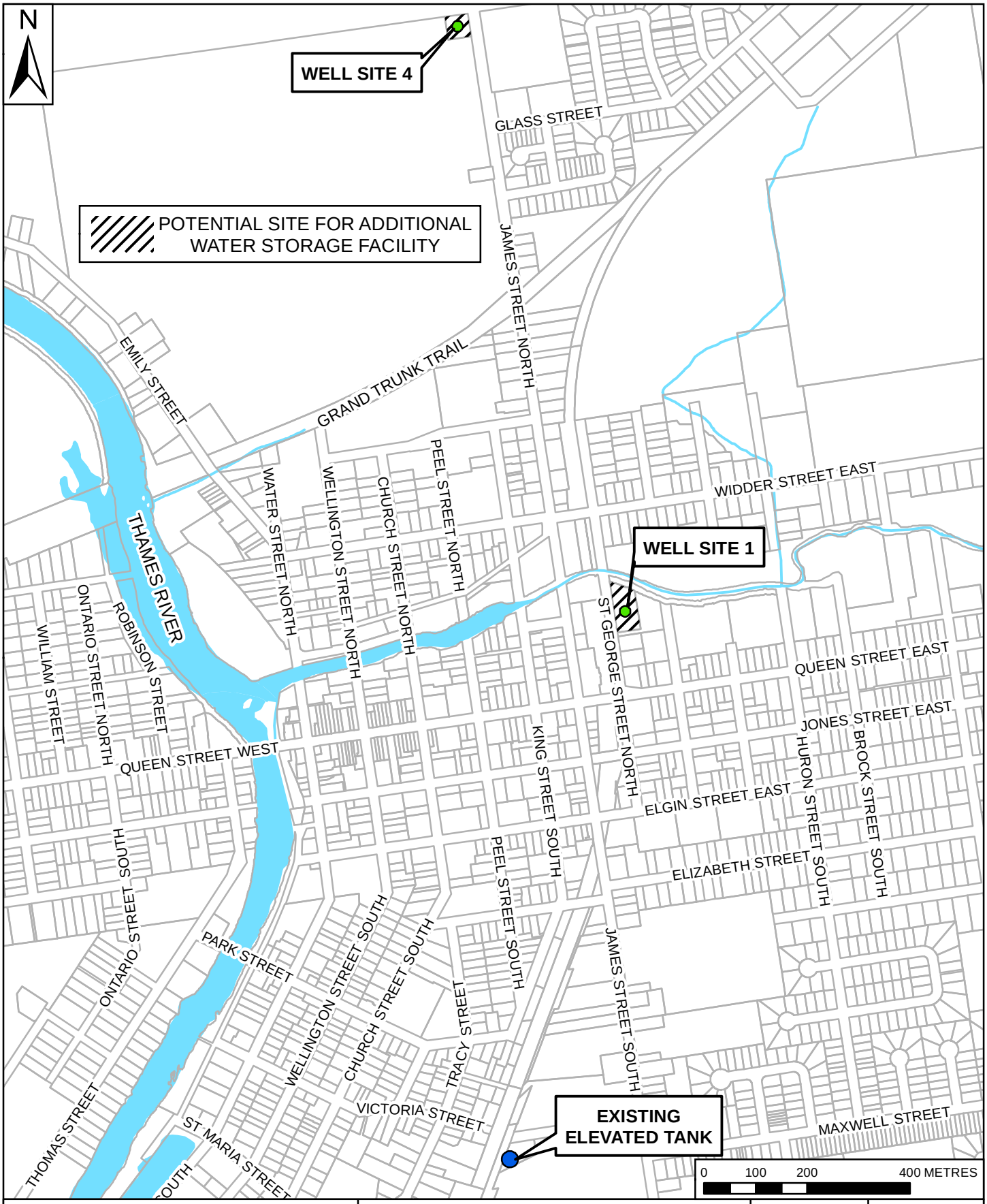
1. A new reservoir and booster pumping station at the Well 1 Site.
2. A new elevated tank at the future Well 4 Site.

4.5 Alternative Storage Sites

Just as Alternative 1 involves consideration of the different types of water storage facilities, it must also consider the available alternative sites. To evaluate possible locations, a number of factors must be considered including: the availability of publically owned land; remoteness from the existing wells; potential impacts to adjacent properties and natural and cultural features; and the ability to stage the watermain construction. The criteria used to evaluate the alternative sites are further discussed in Section 4.5.5.

As mentioned earlier, two sites were identified and evaluated as potential sites for a new water storage facility. The sites, as shown on Figure 4.2, are:

- Site 1 – The existing Well 1 Site (site for a new reservoir and boosting pumping station)
- Site 2 – The future Well 4 Site (site for an elevated tank)



BMROSS engineering better communities

TOWN OF ST. MARYS

CLASS EA FOR WATER SYSTEM UPGRADES

PROPOSED SITES

DATE	PROJECT No.
AUG. 13, 2014	13014
SCALE	FIGURE No.
1 : 10,000	4.2

Photos taken at each site are included in Appendix A.

It should be understood that the two sites that were identified as potential sites for a proposed new water storage facility were chosen for the following reasons:

- They include enough publically owned land to physically locate a new water storage facility within the existing boundaries of the site.
- They are geographically located an adequate distance away from the existing elevated storage tank. This provides a benefit for efficient operation of the distribution system.
- They are focused in the northern portion of the Town where pressures and flows are generally lower than in other areas of Town (as evidenced by the two "areas of concern" discussed in Section 2.11).
- They can be integrated with existing (Well 1) or future (Well 4) water facilities.

Site 1 – The Existing Well 1 Site

The Well 1 Site is located east of St. George Street North, north of Queen Street East. The site is a grassed area, sloping to the north towards Trout Creek. Trout Creek is located approximately 30 m north of the existing Well Treatment Building and approximately 60 m north of Well 1. The entire site is approximately 45 m by 85 m. The proposed storage facility would be located south of both the Well Treatment Building and Well 1. The flood limits cross the site approximately where the existing Well Treatment Building is located. The grade at Well 1 is approximately 2 m higher in elevation than the grade at the Well Treatment Building and the area south of Well 1 is at a higher elevation yet. There are no significant natural features known at or adjacent to this site.

The original well pumping building was built in 1899 and still exists at this site. Adjacent to the well pumping building is the Water Treatment Building, which was refurbished in 2002. The Ministry of Tourism and Culture checklists for Evaluating Archaeological Potential, and Built Heritage Resources and Cultural Heritage Landscapes have been completed for this site (included in Appendix B). While the site is located within 300 m of a body of water and adjacent to early transportation routes (the existing CN railway), the site has undergone extensive disturbance as a result of the installation of the existing infrastructure facilities at the site, including Well 1 and the Water Treatment Building.

With respect to cultural heritage, the site is not identified as a 'Heritage Conservation Site' in the Town of St. Marys Official Plan – Schedule D Community Improvement Areas, Heritage Conservation Sites. The site does contain a building (the well pumping building) over 40 years old with a municipal commemorative plaque. The site contains several municipal water infrastructure buildings, including the water treatment building and well house for Well 1, which is over 40 years old and has a municipal commemorative plaque. Given the existing municipal infrastructure at this site (a well and water treatment building), locating an in-ground reservoir and booster pumping station at the Well 1 property is not expected to impact cultural or built heritage. Consideration would be given to integrating the exterior appearance of the buildings.

Site 2 – The Future Well 4 Site

This site is a vacant, grassed lot located west of James Street North and north of Glass Street. There is a residential area located to the east and agricultural fields located to the west. Depending on the type of facility constructed, adjacent residents may also have their view impacted and experience shading on their property. Building a water storage facility at this site may also impact future residential development in the immediate area. The site is, however, remote from the existing wells, which is positive for efficient operation of the distribution system. A test well at this site was completed in 2002 and although the original casing remains on site, no further site development has occurred. There are no significant natural or cultural features at or adjacent to this site.

The Ministry of Tourism and Culture checklists for Evaluating Archaeological Potential, and Built Heritage Resources and Cultural Heritage Landscapes have been completed for this site (included in Appendix B). From these checklists, the site has low potential for archaeological and cultural heritage resources. With respect to cultural heritage, the site is not identified as a 'Heritage Conservation Site' in the Town of St. Marys Official Plan – Schedule D Community Improvement Areas, Heritage Conservation Sites.

4.5.1 Site Evaluation Criteria

A number of factors were considered for the evaluation of the sites, including: cost, the need to purchase property, impacts to adjacent properties, remoteness from the municipal wells and the presence of significant natural and/or cultural features.

Evaluation criteria were developed for determining the relative advantages and disadvantages of each of the sites. The criteria cover social, economic, technical and natural environment impacts. The sites were compared against each other for each factor and given a score. The scoring system used in the evaluation process is as follows:

- 5 – option is superior relative to the other options;
- 4 – option is better than most other options;
- 3 – option is somewhat better than the other options;
- 2 – option is the same as the other options;
- 1 – option is not as good as the other options;
- 0 – option is very poor relative to the other options.

The outcome of the evaluation of the alternative sites is discussed in Section 4.5.3.

4.5.2 The Alternative Site Evaluation

To evaluate the two potential sites for a water storage facility, a comparative evaluation system was developed and used. A number of technical, environmental, and social criteria for each site were identified and scored according to the process set out in Section 4.5.1. The evaluation is summarized in Table 4.5

Table 4.5
Site Comparison Analysis of Potential Water Storage Facility Sites

WATERMAIN	Well 1 Site		Well 4 Site	
Capital Costs	Minimal	5	Minimal	5
Ability to stage watermain construction	Yes, additional watermain improvements to address pressure/flow concerns in other portions of community can be staged	5	Yes, additional watermain improvements to address pressure/flow concerns in other portions of community can be staged	5
Connections to water distribution grid (the more the better)	Satisfactory linkage, with additional connection points possible	4	Satisfactory linkage, but would benefit from larger connecting watermains	3
New watermain replaces inadequate watermain	The Town plans to replace the existing 1899 watermain on George Street between Queen Street and Trout Creek.	5	No	1
Provides additional fire flow/system pressure to areas of concern identified in Section 2.9	Provides a slight overall improvement to the north portion of Town.	3	Improves conditions in the north portion of Town, principally to the properties located near the Well 4 site, but only moderately improves conditions along Emily Street.	4
Presence of significant natural and/or cultural features	None anticipated. Heritage building (former pumping station) located at site, but proposed water storage is located far enough away that no impacts are anticipated.	5	None anticipated	5
Disruption of natural features	No disruption anticipated	5	No disruption anticipated	5

STORAGE FACILITY	Well 1 Site		Well 4 Site	
Need to purchase property	Public land is available	5	Public land is available	5
Impact to adjacent properties during construction	Site is located in Town but due to its closeness to Trout Creek, there is minimal residential development surrounding the site.	3	Site is fairly rural, impact to adjacent residences is anticipated to be minimal.	4
Remote from wells (remote is a positive)	Next to existing Well 1.	2	Next to potential future Well 4.	3
Impact to adjacent properties – shading, view	None anticipated.	5	Adjacent residences may have their view impacted and be impacted by shading.	1
Impact on future development – shading, view, loss of development site	None anticipated.	5	Land could potentially be used for future development – may also impact future development in surrounding area.	1
Presence of significant natural and/or cultural features	Near Trout Creek and former pumping station building (100+ years old). Proposed location for new storage is far enough away that impacts to either are not anticipated.	4	No significant natural/cultural features. Site is a grassed, vacant lot.	5
Disruption of natural features	Minimal.	5	Minimal.	5
Approximate geodetic elevation (Presented for information purposes)	306 masl		328.5 masl	
Total Score (out of 70)		**61**		**52**

4.5.3 Conclusion of the Comparative Analysis

The cumulative scores for each site were calculated and the site with the highest score, and therefore, the most preferred based on this analysis, is the Well 1 site. This site scored 61 out of a possible 70. The Well 4 site scored lower at 52. The lower score at the Well 4 site is mostly a reflection of the potential for shading/visual impacts to adjacent residences, both existing and future.

4.5.4 Costing

The probable cost noted below (Table 4.6) for an elevated tank is based on a 50 year design scenario (which requires 2,400 m^3 of additional storage capacity). It anticipates that growth will occur at the medium population growth projection of 0.75%/year.

The initial reservoir construction cost is based on providing a 2-cell reservoir with a storage capacity of 1,600 m^3. It is anticipated that this additional storage will satisfy the Town's requirements until approximately 2031 (i.e. for 15 years). The total costs over a 50 year period include the addition of a third reservoir cell to bring the total additional storage capacity up to 2,400 m^3. It is noted that the actual design storage volume may change depending on the final facility design. A key advantage of the reservoir is the opportunity to stage the construction and total storage volume in phases. This reduces the financial risk of constructing the facility based on a long term population projection and provides the ability to reassess the total storage volume in the future.

Table 4.6
Elevated Storage Tank versus Ground Level Reservoir
Comparison of Opinion of Probable Cost

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Total Construction Cost	2,497,000	1,654,000
Contingencies	325,000	248,000
Engineering	275,000	215,000
Initial Construction Costs (Subtotal)	**3,097,000**	**2,117,000**
Interest Charges[1.]	**995,000**	**680,000**
Reservoir expansion in 17 years	-	307,000
Elevated tank recoating costs in 25 years	271,000	-
Future Contingency and Engineering	87,000	86,000
Future Construction Costs (Subtotal)	**358,000**	**393,000**
Power costs for first 25-years	71,000	358,000
Power costs for year 25-50	87,000	440,000
Power Costs (Subtotal)	**158,000**	**798,000**
Equipment Replacement Costs	**-**	**213,000**
Total Construction Costs	**$4,450,000**	**$4,201,000**

Notes
1. Assumes full amount is borrowed for 15 years at 3.7%.
2. Does not include watermain replacement on St. George Street.

In terms of initial capital cost, Table 4.6 indicates that the ground level reservoir and pumping station will be the less costly alternative. Future construction costs are anticipated to be similar for the two alternatives; however, the reservoir will require additional power and equipment replacement costs. Even with the additional power/equipment replacement costs, over a 50 year period it is anticipated that the reservoir will be less costly than the elevated storage tank.

4.5.5 Summary of Alternative Storage Type Comparison

The evaluation of Alternative 1 included an examination of three types of water storage facilities: an elevated tank, a reservoir and booster pumping station, and a standpipe. The advantages of an elevated tank include gravity storage, energy efficiency and a smaller footprint. Disadvantages include visual intrusion and shading impacts, as well as the inability to expand the storage in the future. Reservoirs require booster pumps to maintain pressure and tend to have higher operating and maintenance costs as a result. This type of facility requires more space, but can be expanded. Standpipes also require booster pumps to access the majority of water stored, making the facility less energy and cost efficient. Additionally, a standpipe is not expandable and can impact adjacent properties by shading. Given these disadvantages, standpipes were not assessed any further.

In addition to alternative storage types, the evaluation of Alternative 1 included an examination of two alternative storage locations: at the existing Well 1 Site, and at the future Well 4 Site. Based on an initial comparison analysis of the two sites, it was determined that a reservoir and booster pumping station could be constructed at the Well 1 Site for less cost than if it were constructed at the Well 4 Site. Alternatively, an elevated storage tank could be constructed at the Well 4 Site for less cost than if it were constructed at the Well 1 Site. Based on this finding, two options were presented for a further evaluation: Option 1 – A reservoir and booster pumping station at the existing Well 1 Site and Option 2 – An elevated storage tank at the future Well 4 Site.

Based on the analysis completed to date, the reservoir and booster pumping station at the Well 1 Site will be less costly than an elevated storage tank at the Well 4 Site both as an initial capital investment and over a 50 year lifecycle. Further, the reservoir alternative allows the construction and costs to be phased, reducing the risk of over-sizing or under-sizing the facilities if growth is not as predicted.

After considering the advantages and disadvantages of each type of facility, a reservoir and booster pumping station at the Well 1 Site is considered the preferred type of storage facility.

4.6 Identification of a Preferred Solution

Based on the results of the assessments as reported above and a review of the technical components associated with the project, the Town has indicated a preference for Alternative 1; to construct a new water storage facility. Furthermore, the preferred type and location for a new storage facility is a reservoir and booster pumping station, constructed at the existing Well 1 Site – East of St. George Street North and north of Queen Street East. There are a number of attributes associated with the use of a reservoir and booster pumping station at the Well 1 Site which justify its consideration as the preferred option for addressing the lack of water storage in the Town of St. Marys:

- It provides St. Marys with adequate storage capacity to service the existing population, as well as, the projected 15 year design population with provision to expand in phases to meet 50 year population projections.
- The life cycle cost of a reservoir and booster pumping station will be less than that of an elevated storage tank.
- One advantage offered by elevated tanks is that they use gravity to achieve system pressures, rather than booster pumps. This provides security in the supply and reduces mechanical complexity. In the case of St. Marys, there is an existing elevated storage tank connected to the system, meaning that the drinking water system already has some level of security as a portion of the water storage volume will always be available by gravity. Adding a second elevated tank would offer little in terms of added security as compared to constructing a reservoir and booster pumping station.
- The existing Well 1 supply could be reconfigured as the primary source of supply to the new reservoir proposed to be located at this site. Reconfiguring the Well 1 supply in this manner will help to offset the additional operating costs associated with adding the new reservoir and booster pumping station to the drinking water system.
- Locating the new storage facility in the north central portion of Town provides additional redundancy/security to the drinking water system as it will be located a reasonable distance away from the existing elevated storage tank. It will also provide some benefit of increased pressure and flow to the north and east portions of Town as well as the higher risk downtown core area due to its close proximity to these sectors.

5.0 CONSULTATION

5.1 General

Public consultation is an integral component of the Class EA process. Public consultation allows for an exchange of information which assists the proponent in making informed decisions during the evaluation of alternative solutions. During Phases 1 and 2 of the study process, consultation was undertaken to obtain input from the general public, stakeholders, and review agencies that might have an interest in the project.

The components of the public consultation program employed during the Class EA study are summarized in this Section of the Screening Report and documented in Appendix C. Comments received from the program and related correspondence are discussed below and also documented in Appendix C.

5.2 Initial Public Notice

Contents:	General study description, summary of proposed work, notice of Public Information Centre date and location
Issued:	May 14, 2014
Placed In:	St. Marys Journal Argus
Circulated To:	Adjacent property owners in the vicinity of Well Site 1 and Well Site 4
Input Period:	Concluded June 27, 2014

No comments were received from members of the public as a result of the Notice.

5.3 Government Reviewing Agencies

Input into the Class EA process was solicited from government review agencies by way of direct mail correspondence. Agencies that might have an interest in the project were initially sent a letter entailing the nature of the project.

Appendix C contains a copy of the information circulated to the review agencies and a list of the agencies request to comment on their project. Formal written correspondence from the agencies is also provided. A summary of the comments received can be found in Table 5.1.

Table 5.1
Summary of Review Agency Comments

Review Agency	Comments/Concerns	Actions Taken
Ministry of Environment June 3, 2014 (Email)	Asked for copy of the 2012 Burnside Master Service Strategy for St. Marys. Noted requirements for review of draft ESR and requirements for First Nation and Métis community consultation.	Noted.
Ken Bettles, Director of Public Works, Township of Perth South June 24, 2014 (Email)	If Well site 4 becomes a preferred alternative, or if existing wells are expected to have a significant change in pumping rates, please consider any new or changes to significant threat areas related to Source Water Protection.	Noted.
Upper Thames River Conservation Authority July 2, 2014 (Email)	Requested opportunity to review draft ESR. Any works within the Regulation Limit will require written approval from UTRCA prior to undertaking any works. Advised that the UTRCA uses the 1:250 year flood event at the Regulatory Flood Event Standard. At detail design stage, all designs will need to ensure adherence to UTRCA flood policies and flood proofing for the 1:250 year flood event. Depending on project specifics a geotechnical assessment may be required for any potential water storage facility in the erosion hazard associated with Trout Creek. The EA should consider regulatory requirements of the Clean Water Act and Source Protection Plan as well as designated vulnerable areas. The EA includes alternatives for municipal water supply and pumping which could have an implication on vulnerable areas defined in the approved Assessment Reports. The proponent should consider this in their assessment of alternatives.	Noted request to review and information regarding regulatory requirements. Noted. Noted. Information regarding Source Protection is included in Sections 4.3.1 and mitigation measures (Section 6.4.1).

Review Agency	Comments/Concerns	Actions Taken
Upper Thames River Conservation Authority July 2, 2014 (Email)	The advanced model developed for the Water Quality Risk Assessment could be applied to determine the net changes to vulnerable areas. The proponent should consider applying the new models to the delineation of vulnerable areas for the proposed new well and refinements to the vulnerable areas associated with the existing wells. It is important to consider whether the storage alternatives being considered may also have impacts on vulnerable areas. If pumping from wells is changed substantially, this could have an impact on the size and shape of the vulnerable areas.	A new well is not proposed as a solution and delineation of vulnerable areas is beyond the scope of this study. The proposed solutions are not expected to significantly change pumping from the wells and will not impact the size or area of vulnerable areas.

5.4 Public Meeting

A Public Information Centre (PIC) meeting was held on May 28, 2014 at the St. Marys Municipal Operations Centre for the St. Marys Water System Upgrades, in conjunction with two other municipal infrastructure projects. A notice announcing the meeting was placed in the May 14 and May 21 editions of the St. Marys Journal Argus. The notice was also circulated to 57 property owners adjacent to the proposed alternative sites (Well 1 and Well 4). The format of the meeting included an open house component and a formal presentation of the study components, followed by a question and answer session.

The general purpose of the meeting was to provide audience members with the following:

- A summary of the Class EA process;
- A review of the St. Marys Water System
- Review of the problem statement and alternative solutions, including alternative sites and storage facility types;
- An overview of the next steps in the EA process.

There were approximately 30 residents in attendance. Following the meeting, one resident provided comments (included in Appendix C). A copy of the presentation can be found in Appendix C. The following table (Table 5.2) outlines the comments raised at the PIC.

Table 5.2
Summary of Comments from the Public Information Meeting

Comments/Concerns	Response
Why isn't a ground level reservoir being considered at Well 4?	The Well 4 site is better suited for an elevated tank, given its elevation. A reservoir would be more costly at Well 4 than at Well 1.
Would the Town be responsible for the cost of this project?	The Town would be responsible for funding the project; however funding sources, such as government grants, will be investigated.
Was the Well 4 site identified as a potential site for an elevated storage facility because there is a well there?	The Well 4 site was identified because it is owned by the Town, there is already a well there, and there is suitable space for a facility. It was noted that the Well 1 site is too low for an elevated tank (would require a very tall tower which would be costly).
Should we have underground water storage in a floodplain?	Potential impacts related to flooding will be examined as part of the EA.
What risks are associated with having municipal wells in the floodplain?	An Environmental Assessment completed in 2002 examined flooding impacts to the wells located in the floodplain.
Would an increase in storage increase flows in the WWTP?	A greater volume of stored water would not impact the WWTP.
Is it possible to put a storage facility near the existing storage facility?	Siting the storage facilities away from each other would improve system efficiency and pressures across the system.
How big is the current storage facility, how much more storage is needed?	The existing storage facility has a capacity of 1,820 m^3 and that over the 50-year design period, an additional 2,400 m^3 is required. An elevated tank is not expandable and if that was chosen as the type of storage facility, it would be sized for 2,400 m^3. A reservoir could be built in phases, initially smaller with an expansion later, if required.

Further, a Council presentation was made by BMROSS staff on February 3, 2015 to present the findings of this study.

5.5 First Nation and Métis Consultation

As directed by the MOECC in their correspondence dated June 3, 2014, a number of federal and provincial agencies were contacted at the start of the EA process to determine if there was any First Nation and Métis interest in this project. The following communities were sent a letter outlining the project (included in Appendix C):

- Métis Nation of Ontario
- Walpole Island First Nation
- Chippewas of Kettle and Stony Point First Nation
- Aamjiwnaang First Nation

- Oneida Nation of the Thames
- Munsee-Delaware Nation
- Moravian of the Thames
- Caldwell First Nation

The letter included information regarding the PIC, an offer to forward the material presented, and a self-addressed stamped envelope with a response form. No response forms or comments were received. Copies of all correspondence sent is included within Appendix C. First Nation and Métis communities will be mailed the Notice of Completion.

5.6 Adjacent Property Owners

Properties adjacent to the two alternatives sites under consideration were individually circulated the Notice of Study Commencement/PIC. This correspondence provided property owners with the opportunity to provide input on the Class EA process as well as to provide feedback on the potential impacts to their property or the general study area. No comments were received from adjacent property owners following the mail out and the public meeting.

5.7 Consultation Summary

The public consultation program developed for this project was directed towards property owners located in the immediate vicinity of the alternatives sites, residents of St. Marys and provincial review agencies. Comments during the public meeting reflected a positive attitude towards the project. Agency consultation entailed the standard feedback from provincial review agencies.

6.0 IDENTIFICATION OF POTENTIAL IMPACTS AND MITIGATION MEASURES

6.1 Framework of Analysis

Following the selection of Alternative 1 and a ground-level reservoir and booster pumping station at the Well 1 site as the preliminary preferred alternative, a study framework was developed to further evaluate the potential impacts of implementing this project. For reference, a preliminary site plan has been included (Figure 6.1). The purpose of this review was to assess the environmental interactions resulting from the construction and operation of the proposed works, and to determine if the identified interactions would generate potential environmental impacts.

The assessment of the preferred alternative incorporated these activities:

- Assessment of the construction and operational requirements of the proposed works.
- Examination of the project implementation plan
- Consultation with the public, stakeholder groups and government agencies.
- Review of engineering methodologies associated with the construction of a ground-level reservoir and booster pumping station.
- Prediction of the environmental interactions between the proposed works and the identified environmental components.

- Identification of specific environmental features that may be impacted, in a significant adverse manner, by the proposed works.
- Evaluation of the potential impacts of the project on the environmental features, including residual effects following mitigation.

The following section of the report summarizes the findings of the evaluation process.

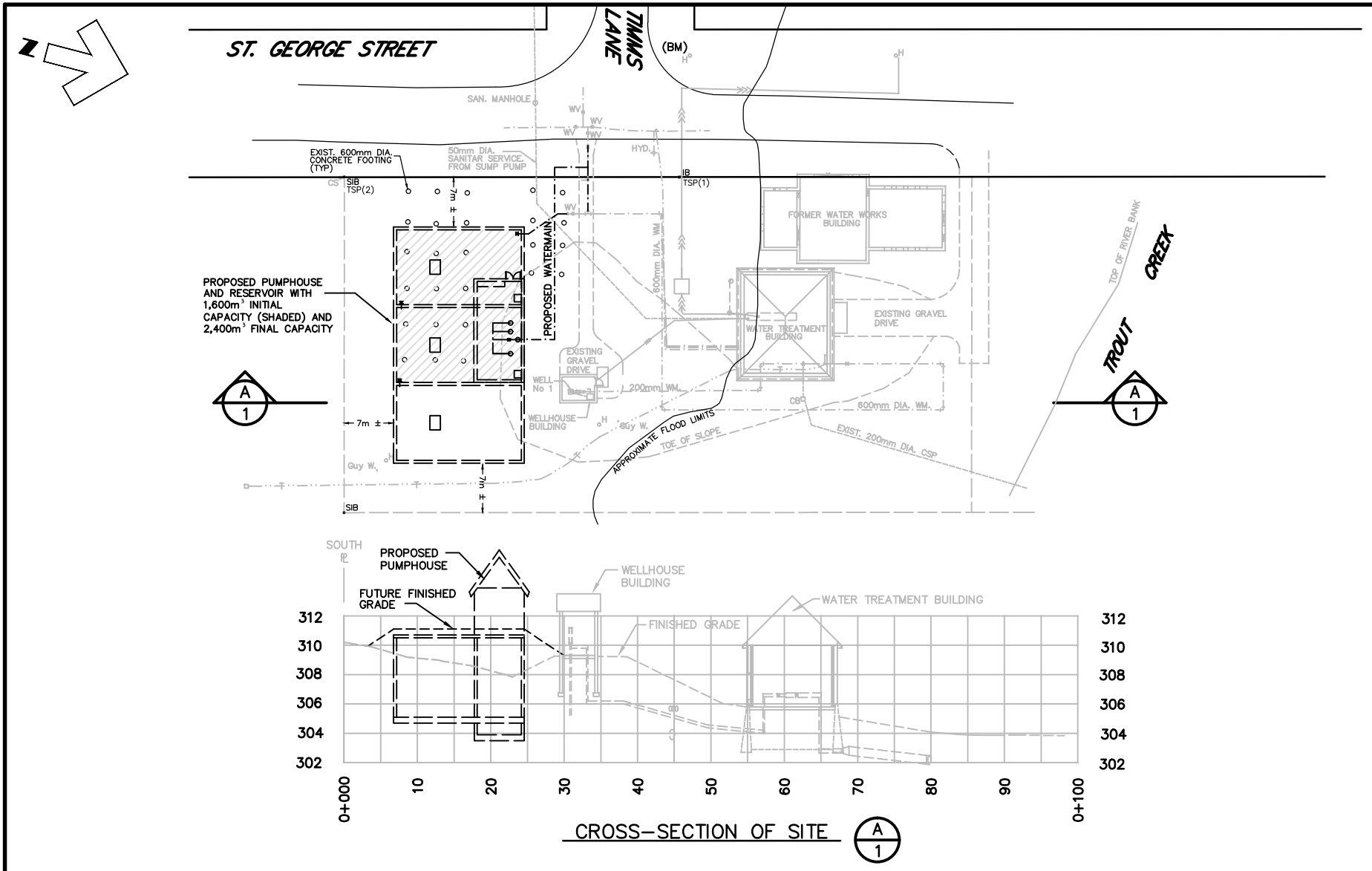
6.2 General Project Scope

The works summarized below and illustrated conceptually in Figure 6.1 represent the scope of construction planned for this project.

6.2.1 General Construction Sequence

The construction plan for this project includes the following general tasks:

- Mobilize to the site.
- Complete site layout.
- Employ erosion and sediment controls, as required (conduct routine inspections of erosion controls throughout the construction period).
- Replacement of the existing watermain on St. George Street between Queen Street and Trout Creek.
- Construction of a new multi-cell concrete reservoir to store approximately 1,600 m^3 of treated water with provision to expand the reservoir in the future by adding approximately 800 m^3 of additional storage. Storage volume will ultimately be determined during the final design.
- Construction of a pumphouse building above portions of the reservoir, complete with all required HVAC, plumbing, mechanical and electrical ancillary works.
- Installation of high-lift pumps inside the pumphouse building, sized to meet varying flow demand scenarios.
- Investigation of existing generator, potential installation of a new generator to service the high-lift pumps or replacement of the existing generator in the existing water treatment building with a new generator sized to service all onsite electrical works, if the existing generator is not sufficient.
- Installation of new watermain to connect the reservoir to the drinking water system.
- Grade and restore disturbed areas.
- Complete all required documentation and reporting on the works.
- Conduct any required remediation.



BMROSS engineering better communities

Town of St. Marys

Site Plan and Cross-Section for Proposed Reservoir at the Well 1 Site

DATE	PROJECT No.
Apr. 14, 2016	13014
SCALE	FIGURE No.
N.T.S.	6.1

6.3 Impact Assessment and Mitigation

6.3.1 Environmental Interactions

An assessment was conducted to identify and evaluate the environmental interactions which could arise from project implementation. The assessment examined the potential impacts of constructing and operating the proposed works on the defined environmental sub-components. Table 6.1 summarizes the findings of the interactions assessment.

Table 6.1
Assessment of Construction and Operation Impacts

	Components/ Sub-components / Project Activities	Natural			Social	Cultural	Economic		Technical
		Aquatic	Terrestrial	Geologic	Community	Heritage	Municipal	Community	Infrastructure
1	**Construction Phase**								
	Mobilization	○	○	○	○	○	○	○	○
	Employ erosion controls	○	○	○	○	○	○	○	○
	Complete site layout	○	○	○	○	○	○	○	○
	Excavate and construct in-ground reservoir	○	●	●	○	○	●	○	●
	Construct pumphouse for reservoir	○	○	○	○	○	●	○	●
	Install watermain connection to existing system	○	●	●	○	○	●	○	●
	Install overflow storm sewer and connect to existing system	○	●	●	○	○	●	○	●
	Site grading and restoration	○	○	○	○	○	○	○	○
2	**Operations Phase**								
	Routine maintenance/sampling	○	○	○	○	○	○	○	○
	Snow removal	○	○	○	○	○	○	○	○

● Potential for environmental effect ○ No environmental effect anticipated

6.4 Assessment of Interactions

Based upon the findings of the general impact assessment (Tables 4.3 and 4.4), the environmental interactions analysis (Table 6.1) and input received through the public and agency consultation program, the project has the potential to impact upon several environmental features. The potential impacts are associated with the following project issues and components:

- Natural Environment
- Economic Environment
- Technical Environment

This section of the report summarizes the above-noted matters and outlines the measures proposed to mitigate potential environmental effects. The selection of mitigation measures incorporated an evaluation of alternative forms of mitigation and a consideration of three broad approaches to mitigation: avoidance, minimization of adverse effects, and compensation.

6.4.1 Discussion of Potential Impacts

Natural Environment – Flooding and Erosion

It has been identified during the course of the Class EA process that construction of a water storage facility at the Well 1 site may have potential impacts related to flooding and erosion, given the proximity of the site to Trout Creek. Correspondence with the Upper Thames River Conservation Authority indicated that the 1:250 year flood event is the regulatory standard. The proposed storage facility will be located south of the existing Water Treatment Building and well house building, above the flood limits. Preliminary thinking is that the finished grade above the reservoir will be elevated approximately 3 m above the existing grade.

Natural Environment – Source Water Protection

The proposed water storage facility is located within 100 m of Well 1, and is therefore, within Wellhead Protection Area (WHPA) A as defined in the Upper Thames River Source Protection Area Assessment Report. Given this, there are potential impacts related to Source Water Protection as a result of construction and operation of an in-ground reservoir and booster pumping station. The Thames-Sydenham and Region Source Protection Plan (Volume III – Policies affecting the Thames-Sydenham and Region Source Protection Region except Oxford County) was consulted to identify the policies related to potential impacts that may be encountered during construction and operation of the facility (Table 6.2) (Ref. 14)

Table 6.2
Source Water Protection Policies Related to Potential Impacts

Threat/Impact	Policy No.	Mitigation
Fuel Storage and Handling	2.40	• To mitigate threats related to fuel storage, fuel for machinery used during construction will be stored outside of vulnerable areas • The contractor will be required to refuel equipment outside of vulnerable areas and not at the site.
Fuel Storage and Handling – Back-up Generators	2.42	• The Source Protection Policy recognizes the need to store and manage fuel for emergency back-up generators at well sites. It is likely that there will be an additional emergency generator at this site to operate the reservoir pumps. • To mitigate the threat of fuel stored at the site for the generator, the Municipality will adhere to the terms and conditions of Policy 2.42 and its required measures, which may include (but are not limited to): use of double walled tanks, secondary containment, and regular inspection of tanks and handling equipment.
DNAPLS – Handling and Storage	2.47	• Handling and storage of DNAPLS in substantial quantities and concentrations are prohibited in highly vulnerable areas. • It is not likely that DNAPLS will be used during construction or operation of the reservoir, however, the contractor will be made aware of the policy prohibiting DNAPLS at the construction site.
Organic Solvents – Handling and Storage	2.49	• Handling and storage of organic solvents in substantial quantities and concentrations are prohibited in highly vulnerable areas. • It is not likely that organic solvents will be used during construction or operation of the reservoir, however, the contractor will be made aware of the policy prohibiting organic solvents at the construction site.
Environmental Assessment Reviews	4.12	• This policy states that Conservation Authorities should review EA documentation to reduce risk to drinking water sources. • Upper Thames Conservation Authority provided initial comments related to Source Water and will receive a copy of this Screening Report for additional comments.

Economic Environment – Capital Costs

The lifecycle cost of construction and operation of the booster pumping station and reservoir is estimated at approximately $4.2 million dollars. To mitigate the potential economic impacts of the proposed work, the project can be financed through a combination of: contributions from reserves; debentures; and water rate revenue. A portion of the cost of the project is attributable to growth and can be financed through development charges. Additionally, the Town can pursue federal and provincial infrastructure grants to offset the cost of the project.

Technical Environment - Infrastructure

Construction of the reservoir and booster pumping station may have temporary impacts to existing municipal infrastructure adjacent to the site. These impacts may include temporary disconnections and service interruptions to connect the new reservoir to the water distribution system and stormwater system. These interruptions are expected to be temporary and localized.

6.4.2 Construction Impacts

Construction-related activities associated with project implementation have the potential to impact upon existing environmental features, the general public and construction workers. The Contractor would therefore be responsible for carrying out these activities in accordance with industry safety standards and all applicable legislation. Mitigation measures will also be incorporated into the construction specifications to ensure that operations are conducted in a manner that limits detrimental effects to the environment.

Table 6.3 outlines a series of mitigation measures that are commonly incorporated into construction specifications. For this project, contract specifications may need to be modified depending upon the nature of the construction activity and any additional requirements of the regulatory agencies.

Table 6.3
Construction Mitigation Measures

Construction Activity	Planned Mitigation
Refueling and Maintenance	-Identify suitable locations for designated refueling and maintenance areas, outside of areas identified where fuel handling and storage are identified as a significant drinking water threat. -Avoid cleaning equipment in watercourses and in locations where debris can gain access to sewers or watercourses. -Prepare to intercept, clean-up, and dispose of any spillage which may occur (whether on land or water).
Traffic Control	-As applicable, the Contractor shall prepare and submit a traffic plan to the Project Engineer for review and acceptance. -Traffic flow to private access should be maintained at all times during construction. If it is necessary to detour traffic, the Contractor will co-ordinate the routing and provide adequate signage and barricades. -Traffic flow to access the Water Treatment Building should be maintained at all times during construction.

Construction Activity	Planned Mitigation
Disposal	-Dispose of all construction debris in approved locations. -Avoid emptying fuel, lubricants or pesticides into sewers or watercourses.
Work in Sensitive Areas	-Avoid encroachment on unique natural areas; do not disturb habitats of rare of endangered species. -All work will occur in dry conditions. -Slopes disturbed by the construction will be stabilized upon completion of the work.
Drainage and Water Control	-All portions of the work should be properly and efficiently drained during construction. -Provide temporary drainage and pumping to keep excavation and site free from water. -Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with approval agency requirements. -Provide settling ponds and sediment basins as required. -Do not direct water flow over pavements, except through approved pipes/troughs. -Install and maintain silt fences down slope from any stockpile locations.
Dust Control	-Cover or wet down dry materials and rubbish to prevent blowing dust or debris. -Avoid the use of chemical dust control products.
Site Clearing	-Protective measures shall be taken to safeguard trees from construction operations. -Equipment or vehicles shall not be parked, repaired or refueled near the dripline area of any tree not designated for removal. Construction and earth materials shall not be stockpiled within the defined dripline areas. -Restrict tree removal to areas designated by the Contract Administrator. -Minimize stripping of topsoil and vegetation.
Sedimentation and Erosion Control	-Erect sediment fencing to control excess sediment loss during the construction period. -Minimize the removal of vegetation from slopes. -Protect watercourses, wetlands, catch basins and pipe ends from sediment intrusion. -Complete restoration works following construction.
Noise Control	-Site procedures should be established to minimize noise levels in accordance with local bylaws. -Provide and use devices that will minimize noise levels in the construction area (as practical). -Night time or Sunday work shall not be permitted, except in emergency situations.

6.4.3 Operations Phase

Upon completion of the planned construction, the proponent will maintain the reservoir and boosting pumping station facilities in accordance with normal municipal practices. In this regard, the new servicing infrastructure would be subject to routine maintenance activities. Standard response procedures would also be employed to resolve problems with the constructed works, as well as emergencies. All waterworks facilities will be operated and maintained by the Town's contracted operating authority in accordance with MOECC guidelines and current provincial water system regulations. The Town currently has an approved Drinking Water Quality Management System.

6.4.4 Council Updates

Throughout the Class EA process, BMROSS staff met with municipal staff and Council to discuss the project and seek input. Council support was also obtained for all major activities associated with the Class EA process. A presentation was made to Town staff on May 27, 2014 and to Council on February 5, 2015.

7.0 CONCLUSIONS AND PROJECT IMPLEMENTATION

7.1 Conclusions

Based upon the findings of the environmental evaluation, no significant environmental impacts were identified with Alternative 1 that could not be adequately mitigated. In this respect, implementation of the proposed project appears to be appropriate for the study area and should not result in adverse environmental effects.

7.2 Selection of Preferred Alternative

Given the foregoing**, Alternative 1 – Construct a new water storage facility** was selected as the preferred solution to the identified problem. The preferred type and site of water storage facility is an in-ground reservoir and booster pumping station at Well Site 1. A study recommendation to this effect was presented to and supported by the Council of the Town of St. Marys. The proposed works associated with the preferred alternative are generally itemized in Section 6.2.1 and illustrated in Figure 6.1

7.3 Class EA Project Schedule

The recommended solution is considered a Schedule 'B' project under the terms of the Municipal Class EA document, as the project requires the construction of a new water storage facility. The process of implementing this alternative involves the submissions of this screening report to the Municipality and the publication of a Notice of Completion of the Class EA process in the local newspaper.

7.4 Project Implementation

A tentative schedule for the proposed construction has been prepared based on the assumption that all necessary approvals and design work will be completed by the fall of 2017 and that the project is planned to be included within the capital works budget for 2018 or 2019. The following represents the schedule for the completion of the key project components:

- Completion of final design drawings and receipt of required approvals (fall 2017)
- Tendering of the project (spring 2018)
- Initiation of works (summer 2018)
- Completion of works (spring 2019)

7.5 Final Public Consultation

A Notice of Completion was circulated to local residents, stakeholders and government review agencies. The Notice identified the preferred alternative and provided the process for appeal of the selected alternative (i.e., a Part II Order request to the Minister of Environment prior to the conclusion of the review period) if there are unresolved environmental issues (see Appendix C).

The following summarizes the distribution of the Notice.

Contents:	Identification of the preferred solution, key project components, key plan
Issued:	July 20, 2016
Placed In:	St. Marys Journal Argus, St. Marys Independent
Distributed to:	50 adjacent property owners
Review Period:	Concludes August 19, 2016

7.6 Approvals

7.6.1 General

Implementation of the recommended solution is subject to the receipt of all necessary approvals. Following a review of the existing framework of legislation, it was determined that 2 formal approvals may be required to permit construction of the proposed works. This section of the report identifies the applicable legislation and summarizes the intent of the associated approvals process.

The recommended solution is considered a Schedule B project under the terms of the Class EA document, as the project involves the construction of a new water storage facility. The project is approved following the completion of an environmental screening process.

The following activities are required in order to complete the formal Class EA screening process:

- Complete the 30-day review period, defined in the Notice of Completion.
- Address any outstanding issues.
- Finalize the Screening Report.
- Advise the Town and the MOECC when the Class EA study process is complete.
- Obtain necessary approvals.

7.6.2 Conservation Authorities Act – Regulated Areas

Portions of the works may occur within natural hazard and natural heritage areas regulated by the Upper Thames River Conservation Authority (UTRCA). The regulation (O. Reg 157/06 under O. Reg 97/04) requires proponents working within the defined Regulation Limits to obtain written approval from the UTRCA prior to any filling, grading, construction or alterations.

Prior to any construction related to the proposed reservoir and booster pumping station, an Application For Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be completed and submitted to the UTRCA, with required documentation and fee. No work will proceed until a permit from UTRCA is received.

7.6.3 Drinking Water Works Permit

The works associated with the preferred alternative are subject to the Safe Drinking Water Act. Accordingly, the project cannot proceed until the Town has received the necessary amendments to its existing Licence and Drinking Water Works Permit from the Ministry of Environment and Climate Change. The amended Permit will define how these works must be designed, constructed, operated and maintained in order to ensure compliance with accepted Provincial requirements.

8.0 ENVIRONMENTAL COMMITMENTS

As an outcome of this Class EA planning process, the Town of St. Marys is committed to carrying out these measures to mitigate the potential environmental impacts of project implementation:

- Typical construction mitigation will be prescribed in contract documentation as generally presented in Table 6.3, where appropriate (e.g., sediment and erosion controls, site restoration). Of particular relevance to this project are the following measures:
- Night time and Sunday work shall not be permitted, except in emergency situations.
- Measures shall be taken to meet the policy requirements for vulnerable areas, as set out in the Thames-Sydenham and Region Source Protection Plan (Volume III).
- Additional impact mitigation measures will be incorporated into the final project design, as generally discussed in Section 6.0 of this report.

9.0 SUMMARY

This report documents the Municipal Class Environmental Assessment (EA) process conducted to address water storage deficiencies in the Town of St. Marys. As detailed in this report, based on MOECC guidelines, St. Marys currently does not have enough water storage for the existing serviced population. Forecasts indicate that the population of St. Marys is expected to continue to grow and require additional storage. If additional storage is not incorporated into the water system, the current water storage deficiency will become even greater. To address inadequate storage, the Town initiated a Schedule B Class EA to investigate alternative solutions.

A background review was carried out to characterize the project study area and identify factors influencing the selection of the alternative solutions. The background review included investigations of natural heritage landscapes, Species at Risk, local planning policies, potential future development, and an examination of existing water infrastructure facilities. The background review found no Areas of Scientific Interest (ANSI) within the study area and limited habitat opportunities for Species at Risk.

A review of the existing water works facilities included an analysis of the current system capacity, water usage, projected water demand and storage requirements. Based on the deficiencies discussed previously, the following problem was identified:

According to MOECC guidelines, the St. Marys Drinking Water System does not have sufficient water storage. The storage deficit will become greater as the community grows.

To address the problem, three alternative solutions were identified:

- Alternative 1: Construction of a new water storage facility
- Alternative 2: Increasing well supply capacity to offset storage needs
- Alternative 3: Do nothing

The environmental impacts of Alternatives 1 and 3 were examined. Alternative 2 was identified as not feasible early in the evaluation process and was not examined further. The evaluation of Alternative 1 included considerations of alternative storage types (in-ground reservoir and elevated tank) and sites. Alternative 1 was found to have several potential moderate level environmental impacts; however, a new storage facility would allow the community to meet their storage requirements. Alternative 3, the do nothing alternative, has very few impacts, but does not address the existing deficiencies of the water system. Alternative 1, construction of an in-ground reservoir at Well Site 1, was selected as the preferred alternative. The potential environmental impacts of the proposed works can be effectively mitigated through the implementation of measures defined in this report.

The new reservoir is proposed to be located at the existing Well 1 site, south of the existing pumphouse and treatment buildings. It would be located at an elevation above flood limits. The reservoir could be built in phases to provide additional storage in stages and to help offset initial construction costs. It is being proposed to initially construct 1,600 m^3 of additional water storage with provision to add another 800 m^3 in the future for a total of 2,400 m^3 of additional storage. Preliminary opinions of probable costs indicate that the first phase (i.e. 1,600 m^3 storage) could be completed for approximately $2,150,000.

The proposed project is a Schedule B activity under the terms of the Class EA document. The Town of St. Marys intends to incorporate this project into the Public Works capital works program with implementation tentatively scheduled for 2018 or 2019.

All of which is respectfully submitted.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney. M.Sc. RPP, MCIP

Per _____
Ryan P. DeVries, P. Eng.

:hv

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APPENDIX A

SITE PHOTOGRAPHS

Well Site 1 – looking east from St. George St. North, showing existing well house and water treatment building.

Well Site 1 – looking southeast from St. George St. North, showing well house.

Well Site 4 – Northwest of the intersection of James Street and Edison Street

APPENDIX B

BUILT HERITAGE AND ARCHAEOLOGICAL CHECKLISTS

Ontario

Ministry of Tourism,
Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- If a property(ies) or project area:
  - Is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name
St. Marys Water Works Expansion

Project or Property Location (upper and lower or single tier municipality)
Well 1 - 55 St. George Street North, St. Marys

Proponent Name
Town of St. Marys

Proponent Contact Information
Dave Blake Supervisor Water, Wastewater, Environmental Services 519-284-2340

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☑	☐

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. Identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☐
b. a National Historic Site (or part of)?	☐	☐
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☐
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☐
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☐
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☐

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☐
b. has or is adjacent to a known burial site and/or cemetery?	☐	☐
c. is in a Canadian Heritage River watershed?	☐	☐
d. contains buildings or structures that are 40 or more years old?	☐	☐

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☐
b. has a special association with a community, person or historical event?	☐	☐
c. contains or is part of a cultural heritage landscape?	☐	☐

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

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- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
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Processes covered under this checklist, such as:

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Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

St. Marys Water Works Expansion

Project or Property Location (upper and lower or single tier municipality)

Well 4 - James St. and Edison St. St. Marys

Proponent Name

Town of St. Marys

Proponent Contact Information

Dave Blake Supervisor Water, Wastewater, Environmental Services 519-284-2340

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☑	☐

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☐
b. a National Historic Site (or part of)?	☐	☐
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☐
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☐
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☐
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☐

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☐
b. has or is adjacent to a known burial site and/or cemetery?	☐	☐
c. is in a Canadian Heritage River watershed?	☐	☐
d. contains buildings or structures that are 40 or more years old?	☐	☐

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☐
b. has a special association with a community, person or historical event?	☐	☐
c. contains or is part of a cultural heritage landscape?	☐	☐

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Ontario

Ministry of Tourism and Culture

Programs & Services Branch
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Criteria for Evaluating Archaeological Potential

A Checklist for the Non-Specialist

"Archaeological potential" is a term used to describe the likelihood that a property contains archaeological resources. This checklist is intended to assist non-specialists screening for the archaeological potential of a property where site alteration is proposed.

Note: for projects seeking a Renewable Energy Approval under Ontario Regulation 359/09, the Ministry of Tourism and Culture has developed a separate checklist to address the requirements of that regulation.

Project Name St Marys Water Works Expansion Class EA
Project Location Well Site 1 - 55 St. George Street North, St. Marys
Proponent Name Town of St. Marys
Proponent Contact Information Dave Blake - Supervisor, Water, Wastewater, Environmental Services 519-284-2340 x209

Known Archaeological Sites	**Yes**	**Unknown**	**No**
1. Known archaeological sites within 300 m of property	☐	☐	☒
Physical Features	**Yes**	**Unknown**	**No**
2. Body of water within 300 m of property If yes, what kind of water?	☒	☐	☐
a) Primary water source (lake, river, large creek, etc.)	☒	☐	☐
b) Secondary water source (stream, spring, marsh, swamp, etc.)	☐	☐	☐
c) Past water source (beach ridge, river bed, relic creek, ancient shoreline, etc.)	☐	☐	☐
3. Topographical features on property (knolls, drumlins, eskers, or plateaus)	☐	☐	☒
4. Pockets of sandy soil (50 m^2 or larger) in a clay or rocky area on property	☐	☐	☒
5. Distinctive land formations on property (mounds, caverns, waterfalls, peninsulas, etc.)	☐	☐	☒
Cultural Features	**Yes**	**Unknown**	**No**
6. Known burial site or cemetery on or adjacent to the property (cemetery is registered with the Cemeteries Regulation Unit)	☐	☐	☒
7. Food or scarce resource harvest areas on property (traditional fishing locations, agricultural/berry extraction areas, etc.)	☐	☐	☒
8. Indications of early Euro-Canadian settlement within 300 m of property (monuments, cemeteries, structures, etc.)	☐	☐	☒
9. Early historic transportation routes within 100 m of property (historic road, trail, portage, rail corridor, etc.)	☒	☐	☐
Property-specific Information	**Yes**	**Unknown**	**No**
10. Property is designated and/or listed under the *Ontario Heritage Act* (municipal register and lands described in Reg. 875 of the *Ontario Heritage Act*)	☐	☐	☒
11. Local knowledge of archaeological potential of property (from aboriginal communities, heritage organisations, municipal heritage committees, etc.)	☐	☐	☒
12. Recent deep ground disturbance† (post-1960, widespread and deep land alterations)	☒	☐	☐

† 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 widespread and deep land alterations that have severely damaged the integrity of any archaeological resources. Deep disturbance may include quarrying or major underground infrastructure development. Activities such as agricultural cultivation, gardening, minor grading and landscaping are not necessarily considered deep disturbance. Alterations can be considered to be extensive or widespread when they have affected a large area, usually defined as the majority of a property.

Scoring the results:	
If **Yes** to **any** of **1**, **2a, 2b, 2c, 6, 10, or 11**	→ high archaeological potential **–** assessment is required
If **Yes** to **two or more** of **3, 4, 5, 7, 8, or 9**	→ high archaeological potential **–** assessment is required
If **Yes** to **12 or No** to all of **1 - 10**	→ **low** archaeological potential **–** assessment is not required
If 3 or more **Unknown**	→ an archaeological assessment is required (see note below)

† **Note**: If information requested in this checklist is unknown, a consultant archaeologist licensed under the *Ontario Heritage Act* should be retained to carry out at least a Stage 1 archaeological assessment to further explore the archaeological potential of the property and to prepare a report on the results of that assessment. The Ministry of Tourism and Culture reviews all such reports prepared by consultant archaeologists against the ministry's Standards and Guidelines for Consultant Archaeologists. Once the ministry is satisfied that, based on the available information, the report has been prepared in accordance with those guidelines, the ministry issues an acceptance letter to the consultant archaeologist and places the report into its registry where it is available for public inspection.

Ontario

Ministry of Tourism and Culture

Programs & Services Branch
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Criteria for Evaluating Archaeological Potential

A Checklist for the Non-Specialist

"Archaeological potential" is a term used to describe the likelihood that a property contains archaeological resources. This checklist is intended to assist non-specialists screening for the archaeological potential of a property where site alteration is proposed.

Note: for projects seeking a Renewable Energy Approval under Ontario Regulation 359/09, the Ministry of Tourism and Culture has developed a separate checklist to address the requirements of that regulation.

Project Name
St Marys Water Works Expansion Class EA

Project Location
Well Site 4 - James Street and Edison Street, St. Marys

Proponent Name
Town of St. Marys

Proponent Contact Information
Dave Blake - Supervisor, Water, Wastewater, Environmental Services 519-284-2340 x209

Known Archaeological Sites	**Yes**	**Unknown**	**No**
1. Known archaeological sites within 300 m of property	☐	☐	☒
Physical Features	**Yes**	**Unknown**	**No**
2. Body of water within 300 m of property If yes, what kind of water?	☐	☐	☒
a) Primary water source (lake, river, large creek, etc.)	☐	☐	☐
b) Secondary water source (stream, spring, marsh, swamp, etc.)	☐	☐	☐
c) Past water source (beach ridge, river bed, relic creek, ancient shoreline, etc.)	☐	☐	☐
3. Topographical features on property (knolls, drumlins, eskers, or plateaus)	☐	☐	☒
4. Pockets of sandy soil (50 m^2 or larger) in a clay or rocky area on property	☐	☐	☒
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Cultural Features	**Yes**	**Unknown**	**No**
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11. Local knowledge of archaeological potential of property (from aboriginal communities, heritage organisations, municipal heritage committees, etc.)	☐	☐	☒
12. Recent deep ground disturbance† (post-1960, widespread and deep land alterations)	☐	☐	☒

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APPENDIX C

CONSULTATION

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 • f. (519) 524-4403
www.bmross.net

File No. 13014

May 26, 2014

Agency
(See attached list)

RE: Town of St. Marys - Municipal Class Environmental Assessment for Improvements to the Water Works Facilities.

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

This project is following the planning process set out for Schedule B activities under the Municipal Class Environment Assessment (Class EA). The purpose of the Class EA screening process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders, and review agencies. This correspondence is being issues to advise of the start of study investigations.

This correspondence is being issued to advise of the start of the study investigations and of an upcoming Public Information Centre (PIC). The PIC is being held to advise residents of information regarding this project and to receive input from interested parties. The meeting is scheduled for Wednesday, May 28, 2014 at 6 P.M. at the Municipal Operations Centre (408 James Street South) in St. Marys. If you are unable to attend, the presentation material can be forwarded at your request.

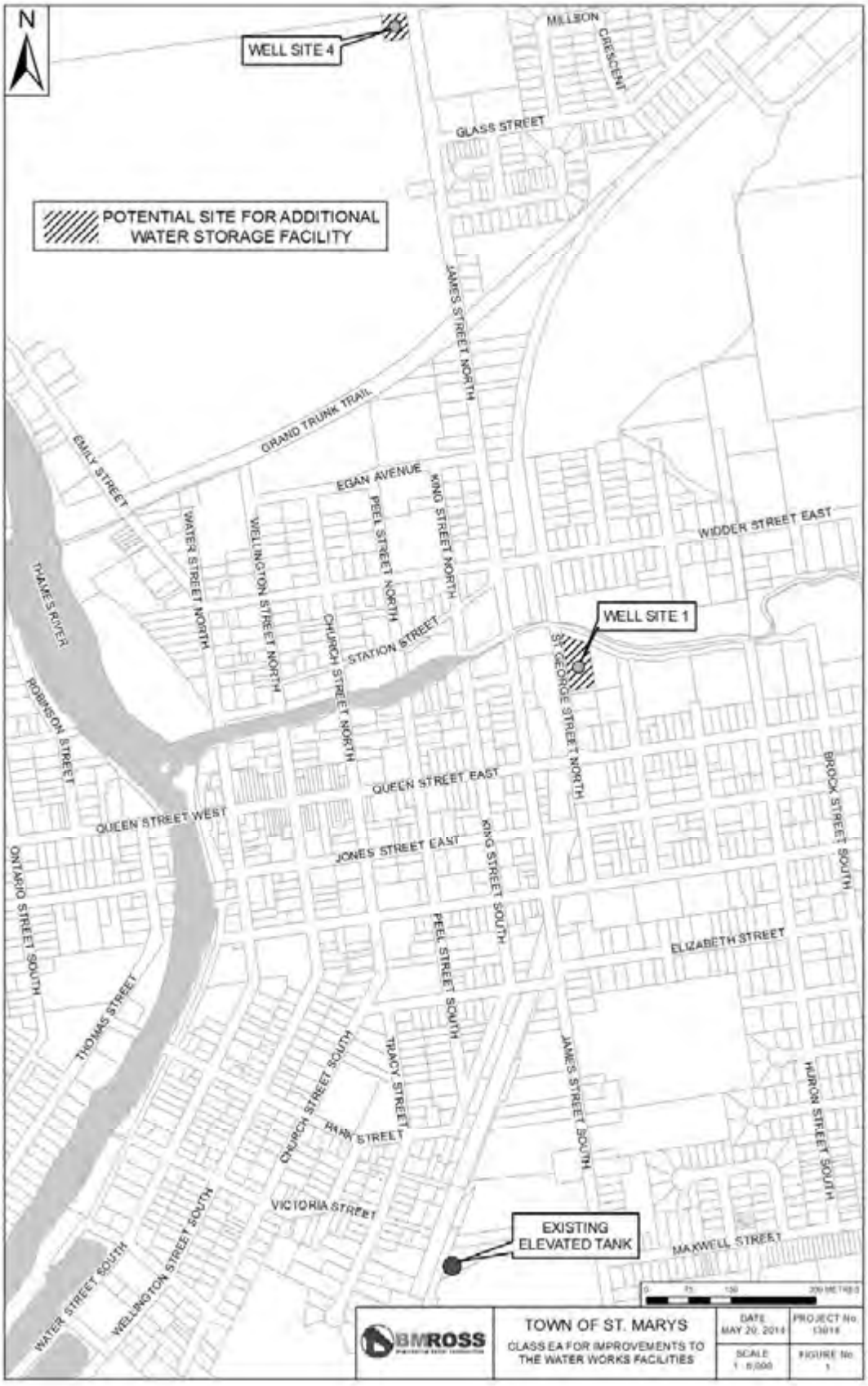
Your organization has been identified as possibly having an interest in the project and we are soliciting your input. **Please forward your response to our office by July 4, 2014**. If you have any questions or require further information, please contact the undersigned.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys


N
WELL SITE 4
MILLSON CRESCENT
GLASS STREET
POTENTIAL SITE FOR ADDITIONAL WATER STORAGE FACILITY
JAMES STREET NORTH
GRAND TRUNK TRAIL
EMILY STREET
EGAN AVENUE
KING STREET NORTH
PEEL STREET NORTH
WATER STREET NORTH
WELLINGTON STREET NORTH
CHURCH STREET NORTH
WIDDER STREET EAST
WELL SITE 1
STATION STREET
ST. GEORGE STREET NORTH
THAMES RIVER
ROBINSON STREET
QUEEN STREET EAST
QUEEN STREET WEST
BROCK STREET SOUTH
JONES STREET EAST
KING STREET SOUTH
ONTARIO STREET SOUTH
PEEL STREET SOUTH
ELIZABETH STREET
THOMAS STREET
CHURCH STREET SOUTH
TRACY STREET
JAMES STREET SOUTH
HURON STREET SOUTH
HANN STREET
VICTORIA STREET
EXISTING ELEVATED TANK
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13018
SCALE 1 : 5,000
FIGURE No. 1

TOWN OF ST. MARYS

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR THE EXPANSION OF THE WATER WORKS FACILITIES

REVIEW AGENCY CIRCULATION LIST

REVIEW AGENCY	INVOLVEMENT
Ministry of the Environment (London) - EA Coordinator	Mandatory Contact
Ministry of Natural Resources (Aylmer)	Potential Impact on Natural Features
Ministry of Culture (Toronto)	Potential Impact to Heritage Features
Ministry of Transportation (London)	General Information
Perth County - Administration Department - Planning & Development Department - Public Works Department - Emergency Services Department	General Information
Upper Thames River Conservation Authority	Potential Impact on Natural Features

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www.bmross.net

File No. 13014

May 26, 2014

Aboriginal Community
(See attached list)

RE: Class Environmental Assessment for
For Improvements to the Water Works Facilities
Town of St. Marys

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

The project is following the planning process set out for Schedule B activities under the Municipal Class Environmental Assessment (Class EA). The purpose of the Class EA process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders and review agencies.

This correspondence is being issued to advise of the start of study investigations and to advise of an upcoming Public Information Centre (PIC) being held for this project as well as several other infrastructure projects being undertaken in St. Marys. If you are unable to attend the PIC, which is scheduled for Wednesday May 28, 2014 from 6 - 8 p.m. at the Municipal Operations Centre (408 James Street South) in St. Marys, the presentation material can be forwarded at your request.

For your convenience, a response form is enclosed along with a self-addressed stamped envelope. Please return by July 4, 2014. If you have any questions on this matter or require further information, please contact the undersigned at 519-524-2641 or by e-mail at lcourtney@bmross.net.

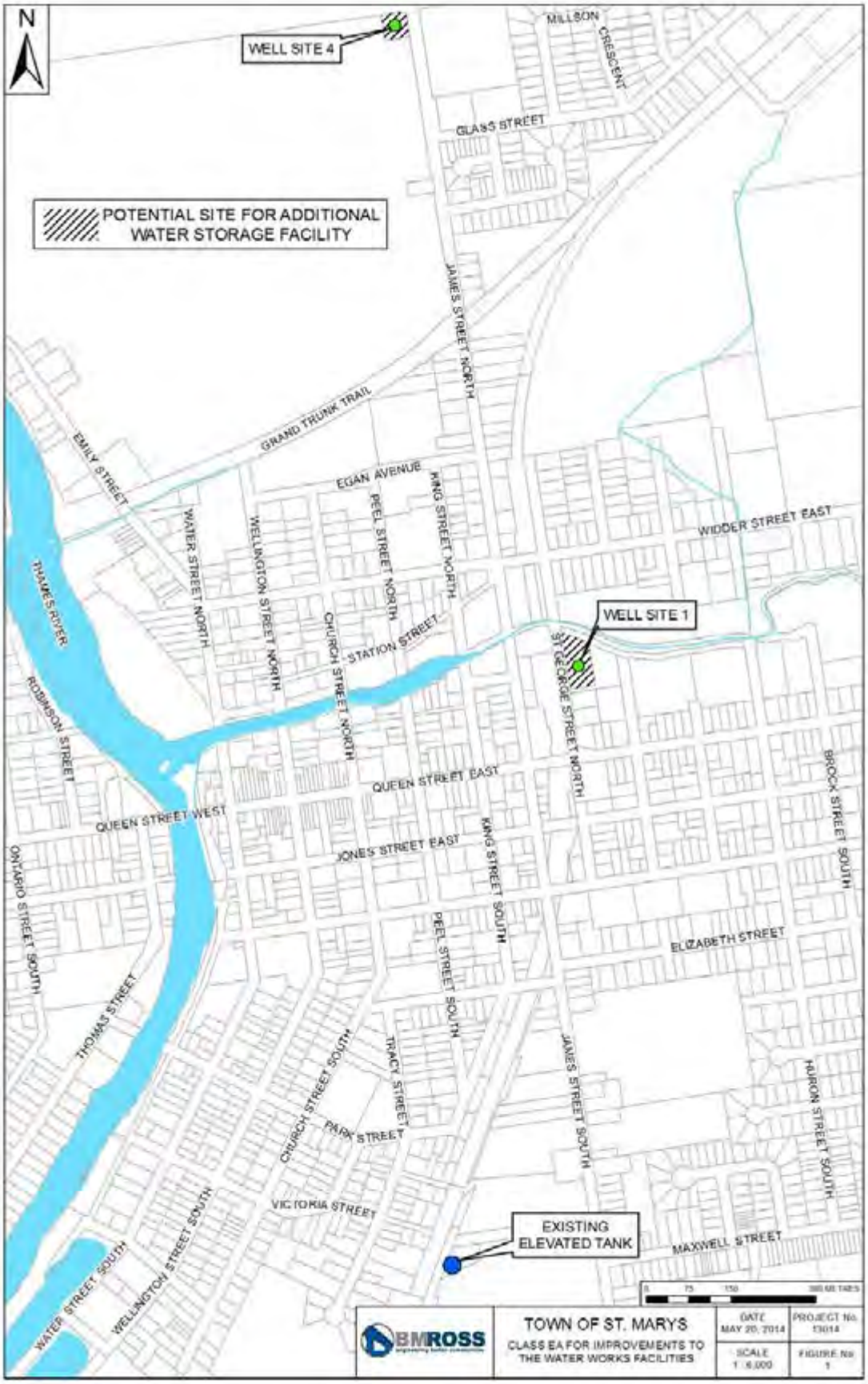
Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys

Z:\13014-St_Marys-Class_EA_for_Water_Works_Expansion\WP\Class EA\Screening Report\Appendix C\13014-14May26-Aboriginal Community let.docx


N
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POTENTIAL SITE FOR ADDITIONAL WATER STORAGE FACILITY
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EXISTING ELEVATED TANK
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WELLINGTON STREET NORTH
PEEL STREET NORTH
KING STREET NORTH
WIDDER STREET EAST
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STATION STREET
ST GEORGE STREET NORTH
ROBINSON STREET
QUEEN STREET EAST
QUEEN STREET WEST
BROCK STREET SOUTH
JONES STREET EAST
KING STREET SOUTH
ONTARIO STREET SOUTH
PEEL STREET SOUTH
ELIZABETH STREET
THOMAS STREET
CHURCH STREET SOUTH
TRACY STREET
JAMES STREET SOUTH
HURON STREET SOUTH
PARK STREET
VICTORIA STREET
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13014
SCALE 1 : 6,000
FIGURE No. 1

TOWN OF ST. MARYS
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES.

CIRCULATION LIST: ABORIGINAL ORGANIZATIONS

ORGANIZATION	INVOLVEMENT
Aboriginal and Northern Affairs Canada Environmental Assessment Coordination Environmental Unit	Potential for Aboriginal Interest
Ministry of Aboriginal Affairs Aboriginal and Ministry Relationships Branch	Potential for Aboriginal Interest
Métis Nation of Ontario (Ottawa)	Potential for Aboriginal Interest
Walpole Island First Nation	Potential for Aboriginal Interest
Chippewas of Kettle and Stony Point First Nation	Potential for Aboriginal Interest
Aamjiwnaang First Nation	Potential for Aboriginal Interest
Oneida Nation of the Thames	Potential for Aboriginal Interest
Munsee-Delaware Nation	Potential for Aboriginal Interest
Moravian of the Thames	Potential for Aboriginal Interest
Caldwell First Nation	Potential for Aboriginal Interest

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: May 29, 2014 1:07 PM
To: 'craig@developro.ca'
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: RE: St. Marys EA
Attachments: image001.png

Craig:

I will ensure that you are added to the mailing lists for each of the EA projects.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
kvader@bmross.net
www.bmross.net

From: craig@developro.ca [mailto:craig@developro.ca]
Sent: May-29-14 11:43 AM
To: Kelly Vader
Subject: St. Marys EA

Hi Kelly,
I represent Thames Crest Farms Limited which you may be aware are currently intending to develop a portion of their lands fronting Emily Street immediately north of the Emily Street Grand Trunk underpass. I attended the public meeting last night, and appreciated the fullness of information that was supplied. I have attached our current draft plan for your reference. I would note that my client owns what is shown as lots 15 and 16 on the draft plan, of which approximately 140 acres of is within the town's settlement boundary.

I would appreciate if you could ensure that I am emailed all notices of public meetings, and provided with any information that is available since all of the components of the EA (Transportation, Sanitary, Water) all ultimately have an impact on my clients lands.

If you require any information from me that you may find useful, I would be happy to assist in any way possible.

Sincerely,
Craig

Craig Linton

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: July 10, 2014 1:45 PM
To: Ryan DeVries (rdevries@bmross.net); Steve Burns; Andrew Ross (aross@bmross.net); Lisa Courtney (lcourtney@bmross.net)
Subject: FW: Comments on St. Marys Municipal Infrastructure Projects Class EA

FYI

From: Pat Donnelly [mailto:p2donnelly@bell.net]
Sent: July-09-14 11:26 PM
To: Kelly Vader; kvader@bmross.net
Cc: Chad Papple; kmcllwain@town.stmarys.on.ca; Pat Donnelly
Subject: Comments on St. Marys Municipal Infrastructure Projects Class EA

Ms. Kelly Vader;
Environmental Planner
B.M. Ross

Further to the public meeting held May 28 at the Municipal Operations Centre that Pat attended, we provide the following comments for your consideration in the Class EA being followed for the 3 projects. Sorry for the delay in sending them.

These comments are from both our perspectives as homeowners and residents of St. Marys, both as a former member of the Grand Trunk Trail Steering Committee, and as keen environmentalists who share a strong interest in the protection of the Thames River. We live at 243 Thomas Street which is located approximately 200 metres distance from both the Pollution Control Plant and Municipal Well #3. We also frequently use the Water Street bridge as a hiking and cycling route.

1) Water Infrastructure

Our house has recently benefitted from an upgraded energy efficient, gas boiler that provides the heating system and hot water. However, every time there is a minor change in water pressure, the boiler is impacted and causes an error in the electronics. The last time this occurred was when the water tower was being worked on (re-painted?) and a call to our service provided was needed. Any improvements to the water system that reduces the range of water pressure to our house is welcomed. We are located down the street and approximately 200 metres from Well #3.

From a broader perspective, the addition of a new well at the Town's north boundary should be carefully considered in conjunction with input from the adjacent township. As I understand it, the pending Source Water Protection (SWP) Plan will impose specific land use and activity restrictions surrounding any new well within it's Well Head Protection Area (WHPA) that will likely extend outside the Town boundaries given the proposed well location near the northern town boundary. Therefore, these decisions that impact adjacent municipal land use should have inter-municipal dialogue and cooperation. The regional nature of the St. Marys aquifer from which St. Marys receives its drinking water via the three municipal wells AND the Thames River, is a connection

that has not yet been fully realized. I understand that the SWP will focus on this connection and provide a greater assortment of tools for the municipality to protect our drinking water source.

2) Sanitary Infrastructure

Efforts to improve the treatment of wastewater should consider ways to reduce the smell and improve the efficiency of the pollution control plant, which is also located down the street and approximately 200 metres from our house. We would also hope that improved waste treatment technologies such as membrane technology, would be considered in the list of options. As Pat works in London and collaborates with wastewater engineers, he understands this technology does not require increased space in order to facilitate this enhanced treatment method. The effluent from these plants that use membrane technology is of tertiary treatment standards (based on the Oxford Pollution Control Plant in London),.

3) Road Infrastructure; Wellington and Water Street road bridge improvements.

Wellington Street Bridge is a vital link to the Town's transportation system and improvements need to be made to ensure this link is maintained. We have no specific comments on this bridge repair.

Conversely, the Water Street bridge is a piece of town heritage that needs to be preserved but not as part of the road network for vehicles. We support leaving it intact as a pedestrian / cycling bridge based on 3 factors:

a. The bridge remains a key component of the Riverview Walkway that follows the Thames River through town. This walkway also connects to the Loop Trail that circumnavigates the town and links to the system of parks. Converting this bridge into a pedestrian / cycling bridge would achieve many of the goals stated in the Official Plan (Sec. 5.3.14) to encourage active lifestyle and active transportation methods (walking, hiking, cycling).
b. Any change to this bridge that would increase traffic flow would trigger improvements to the Emily Street underpass. These improvements would likely require the expansion of the one lane underpass which would then need to consider the likelihood that the railway embankment contains substandard soils and unconsolidated materials including asbestos as observed and uncovered during development of the Grand Trunk Trail repurposing in 2004/2005. The likelihood of asbestos was also brought to the attention of Chad Papple last year when former members of the GTT Committee Tony Reynen, Allan Powell and Pat met with Chad to discuss the issue.
c. The one lane bridge and one lane underpass provides a "traffic calming measure" to the increased traffic produced by residential development north of the GTT. This feature provides a benefit to the businesses and residents who live adjacent to this length of roadway. All opportunities should be taken to relieve traffic pressure from Emily Street and Water Street by incorporating an eastward traffic flow through the proposed residential development north of the GTT and onto James Street. This bridge improvement Class EA should be linked to the decisions being made about future residential development to take advantage of land use

decisions that would accommodate a redirection of existing and new traffic via an internal road pattern in the new subdivision.

Thank you for the opportunity to comment on this important matter.
Sincerely,

Pat and Patti Donnelly
243 Thomas Street
519-284-4207

Town of St. Marys Municipal Infrastructure Projects

Public Information Meeting
May 28th, 2014

Agenda

- Introduction
- Class EA Process
- Description of Projects
  - Sanitary, Water, Transportation
  - Identified Deficiencies
  - Alternatives Being Considered
- Bridge Heritage Assessment
- Trout Creek Modeling
- Next Steps

Class EA Process

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

- PLANNING AND DESIGN PROCESS FOR MUNICIPAL WATER, WASTEWATER, AND ROADS PROJECTS
- CONDUCTED TO EVALUATE THE POTENTIAL IMPACT OF MUNICIPAL PROJECTS AND TO EXAMINE MEASURES TO MITIGATE IDENTIFIED IMPACTS
- REQUIRES CONSIDERATION OF NATURAL, SOCIAL, CULTURAL, ECONOMIC, AND BUILT ENVIRONMENTS

CLASS EA STUDY PHASES

PROBLEM/OPPORTUNITY DEFINITION

↓

IDENTIFICATION OF ALTERNATIVES

↓

CONSULTATION WITH PUBLIC AND REVIEW AGENCIES

↓

EVALUATION OF ALTERNATIVES

↓

SELECTION OF PREFERRED ALTERNATIVE

BMROSS

Class EA Investigations

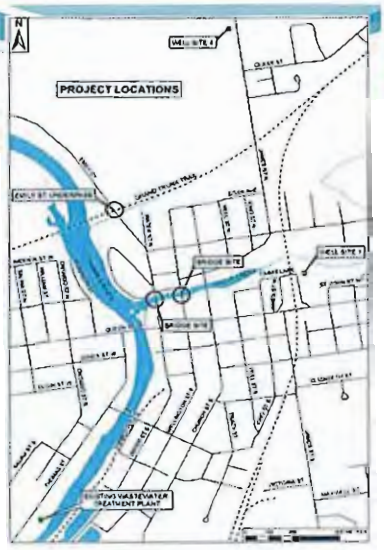
- **Study Purposes**
  - To Identify Deficiencies with Existing Municipal Infrastructure
  - Determine a Range of Alternatives that Would Address the identified Deficiencies
  - To Consult with Residents and Review Agencies on the Projects to Gather Input and Insight into Issues of Concern
  - Define Potential Impacts Associated with the Alternatives Being Considered
  - Select a Preferred Alternative for Each Project

BMROSS

Project Study Area

Infrastructure Projects

- WWTP
  - Potential Expansion
- Water Supply
  - Need for Additional Storage
- Trout Creek Crossings
  - Address Deficiencies



Project Descriptions

BMROSS

Project Descriptions

- St. Marys Wastewater Treatment Plant
  - To address current Capacity and Operational issues
  - To determine the need for expansion and how best to accommodate growth.
- St. Marys Drinking Water System
  - To address a storage deficiency and accommodate growth
  - To address fire flow issues within the distribution system
- Water Street and Wellington Street Bridges
  - Evaluation of Current Deficiencies
  - Identify potential Replacement Options

Water and Wastewater Projects

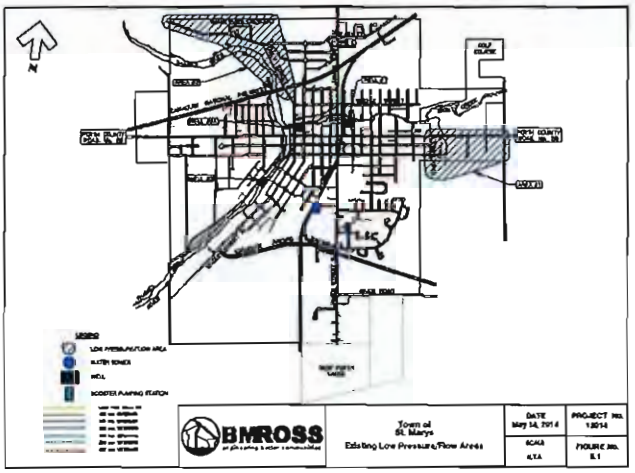
- Key Project Drivers:
  1. Addressing current deficiencies
  2. Accommodating future growth.

Wastewater Treatment System

- Current Issues:
  - High peak flows vs peak capacity.
  - High organic strength of wastewater.
  - Biosolids handling capacity

Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.



Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.
2. Treated water storage deficiency (originally identified in 2002)

BMROSS

Accommodating Growth

- 2011 population was 6,655
- Considering 3 different growth scenarios:
  - 0.50% per year (average for 2001 to 2011)
  - 0.75% per year (average for 1996 to 2011)
  - 1.15% per year (average for 1986 to 2011)
- Making special consideration for large industrial users
- Forecasting for 50 years (i.e. to 2064)
- Service to Perth South industrial lands

BMROSS

Questions?

BMROSS

Wastewater Treatment Plant

Study Approach

1. Establish existing operating conditions – both flow and strength.
2. Establish unit process capacities.
3. Identify deficiencies – existing and future
4. Determine how growth can be accommodated.
5. Evaluate Alternative Solutions

Problems/Deficiencies

- Peak flow capacity.
- High organic loadings.
- Biosolids handling capacity.
- Need to accommodate growth.

The Good News:

- Average flows are less than plant capacity.
- Treatment objectives are being met.

Project Alternatives

- A combination of approaches:
  - Investigating wastewater strength reduction.
  - Process optimization.
  - Physical modifications (e.g. larger pumps)
  - Unit process expansion (e.g. inlet works, UV and settling)
  - Preliminary thinking is a series of actions and smaller projects over an extended time.

Questions?

St. Marys Drinking Water System

Project Study Area

Study Approach

1. Establish current usage (averages and maximums)
2. Establish existing capacities (supply and storage).
3. Investigate flows and pressures – hydrant tests and modeling.
4. Determine future needs for growth
5. Investigate alternatives

Problems/Deficiencies

1. Low pressures and flows under fire flow conditions in two areas.
2. There is a treated water storage deficiency of approximately 1200 m^3.

The Good News:

- There is a large surplus of supply capacity.
- Treatment objectives are being met.
- The supply and treatment facilities are relatively new.

Project Alternatives

1. To address low flows and pressures – local watermain upgrades.
2. To address the storage deficiency:
   1) An elevated tank at the site of future Well 4.
   2) A Ground Level Reservoir and Booster Pumping station at the Well 1 site.

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Questions?

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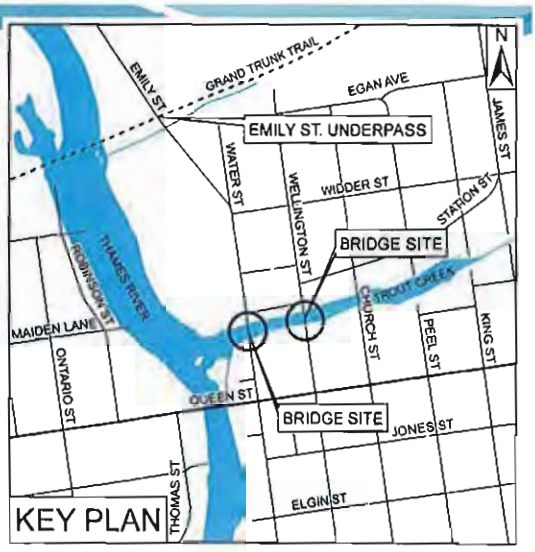
Class EA for the Water Street and Wellington Street Bridges

BMROSS

Project Study Area



➢ Water Street Bridge

➢ Wellington Street Bridge

➢ Emily Street Underpass

Problems/Deficiencies

➢ Water Street

Problems/Deficiencies

- Wellington Street

Project Alternatives

- Replace both Bridges
- Replace Wellington Street and Remove Water Street
- Replace Wellington Street and Convert Water Street to a Pedestrian-Only Crossing
- Replace Water Street and Close Wellington Street
- Do Nothing

* Any option involving replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street underpass.

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Structural Heritage Assessment

Golder Associates Ltd.

Cultural Heritage Impact Assessment

- Structures > 40 Years Require Assessment
  - Water Street Bridge (1898)
  - Emily Street Underpass (1905)
  - Wellington Street Bridge (1971) – (Piers – 1912)
- Historical Context
- Heritage Attributes
- Cultural Landscape

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Heritage Assessment

- Design/Physical Value (50 Maximum Score)
  - Functional Design
  - Visual Appeal
  - Materials
- Contextual Value (25 Maximum Score)
  - Landmark
  - Character Contribution
- Historic Associative Value (25 Maximum Score)
  - Designer/Construction Firm
  - Associated with Historic Theme/Person/Event

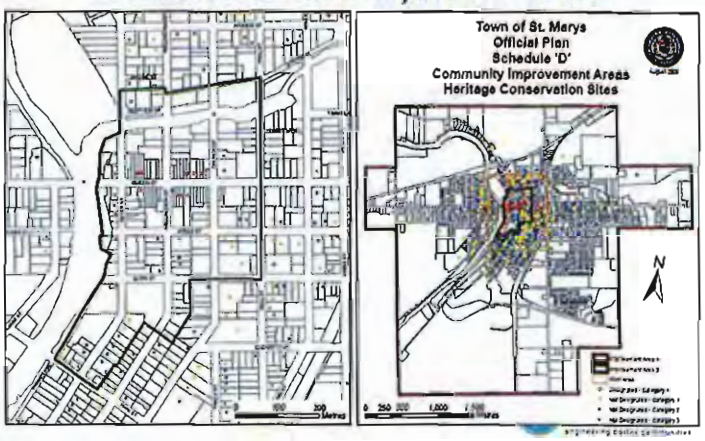
Results

- Wellington Street Bridge
  - No Cultural Value or Interest
- Emily Street Underpass
  - No Cultural Value
  - Contextual Value Associated with Former Railway Use
- Water Street Bridge
  - Pin Connected Pratt Truss – Relatively Rare
  - Abutments Designed and Built by Local Craftsmen
  - Important Component of Cultural Values Associated with Trout Creek and Downtown St. Marys

Recommendations

- Wellington Street Bridge
  - Replacement Structure should contribute to the Existing Character of Area
- Emily Street Underpass
  - Proposed Widening should minimize impacts to Existing Character and Earthworks
- Water Street Bridge
  - Restored or Repaired Using Sympathetic Design Features or Retained for Pedestrian Traffic
  - Considered for Designation Under Part IV of the Ontario Heritage Act

Schedule 'D' St. Marys Official Plan



St. Marys Official Plan

Section 2.3 Heritage Conservation

- Section 2.3.1 Objectives
  - 2.3.1.2 Protect and Enhance Heritage Resources through Policies that Balance Preservation with Re-Development
  - 2.3.1.3 Be Proactive in Identifying Sites worthy of Preservation
- Section 2.3.2 Policies
  - 2.3.2.6 Council may, upon Recommendation of the St. Marys Heritage Committee, Designate Individual Properties for Conservation Under Part IV of Ontario Heritage Act
- Recommendation from Heritage Committee

Hydraulic Analysis

Study Considerations

- Trout Creek Flood Levels may be impacted by proposed Bridge Projects
- Very Complex Hydrology because of Multiple Crossings and Confluence of Thames River
- Floodplain affecting downtown St. Marys may be Impacted by the Study Outcome
- Existing Hydraulic Model is Outdated

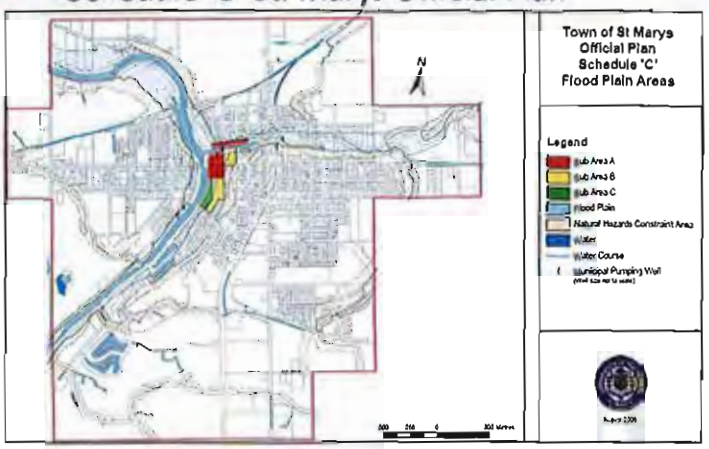
Study Considerations Cont'd

- Upper Thames River Conservation Authority willing to work cooperatively with St. Marys to Update Model
- Updated Hydraulic Model will assist with Future Update for St. Marys Special Policy Area (SPA)
- Study must include a consideration of the Trout Creek Floodwall
- Cannot Finalize Preferred Bridge Alternatives until Each Option is Considered within the Context of Flooding Impacts

Trout Creek Hydraulic Analysis

- Anticipated Stages
  - Convert existing model to HEC RAS
  - Collect current cross-section elevations for Trout Creek and Adjacent Areas
  - Update Flow Data for Trout Creek and the Thames River
  - Simulate various Bridge Replacement Alternatives to determine impact on Flood Elevations
  - Work Cooperatively with the UTRCA so that updated model can be used for other purposes in St. Marys

Schedule 'C' St. Marys Official Plan



Next Steps

- Collect and Review Public Input from Meeting
- Complete Hydraulic Modeling for Bridge Projects
- Continue to Investigate Sewage & Water Alternatives
- Identify Potential Impacts Associated with Each Alternative Being Considered
- Review Advantages and Disadvantages of each
- Select a Preliminary Preferred Alternative for each of the projects

Questions?

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE

Wednesday, May 28, 2014

ATTENDANCE LIST

(PLEASE PRINT)

Name	Address
Steve Glover	85 Huron St. N.
Bruce Partridge	46 Thamesview Cres.
Stew Slater	Journal Argus
Councillor Lynn Heinz	474 Rogers Ave.
DAN VAN Galen	36 Ingersoll St/ Marys.
STAN FRASER	465 WIDDER ST. E.
RAY IRELAND	Wildwood Care Centre
TONY WINTER	256 ELGIN ST. MARYS.
STEVE GROSS	130 WESTOUM ST. ST. MARYS
Andrea Macke	47 Wellington St. S.
Pat Dunnett.	243 Thomas
STEPHEN McCOTTER	78 MEADOWRIDGE DR. ST. MARYS

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE
Wednesday, May 28, 2014

ATTENDANCE LIST
(PLEASE PRINT)

Name	Address
Dick MacPherson	6 Water St. S. St Marys.
CAREY POPÉ (COUNCIL)	31 WATER ST STMARYS
CRAIG LINTON	LONDON
AL TUCKER	104 Church St S.
MARK MORTON	279 THOMAS ST.
Deb & Gary Russell	418 Glass St.
GERALD BROCKMAN	37 BIRCH CREEK CRES
John O'Donnovan	319 Elizabeth St.
Doug & Janis Freed	231 Thomas St.
Trisha McKibbin	119 Peel St. S. St. Marys.
Frank Doyle	ST. Marys Ontario.
Cyndi Vink	119 Guest Crt St Marys.
Bill Osborne	271 Emily St St. Marys
Jody Swan	81 Park St St. Marys
Jeremy Swan	81 Park St. St. Marys
J McLeod	224 Jones St St Marys

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File No.
13013/13014/13018

TOWN OF ST. MARYS
MUNICIPAL INFRASTRUCTURE PROJECTS
PUBLIC INFORMATION CENTRE
MEETING NOTES

Date: May 28, 2014

Place: Town of St. Marys Municipal Operations Centre

Present	Dave Blake	)	Town of St. Marys
	Jed Kelly	)	
	Kevin McLlwain	)	
	Chad Papple	)	
	Steve Burns	)	B.M. Ross and Associates (BMROSS)
	Lisa Courtney	)	
	Ryan DeVries	)	
	Andrew Ross	)	
	Kelly Vader	)	
	30 members of the public		

Open House 6 PM to 6:30 PM
Presentation 6:30 PM to 8:30 PM

Agenda Items

1.0 Introductions

Chad P. welcomed the audience and introduced members of Council, Town staff, Upper Thames Conservation Authority staff, and BMROSS staff in attendance. Kelly V. then provided an overview of the agenda.

2.0 Class Environmental Assessment Process

The presentation began with an overview of the Municipal Class Environmental Assessment process. Kelly V. explained that it is a phased process for evaluating municipal infrastructure projects and associated impacts. Presently, the Town of St. Marys is undertaking three EAs related to water, wastewater and transportation infrastructure.

3.0 Water and Wastewater Systems Introduction

Steve B. explained that the existing water and wastewater systems have deficiencies and need improvements to accommodate future growth. With respect to the wastewater treatment plant (WWTP) there are existing issues related to high peak flow, high organic content, and the biosolids handling capacity. Current issues with the drinking water system include fire flow issues in the east and northeast parts of the community, and a need for additional water storage.

Current deficiencies are also being examined with respect to future growth. Steve B. stated that three growth scenarios were developed, based on average growth in the community over the past 10, 15, and 25 years. These scenarios also include considerations for industrial users. A 50-year design period is being used to determine needs for the water system and a 25-year period was used for the wastewater system. Questions were then invited from the audience.

Q. What are large industrial users doing to conserve water? Could they use another source of potable water?

Steve B. replied that he was unsure of any specific actions by industry to conserve water. Theoretically, it is possible to use another source of water, however there would be issues with water taking and impacts downstream, as well as the capital cost of a dual system.

4.0 Wastewater System

Ryan D outlined the location of the WWTP and the steps being completed to study the wastewater system. A number of problems have been identified including: high peak flow capacity, high organic loadings, the biosolids handling capacity, and the need to accommodate growth. A set of actions over time may address these issues. Alternatives include reducing the strength of wastewater, process optimization, physical modifications to the plant, and unit process expansion, or a combination of the aforementioned. Questions were then invited from the public.

Q. Are you looking at infiltration into the existing collection system?

Ryan D. responded that the Town is already examining this issue and that BMROSS will work with the Town to determine how infiltration impacts the wastewater treatment system.

A resident expressed concern that certain industries are contributing to the high wastewater concentrations.

Q. Does BMROSS have access to information on how other towns with food industries manage wastewater?

Steve B. explained that BMROSS has worked in a number of communities with food industries. He noted that municipalities often treat wastewater from industries and also have regulatory bylaws in place.

Q. What volume of wastewater is from infiltration?

Steve B. stated that the volume of wastewater that is the result of infiltration has not been calculated at this time. The average daily flow and maximum daily flow numbers were provided by Ryan D.

Q. What happens if flows exceed the capacity of the plant? Would raw sewage end up in the river?

Ryan D. explained that raw sewage would not end up in the river; however, the effluent may not be treated to the treatment levels required.

Q. How are biosolids handled?

Biosolids are dewatered and then stored at the plant. Steve B. further explained that the biosolids are then applied to licenced farmland for disposal.

Q. St. Marys recently installed a new system to manage biosolids, why is there a problem now?

Steve B. responded that the current biosolids system is working, just not to the levels expected. This is possibly related to the strength of the wastewater coming into the plant.

Q. Does St. Marys have any bylaws for what can be put down the drain?

Kevin M. responded that the Town has surcharge agreements and there are clauses within the agreements that allow the Municipality to renegotiate.

Q. What was the purpose of the previous expansion at the wastewater treatment plant?

Steve B. explained that in 2010 the treatment process and biosolid management systems at the WWTP were changed.

Q. Do biosolids have to meet certain concentration requirements before they are disposed of?

Steve B. stated that there are significant provincial regulations related to biosolids and that they are also tested for metals. The testing of the biosolids is done by the operator of the WWTP and a contractor takes the biosolids for disposal. Jed K. added that the biosolids are land applied only on fields approved under the Nutrient Management Act and that the Town has all the required approval certificates.

Q. Are odours from the WWTP being considered as part of the EA?

Steve B. responded that odours are being considered and that the EA will consider means to mitigate odours.

5.0 Water System

An overview of the existing water system, including the location of the existing storage facility and wells, was provided by Ryan D. He explained that BMROSS approached the investigation by first establishing the usage, flows and capacity, system pressures and potential future growth. From these investigations two problems were identified: low fire flows in two areas of St. Marys (in the east part of the town and an area near Emily Street) and a deficiency in the amount of treated water storage. Additional storage will be required for future demands related to growth.

Ryan D. suggested that the areas of low fire flow may be addressed through watermain improvements in the affected areas and that this work would not require an environmental assessment. To address the need for storage, two preliminary alternatives have been identified: construct an elevated storage facility at Well 4, or constructing a ground level reservoir at Well 1. The audience was then invited to ask questions.

Q. Why isn't a ground level reservoir being considered at Well 4?

Ryan D. responded that the site is better suited for an elevated tank. A reservoir would be more costly at Well 4 than at Well 1.

Q. Would the Town be responsible for the cost of this project?

Ryan D. replied that the Town would be responsible for funding the project; however funding sources, such as government grants, will be investigated.

Q. Was the Well 4 site identified as a potential site for an elevated storage facility because there is a well there?

Ryan D. responded that the site was identified because it is owned by the Town, there is already a well there, and there is suitable space for a facility. It was noted that the Well 1 site is too low for an elevated tank (would require a very tall tower which would be costly).

Q. Should we have underground water storage in a floodplain?

Ryan D. stated that potential impacts related to flooding will be examined as part of the EA.

Q. What risks are associated with having municipal wells in the floodplain?

Steve B. noted that an Environmental Assessment completed in 2002 examined flooding impacts to the wells located in the floodplain.

Q. Would an increase in storage increase flows in the WWTP?

Ryan D. explained that a greater volume of stored water would not impact the WWTP.

Q. Is it possible to put a storage facility near the existing storage facility?

The benefits of siting storage facilities away from each other (improving system efficiency and pressures across the system), was explained by Ryan D.

Q. How big is the current storage facility, how much more storage is needed?

Ryan D. stated that the existing storage facility has a capacity of 1,820 m^3 and that over the 50-year design period, an additional 2,400 m^3 is required. He explained that an elevated tank is not expandable and if that was chosen as the type of storage facility, it would be sized for 2,400 m^3. A reservoir could be built in phases, initially smaller with an expansion later, if required.

5.0 Water Street and Wellington Street Bridges

Andrew R. provided a brief history of the Water Street and Wellington Street Bridges and the Emily Street Underpass. Recent inspections of the bridges identified significant corrosion. From the inspections, it was recommended that a load limit be placed on the Water Street Bridge. It was also noted that the Wellington Street Bridge is nearing the end of its service life, due to the extent of corrosion present.

Given these problems, a number of preliminary alternative solutions have been identified. These options include, but are not limited to:

- Replace both bridges
- Replace Wellington Street Bridge and remove the Water Street Bridge

- Replace Wellington Street Bridge and restore Water Street Bridge to a pedestrian-only crossing
- Replace Water Street Bridge and close Wellington Street Bridge.
- Do nothing.

It was also noted that any option involving the replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street Underpass to address increased traffic from the crossing.

Q. Could Water Street Bridge be restored to vehicular traffic?

Andrew R. responded that it will be examined as an alternative.

Q. Would restoring Water Street Bridge to a pedestrian only crossing be similar in cost to restoring it to vehicle traffic?

Andrew R. responded that restoring the Water Street Bridge to pedestrian traffic would cost less than restoring it to vehicle traffic.

Q. Would the Water Street Bridge last long if restored to pedestrian traffic rather than vehicle traffic?

Andrew R. answered that if the bridge was restored to pedestrian traffic, it is likely it would have a longer service life than if it were restored to vehicle traffic. This is due to the addition of salt required for maintenance of the roads for vehicle traffic, which escalates the rate of corrosion.

Due to the age of the bridges, a structural heritage study was completed. Kelly V. provided an overview of the heritage assessment. The assessment examined the bridges and underpass with respect to their heritage attributes, the historical context of the area, and how they fit into the cultural landscape.

The Wellington Street Bridge was found to have no cultural value or interest, as it was reconstructed in the 1970s. The Emily Street Underpass was deemed to have no cultural value, but to have contextual value associated with its former railway use. The Water Street Bridge was found to have relatively rare pin connected pratt trusses and abutments that were designed and built by local craftsmen. It was also considered to have cultural value associated with downtown St. Marys and Trout Creek.

The structural heritage assessment recommended that the Wellington Street Bridge be replaced and that the replacement contribute to the existing character of the area. For the Emily Street Underpass, it was recommended that any widening minimize impacts to the existing character and earthworks. Lastly, it was recommended that the Water Street Bridge be either restored or replaced using sympathetic design features or retained for pedestrian traffic. Also, the report recommended that the Town consider designating the Water Street Bridge under Part IV of the Ontario Heritage Act.

The existing hydraulic model for the St. Marys area is outdated and given the hydraulic complexity of the area (due to multiple crossing and the confluence of the Thames River), an updated hydraulic model is needed. BMROSS plans to work cooperatively with Upper Thames River Conservation Authority (UTRCA) to update the model. The model will be used to evaluate the flooding impacts associated with the bridge alternatives.

Q. Would the mill race be included in the hydraulic assessment?

Kelly V. responded that the mill race will be included as a component of the hydraulic assessment.

Q. Are impacts to the floodwall being looked at?

Kelly V. responded that the floodwall will be considered in the hydraulic assessment, but as the floodwall is a structure owned by the UTRCA any significant changes would need to be assessed under a separate class environmental assessment process used by Conservation Authorities.

Q. It is difficult to limit vehicles on the Water Street Bridge. Could additional height or weight restrictions be added presently?

Chad P. replied that the Town has looked at additional measures for restricting vehicles on Water Street, but it is difficult to find a way to limit all vehicles that may exceed the load limit (such as a low vehicle pulling a heavy trailer).

A member of the public commented that the Water Street Bridge certainly is a cultural feature and added that there is value in the Wellington Street Bridge, as you can see two other bridges from it. The resident added that cultural value should be included as part of the evaluation of alternatives.

Q. If a bridge has a load limit and someone drives a vehicle over it that is over the limit, what implications does that have for liability?

Andrew R. responded that a lawyer would be able to address that question.

A resident suggested that Water Street Bridge could be rebuilt to have its original form. Another resident raised concerns about safety and suggested that the Water Street Bridge may become submerged in a flood event.

Q. Could the Water Street Bridge be used for events, such as a farmers market, if it was restored to a pedestrian crossing?

Andrew R. responded that those types of uses would have to be assessed to determine what potential load (weight) could be present.

Q. Why haven't any costs been presented?

Andrew R. replied that cost will be examined during the evaluation of alternatives.

Q. Are there any examples of bridges like the Water Street Bridge being restored to vehicle traffic? Who is doing the construction?

Andrew R. explained that the Watson's Bridge in Bruce County, near Paisley, is being restored for vehicle traffic. AJN Builders from Dublin is the contractor.

A resident suggested that the Water Street Bridge could be saved and used on the Emily Street Overpass.

Q. When will the hydraulic modelling be completed?

Kelly V. responded that the hydraulic modelling is expected to be completed this fall.

Q. Is the environmental assessment a provincial requirement or due-diligence on the part of the Town?

Kelly V. explained that the Town is the proponent for the purposes of the environmental assessment and the process is driven by the proponent; however, there is provincial legislation requiring environmental assessments.

Q. Is it possible that the hydraulic modelling will identify deficiencies with the Church Street Bridge?

Andrew R. stated that the Church Street Bridge will not be assessed with the hydraulic model.

Q. Who establishes the load limits?

Andrew R. responded that an engineer will recommend a load limit, but Council has to approve placing the limit on the structure.

A resident suggested that copies of the presentation material be made available at the local library and friendship centre.

6.0 Next Steps

The meeting concluded with Kelly V. providing an outline of the next steps for the environmental assessments for the three projects. She explained that there will be another public meeting following further investigations and the evaluation of alternatives.

The meeting adjourned at 8:30 PM

Should there be any errors or omissions to these meeting notes, please notify the undersigned.

Meeting Notes Prepared By:

Lisa J. Courtney

B. M. ROSS AND ASSOCIATES LIMITED

Ministry of the Environment
733 Exeter Road
London ON N6E 1L3
Tel': 519 873-5000
Fax: 519 873-5020

Ministère de l'Environnement
733, rue Exeter
London ON N6E 1L3
Tél.: 519 873-5000
Téléc.: 519 873-5020

Ontario

Delivered by e-mail

June 3, 2014

B. M. Ross and Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: Lisa J. Courtney, Environmental Planner

Dear Ms Courtney:

RE: MEA Class EA Notice of Commencement – Water Works Improvements, Town of St. Marys (Your File No. 13014)

MEA Class EA Notice of Commencement – Wastewater Treatment Plan Expansion, Town of St. Marys (Your File No. 13014)

Road Infrastructure – Bridge Crossings of Trout Creek

This letter is in response to the Public Information Notice that was issued for the above-noted projects.

This is to advise you of the following Ministry instruction regarding First Nations and Métis community consultation in the MEA Class EA process, and to inquire or to provide direction regarding the following:

Documentation:
We wish to be provided with an electronic copy of the 2012 Burnside Master Service Strategy for the Town (or a paper copy, if one is not available).

MOE Review of Documentation:
The draft Project File/ESR for the projects should be circulated to this office for our review and comment. We normally require 30 to 45 days.

Meetings or Consultation with MOE

Please advise this office if you wish to meet with the Ministry's Regional technical experts to discuss assimilative capacity and effluent quality requirements or other matters relating to the MOE's Design Guidelines for Sewage Works and Drinking-Water Systems.

Future Growth

If the water and sewage projects are intended to service growth that was the subject to any on-going or recently- concluded *Planning Act* process, please advise us of the status of these proposals or applications. Furthermore, consideration should be given to the applicability of the integration (*EAA/Planning Act*) provisions of the MEA Class EA.

Consultation with First Nation and Métis Communities

Your proposed project may have the potential to affect Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. The Crown has a duty to consult First Nation and Métis communities when it knows about established or credibly asserted Aboriginal or treaty rights, and contemplates decisions or actions that may adversely affect them.

Although the Crown remains responsible for ensuring the adequacy of consultation with potentially affected Aboriginal communities, it may delegate procedural aspects of the consultation process to project proponents.

The environmental assessment process requires proponents to consult with interested persons and government agencies, including those potentially affected by the proposed project. This includes a responsibility to conduct adequate consultation with First Nation and Métis communities. The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process.

Where the Crown's duty to consult is triggered in relation to your proposed project, the Ontario Ministry of the Environment is delegating the procedural aspects of rights-based consultation to you through this letter.

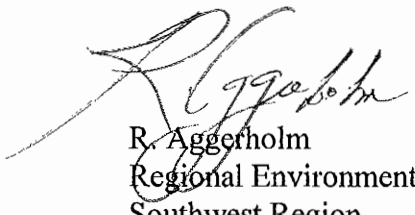
Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the attached "Aboriginal Consultation Information" document. Please complete the checklist contained there, and keep related notes as part of your consultation record. Doing so will help you assess your project's potential adverse effects on Aboriginal or treaty rights.

You must contact the Director, Environmental Approvals Branch if you have reason to believe that your proposed project may **adversely affect an Aboriginal or treaty right, consultation has reached an impasse**, or if a **Part II Order request** is anticipated. The Ministry will then assess the extent of any Crown duty to consult in the circumstances, and will consider whether additional steps should be taken and what role you will be asked to play in them.

A draft copy of the Project File or Environmental Study Report (ESR) should be sent to the appropriate Ministry of Environment regional office prior to the filing of the final report as applicable, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments. Please also forward the Notice of Completion and Project File/ESR to the appropriate regional office when completed.

Should you have any questions, please do not hesitate to contact me at (519) 873-5012.

Yours truly,



R. Aggerholm
Regional Environmental Assessment Coordinator
Southwest Region

/ra
Encl.

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

http://www.ene.gov.on.ca/environment/en/resources/STD01_076108.html

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Metis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to

Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBgen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;

- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
- Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
- Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
    - summarize the nature of any comments and questions received from First Nation and/or Métis communities
    - describe your response to those comments and how their concerns were considered
    - include a communications log indicating the dates and times of all communications; and
    - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted. If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have the potential to impact any archaeological sites?		

Kelly Vader

From: Ken Bettles [KBettles@perthsouth.ca]
Sent: June-24-14 10:55 AM
To: Kelly Vader
Cc: Tim Ivanyshyn; Ken Bettles
Subject: RE: St. Marys Infrastructure Class EA

Kelly, please see Perth South's comments
At an appropriate time within the EA process such as, if well site 4 becomes a preferred alternative, or if existing wells are expected to have a significant change in pumping rates.
please ensure to consider any new or changes to significant threat areas in relation to source water protection
Please keep us informed as to any outcomes

Ken Bettles, C.E.T., CRS.
Director of Public Works
Township of Perth South, 3191 Road 122 St. Pauls, ON N0K 1V0
Tel: 519-271-0619, ext. 230, Fax 519-271-0647, Toll Free: 1-866-771-0619
kbettles@perthsouth.ca
www.perthsouth.ca

From: Kelly Vader [mailto:kvader@bmross.net]
Sent: Thursday, May 29, 2014 4:55 PM
To: Ken Bettles
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: St. Marys Infrastructure Class EA

Hi Ken:

The presentation material is attached for your information. I will make sure that Perth South is added to the mailing list for the Water Supply EA.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
kvader@bmross.net
www.bmross.net

UPPER THAMES RIVER
CONSERVATION AUTHORITY

The Thames
A Canadian
Heritage River

"Inspiring a Healthy Environment"

July 2, 2014

B.M. Ross & Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: **Lisa Courtney** (lcourtney@bmross.net)

Dear Ms. Courtney:

Re: **Town of St. Marys**
Municipal Class Environmental Assessment
For Improvements to the Water Works Facilities

Upper Thames River Conservation Authority (UTRCA) staff are in receipt of the "Notice of Study Commencement" for the Municipal Class Environmental Assessment (EA) regarding review of Improvements to the Water Works Facilities in the Town of St. Mary's. We offer the following comments under Ontario Regulation 157/06 and our responsibilities as a commenting agency providing technical review and advisement related to natural heritage, water resources and natural hazard management pursuant to relevant legislation and policies set out in the UTRCA Planning Policy Manual (June 28, 2006):

General Comments

1) We would appreciate the opportunity for our technical staff to review and provide comments on any upcoming draft documents and proposed alternatives including any draft Environmental Study Report. Please note that our scope of review is based on the policies set out in the Upper Thames River Conservation Authority Planning Policy Manual (June 28, 2006). EA and subsequent detail design project review for the Improvements to the St. Marys Water Works Facilities would generally be guided by, but not limited to, natural heritage, natural hazard and pollution prevention areas of concern for lands regulated within our jurisdiction.

UTRCA Regulated Areas

2) According to the enclosed project location mapping, portions of the works may occur within natural hazard and natural heritage areas regulated by the Conservation Authority. The UTRCA regulates development within the Regulation Limit in accordance with Ontario Regulation 157/06 made pursuant to Section 28 of the *Conservation Authorities Act*. This regulation requires proponents to obtain written approval from the UTRCA prior to undertaking any works in the

regulated area including filling, grading, construction, alteration to a watercourse and/or interference with a wetland.

3) According to the enclosed project location mapping, Well Site #1 (Potential Site for Additional Water Storage Facility) occurs within natural hazard areas (riverine flood and erosion hazard lands) regulated by the Conservation Authority. Please be advised that the Upper Thames River Conservation Authority takes the 1: 250 year flood event as our Regulatory Flood Event Standard. At the detail design stage, all designs will need to ensure adherence to UTRCA flood policies and incorporate flood proofing to the 1: 250 year flood event.

Geotechnical Considerations

4) Depending on project specifics a favourable geotechnical assessment may be required for any potential water storage facility in the erosion hazard associated with Trout Creek.

Drinking Water Source Protection

5) The proponent should be aware that the Municipal Engineers Association (MEA) is updating the Class EA to account for Source Water Protection. We understand that one set of revisions has been consulted on and that more detail is being added through further revisions. Both revisions, among other things, highlight the importance of considering the Clean Water Act (CWA) and local Source Protection Plan in assessing the alternatives through the EA process. The EA is the best time to consider regulatory requirements of the Clean Water Act and Source Protection Plan as well as designated vulnerable areas. The EA planning process offers an excellent opportunity to document how these factors have been considered in the planning process.

6) This EA includes alternatives for municipal water supply and pumping which could have an implication on the vulnerable areas defined in the approved Assessment Reports. Therefore the proponent should consider this in their assessment of alternatives.

7) It is also worth noting that work undertaken through the Water Quantity Risk Assessment (Water Budget) has improved the understanding of the municipal drinking water sources in the St Marys area. This work has not yet been incorporated into the Assessment Report, but could be considered at the same time as new wells or changes in pumping are considered. The advanced model developed through the water budget could be applied to determine the net changes to the vulnerable areas. The proponent should consider applying the new models to the delineation of vulnerable areas for the proposed new well and refinements to the vulnerable areas associated with the existing wells.

8) Changes in the vulnerable area delineation such as those discussed above may change what activities are drinking water threats and the areas where they are drinking water threats. While it is not always possible to undertake the vulnerability assessment as part of the EA, it should be considered at some level to be able to adequately consider the alternatives. It is recommended that a vulnerability assessment following the CWA technical rules, be undertaken for the preferred alternative if the alternative is likely to result in changes to the vulnerable areas such as in the case of a new well.

9) The CWA has very specific requirements for notification related to those who are engaged in significant drinking water threats as a result of revisions to the Assessment Report. One of the revisions proposed for the MEA Class EA draws attention to these requirements. It is important

that this be considered to ensure that those affected by the proposal are engaged through the EA process while alternatives are being considered.

10) While it is obvious that a new well will have impacts on the vulnerable areas, it is important to consider whether the storage alternatives being considered may also have impacts on the vulnerable areas. If the pumping from the wells is changed substantially this could have an impact on the size and shape of the vulnerable areas. This should be considered through the EA. If it is determined that there would be no change expected, this can be documented in the EA.

11) If the proponents have questions on how source protection and the local plan may affect the proposed alternatives they may contact UTRCA Drinking Water Source Protection (DWSP) staff or their municipal Risk Management Official (RMO).

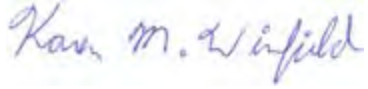
Summary

Please be advised that we have not yet received enough information to provide detailed comments regarding the project. However, we appreciate being contacted early in the process and are always open to meeting with you to discuss and work through any concerns or complications along the way.

Our office would like to be included in future circulations regarding this project. We would appreciate receiving information and reports as they become available in order to ensure that we can meet the project deadlines with our comments.

If you have any questions regarding the above information, please contact the undersigned.

Yours truly,
UPPER THAMES RIVER CONSERVATION AUTHORITY



Karen M. Winfield
Land Use Regulations Officer
CT/KW/kw

c.c. – Chad Papple, Town of St. Marys – (via e-mail: cpapple@town.stmarys.on.ca)
- Kelly Vader, B.M. Ross – (via e-mail: kvader@bmross.net)

Town of St. Marys Water System Upgrades Class EA

Presentation to Council
February 3, 2015

Agenda

1. The purpose and approach to the Class EA.
2. What decisions are required?
3. Review of Existing and Future Conditions
4. Alternative Solutions
5. Discussion
6. Next Steps

Purpose of the Class EA

- The purpose of this Class EA is to determine the best approach to upgrading the St. Marys Water System to ensure a safe and secure supply of water for the present and future.

The General Approach

The steps we are following are:

1. Understanding what the existing water demands are.
2. Projecting future water demands.
3. Understanding the existing system and constraints.
4. Determining what will need to be addressed, and when, to ensure adequate pressure and flow throughout the system – Defining the PROBLEM
5. Evaluating alternative solutions.
6. Determining a preferred solution.

Decisions Required by Council

1. What future growth to allow for?
2. How best to address the Perth South Industrial lands?
3. Additional water storage is required:
   a) What type should be provided?
   b) Where should it be located?

The Existing Situation

Existing Storage and Supply

- Well 1 (60 L/s) + Well 2 (60 L/s) + Well 3 (60 L/s) = 180 L/s; or 120 L/s of firm capacity = **10,368 m^3/d** (firm capacity assumes one well is offline).
- The existing elevated tank has available storage of **1,820m^3.**
- A number of studies were completed in 2002 to identify additional well supply sites. Future Well Site 4 was identified with a capacity = 22.7 L/s **(1960 m^3/d)**

Existing Water Demands

- Based on 2009-2013 usage data, the existing Average Day Flow (ADF) and Max Day Flow (MDF) values were determined as **3,034** and **4,910** m^3/day, respectively.
- Also, the 4 largest industrial users account for an ADF of 849 m^3/day and an MDF of **1,455** m^3/day.
- Historical data suggests Dana was consuming an ADF of 273 m^3/day and an MDF of **324** m^3/day. These values will be used to project Green Arc Tire demands.

Existing Demands (Continued)

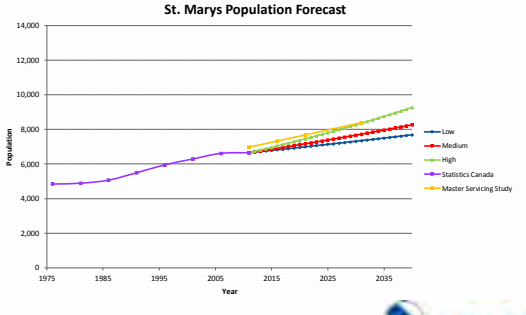
- Excluding the top 4 industrial users from the existing ADF and MDF, the existing max day peak factor and per capita usage values can be calculated as 1.67 and **328 L/cap•day**, respectively.

Growth Considerations

Projecting Growth

- For the Water System we have considered a **50 year** design period.
- We considered 3 population growth scenarios:
  - Low growth @ 0.50% (2001 to 2011)
  - Medium growth @ 0.75% (1996 to 2011)
  - High growth @ 1.15% (1986 to 2011)

Projecting Growth (Continued)

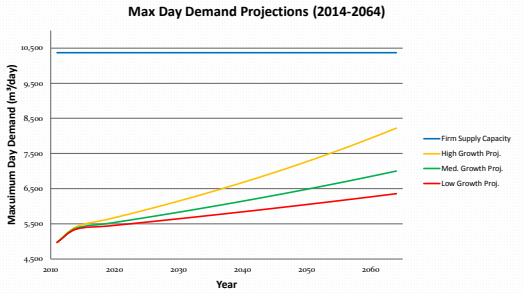


Water Demands

Projecting Demands

- Generally, the approach for determining future water demands was as follows:
  - Remove the 4 largest industrial users from the existing ADF and MDF values.
  - Apply the revised ADF and MDF values to the projected populations.
  - Add the 4 largest industrial users + Dana back onto the projected ADF and MDF values.

Projecting Demands (Continued)



Conclusions re Supply

- Water Supply (i.e. well capacity) is not an issue.
- More supply is not required.
- Equipping Well 4 is not necessary.

Growth and Development Assumptions and their Impacts on Water Storage Needs

Perth South Lands - Assumptions

- The Perth South Lands (industrial) are ultimately planned for servicing through extension of the existing St. Marys water distribution system.
- Burnside's *Master Servicing Study* and Stantec's *Preliminary Servicing Plan for James Street South Employment Lands* predicted different future demands for this area.
- Existing industrial usage is consistent with Stantec's values and we have assumed that future development of these lands will require an ADF of 15 m^3/ha•day and an MDF of 30 m^3/ha•day

Initial Growth Assumptions

- Population growth over the next 50 years will be at the MEDIUM projected rate of 0.75% per year (15 year average).
- We have assumed development of the Perth South Lands will be included in the municipal growth projections identified earlier and not in addition to that growth rate.
- We have also looked at the possible impact if development occurs in addition to the municipal growth projection.

Projecting Storage Requirements

- The MOE provides guidelines to calculate how much storage a community should have.
- The guidelines allow for a reduction in the required storage volume if the firm supply capacity of the system exceeds the system's maximum day demands.
- Assuming the supply continues to consist of Wells 1-3 only, the first step was to predict what the future surplus capacities would be using the max day flow projections identified earlier.

Projecting Storage Requirements (Continued)

- The next step was to calculate the future water storage required (less the available surplus well capacity).
- The final step was to subtract the existing storage (provided from the elevated tank) from the projected storage requirement.

Problem Definition

- *According to MOE guidelines, the St. Marys Drinking Water System does not have sufficient water storage. The storage deficit will become greater as the community grows.*

Storage Requirements

Identified Deficiencies - Storage

- There is currently and will continue to be a large amount of surplus well capacity available to the system.
- After taking that surplus into account, there is an existing storage deficiency of **1,255 m^3**.
- This storage shortage will continue to grow as the community grows.
- Assuming a medium growth scenario (which includes some development of the Perth South Lands), the storage deficiency will be approximately **2,400 m^3** by 2064.

Projecting Storage Requirements

Calculated Storage Deficiencies for Various Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	3,776	4,200	5,096
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**1,956**	**2,380**	**3,276**

Projecting Storage Requirements (Continued)

Calculated Storage Deficiencies with Perth South Lands Considered Additional to Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	4,901	5,327	6,133
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**3,081**	**3,507**	**4,313**

- In all cases, the addition of the Perth South Lands translates to a requirement for approximately 1,100 m^3 of additional storage.

Storage Deficiencies Continued

- In the High Growth Scenario 2400 m^3 → 3,300 m^3
- If Perth South is additional 2400 m^3 → 3500 m^3
- For both combined 2400 m^3 → 4300 m^3

- 1000 m^3 of storage costs approximately $400,000 to $500,000

Decisions Required

- Question 1 -- Is use of the "medium growth rate" (i.e. 0.75%) acceptable?
- Question 2 – Is it ok to assume that development of the Perth South lands will occur as part of normal growth – not in addition?
- The answers effect the additional volume required.

Alternative types and locations for Storage

Alternatives Considered - Assumptions

- We have identified two storage alternatives and compared them based on cost. Additional work is necessary to evaluate them based on environmental, historical, social, and other factors. For this part we have carried forward the following assumptions:
  - Communal growth will occur at the medium growth rate (0.75%).
  - Industrial development in the Perth South Lands is assumed to be included within this 0.75% growth rate and not in addition to it.

Evaluation of the Alternatives

- We looked at 2 types of storage.
  - Elevated Tanks
  - Reservoirs with Booster Pumping
- We considered Capital as well as Operating and Maintenance Costs:
  - Energy
  - Re-coating
  - Equipment replacement

Type and Location Issues

- The Well 1 site is ideally suited for construction of a ground-level reservoir and booster pumping system.
  - Well 1 can discharge to the reservoir.
  - An adequate site area.
  - Good power supply and distribution system connections.
- The Well 4 site is ideally suited for an elevated tank.
  - High ground elevation.
  - Future development of Well 4.

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Comparison of Opinion of Probable Cost

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Total Construction Cost	2,400,000	1,589,000
Contingencies	312,000	238,000
Engineering	264,000	207,000
Initial Construction Costs (Subtotal)	**2,976,000**	**2,034,000**
Interest Charges[1].	**900,000**	**615,000**
Reservoir expansion in 25 years	-	295,000
Elevated tank recoating costs in 25 years	260,000	-
Future Contingency, engineering and inspection	83,000	83,000
Future Construction Costs (Subtotal)	**343,000**	**378,000**
Power + heat costs for first 25-years	64,000	324,000
Power + heat costs for year 25-50	78,000	399,000
Power Costs (Subtotal)	**142,000**	**723,000**
Equipment Replacement Costs	-	**200,000**
Total Lifecycle Costs	**$4,361,000**	**$3,950,000**

Cost Comparison

Comparison of Opinion of Probable Costs based on Repayment over 10 years at 2.8%

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 2.8% for 10 years	477,000	326,000
Future Costs	485,000	1,301,000
Total Lifecycle Costs	**$3,938,000**	**$3,661,000**

Cost Comparison

Comparison of Opinion of Probable Costs and Considering Revenue from Leasing Space at top of ET

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 3.5% for 15 years	900,000	615,000
Future Costs	485,000	1,301,000
Revenue from leasing space on top of ET	(650,000)	-
Total Lifecycle Costs	**$3,711,000**	**$3,950,000**

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Summary of Opinion of Probable Cost

Alternative	Initial Capital Cost	50 Year Life Cycle Cost
Scenario 1 – Interest = 3.5% for 15 years		
Elevated Tank at Well Site 4	$2,976,000	$4,361,000
Ground Level Reservoir at Well 1	$2,034,000	$3,950,000
Scenario 2 – Interest = 2.8% for 10 years		
Elevated Tank at Well Site 4		$3,938,000
Ground Level Reservoir at Well 1		$3,661,000
Scenario 3 – Sc1 with $13K Annual Revenue for 50 years.		
Elevated Tank at Well Site 4		$3,711,000
Ground Level Reservoir at Well 1		$3,950,000

Decisions Required

- Question 3 – Do we proceed with:
  - A Groundlevel Reservoir/Booster Pumping Station at Well 1,

    or
  - An elevated tank at the Well 4 site

Next Steps

1. Prepare a draft report and circulate to interested parties.
2. Compile comments received.
3. Incorporate comments into a final report.
4. Provide notice of completion to review agencies and the public.

Questions?

Lisa Courtney

From: O'Leary, Emilee (MOECC) <Emilee.OLeary@ontario.ca>
Sent: August 25, 2015 9:18 AM
To: Lisa Courtney
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Thanks Lisa. Noted.

From: Lisa Courtney [mailto:lcourtney@bmross.net]
Sent: August 24, 2015 10:35 AM
To: O'Leary, Emilee (MOECC)
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Hi Emilee,

Hope you had a nice weekend.

The EA for improvements to the St. Mary's waterworks is still open/on-going. In February of this year, we brought some growth projections forward to the Town, as well as questions regarding future development lands. The Town was also asked about preference for a reservoir or elevated tank for water storage. We are currently waiting for a response to these questions before we proceed further with the EA investigation.

Let me know if you have any further questions. Cheers,

Lisa J. Courtney, MSc.
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
lcourtney@bmross.net<mailto:lcourtney@bmross.net>
www.bmross.net

From: O'Leary, Emilee (MOECC) [mailto:Emilee.OLeary@ontario.ca]
Sent: August 13, 2015 11:52 AM
To: Kelly Vader <kvader@bmross.net<mailto:kvader@bmross.net>>;
lcourtney@bmross.net<mailto:lcourtney@bmross.net>
Cc: cpapple@town.stmarys.on.ca<mailto:cpapple@town.stmarys.on.ca>;
jkelly@town.stmarys.on.ca<mailto:jkelly@town.stmarys.on.ca>
Subject: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Dear Ms. Courtney and Ms. Vader,

As you are aware, Mr. Bob Aggerholm has since retired from the MOECC and I am your new Regional Environmental Assessment Coordinator contact at the MOECC's southwest regional office for Class EA projects in Perth County.

Can you please provide an update with respect to the Town of St. Mary's Class EAs for the following three projects:

* Expansion of the WWTP

* Improvements for the Water Works Facilities

* Two bridge crossings of Trout Creek - Wellington Street and Water Street

Thanks in advance.

Regards,
Emilee

Emilee O'Leary | Environmental Planner/Environmental Assessment Coordinator Technical Support Section, Southwest Region, Ministry of the Environment and Climate Change
733 Exeter Road, London Ontario, N6E1L3
Phone: 519-873-5012 | emilee.oleary@ontario.ca<mailto:emilee.oleary@ontario.ca>

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Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 • f. (519) 524-4403
www.bmross.net

File No. 13014

May 26, 2014

Agency
(See attached list)

RE: Town of St. Marys - Municipal Class Environmental Assessment for Improvements to the Water Works Facilities.

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

This project is following the planning process set out for Schedule B activities under the Municipal Class Environment Assessment (Class EA). The purpose of the Class EA screening process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders, and review agencies. This correspondence is being issues to advise of the start of study investigations.

This correspondence is being issued to advise of the start of the study investigations and of an upcoming Public Information Centre (PIC). The PIC is being held to advise residents of information regarding this project and to receive input from interested parties. The meeting is scheduled for Wednesday, May 28, 2014 at 6 P.M. at the Municipal Operations Centre (408 James Street South) in St. Marys. If you are unable to attend, the presentation material can be forwarded at your request.

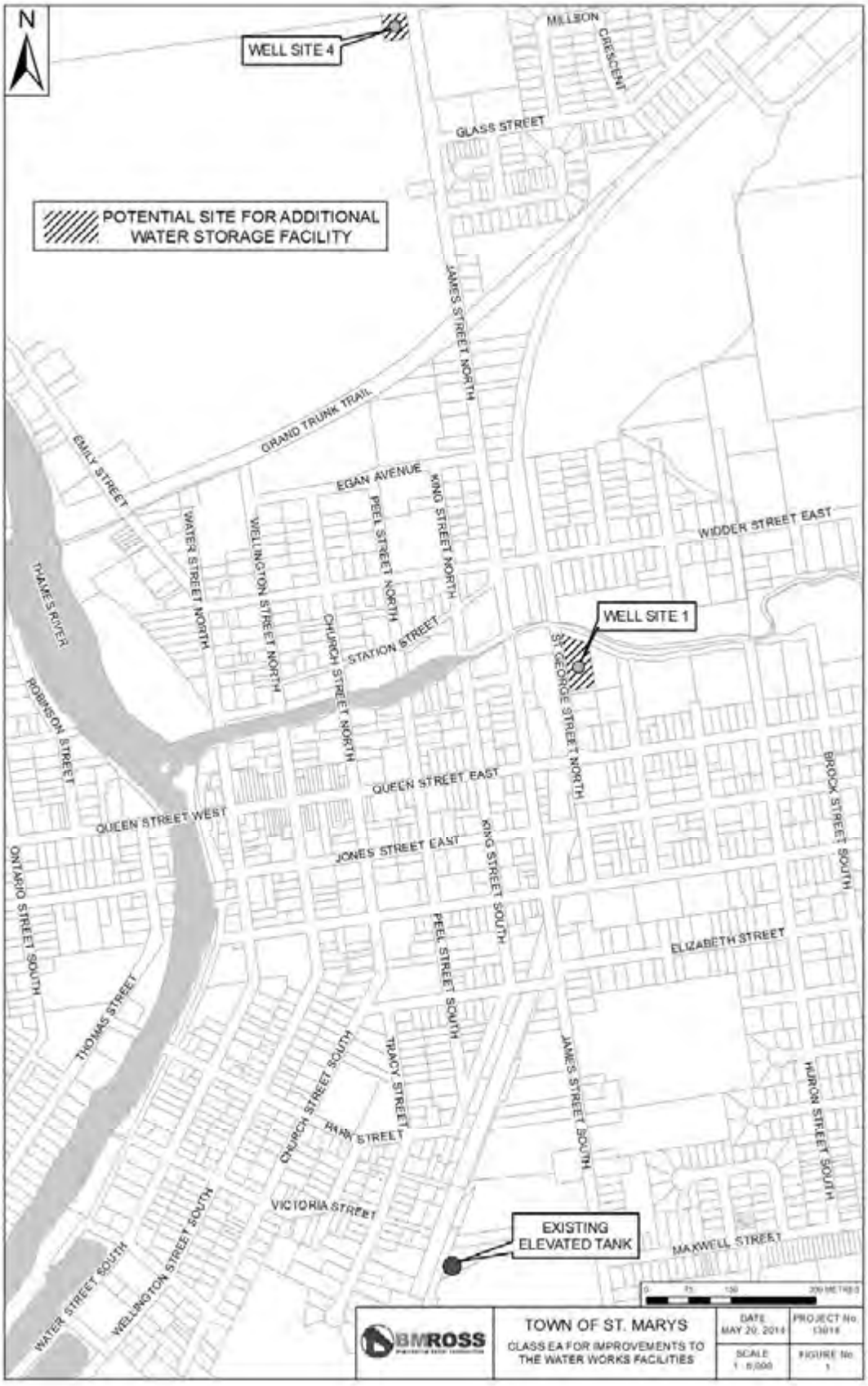
Your organization has been identified as possibly having an interest in the project and we are soliciting your input. **Please forward your response to our office by July 4, 2014**. If you have any questions or require further information, please contact the undersigned.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys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WELL SITE 4
MILLSON CRESCENT
GLASS STREET
POTENTIAL SITE FOR ADDITIONAL WATER STORAGE FACILITY
JAMES STREET NORTH
GRAND TRUNK TRAIL
EMILY STREET
EGAN AVENUE
KING STREET NORTH
PEEL STREET NORTH
WATER STREET NORTH
WELLINGTON STREET NORTH
CHURCH STREET NORTH
WIDDER STREET EAST
WELL SITE 1
STATION STREET
ST. GEORGE STREET NORTH
THAMES RIVER
ROBINSON STREET
QUEEN STREET EAST
QUEEN STREET WEST
BROCK STREET SOUTH
JONES STREET EAST
KING STREET SOUTH
ONTARIO STREET SOUTH
PEEL STREET SOUTH
ELIZABETH STREET
THOMAS STREET
CHURCH STREET SOUTH
TRACY STREET
JAMES STREET SOUTH
HURON STREET SOUTH
HANN STREET
VICTORIA STREET
EXISTING ELEVATED TANK
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13018
SCALE 1 : 5,000
FIGURE No. 1

TOWN OF ST. MARYS

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR THE EXPANSION OF THE WATER WORKS FACILITIES

REVIEW AGENCY CIRCULATION LIST

REVIEW AGENCY	INVOLVEMENT
Ministry of the Environment (London) - EA Coordinator	Mandatory Contact
Ministry of Natural Resources (Aylmer)	Potential Impact on Natural Features
Ministry of Culture (Toronto)	Potential Impact to Heritage Features
Ministry of Transportation (London)	General Information
Perth County - Administration Department - Planning & Development Department - Public Works Department - Emergency Services Department	General Information
Upper Thames River Conservation Authority	Potential Impact on Natural Features

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www.bmross.net

File No. 13014

May 26, 2014

Aboriginal Community
(See attached list)

RE: Class Environmental Assessment for
For Improvements to the Water Works Facilities
Town of St. Marys

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

The project is following the planning process set out for Schedule B activities under the Municipal Class Environmental Assessment (Class EA). The purpose of the Class EA process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders and review agencies.

This correspondence is being issued to advise of the start of study investigations and to advise of an upcoming Public Information Centre (PIC) being held for this project as well as several other infrastructure projects being undertaken in St. Marys. If you are unable to attend the PIC, which is scheduled for Wednesday May 28, 2014 from 6 - 8 p.m. at the Municipal Operations Centre (408 James Street South) in St. Marys, the presentation material can be forwarded at your request.

For your convenience, a response form is enclosed along with a self-addressed stamped envelope. Please return by July 4, 2014. If you have any questions on this matter or require further information, please contact the undersigned at 519-524-2641 or by e-mail at lcourtney@bmross.net.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys

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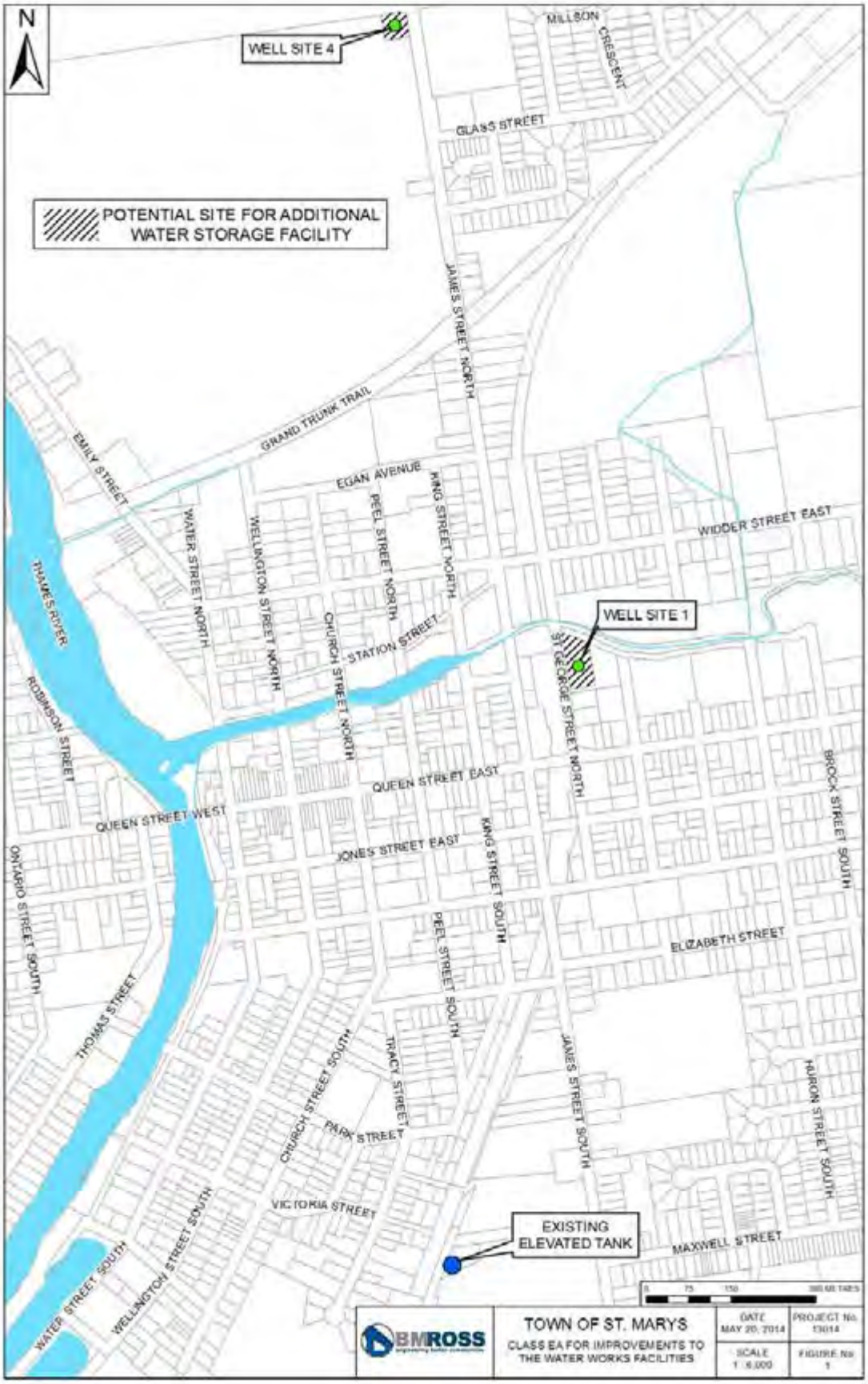
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HURON STREET SOUTH
PARK STREET
VICTORIA STREET
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13014
SCALE 1 : 6,000
FIGURE No. 1

TOWN OF ST. MARYS
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES.

CIRCULATION LIST: ABORIGINAL ORGANIZATIONS

ORGANIZATION	INVOLVEMENT
Aboriginal and Northern Affairs Canada Environmental Assessment Coordination Environmental Unit	Potential for Aboriginal Interest
Ministry of Aboriginal Affairs Aboriginal and Ministry Relationships Branch	Potential for Aboriginal Interest
Métis Nation of Ontario (Ottawa)	Potential for Aboriginal Interest
Walpole Island First Nation	Potential for Aboriginal Interest
Chippewas of Kettle and Stony Point First Nation	Potential for Aboriginal Interest
Aamjiwnaang First Nation	Potential for Aboriginal Interest
Oneida Nation of the Thames	Potential for Aboriginal Interest
Munsee-Delaware Nation	Potential for Aboriginal Interest
Moravian of the Thames	Potential for Aboriginal Interest
Caldwell First Nation	Potential for Aboriginal Interest

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: May 29, 2014 1:07 PM
To: 'craig@developro.ca'
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: RE: St. Marys EA
Attachments: image001.png

Craig:

I will ensure that you are added to the mailing lists for each of the EA projects.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
kvader@bmross.net
www.bmross.net

From: craig@developro.ca [mailto:craig@developro.ca]
Sent: May-29-14 11:43 AM
To: Kelly Vader
Subject: St. Marys EA

Hi Kelly,
I represent Thames Crest Farms Limited which you may be aware are currently intending to develop a portion of their lands fronting Emily Street immediately north of the Emily Street Grand Trunk underpass. I attended the public meeting last night, and appreciated the fullness of information that was supplied. I have attached our current draft plan for your reference. I would note that my client owns what is shown as lots 15 and 16 on the draft plan, of which approximately 140 acres of is within the town's settlement boundary.

I would appreciate if you could ensure that I am emailed all notices of public meetings, and provided with any information that is available since all of the components of the EA (Transportation, Sanitary, Water) all ultimately have an impact on my clients lands.

If you require any information from me that you may find useful, I would be happy to assist in any way possible.

Sincerely,
Craig

Craig Linton

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: July 10, 2014 1:45 PM
To: Ryan DeVries (rdevries@bmross.net); Steve Burns; Andrew Ross (aross@bmross.net); Lisa Courtney (lcourtney@bmross.net)
Subject: FW: Comments on St. Marys Municipal Infrastructure Projects Class EA

FYI

From: Pat Donnelly [mailto:p2donnelly@bell.net]
Sent: July-09-14 11:26 PM
To: Kelly Vader; kvader@bmross.net
Cc: Chad Papple; kmcllwain@town.stmarys.on.ca; Pat Donnelly
Subject: Comments on St. Marys Municipal Infrastructure Projects Class EA

Ms. Kelly Vader;
Environmental Planner
B.M. Ross

Further to the public meeting held May 28 at the Municipal Operations Centre that Pat attended, we provide the following comments for your consideration in the Class EA being followed for the 3 projects. Sorry for the delay in sending them.

These comments are from both our perspectives as homeowners and residents of St. Marys, both as a former member of the Grand Trunk Trail Steering Committee, and as keen environmentalists who share a strong interest in the protection of the Thames River. We live at 243 Thomas Street which is located approximately 200 metres distance from both the Pollution Control Plant and Municipal Well #3. We also frequently use the Water Street bridge as a hiking and cycling route.

1) Water Infrastructure

Our house has recently benefitted from an upgraded energy efficient, gas boiler that provides the heating system and hot water. However, every time there is a minor change in water pressure, the boiler is impacted and causes an error in the electronics. The last time this occurred was when the water tower was being worked on (re-painted?) and a call to our service provided was needed. Any improvements to the water system that reduces the range of water pressure to our house is welcomed. We are located down the street and approximately 200 metres from Well #3.

From a broader perspective, the addition of a new well at the Town's north boundary should be carefully considered in conjunction with input from the adjacent township. As I understand it, the pending Source Water Protection (SWP) Plan will impose specific land use and activity restrictions surrounding any new well within it's Well Head Protection Area (WHPA) that will likely extend outside the Town boundaries given the proposed well location near the northern town boundary. Therefore, these decisions that impact adjacent municipal land use should have inter-municipal dialogue and cooperation. The regional nature of the St. Marys aquifer from which St. Marys receives its drinking water via the three municipal wells AND the Thames River, is a connection

that has not yet been fully realized. I understand that the SWP will focus on this connection and provide a greater assortment of tools for the municipality to protect our drinking water source.

2) Sanitary Infrastructure

Efforts to improve the treatment of wastewater should consider ways to reduce the smell and improve the efficiency of the pollution control plant, which is also located down the street and approximately 200 metres from our house. We would also hope that improved waste treatment technologies such as membrane technology, would be considered in the list of options. As Pat works in London and collaborates with wastewater engineers, he understands this technology does not require increased space in order to facilitate this enhanced treatment method. The effluent from these plants that use membrane technology is of tertiary treatment standards (based on the Oxford Pollution Control Plant in London),.

3) Road Infrastructure; Wellington and Water Street road bridge improvements.

Wellington Street Bridge is a vital link to the Town's transportation system and improvements need to be made to ensure this link is maintained. We have no specific comments on this bridge repair.

Conversely, the Water Street bridge is a piece of town heritage that needs to be preserved but not as part of the road network for vehicles. We support leaving it intact as a pedestrian / cycling bridge based on 3 factors:

a. The bridge remains a key component of the Riverview Walkway that follows the Thames River through town. This walkway also connects to the Loop Trail that circumnavigates the town and links to the system of parks. Converting this bridge into a pedestrian / cycling bridge would achieve many of the goals stated in the Official Plan (Sec. 5.3.14) to encourage active lifestyle and active transportation methods (walking, hiking, cycling).
b. Any change to this bridge that would increase traffic flow would trigger improvements to the Emily Street underpass. These improvements would likely require the expansion of the one lane underpass which would then need to consider the likelihood that the railway embankment contains substandard soils and unconsolidated materials including asbestos as observed and uncovered during development of the Grand Trunk Trail repurposing in 2004/2005. The likelihood of asbestos was also brought to the attention of Chad Papple last year when former members of the GTT Committee Tony Reynen, Allan Powell and Pat met with Chad to discuss the issue.
c. The one lane bridge and one lane underpass provides a "traffic calming measure" to the increased traffic produced by residential development north of the GTT. This feature provides a benefit to the businesses and residents who live adjacent to this length of roadway. All opportunities should be taken to relieve traffic pressure from Emily Street and Water Street by incorporating an eastward traffic flow through the proposed residential development north of the GTT and onto James Street. This bridge improvement Class EA should be linked to the decisions being made about future residential development to take advantage of land use

decisions that would accommodate a redirection of existing and new traffic via an internal road pattern in the new subdivision.

Thank you for the opportunity to comment on this important matter.
Sincerely,

Pat and Patti Donnelly
243 Thomas Street
519-284-4207

Town of St. Marys Municipal Infrastructure Projects

Public Information Meeting
May 28th, 2014

Agenda

- Introduction
- Class EA Process
- Description of Projects
  - Sanitary, Water, Transportation
  - Identified Deficiencies
  - Alternatives Being Considered
- Bridge Heritage Assessment
- Trout Creek Modeling
- Next Steps

Class EA Process

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

- PLANNING AND DESIGN PROCESS FOR MUNICIPAL WATER, WASTEWATER, AND ROADS PROJECTS
- CONDUCTED TO EVALUATE THE POTENTIAL IMPACT OF MUNICIPAL PROJECTS AND TO EXAMINE MEASURES TO MITIGATE IDENTIFIED IMPACTS
- REQUIRES CONSIDERATION OF NATURAL, SOCIAL, CULTURAL, ECONOMIC, AND BUILT ENVIRONMENTS

CLASS EA STUDY PHASES

PROBLEM/OPPORTUNITY DEFINITION

↓

IDENTIFICATION OF ALTERNATIVES

↓

CONSULTATION WITH PUBLIC AND REVIEW AGENCIES

↓

EVALUATION OF ALTERNATIVES

↓

SELECTION OF PREFERRED ALTERNATIVE

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Class EA Investigations

- **Study Purposes**
  - To Identify Deficiencies with Existing Municipal Infrastructure
  - Determine a Range of Alternatives that Would Address the identified Deficiencies
  - To Consult with Residents and Review Agencies on the Projects to Gather Input and Insight into Issues of Concern
  - Define Potential Impacts Associated with the Alternatives Being Considered
  - Select a Preferred Alternative for Each Project

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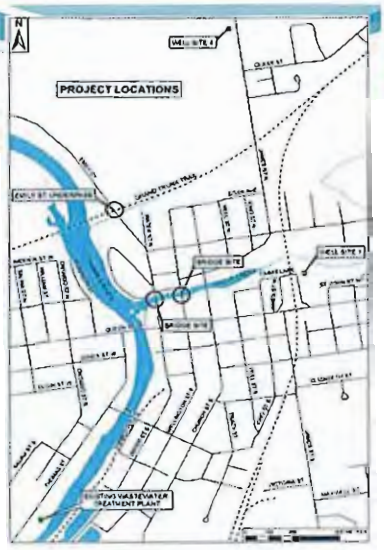
Project Study Area

Infrastructure Projects

- WWTP
  - Potential Expansion
- Water Supply
  - Need for Additional Storage
- Trout Creek Crossings
  - Address Deficiencies



Project Descriptions

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Project Descriptions

- St. Marys Wastewater Treatment Plant
  - To address current Capacity and Operational issues
  - To determine the need for expansion and how best to accommodate growth.
- St. Marys Drinking Water System
  - To address a storage deficiency and accommodate growth
  - To address fire flow issues within the distribution system
- Water Street and Wellington Street Bridges
  - Evaluation of Current Deficiencies
  - Identify potential Replacement Options

Water and Wastewater Projects

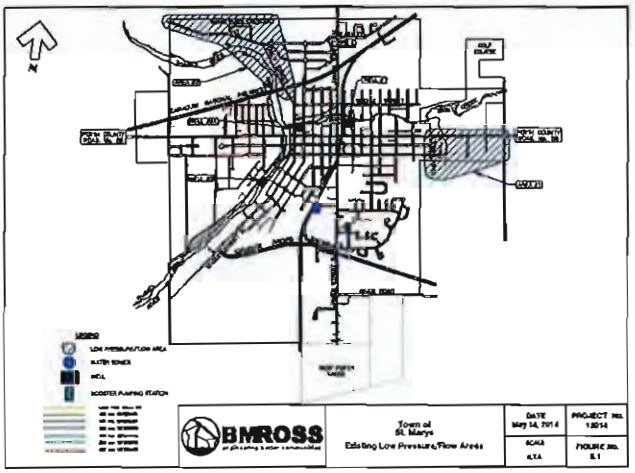
- Key Project Drivers:
  1. Addressing current deficiencies
  2. Accommodating future growth.

Wastewater Treatment System

- Current Issues:
  - High peak flows vs peak capacity.
  - High organic strength of wastewater.
  - Biosolids handling capacity

Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.



Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.
2. Treated water storage deficiency (originally identified in 2002)

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Accommodating Growth

- 2011 population was 6,655
- Considering 3 different growth scenarios:
  - 0.50% per year (average for 2001 to 2011)
  - 0.75% per year (average for 1996 to 2011)
  - 1.15% per year (average for 1986 to 2011)
- Making special consideration for large industrial users
- Forecasting for 50 years (i.e. to 2064)
- Service to Perth South industrial lands

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Questions?

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Wastewater Treatment Plant

Study Approach

1. Establish existing operating conditions – both flow and strength.
2. Establish unit process capacities.
3. Identify deficiencies – existing and future
4. Determine how growth can be accommodated.
5. Evaluate Alternative Solutions

Problems/Deficiencies

- Peak flow capacity.
- High organic loadings.
- Biosolids handling capacity.
- Need to accommodate growth.

The Good News:

- Average flows are less than plant capacity.
- Treatment objectives are being met.

Project Alternatives

- A combination of approaches:
  - Investigating wastewater strength reduction.
  - Process optimization.
  - Physical modifications (e.g. larger pumps)
  - Unit process expansion (e.g. inlet works, UV and settling)
  - Preliminary thinking is a series of actions and smaller projects over an extended time.

Questions?

St. Marys Drinking Water System

Project Study Area

Study Approach

1. Establish current usage (averages and maximums)
2. Establish existing capacities (supply and storage).
3. Investigate flows and pressures – hydrant tests and modeling.
4. Determine future needs for growth
5. Investigate alternatives

Problems/Deficiencies

1. Low pressures and flows under fire flow conditions in two areas.
2. There is a treated water storage deficiency of approximately 1200 m^3.

The Good News:

- There is a large surplus of supply capacity.
- Treatment objectives are being met.
- The supply and treatment facilities are relatively new.

Project Alternatives

1. To address low flows and pressures – local watermain upgrades.
2. To address the storage deficiency:
   1) An elevated tank at the site of future Well 4.
   2) A Ground Level Reservoir and Booster Pumping station at the Well 1 site.

BMROSS

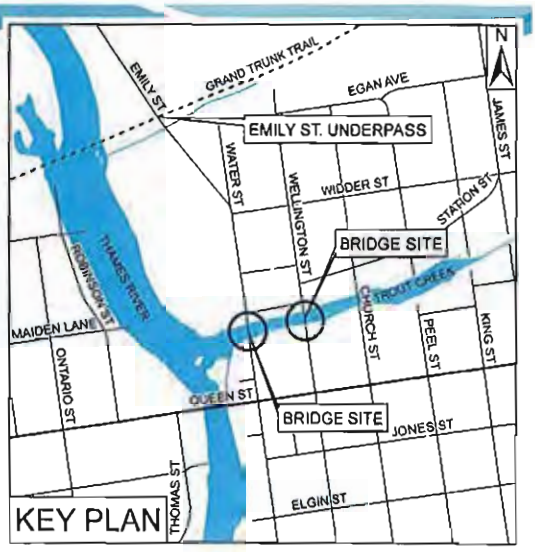
Questions?

BMROSS

Class EA for the Water Street and Wellington Street Bridges

BMROSS

Project Study Area



➢ Water Street Bridge

➢ Wellington Street Bridge

➢ Emily Street Underpass

Problems/Deficiencies

➢ Water Street

Problems/Deficiencies

- Wellington Street

Project Alternatives

- Replace both Bridges
- Replace Wellington Street and Remove Water Street
- Replace Wellington Street and Convert Water Street to a Pedestrian-Only Crossing
- Replace Water Street and Close Wellington Street
- Do Nothing

* Any option involving replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street underpass.

BMROSS

Structural Heritage Assessment

Golder Associates Ltd.

Cultural Heritage Impact Assessment

- Structures > 40 Years Require Assessment
  - Water Street Bridge (1898)
  - Emily Street Underpass (1905)
  - Wellington Street Bridge (1971) – (Piers – 1912)
- Historical Context
- Heritage Attributes
- Cultural Landscape

BMROSS

BMROSS

Heritage Assessment

- Design/Physical Value (50 Maximum Score)
  - Functional Design
  - Visual Appeal
  - Materials
- Contextual Value (25 Maximum Score)
  - Landmark
  - Character Contribution
- Historic Associative Value (25 Maximum Score)
  - Designer/Construction Firm
  - Associated with Historic Theme/Person/Event

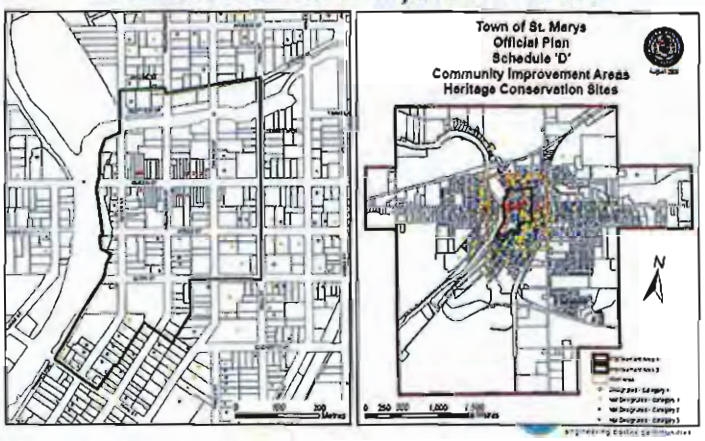
Results

- Wellington Street Bridge
  - No Cultural Value or Interest
- Emily Street Underpass
  - No Cultural Value
  - Contextual Value Associated with Former Railway Use
- Water Street Bridge
  - Pin Connected Pratt Truss – Relatively Rare
  - Abutments Designed and Built by Local Craftsmen
  - Important Component of Cultural Values Associated with Trout Creek and Downtown St. Marys

Recommendations

- Wellington Street Bridge
  - Replacement Structure should contribute to the Existing Character of Area
- Emily Street Underpass
  - Proposed Widening should minimize impacts to Existing Character and Earthworks
- Water Street Bridge
  - Restored or Repaired Using Sympathetic Design Features or Retained for Pedestrian Traffic
  - Considered for Designation Under Part IV of the Ontario Heritage Act

Schedule 'D' St. Marys Official Plan



St. Marys Official Plan

Section 2.3 Heritage Conservation

- Section 2.3.1 Objectives
  - 2.3.1.2 Protect and Enhance Heritage Resources through Policies that Balance Preservation with Re-Development
  - 2.3.1.3 Be Proactive in Identifying Sites worthy of Preservation
- Section 2.3.2 Policies
  - 2.3.2.6 Council may, upon Recommendation of the St. Marys Heritage Committee, Designate Individual Properties for Conservation Under Part IV of Ontario Heritage Act
- Recommendation from Heritage Committee

Hydraulic Analysis

Study Considerations

- Trout Creek Flood Levels may be impacted by proposed Bridge Projects
- Very Complex Hydrology because of Multiple Crossings and Confluence of Thames River
- Floodplain affecting downtown St. Marys may be Impacted by the Study Outcome
- Existing Hydraulic Model is Outdated

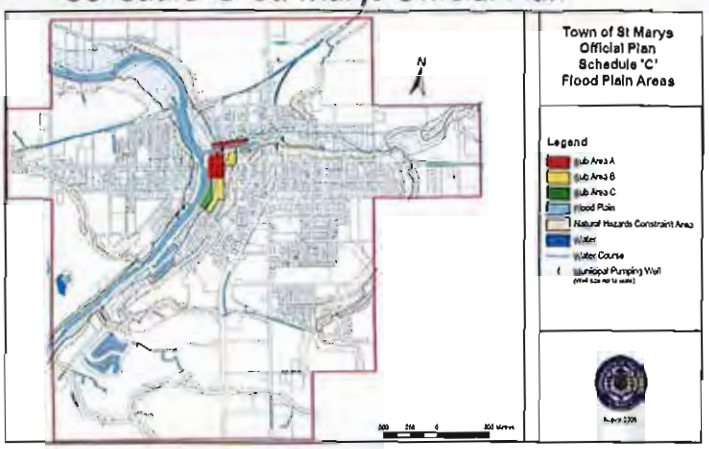
Study Considerations Cont'd

- Upper Thames River Conservation Authority willing to work cooperatively with St. Marys to Update Model
- Updated Hydraulic Model will assist with Future Update for St. Marys Special Policy Area (SPA)
- Study must include a consideration of the Trout Creek Floodwall
- Cannot Finalize Preferred Bridge Alternatives until Each Option is Considered within the Context of Flooding Impacts

Trout Creek Hydraulic Analysis

- Anticipated Stages
  - Convert existing model to HEC RAS
  - Collect current cross-section elevations for Trout Creek and Adjacent Areas
  - Update Flow Data for Trout Creek and the Thames River
  - Simulate various Bridge Replacement Alternatives to determine impact on Flood Elevations
  - Work Cooperatively with the UTRCA so that updated model can be used for other purposes in St. Marys

Schedule 'C' St. Marys Official Plan



Next Steps

- Collect and Review Public Input from Meeting
- Complete Hydraulic Modeling for Bridge Projects
- Continue to Investigate Sewage & Water Alternatives
- Identify Potential Impacts Associated with Each Alternative Being Considered
- Review Advantages and Disadvantages of each
- Select a Preliminary Preferred Alternative for each of the projects

Questions?

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE

Wednesday, May 28, 2014

ATTENDANCE LIST

(PLEASE PRINT)

Name	Address
Steve Glover	85 Huron St. N.
Bruce Partridge	46 Thamesview Cres.
Stew Slater	Journal Argus
Councillor Lynn Heinz	474 Rogers Ave.
DAN VAN Galen	36 Ingersoll St/ Marys.
STAN FRASER	465 WIDDER ST. E.
RAY IRELAND	Wildwood Care Centre
TONY WINTER	256 ELGIN ST. MARYS.
STEVE GROSS	130 WESTOUM ST. ST. MARYS
Andrea Macke	47 Wellington St. S.
Pat Dunnett.	243 Thomas
STEPHEN McCOTTER	78 MEADOWRIDGE DR. ST. MARYS

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE
Wednesday, May 28, 2014

ATTENDANCE LIST
(PLEASE PRINT)

Name	Address
Dick MacPherson	6 Water St. S. St Marys.
CAREY POPÉ (COUNCIL)	31 WATER ST STMARYS
CRAIG LINTON	LONDON
AL TUCKER	104 Church St S.
MARK MORTON	279 THOMAS ST.
Deb & Gary Russell	418 Glass St.
GERALD BROCKMAN	37 BIRCH CREEK CRES
John O'Donnovan	319 Elizabeth St.
Doug & Janis Freed	231 Thomas St.
Trisha McKibbin	119 Peel St. S. St. Marys.
Frank Doyle	ST. Marys Ontario.
Cyndi Vink	119 Guest Crt St Marys.
Bill Osborne	271 Emily St St. Marys
Jody Swan	81 Park St St. Marys
Jeremy Swan	81 Park St. St. Marys
J McLeod	224 Jones St St Marys

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 • f. (519) 524-4403
www.bmross.net

File No.
13013/13014/13018

TOWN OF ST. MARYS
MUNICIPAL INFRASTRUCTURE PROJECTS
PUBLIC INFORMATION CENTRE
MEETING NOTES

Date: May 28, 2014

Place: Town of St. Marys Municipal Operations Centre

Present	Dave Blake	)	Town of St. Marys
	Jed Kelly	)	
	Kevin McLlwain	)	
	Chad Papple	)	
	Steve Burns	)	B.M. Ross and Associates (BMROSS)
	Lisa Courtney	)	
	Ryan DeVries	)	
	Andrew Ross	)	
	Kelly Vader	)	
	30 members of the public		

Open House 6 PM to 6:30 PM
Presentation 6:30 PM to 8:30 PM

Agenda Items

1.0 Introductions

Chad P. welcomed the audience and introduced members of Council, Town staff, Upper Thames Conservation Authority staff, and BMROSS staff in attendance. Kelly V. then provided an overview of the agenda.

2.0 Class Environmental Assessment Process

The presentation began with an overview of the Municipal Class Environmental Assessment process. Kelly V. explained that it is a phased process for evaluating municipal infrastructure projects and associated impacts. Presently, the Town of St. Marys is undertaking three EAs related to water, wastewater and transportation infrastructure.

3.0 Water and Wastewater Systems Introduction

Steve B. explained that the existing water and wastewater systems have deficiencies and need improvements to accommodate future growth. With respect to the wastewater treatment plant (WWTP) there are existing issues related to high peak flow, high organic content, and the biosolids handling capacity. Current issues with the drinking water system include fire flow issues in the east and northeast parts of the community, and a need for additional water storage.

Current deficiencies are also being examined with respect to future growth. Steve B. stated that three growth scenarios were developed, based on average growth in the community over the past 10, 15, and 25 years. These scenarios also include considerations for industrial users. A 50-year design period is being used to determine needs for the water system and a 25-year period was used for the wastewater system. Questions were then invited from the audience.

Q. What are large industrial users doing to conserve water? Could they use another source of potable water?

Steve B. replied that he was unsure of any specific actions by industry to conserve water. Theoretically, it is possible to use another source of water, however there would be issues with water taking and impacts downstream, as well as the capital cost of a dual system.

4.0 Wastewater System

Ryan D outlined the location of the WWTP and the steps being completed to study the wastewater system. A number of problems have been identified including: high peak flow capacity, high organic loadings, the biosolids handling capacity, and the need to accommodate growth. A set of actions over time may address these issues. Alternatives include reducing the strength of wastewater, process optimization, physical modifications to the plant, and unit process expansion, or a combination of the aforementioned. Questions were then invited from the public.

Q. Are you looking at infiltration into the existing collection system?

Ryan D. responded that the Town is already examining this issue and that BMROSS will work with the Town to determine how infiltration impacts the wastewater treatment system.

A resident expressed concern that certain industries are contributing to the high wastewater concentrations.

Q. Does BMROSS have access to information on how other towns with food industries manage wastewater?

Steve B. explained that BMROSS has worked in a number of communities with food industries. He noted that municipalities often treat wastewater from industries and also have regulatory bylaws in place.

Q. What volume of wastewater is from infiltration?

Steve B. stated that the volume of wastewater that is the result of infiltration has not been calculated at this time. The average daily flow and maximum daily flow numbers were provided by Ryan D.

Q. What happens if flows exceed the capacity of the plant? Would raw sewage end up in the river?

Ryan D. explained that raw sewage would not end up in the river; however, the effluent may not be treated to the treatment levels required.

Q. How are biosolids handled?

Biosolids are dewatered and then stored at the plant. Steve B. further explained that the biosolids are then applied to licenced farmland for disposal.

Q. St. Marys recently installed a new system to manage biosolids, why is there a problem now?

Steve B. responded that the current biosolids system is working, just not to the levels expected. This is possibly related to the strength of the wastewater coming into the plant.

Q. Does St. Marys have any bylaws for what can be put down the drain?

Kevin M. responded that the Town has surcharge agreements and there are clauses within the agreements that allow the Municipality to renegotiate.

Q. What was the purpose of the previous expansion at the wastewater treatment plant?

Steve B. explained that in 2010 the treatment process and biosolid management systems at the WWTP were changed.

Q. Do biosolids have to meet certain concentration requirements before they are disposed of?

Steve B. stated that there are significant provincial regulations related to biosolids and that they are also tested for metals. The testing of the biosolids is done by the operator of the WWTP and a contractor takes the biosolids for disposal. Jed K. added that the biosolids are land applied only on fields approved under the Nutrient Management Act and that the Town has all the required approval certificates.

Q. Are odours from the WWTP being considered as part of the EA?

Steve B. responded that odours are being considered and that the EA will consider means to mitigate odours.

5.0 Water System

An overview of the existing water system, including the location of the existing storage facility and wells, was provided by Ryan D. He explained that BMROSS approached the investigation by first establishing the usage, flows and capacity, system pressures and potential future growth. From these investigations two problems were identified: low fire flows in two areas of St. Marys (in the east part of the town and an area near Emily Street) and a deficiency in the amount of treated water storage. Additional storage will be required for future demands related to growth.

Ryan D. suggested that the areas of low fire flow may be addressed through watermain improvements in the affected areas and that this work would not require an environmental assessment. To address the need for storage, two preliminary alternatives have been identified: construct an elevated storage facility at Well 4, or constructing a ground level reservoir at Well 1. The audience was then invited to ask questions.

Q. Why isn't a ground level reservoir being considered at Well 4?

Ryan D. responded that the site is better suited for an elevated tank. A reservoir would be more costly at Well 4 than at Well 1.

Q. Would the Town be responsible for the cost of this project?

Ryan D. replied that the Town would be responsible for funding the project; however funding sources, such as government grants, will be investigated.

Q. Was the Well 4 site identified as a potential site for an elevated storage facility because there is a well there?

Ryan D. responded that the site was identified because it is owned by the Town, there is already a well there, and there is suitable space for a facility. It was noted that the Well 1 site is too low for an elevated tank (would require a very tall tower which would be costly).

Q. Should we have underground water storage in a floodplain?

Ryan D. stated that potential impacts related to flooding will be examined as part of the EA.

Q. What risks are associated with having municipal wells in the floodplain?

Steve B. noted that an Environmental Assessment completed in 2002 examined flooding impacts to the wells located in the floodplain.

Q. Would an increase in storage increase flows in the WWTP?

Ryan D. explained that a greater volume of stored water would not impact the WWTP.

Q. Is it possible to put a storage facility near the existing storage facility?

The benefits of siting storage facilities away from each other (improving system efficiency and pressures across the system), was explained by Ryan D.

Q. How big is the current storage facility, how much more storage is needed?

Ryan D. stated that the existing storage facility has a capacity of 1,820 m^3 and that over the 50-year design period, an additional 2,400 m^3 is required. He explained that an elevated tank is not expandable and if that was chosen as the type of storage facility, it would be sized for 2,400 m^3. A reservoir could be built in phases, initially smaller with an expansion later, if required.

5.0 Water Street and Wellington Street Bridges

Andrew R. provided a brief history of the Water Street and Wellington Street Bridges and the Emily Street Underpass. Recent inspections of the bridges identified significant corrosion. From the inspections, it was recommended that a load limit be placed on the Water Street Bridge. It was also noted that the Wellington Street Bridge is nearing the end of its service life, due to the extent of corrosion present.

Given these problems, a number of preliminary alternative solutions have been identified. These options include, but are not limited to:

- Replace both bridges
- Replace Wellington Street Bridge and remove the Water Street Bridge

- Replace Wellington Street Bridge and restore Water Street Bridge to a pedestrian-only crossing
- Replace Water Street Bridge and close Wellington Street Bridge.
- Do nothing.

It was also noted that any option involving the replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street Underpass to address increased traffic from the crossing.

Q. Could Water Street Bridge be restored to vehicular traffic?

Andrew R. responded that it will be examined as an alternative.

Q. Would restoring Water Street Bridge to a pedestrian only crossing be similar in cost to restoring it to vehicle traffic?

Andrew R. responded that restoring the Water Street Bridge to pedestrian traffic would cost less than restoring it to vehicle traffic.

Q. Would the Water Street Bridge last long if restored to pedestrian traffic rather than vehicle traffic?

Andrew R. answered that if the bridge was restored to pedestrian traffic, it is likely it would have a longer service life than if it were restored to vehicle traffic. This is due to the addition of salt required for maintenance of the roads for vehicle traffic, which escalates the rate of corrosion.

Due to the age of the bridges, a structural heritage study was completed. Kelly V. provided an overview of the heritage assessment. The assessment examined the bridges and underpass with respect to their heritage attributes, the historical context of the area, and how they fit into the cultural landscape.

The Wellington Street Bridge was found to have no cultural value or interest, as it was reconstructed in the 1970s. The Emily Street Underpass was deemed to have no cultural value, but to have contextual value associated with its former railway use. The Water Street Bridge was found to have relatively rare pin connected pratt trusses and abutments that were designed and built by local craftsmen. It was also considered to have cultural value associated with downtown St. Marys and Trout Creek.

The structural heritage assessment recommended that the Wellington Street Bridge be replaced and that the replacement contribute to the existing character of the area. For the Emily Street Underpass, it was recommended that any widening minimize impacts to the existing character and earthworks. Lastly, it was recommended that the Water Street Bridge be either restored or replaced using sympathetic design features or retained for pedestrian traffic. Also, the report recommended that the Town consider designating the Water Street Bridge under Part IV of the Ontario Heritage Act.

The existing hydraulic model for the St. Marys area is outdated and given the hydraulic complexity of the area (due to multiple crossing and the confluence of the Thames River), an updated hydraulic model is needed. BMROSS plans to work cooperatively with Upper Thames River Conservation Authority (UTRCA) to update the model. The model will be used to evaluate the flooding impacts associated with the bridge alternatives.

Q. Would the mill race be included in the hydraulic assessment?

Kelly V. responded that the mill race will be included as a component of the hydraulic assessment.

Q. Are impacts to the floodwall being looked at?

Kelly V. responded that the floodwall will be considered in the hydraulic assessment, but as the floodwall is a structure owned by the UTRCA any significant changes would need to be assessed under a separate class environmental assessment process used by Conservation Authorities.

Q. It is difficult to limit vehicles on the Water Street Bridge. Could additional height or weight restrictions be added presently?

Chad P. replied that the Town has looked at additional measures for restricting vehicles on Water Street, but it is difficult to find a way to limit all vehicles that may exceed the load limit (such as a low vehicle pulling a heavy trailer).

A member of the public commented that the Water Street Bridge certainly is a cultural feature and added that there is value in the Wellington Street Bridge, as you can see two other bridges from it. The resident added that cultural value should be included as part of the evaluation of alternatives.

Q. If a bridge has a load limit and someone drives a vehicle over it that is over the limit, what implications does that have for liability?

Andrew R. responded that a lawyer would be able to address that question.

A resident suggested that Water Street Bridge could be rebuilt to have its original form. Another resident raised concerns about safety and suggested that the Water Street Bridge may become submerged in a flood event.

Q. Could the Water Street Bridge be used for events, such as a farmers market, if it was restored to a pedestrian crossing?

Andrew R. responded that those types of uses would have to be assessed to determine what potential load (weight) could be present.

Q. Why haven't any costs been presented?

Andrew R. replied that cost will be examined during the evaluation of alternatives.

Q. Are there any examples of bridges like the Water Street Bridge being restored to vehicle traffic? Who is doing the construction?

Andrew R. explained that the Watson's Bridge in Bruce County, near Paisley, is being restored for vehicle traffic. AJN Builders from Dublin is the contractor.

A resident suggested that the Water Street Bridge could be saved and used on the Emily Street Overpass.

Q. When will the hydraulic modelling be completed?

Kelly V. responded that the hydraulic modelling is expected to be completed this fall.

Q. Is the environmental assessment a provincial requirement or due-diligence on the part of the Town?

Kelly V. explained that the Town is the proponent for the purposes of the environmental assessment and the process is driven by the proponent; however, there is provincial legislation requiring environmental assessments.

Q. Is it possible that the hydraulic modelling will identify deficiencies with the Church Street Bridge?

Andrew R. stated that the Church Street Bridge will not be assessed with the hydraulic model.

Q. Who establishes the load limits?

Andrew R. responded that an engineer will recommend a load limit, but Council has to approve placing the limit on the structure.

A resident suggested that copies of the presentation material be made available at the local library and friendship centre.

6.0 Next Steps

The meeting concluded with Kelly V. providing an outline of the next steps for the environmental assessments for the three projects. She explained that there will be another public meeting following further investigations and the evaluation of alternatives.

The meeting adjourned at 8:30 PM

Should there be any errors or omissions to these meeting notes, please notify the undersigned.

Meeting Notes Prepared By:

Lisa J. Courtney

B. M. ROSS AND ASSOCIATES LIMITED

Ministry of the Environment
733 Exeter Road
London ON N6E 1L3
Tel': 519 873-5000
Fax: 519 873-5020

Ministère de l'Environnement
733, rue Exeter
London ON N6E 1L3
Tél.: 519 873-5000
Téléc.: 519 873-5020

Ontario

Delivered by e-mail

June 3, 2014

B. M. Ross and Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: Lisa J. Courtney, Environmental Planner

Dear Ms Courtney:

RE: MEA Class EA Notice of Commencement – Water Works Improvements, Town of St. Marys (Your File No. 13014)

MEA Class EA Notice of Commencement – Wastewater Treatment Plan Expansion, Town of St. Marys (Your File No. 13014)

Road Infrastructure – Bridge Crossings of Trout Creek

This letter is in response to the Public Information Notice that was issued for the above-noted projects.

This is to advise you of the following Ministry instruction regarding First Nations and Métis community consultation in the MEA Class EA process, and to inquire or to provide direction regarding the following:

Documentation:
We wish to be provided with an electronic copy of the 2012 Burnside Master Service Strategy for the Town (or a paper copy, if one is not available).

MOE Review of Documentation:
The draft Project File/ESR for the projects should be circulated to this office for our review and comment. We normally require 30 to 45 days.

Meetings or Consultation with MOE

Please advise this office if you wish to meet with the Ministry's Regional technical experts to discuss assimilative capacity and effluent quality requirements or other matters relating to the MOE's Design Guidelines for Sewage Works and Drinking-Water Systems.

Future Growth

If the water and sewage projects are intended to service growth that was the subject to any on-going or recently- concluded *Planning Act* process, please advise us of the status of these proposals or applications. Furthermore, consideration should be given to the applicability of the integration (*EAA/Planning Act*) provisions of the MEA Class EA.

Consultation with First Nation and Métis Communities

Your proposed project may have the potential to affect Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. The Crown has a duty to consult First Nation and Métis communities when it knows about established or credibly asserted Aboriginal or treaty rights, and contemplates decisions or actions that may adversely affect them.

Although the Crown remains responsible for ensuring the adequacy of consultation with potentially affected Aboriginal communities, it may delegate procedural aspects of the consultation process to project proponents.

The environmental assessment process requires proponents to consult with interested persons and government agencies, including those potentially affected by the proposed project. This includes a responsibility to conduct adequate consultation with First Nation and Métis communities. The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process.

Where the Crown's duty to consult is triggered in relation to your proposed project, the Ontario Ministry of the Environment is delegating the procedural aspects of rights-based consultation to you through this letter.

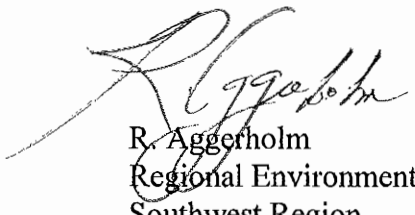
Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the attached "Aboriginal Consultation Information" document. Please complete the checklist contained there, and keep related notes as part of your consultation record. Doing so will help you assess your project's potential adverse effects on Aboriginal or treaty rights.

You must contact the Director, Environmental Approvals Branch if you have reason to believe that your proposed project may **adversely affect an Aboriginal or treaty right, consultation has reached an impasse**, or if a **Part II Order request** is anticipated. The Ministry will then assess the extent of any Crown duty to consult in the circumstances, and will consider whether additional steps should be taken and what role you will be asked to play in them.

A draft copy of the Project File or Environmental Study Report (ESR) should be sent to the appropriate Ministry of Environment regional office prior to the filing of the final report as applicable, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments. Please also forward the Notice of Completion and Project File/ESR to the appropriate regional office when completed.

Should you have any questions, please do not hesitate to contact me at (519) 873-5012.

Yours truly,



R. Aggerholm
Regional Environmental Assessment Coordinator
Southwest Region

/ra
Encl.

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

http://www.ene.gov.on.ca/environment/en/resources/STD01_076108.html

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Metis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to

Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBgen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;

- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
- Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
- Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
    - summarize the nature of any comments and questions received from First Nation and/or Métis communities
    - describe your response to those comments and how their concerns were considered
    - include a communications log indicating the dates and times of all communications; and
    - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted. If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have the potential to impact any archaeological sites?		

Kelly Vader

From: Ken Bettles [KBettles@perthsouth.ca]
Sent: June-24-14 10:55 AM
To: Kelly Vader
Cc: Tim Ivanyshyn; Ken Bettles
Subject: RE: St. Marys Infrastructure Class EA

Kelly, please see Perth South's comments
At an appropriate time within the EA process such as, if well site 4 becomes a preferred alternative, or if existing wells are expected to have a significant change in pumping rates.
please ensure to consider any new or changes to significant threat areas in relation to source water protection
Please keep us informed as to any outcomes

Ken Bettles, C.E.T., CRS.
Director of Public Works
Township of Perth South, 3191 Road 122 St. Pauls, ON N0K 1V0
Tel: 519-271-0619, ext. 230, Fax 519-271-0647, Toll Free: 1-866-771-0619
kbettles@perthsouth.ca
www.perthsouth.ca

From: Kelly Vader [mailto:kvader@bmross.net]
Sent: Thursday, May 29, 2014 4:55 PM
To: Ken Bettles
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: St. Marys Infrastructure Class EA

Hi Ken:

The presentation material is attached for your information. I will make sure that Perth South is added to the mailing list for the Water Supply EA.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

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UPPER THAMES RIVER
CONSERVATION AUTHORITY

The Thames
A Canadian
Heritage River

"Inspiring a Healthy Environment"

July 2, 2014

B.M. Ross & Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: **Lisa Courtney** (lcourtney@bmross.net)

Dear Ms. Courtney:

Re: **Town of St. Marys**
Municipal Class Environmental Assessment
For Improvements to the Water Works Facilities

Upper Thames River Conservation Authority (UTRCA) staff are in receipt of the "Notice of Study Commencement" for the Municipal Class Environmental Assessment (EA) regarding review of Improvements to the Water Works Facilities in the Town of St. Mary's. We offer the following comments under Ontario Regulation 157/06 and our responsibilities as a commenting agency providing technical review and advisement related to natural heritage, water resources and natural hazard management pursuant to relevant legislation and policies set out in the UTRCA Planning Policy Manual (June 28, 2006):

General Comments

1) We would appreciate the opportunity for our technical staff to review and provide comments on any upcoming draft documents and proposed alternatives including any draft Environmental Study Report. Please note that our scope of review is based on the policies set out in the Upper Thames River Conservation Authority Planning Policy Manual (June 28, 2006). EA and subsequent detail design project review for the Improvements to the St. Marys Water Works Facilities would generally be guided by, but not limited to, natural heritage, natural hazard and pollution prevention areas of concern for lands regulated within our jurisdiction.

UTRCA Regulated Areas

2) According to the enclosed project location mapping, portions of the works may occur within natural hazard and natural heritage areas regulated by the Conservation Authority. The UTRCA regulates development within the Regulation Limit in accordance with Ontario Regulation 157/06 made pursuant to Section 28 of the *Conservation Authorities Act*. This regulation requires proponents to obtain written approval from the UTRCA prior to undertaking any works in the

regulated area including filling, grading, construction, alteration to a watercourse and/or interference with a wetland.

3) According to the enclosed project location mapping, Well Site #1 (Potential Site for Additional Water Storage Facility) occurs within natural hazard areas (riverine flood and erosion hazard lands) regulated by the Conservation Authority. Please be advised that the Upper Thames River Conservation Authority takes the 1: 250 year flood event as our Regulatory Flood Event Standard. At the detail design stage, all designs will need to ensure adherence to UTRCA flood policies and incorporate flood proofing to the 1: 250 year flood event.

Geotechnical Considerations

4) Depending on project specifics a favourable geotechnical assessment may be required for any potential water storage facility in the erosion hazard associated with Trout Creek.

Drinking Water Source Protection

5) The proponent should be aware that the Municipal Engineers Association (MEA) is updating the Class EA to account for Source Water Protection. We understand that one set of revisions has been consulted on and that more detail is being added through further revisions. Both revisions, among other things, highlight the importance of considering the Clean Water Act (CWA) and local Source Protection Plan in assessing the alternatives through the EA process. The EA is the best time to consider regulatory requirements of the Clean Water Act and Source Protection Plan as well as designated vulnerable areas. The EA planning process offers an excellent opportunity to document how these factors have been considered in the planning process.

6) This EA includes alternatives for municipal water supply and pumping which could have an implication on the vulnerable areas defined in the approved Assessment Reports. Therefore the proponent should consider this in their assessment of alternatives.

7) It is also worth noting that work undertaken through the Water Quantity Risk Assessment (Water Budget) has improved the understanding of the municipal drinking water sources in the St Marys area. This work has not yet been incorporated into the Assessment Report, but could be considered at the same time as new wells or changes in pumping are considered. The advanced model developed through the water budget could be applied to determine the net changes to the vulnerable areas. The proponent should consider applying the new models to the delineation of vulnerable areas for the proposed new well and refinements to the vulnerable areas associated with the existing wells.

8) Changes in the vulnerable area delineation such as those discussed above may change what activities are drinking water threats and the areas where they are drinking water threats. While it is not always possible to undertake the vulnerability assessment as part of the EA, it should be considered at some level to be able to adequately consider the alternatives. It is recommended that a vulnerability assessment following the CWA technical rules, be undertaken for the preferred alternative if the alternative is likely to result in changes to the vulnerable areas such as in the case of a new well.

9) The CWA has very specific requirements for notification related to those who are engaged in significant drinking water threats as a result of revisions to the Assessment Report. One of the revisions proposed for the MEA Class EA draws attention to these requirements. It is important

that this be considered to ensure that those affected by the proposal are engaged through the EA process while alternatives are being considered.

10) While it is obvious that a new well will have impacts on the vulnerable areas, it is important to consider whether the storage alternatives being considered may also have impacts on the vulnerable areas. If the pumping from the wells is changed substantially this could have an impact on the size and shape of the vulnerable areas. This should be considered through the EA. If it is determined that there would be no change expected, this can be documented in the EA.

11) If the proponents have questions on how source protection and the local plan may affect the proposed alternatives they may contact UTRCA Drinking Water Source Protection (DWSP) staff or their municipal Risk Management Official (RMO).

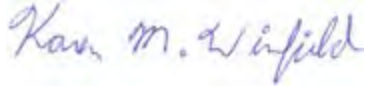
Summary

Please be advised that we have not yet received enough information to provide detailed comments regarding the project. However, we appreciate being contacted early in the process and are always open to meeting with you to discuss and work through any concerns or complications along the way.

Our office would like to be included in future circulations regarding this project. We would appreciate receiving information and reports as they become available in order to ensure that we can meet the project deadlines with our comments.

If you have any questions regarding the above information, please contact the undersigned.

Yours truly,
UPPER THAMES RIVER CONSERVATION AUTHORITY



Karen M. Winfield
Land Use Regulations Officer
CT/KW/kw

c.c. – Chad Papple, Town of St. Marys – (via e-mail: cpapple@town.stmarys.on.ca)
- Kelly Vader, B.M. Ross – (via e-mail: kvader@bmross.net)

Town of St. Marys
Water System Upgrades
Class EA

Presentation to Council
February 3, 2015

Agenda

1. The purpose and approach to the Class EA.
2. What decisions are required?
3. Review of Existing and Future Conditions
4. Alternative Solutions
5. Discussion
6. Next Steps

Purpose of the Class EA

- The purpose of this Class EA is to determine the best approach to upgrading the St. Marys Water System to ensure a safe and secure supply of water for the present and future.

The General Approach

The steps we are following are:

1. Understanding what the existing water demands are.
2. Projecting future water demands.
3. Understanding the existing system and constraints.
4. Determining what will need to be addressed, and when, to ensure adequate pressure and flow throughout the system – Defining the PROBLEM
5. Evaluating alternative solutions.
6. Determining a preferred solution.

Decisions Required by Council

1. What future growth to allow for?
2. How best to address the Perth South Industrial lands?
3. Additional water storage is required:
   a) What type should be provided?
   b) Where should it be located?

The Existing Situation

Existing Storage and Supply

- Well 1 (60 L/s) + Well 2 (60 L/s) + Well 3 (60 L/s) = 180 L/s; or 120 L/s of firm capacity = **10,368 m^3/d** (firm capacity assumes one well is offline).
- The existing elevated tank has available storage of **1,820m^3.**
- A number of studies were completed in 2002 to identify additional well supply sites. Future Well Site 4 was identified with a capacity = 22.7 L/s **(1960 m^3/d)**

Existing Water Demands

- Based on 2009-2013 usage data, the existing Average Day Flow (ADF) and Max Day Flow (MDF) values were determined as **3,034** and **4,910** m^3/day, respectively.
- Also, the 4 largest industrial users account for an ADF of 849 m^3/day and an MDF of **1,455** m^3/day.
- Historical data suggests Dana was consuming an ADF of 273 m^3/day and an MDF of **324** m^3/day. These values will be used to project Green Arc Tire demands.

Existing Demands (Continued)

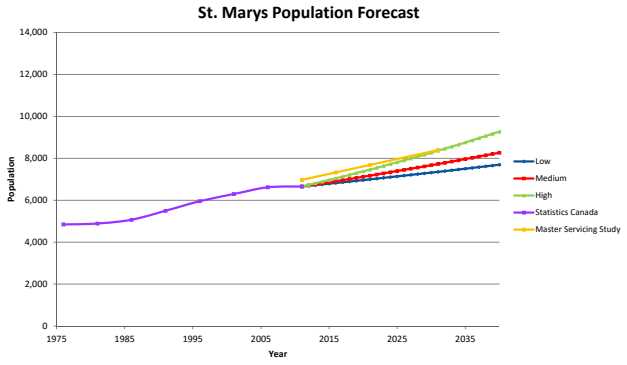
- Excluding the top 4 industrial users from the existing ADF and MDF, the existing max day peak factor and per capita usage values can be calculated as 1.67 and **328 L/cap•day**, respectively.

Growth Considerations

Projecting Growth

- For the Water System we have considered a **50 year** design period.
- We considered 3 population growth scenarios:
  - Low growth @ 0.50% (2001 to 2011)
  - Medium growth @ 0.75% (1996 to 2011)
  - High growth @ 1.15% (1986 to 2011)

Projecting Growth (Continued)

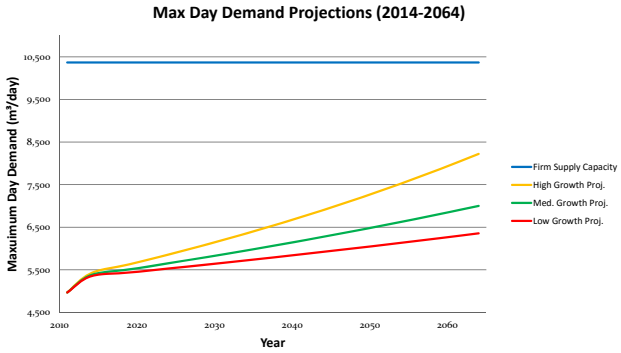


Water Demands

Projecting Demands

- Generally, the approach for determining future water demands was as follows:
  - Remove the 4 largest industrial users from the existing ADF and MDF values.
  - Apply the revised ADF and MDF values to the projected populations.
  - Add the 4 largest industrial users + Dana back onto the projected ADF and MDF values.

Projecting Demands (Continued)



Conclusions re Supply

- Water Supply (i.e. well capacity) is not an issue.
- More supply is not required.
- Equipping Well 4 is not necessary.

Growth and Development Assumptions and their Impacts on Water Storage Needs

Perth South Lands - Assumptions

- The Perth South Lands (industrial) are ultimately planned for servicing through extension of the existing St. Marys water distribution system.
- Burnside's *Master Servicing Study* and Stantec's *Preliminary Servicing Plan for James Street South Employment Lands* predicted different future demands for this area.
- Existing industrial usage is consistent with Stantec's values and we have assumed that future development of these lands will require an ADF of 15 m^3/ha•day and an MDF of 30 m^3/ha•day

Initial Growth Assumptions

- Population growth over the next 50 years will be at the MEDIUM projected rate of 0.75% per year (15 year average).
- We have assumed development of the Perth South Lands will be included in the municipal growth projections identified earlier and not in addition to that growth rate.
- We have also looked at the possible impact if development occurs in addition to the municipal growth projection.

Projecting Storage Requirements

- The MOE provides guidelines to calculate how much storage a community should have.
- The guidelines allow for a reduction in the required storage volume if the firm supply capacity of the system exceeds the system's maximum day demands.
- Assuming the supply continues to consist of Wells 1-3 only, the first step was to predict what the future surplus capacities would be using the max day flow projections identified earlier.

Projecting Storage Requirements (Continued)

- The next step was to calculate the future water storage required (less the available surplus well capacity).
- The final step was to subtract the existing storage (provided from the elevated tank) from the projected storage requirement.

Problem Definition

- *According to MOE guidelines, the St. Marys Drinking Water System does not have sufficient water storage. The storage deficit will become greater as the community grows.*

Storage Requirements

Identified Deficiencies - Storage

- There is currently and will continue to be a large amount of surplus well capacity available to the system.
- After taking that surplus into account, there is an existing storage deficiency of **1,255 m^3**.
- This storage shortage will continue to grow as the community grows.
- Assuming a medium growth scenario (which includes some development of the Perth South Lands), the storage deficiency will be approximately **2,400 m^3** by 2064.

Projecting Storage Requirements

Calculated Storage Deficiencies for Various Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	3,776	4,200	5,096
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**1,956**	**2,380**	**3,276**

Projecting Storage Requirements (Continued)

Calculated Storage Deficiencies with Perth South Lands Considered Additional to Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	4,901	5,327	6,133
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**3,081**	**3,507**	**4,313**

- In all cases, the addition of the Perth South Lands translates to a requirement for approximately 1,100 m^3 of additional storage.

Storage Deficiencies Continued

- In the High Growth Scenario 2400 m^3 → 3,300 m^3
- If Perth South is additional 2400 m^3 → 3500 m^3
- For both combined 2400 m^3 → 4300 m^3

- 1000 m^3 of storage costs approximately $400,000 to $500,000

Decisions Required

- Question 1 -- Is use of the "medium growth rate" (i.e. 0.75%) acceptable?
- Question 2 – Is it ok to assume that development of the Perth South lands will occur as part of normal growth – not in addition?
- The answers effect the additional volume required.

Alternative types and locations for Storage

Alternatives Considered - Assumptions

- We have identified two storage alternatives and compared them based on cost. Additional work is necessary to evaluate them based on environmental, historical, social, and other factors. For this part we have carried forward the following assumptions:
  - Communal growth will occur at the medium growth rate (0.75%).
  - Industrial development in the Perth South Lands is assumed to be included within this 0.75% growth rate and not in addition to it.

Evaluation of the Alternatives

- We looked at 2 types of storage.
  - Elevated Tanks
  - Reservoirs with Booster Pumping
- We considered Capital as well as Operating and Maintenance Costs:
  - Energy
  - Re-coating
  - Equipment replacement

Type and Location Issues

- The Well 1 site is ideally suited for construction of a ground-level reservoir and booster pumping system.
  - Well 1 can discharge to the reservoir.
  - An adequate site area.
  - Good power supply and distribution system connections.
- The Well 4 site is ideally suited for an elevated tank.
  - High ground elevation.
  - Future development of Well 4.

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Comparison of Opinion of Probable Cost

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Total Construction Cost	2,400,000	1,589,000
Contingencies	312,000	238,000
Engineering	264,000	207,000
Initial Construction Costs (Subtotal)	**2,976,000**	**2,034,000**
Interest Charges[1.]	**900,000**	**615,000**
Reservoir expansion in 25 years	-	295,000
Elevated tank recoating costs in 25 years	260,000	-
Future Contingency, engineering and inspection	83,000	83,000
Future Construction Costs (Subtotal)	**343,000**	**378,000**
Power + heat costs for first 25-years	64,000	324,000
Power + heat costs for year 25-50	78,000	399,000
Power Costs (Subtotal)	**142,000**	**723,000**
Equipment Replacement Costs	**-**	**200,000**
Total Lifecycle Costs	**$4,361,000**	**$3,950,000**

Cost Comparison

Comparison of Opinion of Probable Costs based on Repayment over 10 years at 2.8%

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 2.8% for 10 years	477,000	326,000
Future Costs	485,000	1,301,000
Total Lifecycle Costs	**$3,938,000**	**$3,661,000**

Cost Comparison

Comparison of Opinion of Probable Costs and Considering Revenue from Leasing Space at top of ET

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 3.5% for 15 years	900,000	615,000
Future Costs	485,000	1,301,000
Revenue from leasing space on top of ET	(650,000)	-
Total Lifecycle Costs	**$3,711,000**	**$3,950,000**

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Summary of Opinion of Probable Cost

Alternative	Initial Capital Cost	50 Year Life Cycle Cost
Scenario 1 – Interest = 3.5% for 15 years		
Elevated Tank at Well Site 4	$2,976,000	$4,361,000
Ground Level Reservoir at Well 1	$2,034,000	$3,950,000
Scenario 2 – Interest = 2.8% for 10 years		
Elevated Tank at Well Site 4		$3,938,000
Ground Level Reservoir at Well 1		$3,661,000
Scenario 3 – Sc1 with $13K Annual Revenue for 50 years.		
Elevated Tank at Well Site 4		$3,711,000
Ground Level Reservoir at Well 1		$3,950,000

Decisions Required

- Question 3 – Do we proceed with:
  - A Groundlevel Reservoir/Booster Pumping Station at Well 1,

    or
  - An elevated tank at the Well 4 site

Next Steps

1. Prepare a draft report and circulate to interested parties.
2. Compile comments received.
3. Incorporate comments into a final report.
4. Provide notice of completion to review agencies and the public.

Questions?

Lisa Courtney

From: O'Leary, Emilee (MOECC) <Emilee.OLeary@ontario.ca>
Sent: August 25, 2015 9:18 AM
To: Lisa Courtney
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Thanks Lisa. Noted.

From: Lisa Courtney [mailto:lcourtney@bmross.net]
Sent: August 24, 2015 10:35 AM
To: O'Leary, Emilee (MOECC)
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Hi Emilee,

Hope you had a nice weekend.

The EA for improvements to the St. Mary's waterworks is still open/on-going. In February of this year, we brought some growth projections forward to the Town, as well as questions regarding future development lands. The Town was also asked about preference for a reservoir or elevated tank for water storage. We are currently waiting for a response to these questions before we proceed further with the EA investigation.

Let me know if you have any further questions. Cheers,

Lisa J. Courtney, MSc.
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
lcourtney@bmross.net<mailto:lcourtney@bmross.net>
www.bmross.net

From: O'Leary, Emilee (MOECC) [mailto:Emilee.OLeary@ontario.ca]
Sent: August 13, 2015 11:52 AM
To: Kelly Vader <kvader@bmross.net<mailto:kvader@bmross.net>>;
lcourtney@bmross.net<mailto:lcourtney@bmross.net>
Cc: cpapple@town.stmarys.on.ca<mailto:cpapple@town.stmarys.on.ca>;
jkelly@town.stmarys.on.ca<mailto:jkelly@town.stmarys.on.ca>
Subject: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Dear Ms. Courtney and Ms. Vader,

As you are aware, Mr. Bob Aggerholm has since retired from the MOECC and I am your new Regional Environmental Assessment Coordinator contact at the MOECC's southwest regional office for Class EA projects in Perth County.

Can you please provide an update with respect to the Town of St. Mary's Class EAs for the following three projects:

* Expansion of the WWTP

* Improvements for the Water Works Facilities

* Two bridge crossings of Trout Creek - Wellington Street and Water Street

Thanks in advance.

Regards,
Emilee

Emilee O'Leary | Environmental Planner/Environmental Assessment Coordinator Technical Support Section, Southwest Region, Ministry of the Environment and Climate Change
733 Exeter Road, London Ontario, N6E1L3
Phone: 519-873-5012 | emilee.oleary@ontario.ca<mailto:emilee.oleary@ontario.ca>

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File No. 13014

May 26, 2014

Agency
(See attached list)

RE: Town of St. Marys - Municipal Class Environmental Assessment for Improvements to the Water Works Facilities.

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

This project is following the planning process set out for Schedule B activities under the Municipal Class Environment Assessment (Class EA). The purpose of the Class EA screening process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders, and review agencies. This correspondence is being issues to advise of the start of study investigations.

This correspondence is being issued to advise of the start of the study investigations and of an upcoming Public Information Centre (PIC). The PIC is being held to advise residents of information regarding this project and to receive input from interested parties. The meeting is scheduled for Wednesday, May 28, 2014 at 6 P.M. at the Municipal Operations Centre (408 James Street South) in St. Marys. If you are unable to attend, the presentation material can be forwarded at your request.

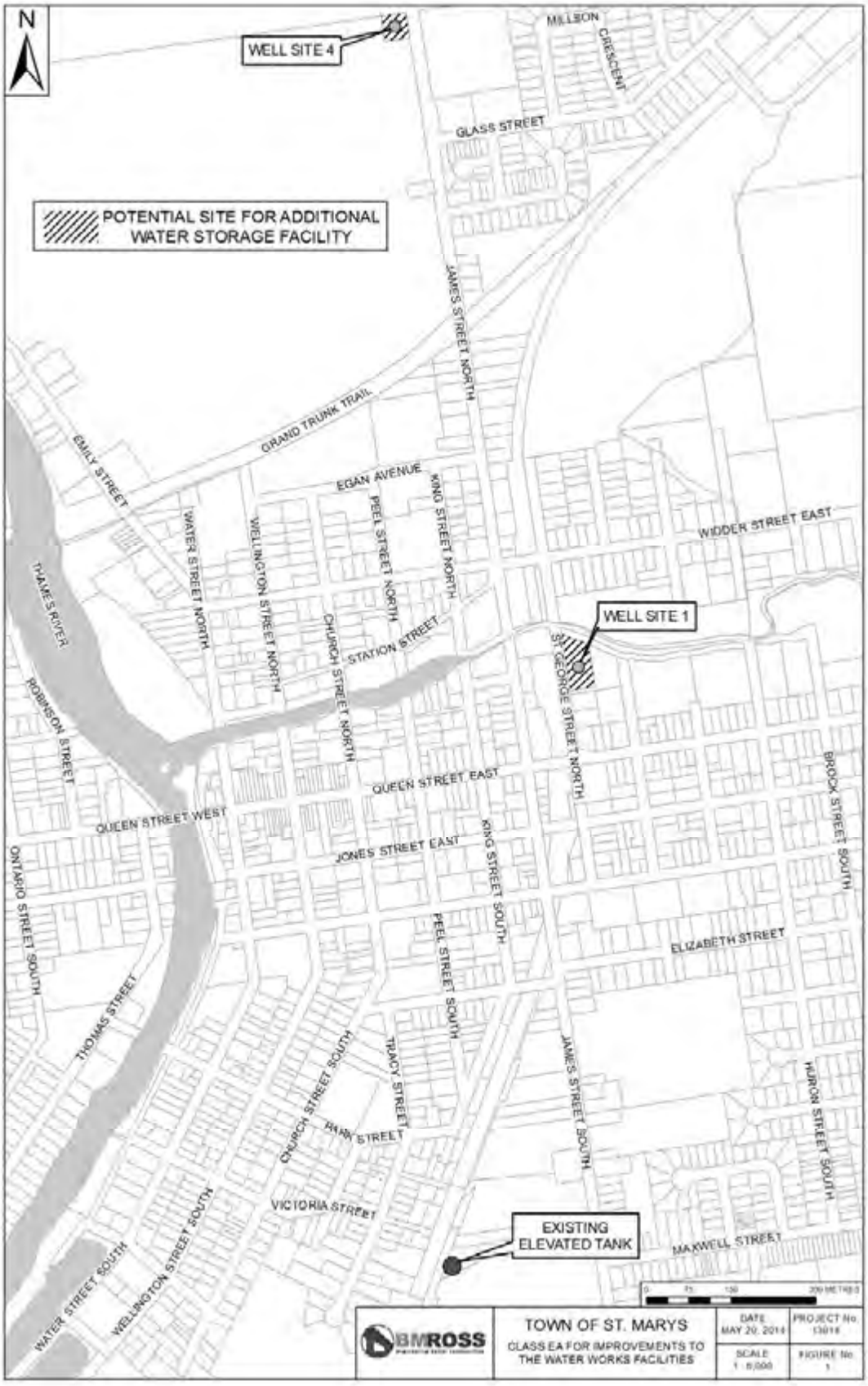
Your organization has been identified as possibly having an interest in the project and we are soliciting your input. **Please forward your response to our office by July 4, 2014**. If you have any questions or require further information, please contact the undersigned.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys


N
WELL SITE 4
MILLSON CRESCENT
GLASS STREET
POTENTIAL SITE FOR ADDITIONAL WATER STORAGE FACILITY
JAMES STREET NORTH
GRAND TRUNK TRAIL
EMILY STREET
EGAN AVENUE
KING STREET NORTH
PEEL STREET NORTH
WATER STREET NORTH
WELLINGTON STREET NORTH
CHURCH STREET NORTH
WIDDER STREET EAST
WELL SITE 1
STATION STREET
ST. GEORGE STREET NORTH
THAMES RIVER
ROBINSON STREET
QUEEN STREET EAST
QUEEN STREET WEST
BROCK STREET SOUTH
JONES STREET EAST
KING STREET SOUTH
ONTARIO STREET SOUTH
PEEL STREET SOUTH
ELIZABETH STREET
THOMAS STREET
CHURCH STREET SOUTH
TRACY STREET
JAMES STREET SOUTH
HURON STREET SOUTH
HANN STREET
VICTORIA STREET
EXISTING ELEVATED TANK
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13018
SCALE 1 : 5,000
FIGURE No. 1

TOWN OF ST. MARYS

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR THE EXPANSION OF THE WATER WORKS FACILITIES

REVIEW AGENCY CIRCULATION LIST

REVIEW AGENCY	INVOLVEMENT
Ministry of the Environment (London) - EA Coordinator	Mandatory Contact
Ministry of Natural Resources (Aylmer)	Potential Impact on Natural Features
Ministry of Culture (Toronto)	Potential Impact to Heritage Features
Ministry of Transportation (London)	General Information
Perth County - Administration Department - Planning & Development Department - Public Works Department - Emergency Services Department	General Information
Upper Thames River Conservation Authority	Potential Impact on Natural Features

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 • f. (519) 524-4403
www.bmross.net

File No. 13014

May 26, 2014

Aboriginal Community
(See attached list)

RE: Class Environmental Assessment for
For Improvements to the Water Works Facilities
Town of St. Marys

The Town of St. Marys has initiated a Class Environmental Assessment process to investigate improvements to the water works facilities. A Master Servicing Study was completed by R.J. Burnside & Associates Limited in June 2012, which examined future servicing needs for the community related to existing water, sewage and road infrastructure. The study identified a deficiency in the current storage capacity of the water system and determined that additional storage is necessary to meet the required fire flows for the existing serviced population and future development. A range of alternative solutions will be evaluated to determine how best to increase the storage capacity. Alternative types of storage facilities and locations will be considered as part of the Class EA process. Sites that are being considered as potential locations for an additional storage facility are shown in Figure 1.

The project is following the planning process set out for Schedule B activities under the Municipal Class Environmental Assessment (Class EA). The purpose of the Class EA process is to identify any potential environmental impacts associated with the proposed works and to plan for appropriate mitigation of any identified impacts. The process includes consultation with the public, stakeholders and review agencies.

This correspondence is being issued to advise of the start of study investigations and to advise of an upcoming Public Information Centre (PIC) being held for this project as well as several other infrastructure projects being undertaken in St. Marys. If you are unable to attend the PIC, which is scheduled for Wednesday May 28, 2014 from 6 - 8 p.m. at the Municipal Operations Centre (408 James Street South) in St. Marys, the presentation material can be forwarded at your request.

For your convenience, a response form is enclosed along with a self-addressed stamped envelope. Please return by July 4, 2014. If you have any questions on this matter or require further information, please contact the undersigned at 519-524-2641 or by e-mail at lcourtney@bmross.net.

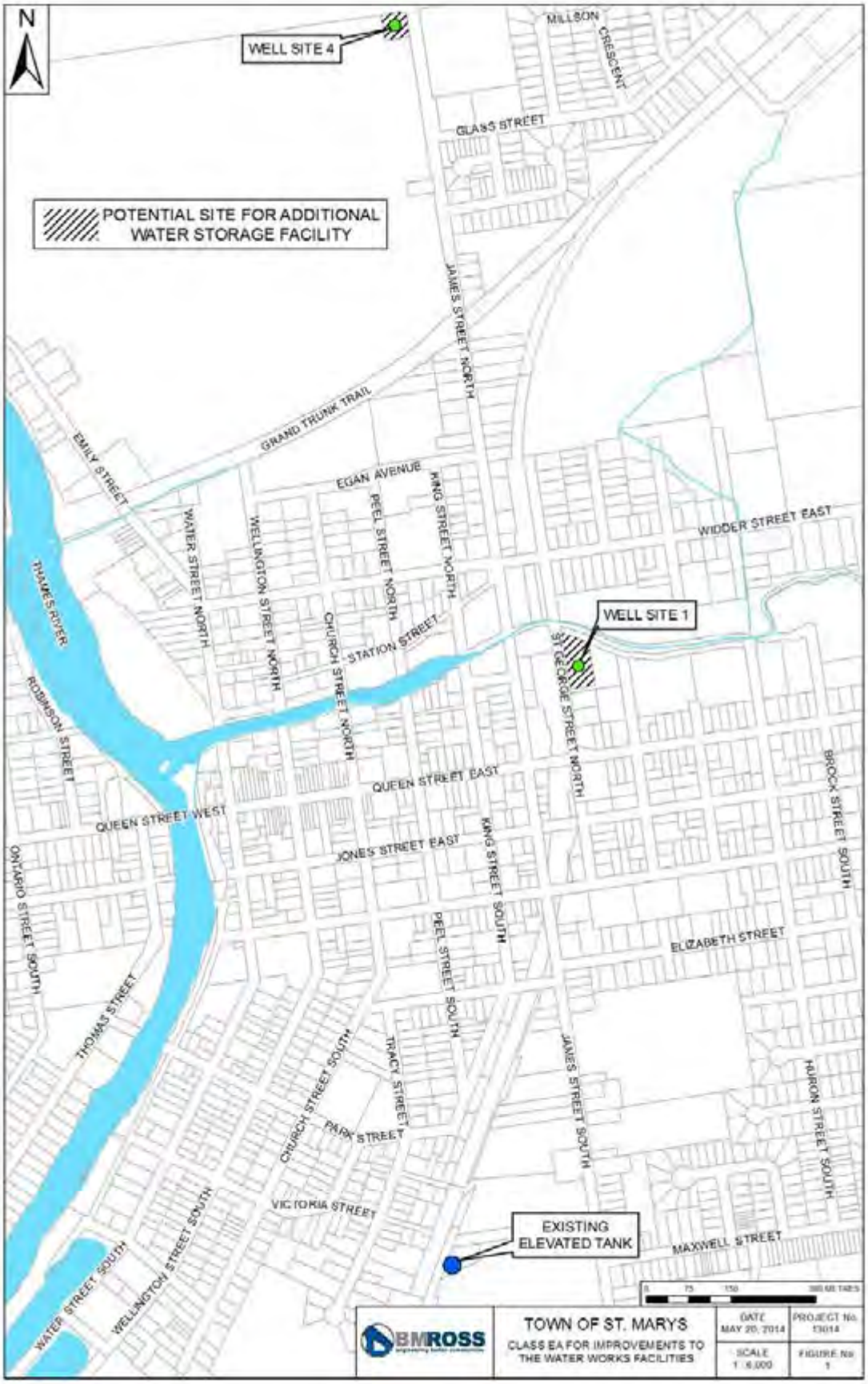
Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

LC:hv
Encl.
c.c. Chad Papple, St. Marys

Z:\13014-St_Marys-Class_EA_for_Water_Works_Expansion\WP\Class EA\Screening Report\Appendix C\13014-14May26-Aboriginal Community let.docx


N
WELL SITE 4
POTENTIAL SITE FOR ADDITIONAL WATER STORAGE FACILITY
WELL SITE 1
EXISTING ELEVATED TANK
MILLSON CRESCENT
GLASS STREET
JAMES STREET NORTH
GRAND TRUNK TRAIL
EMILY STREET
EGAN AVENUE
WATER STREET NORTH
WELLINGTON STREET NORTH
PEEL STREET NORTH
KING STREET NORTH
WIDDER STREET EAST
THAMES RIVER
CHURCH STREET NORTH
STATION STREET
ST GEORGE STREET NORTH
ROBINSON STREET
QUEEN STREET EAST
QUEEN STREET WEST
BROCK STREET SOUTH
JONES STREET EAST
KING STREET SOUTH
ONTARIO STREET SOUTH
PEEL STREET SOUTH
ELIZABETH STREET
THOMAS STREET
CHURCH STREET SOUTH
TRACY STREET
JAMES STREET SOUTH
HURON STREET SOUTH
PARK STREET
VICTORIA STREET
MAXWELL STREET
WATER STREET SOUTH
WELLINGTON STREET SOUTH
BMROSS
TOWN OF ST. MARYS
CLASS EA FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES
DATE MAY 20, 2014
PROJECT No. 13014
SCALE 1 : 6,000
FIGURE No. 1

TOWN OF ST. MARYS
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR IMPROVEMENTS TO THE WATER WORKS FACILITIES.

CIRCULATION LIST: ABORIGINAL ORGANIZATIONS

ORGANIZATION	INVOLVEMENT
Aboriginal and Northern Affairs Canada Environmental Assessment Coordination Environmental Unit	Potential for Aboriginal Interest
Ministry of Aboriginal Affairs Aboriginal and Ministry Relationships Branch	Potential for Aboriginal Interest
Métis Nation of Ontario (Ottawa)	Potential for Aboriginal Interest
Walpole Island First Nation	Potential for Aboriginal Interest
Chippewas of Kettle and Stony Point First Nation	Potential for Aboriginal Interest
Aamjiwnaang First Nation	Potential for Aboriginal Interest
Oneida Nation of the Thames	Potential for Aboriginal Interest
Munsee-Delaware Nation	Potential for Aboriginal Interest
Moravian of the Thames	Potential for Aboriginal Interest
Caldwell First Nation	Potential for Aboriginal Interest

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: May 29, 2014 1:07 PM
To: 'craig@developro.ca'
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: RE: St. Marys EA
Attachments: image001.png

Craig:

I will ensure that you are added to the mailing lists for each of the EA projects.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
kvader@bmross.net
www.bmross.net

From: craig@developro.ca [mailto:craig@developro.ca]
Sent: May-29-14 11:43 AM
To: Kelly Vader
Subject: St. Marys EA

Hi Kelly,
I represent Thames Crest Farms Limited which you may be aware are currently intending to develop a portion of their lands fronting Emily Street immediately north of the Emily Street Grand Trunk underpass. I attended the public meeting last night, and appreciated the fullness of information that was supplied. I have attached our current draft plan for your reference. I would note that my client owns what is shown as lots 15 and 16 on the draft plan, of which approximately 140 acres of is within the town's settlement boundary.

I would appreciate if you could ensure that I am emailed all notices of public meetings, and provided with any information that is available since all of the components of the EA (Transportation, Sanitary, Water) all ultimately have an impact on my clients lands.

If you require any information from me that you may find useful, I would be happy to assist in any way possible.

Sincerely,
Craig

Craig Linton

Lisa Courtney

From: Kelly Vader <kvader@bmross.net>
Sent: July 10, 2014 1:45 PM
To: Ryan DeVries (rdevries@bmross.net); Steve Burns; Andrew Ross (aross@bmross.net); Lisa Courtney (lcourtney@bmross.net)
Subject: FW: Comments on St. Marys Municipal Infrastructure Projects Class EA

FYI

From: Pat Donnelly [mailto:p2donnelly@bell.net]
Sent: July-09-14 11:26 PM
To: Kelly Vader; kvader@bmross.net
Cc: Chad Papple; kmcllwain@town.stmarys.on.ca; Pat Donnelly
Subject: Comments on St. Marys Municipal Infrastructure Projects Class EA

Ms. Kelly Vader;
Environmental Planner
B.M. Ross

Further to the public meeting held May 28 at the Municipal Operations Centre that Pat attended, we provide the following comments for your consideration in the Class EA being followed for the 3 projects. Sorry for the delay in sending them.

These comments are from both our perspectives as homeowners and residents of St. Marys, both as a former member of the Grand Trunk Trail Steering Committee, and as keen environmentalists who share a strong interest in the protection of the Thames River. We live at 243 Thomas Street which is located approximately 200 metres distance from both the Pollution Control Plant and Municipal Well #3. We also frequently use the Water Street bridge as a hiking and cycling route.

1) Water Infrastructure

Our house has recently benefitted from an upgraded energy efficient, gas boiler that provides the heating system and hot water. However, every time there is a minor change in water pressure, the boiler is impacted and causes an error in the electronics. The last time this occurred was when the water tower was being worked on (re-painted?) and a call to our service provided was needed. Any improvements to the water system that reduces the range of water pressure to our house is welcomed. We are located down the street and approximately 200 metres from Well #3.

From a broader perspective, the addition of a new well at the Town's north boundary should be carefully considered in conjunction with input from the adjacent township. As I understand it, the pending Source Water Protection (SWP) Plan will impose specific land use and activity restrictions surrounding any new well within it's Well Head Protection Area (WHPA) that will likely extend outside the Town boundaries given the proposed well location near the northern town boundary. Therefore, these decisions that impact adjacent municipal land use should have inter-municipal dialogue and cooperation. The regional nature of the St. Marys aquifer from which St. Marys receives its drinking water via the three municipal wells AND the Thames River, is a connection

that has not yet been fully realized. I understand that the SWP will focus on this connection and provide a greater assortment of tools for the municipality to protect our drinking water source.

2) Sanitary Infrastructure

Efforts to improve the treatment of wastewater should consider ways to reduce the smell and improve the efficiency of the pollution control plant, which is also located down the street and approximately 200 metres from our house. We would also hope that improved waste treatment technologies such as membrane technology, would be considered in the list of options. As Pat works in London and collaborates with wastewater engineers, he understands this technology does not require increased space in order to facilitate this enhanced treatment method. The effluent from these plants that use membrane technology is of tertiary treatment standards (based on the Oxford Pollution Control Plant in London),.

3) Road Infrastructure; Wellington and Water Street road bridge improvements.

Wellington Street Bridge is a vital link to the Town's transportation system and improvements need to be made to ensure this link is maintained. We have no specific comments on this bridge repair.

Conversely, the Water Street bridge is a piece of town heritage that needs to be preserved but not as part of the road network for vehicles. We support leaving it intact as a pedestrian / cycling bridge based on 3 factors:

a. The bridge remains a key component of the Riverview Walkway that follows the Thames River through town. This walkway also connects to the Loop Trail that circumnavigates the town and links to the system of parks. Converting this bridge into a pedestrian / cycling bridge would achieve many of the goals stated in the Official Plan (Sec. 5.3.14) to encourage active lifestyle and active transportation methods (walking, hiking, cycling).
b. Any change to this bridge that would increase traffic flow would trigger improvements to the Emily Street underpass. These improvements would likely require the expansion of the one lane underpass which would then need to consider the likelihood that the railway embankment contains substandard soils and unconsolidated materials including asbestos as observed and uncovered during development of the Grand Trunk Trail repurposing in 2004/2005. The likelihood of asbestos was also brought to the attention of Chad Papple last year when former members of the GTT Committee Tony Reynen, Allan Powell and Pat met with Chad to discuss the issue.
c. The one lane bridge and one lane underpass provides a "traffic calming measure" to the increased traffic produced by residential development north of the GTT. This feature provides a benefit to the businesses and residents who live adjacent to this length of roadway. All opportunities should be taken to relieve traffic pressure from Emily Street and Water Street by incorporating an eastward traffic flow through the proposed residential development north of the GTT and onto James Street. This bridge improvement Class EA should be linked to the decisions being made about future residential development to take advantage of land use

decisions that would accommodate a redirection of existing and new traffic via an internal road pattern in the new subdivision.

Thank you for the opportunity to comment on this important matter.
Sincerely,

Pat and Patti Donnelly
243 Thomas Street
519-284-4207

Town of St. Marys Municipal Infrastructure Projects

Public Information Meeting
May 28th, 2014

Agenda

- Introduction
- Class EA Process
- Description of Projects
  - Sanitary, Water, Transportation
  - Identified Deficiencies
  - Alternatives Being Considered
- Bridge Heritage Assessment
- Trout Creek Modeling
- Next Steps

Class EA Process

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

- PLANNING AND DESIGN PROCESS FOR MUNICIPAL WATER, WASTEWATER, AND ROADS PROJECTS
- CONDUCTED TO EVALUATE THE POTENTIAL IMPACT OF MUNICIPAL PROJECTS AND TO EXAMINE MEASURES TO MITIGATE IDENTIFIED IMPACTS
- REQUIRES CONSIDERATION OF NATURAL, SOCIAL, CULTURAL, ECONOMIC, AND BUILT ENVIRONMENTS

CLASS EA STUDY PHASES

PROBLEM/OPPORTUNITY DEFINITION

↓

IDENTIFICATION OF ALTERNATIVES

↓

CONSULTATION WITH PUBLIC AND REVIEW AGENCIES

↓

EVALUATION OF ALTERNATIVES

↓

SELECTION OF PREFERRED ALTERNATIVE

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Class EA Investigations

- **Study Purposes**
  - To Identify Deficiencies with Existing Municipal Infrastructure
  - Determine a Range of Alternatives that Would Address the identified Deficiencies
  - To Consult with Residents and Review Agencies on the Projects to Gather Input and Insight into Issues of Concern
  - Define Potential Impacts Associated with the Alternatives Being Considered
  - Select a Preferred Alternative for Each Project

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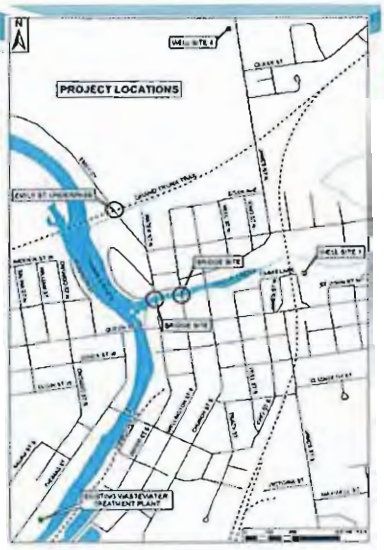
Project Study Area

Infrastructure Projects

- WWTP
  - Potential Expansion
- Water Supply
  - Need for Additional Storage
- Trout Creek Crossings
  - Address Deficiencies



Project Descriptions

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Project Descriptions

- St. Marys Wastewater Treatment Plant
  - To address current Capacity and Operational issues
  - To determine the need for expansion and how best to accommodate growth.
- St. Marys Drinking Water System
  - To address a storage deficiency and accommodate growth
  - To address fire flow issues within the distribution system
- Water Street and Wellington Street Bridges
  - Evaluation of Current Deficiencies
  - Identify potential Replacement Options

Water and Wastewater Projects

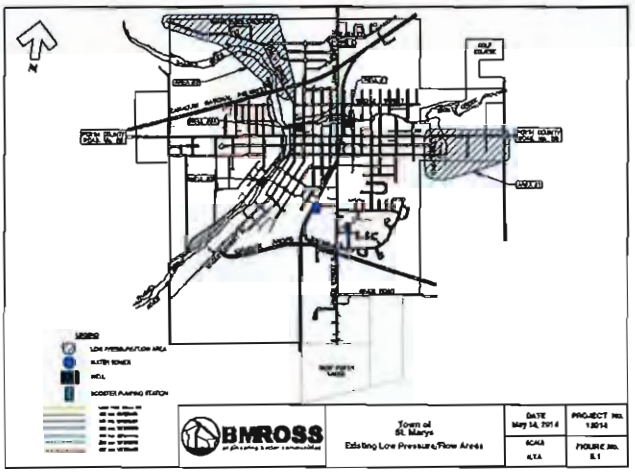
- Key Project Drivers:
  1. Addressing current deficiencies
  2. Accommodating future growth.

Wastewater Treatment System

- Current Issues:
  - High peak flows vs peak capacity.
  - High organic strength of wastewater.
  - Biosolids handling capacity

Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.



Drinking Water System

1. Low pressures and flows under fire flow conditions in two areas.
2. Treated water storage deficiency (originally identified in 2002)

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Accommodating Growth

- 2011 population was 6,655
- Considering 3 different growth scenarios:
  - 0.50% per year (average for 2001 to 2011)
  - 0.75% per year (average for 1996 to 2011)
  - 1.15% per year (average for 1986 to 2011)
- Making special consideration for large industrial users
- Forecasting for 50 years (i.e. to 2064)
- Service to Perth South industrial lands

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Questions?

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Wastewater Treatment Plant

Study Approach

1. Establish existing operating conditions – both flow and strength.
2. Establish unit process capacities.
3. Identify deficiencies – existing and future
4. Determine how growth can be accommodated.
5. Evaluate Alternative Solutions

Problems/Deficiencies

- Peak flow capacity.
- High organic loadings.
- Biosolids handling capacity.
- Need to accommodate growth.

The Good News:

- Average flows are less than plant capacity.
- Treatment objectives are being met.

Project Alternatives

- A combination of approaches:
  - Investigating wastewater strength reduction.
  - Process optimization.
  - Physical modifications (e.g. larger pumps)
  - Unit process expansion (e.g. inlet works, UV and settling)
  - Preliminary thinking is a series of actions and smaller projects over an extended time.

Questions?

St. Marys Drinking Water System

Project Study Area

Study Approach

1. Establish current usage (averages and maximums)
2. Establish existing capacities (supply and storage).
3. Investigate flows and pressures – hydrant tests and modeling.
4. Determine future needs for growth
5. Investigate alternatives

Problems/Deficiencies

1. Low pressures and flows under fire flow conditions in two areas.
2. There is a treated water storage deficiency of approximately 1200 m^3.

The Good News:

- There is a large surplus of supply capacity.
- Treatment objectives are being met.
- The supply and treatment facilities are relatively new.

Project Alternatives

1. To address low flows and pressures – local watermain upgrades.
2. To address the storage deficiency:
   1) An elevated tank at the site of future Well 4.
   2) A Ground Level Reservoir and Booster Pumping station at the Well 1 site.

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Questions?

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Class EA for the Water Street and Wellington Street Bridges

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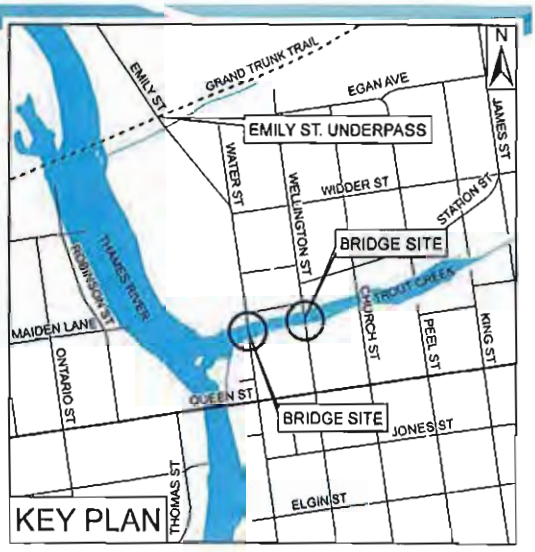
Project Study Area



➢ Water Street Bridge

➢ Wellington Street Bridge

➢ Emily Street Underpass

Problems/Deficiencies

➢ Water Street

Problems/Deficiencies

- Wellington Street

Project Alternatives

- Replace both Bridges
- Replace Wellington Street and Remove Water Street
- Replace Wellington Street and Convert Water Street to a Pedestrian-Only Crossing
- Replace Water Street and Close Wellington Street
- Do Nothing

* Any option involving replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street underpass.

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Structural Heritage Assessment

Golder Associates Ltd.

Cultural Heritage Impact Assessment

- Structures > 40 Years Require Assessment
  - Water Street Bridge (1898)
  - Emily Street Underpass (1905)
  - Wellington Street Bridge (1971) – (Piers – 1912)
- Historical Context
- Heritage Attributes
- Cultural Landscape

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Heritage Assessment

- Design/Physical Value (50 Maximum Score)
  - Functional Design
  - Visual Appeal
  - Materials
- Contextual Value (25 Maximum Score)
  - Landmark
  - Character Contribution
- Historic Associative Value (25 Maximum Score)
  - Designer/Construction Firm
  - Associated with Historic Theme/Person/Event

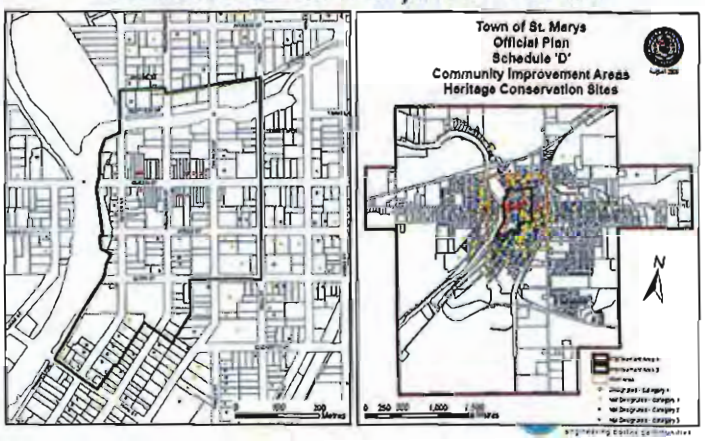
Results

- Wellington Street Bridge
  - No Cultural Value or Interest
- Emily Street Underpass
  - No Cultural Value
  - Contextual Value Associated with Former Railway Use
- Water Street Bridge
  - Pin Connected Pratt Truss – Relatively Rare
  - Abutments Designed and Built by Local Craftsmen
  - Important Component of Cultural Values Associated with Trout Creek and Downtown St. Marys

Recommendations

- Wellington Street Bridge
  - Replacement Structure should contribute to the Existing Character of Area
- Emily Street Underpass
  - Proposed Widening should minimize impacts to Existing Character and Earthworks
- Water Street Bridge
  - Restored or Repaired Using Sympathetic Design Features or Retained for Pedestrian Traffic
  - Considered for Designation Under Part IV of the Ontario Heritage Act

Schedule 'D' St. Marys Official Plan



St. Marys Official Plan

Section 2.3 Heritage Conservation

- Section 2.3.1 Objectives
  - 2.3.1.2 Protect and Enhance Heritage Resources through Policies that Balance Preservation with Re-Development
  - 2.3.1.3 Be Proactive in Identifying Sites worthy of Preservation
- Section 2.3.2 Policies
  - 2.3.2.6 Council may, upon Recommendation of the St. Marys Heritage Committee, Designate Individual Properties for Conservation Under Part IV of Ontario Heritage Act
- Recommendation from Heritage Committee

Hydraulic Analysis

Study Considerations

- Trout Creek Flood Levels may be impacted by proposed Bridge Projects
- Very Complex Hydrology because of Multiple Crossings and Confluence of Thames River
- Floodplain affecting downtown St. Marys may be Impacted by the Study Outcome
- Existing Hydraulic Model is Outdated

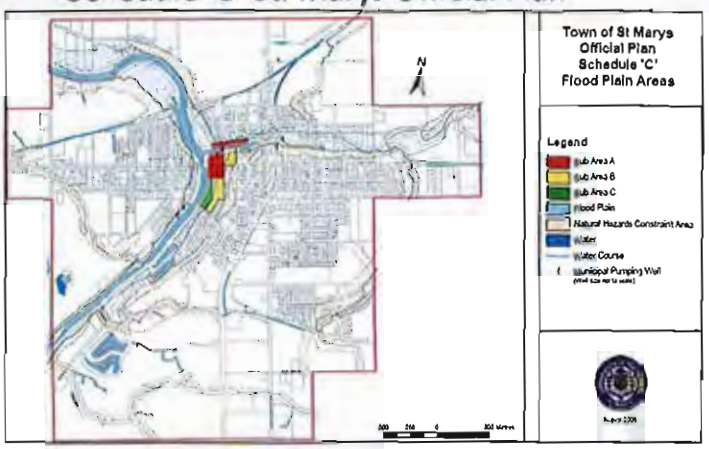
Study Considerations Cont'd

- Upper Thames River Conservation Authority willing to work cooperatively with St. Marys to Update Model
- Updated Hydraulic Model will assist with Future Update for St. Marys Special Policy Area (SPA)
- Study must include a consideration of the Trout Creek Floodwall
- Cannot Finalize Preferred Bridge Alternatives until Each Option is Considered within the Context of Flooding Impacts

Trout Creek Hydraulic Analysis

- Anticipated Stages
  - Convert existing model to HEC RAS
  - Collect current cross-section elevations for Trout Creek and Adjacent Areas
  - Update Flow Data for Trout Creek and the Thames River
  - Simulate various Bridge Replacement Alternatives to determine impact on Flood Elevations
  - Work Cooperatively with the UTRCA so that updated model can be used for other purposes in St. Marys

Schedule 'C' St. Marys Official Plan



Next Steps

- Collect and Review Public Input from Meeting
- Complete Hydraulic Modeling for Bridge Projects
- Continue to Investigate Sewage & Water Alternatives
- Identify Potential Impacts Associated with Each Alternative Being Considered
- Review Advantages and Disadvantages of each
- Select a Preliminary Preferred Alternative for each of the projects

Questions?

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE

Wednesday, May 28, 2014

ATTENDANCE LIST

(PLEASE PRINT)

Name	Address
Steve Glover	85 Huron St. N.
Bruce Partridge	46 Thamesview Cres.
Stew Slater	Journal Argus
Councillor Lynn Heinz	474 Rogers Ave.
DAN VAN Galen	36 Ingersoll St/ Marys.
STAN FRASER	465 WIDDER ST. E.
RAY IRELAND	Wildwood Care Centre
TONY WINTER	256 ELGIN ST. MARYS.
STEVE GROSS	130 WESTOUM ST. ST. MARYS
Andrea Macke	47 Wellington St. S.
Pat Dunnett.	243 Thomas
STEPHEN McCOTTER	78 MEADOWRIDGE DR. ST. MARYS

File: 13018

TOWN OF ST. MARYS

CLASS EA FOR MUNICIPAL ROAD, SANITARY AND WATER INFRASTRUCTURE PROJECTS

PUBLIC INFORMATION CENTRE
Wednesday, May 28, 2014

ATTENDANCE LIST
(PLEASE PRINT)

Name	Address
Dick MacPherson	6 Water St. S. St Marys.
CAREY POPÉ (COUNCIL)	31 WATER ST STMARYS
CRAIG LINTON	LONDON
AL TUCKER	104 Church St S.
MARK MORTON	279 THOMAS ST.
Deb & Gary Russell	418 Glass St.
GERALD BROCKMAN	37 BIRCH CREEK CRES
John O'Donnovan	319 Elizabeth St.
Doug & Janis Freed	231 Thomas St.
Trisha McKibbin	119 Peel St. S. St. Marys.
Frank Doyle	ST. Marys Ontario.
Cyndi Vink	119 Guest Crt St Marys.
Bill Osborne	271 Emily St St. Marys
Jody Swan	81 Park St St. Marys
Jeremy Swan	81 Park St. St. Marys
J McLeod	224 Jones St St Marys

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File No.
13013/13014/13018

TOWN OF ST. MARYS
MUNICIPAL INFRASTRUCTURE PROJECTS
PUBLIC INFORMATION CENTRE
MEETING NOTES

Date: May 28, 2014

Place: Town of St. Marys Municipal Operations Centre

Present	Dave Blake	)	Town of St. Marys
	Jed Kelly	)	
	Kevin McLlwain	)	
	Chad Papple	)	
	Steve Burns	)	B.M. Ross and Associates (BMROSS)
	Lisa Courtney	)	
	Ryan DeVries	)	
	Andrew Ross	)	
	Kelly Vader	)	
	30 members of the public		

Open House 6 PM to 6:30 PM
Presentation 6:30 PM to 8:30 PM

Agenda Items

1.0 Introductions

Chad P. welcomed the audience and introduced members of Council, Town staff, Upper Thames Conservation Authority staff, and BMROSS staff in attendance. Kelly V. then provided an overview of the agenda.

2.0 Class Environmental Assessment Process

The presentation began with an overview of the Municipal Class Environmental Assessment process. Kelly V. explained that it is a phased process for evaluating municipal infrastructure projects and associated impacts. Presently, the Town of St. Marys is undertaking three EAs related to water, wastewater and transportation infrastructure.

3.0 Water and Wastewater Systems Introduction

Steve B. explained that the existing water and wastewater systems have deficiencies and need improvements to accommodate future growth. With respect to the wastewater treatment plant (WWTP) there are existing issues related to high peak flow, high organic content, and the biosolids handling capacity. Current issues with the drinking water system include fire flow issues in the east and northeast parts of the community, and a need for additional water storage.

Current deficiencies are also being examined with respect to future growth. Steve B. stated that three growth scenarios were developed, based on average growth in the community over the past 10, 15, and 25 years. These scenarios also include considerations for industrial users. A 50-year design period is being used to determine needs for the water system and a 25-year period was used for the wastewater system. Questions were then invited from the audience.

Q. What are large industrial users doing to conserve water? Could they use another source of potable water?

Steve B. replied that he was unsure of any specific actions by industry to conserve water. Theoretically, it is possible to use another source of water, however there would be issues with water taking and impacts downstream, as well as the capital cost of a dual system.

4.0 Wastewater System

Ryan D outlined the location of the WWTP and the steps being completed to study the wastewater system. A number of problems have been identified including: high peak flow capacity, high organic loadings, the biosolids handling capacity, and the need to accommodate growth. A set of actions over time may address these issues. Alternatives include reducing the strength of wastewater, process optimization, physical modifications to the plant, and unit process expansion, or a combination of the aforementioned. Questions were then invited from the public.

Q. Are you looking at infiltration into the existing collection system?

Ryan D. responded that the Town is already examining this issue and that BMROSS will work with the Town to determine how infiltration impacts the wastewater treatment system.

A resident expressed concern that certain industries are contributing to the high wastewater concentrations.

Q. Does BMROSS have access to information on how other towns with food industries manage wastewater?

Steve B. explained that BMROSS has worked in a number of communities with food industries. He noted that municipalities often treat wastewater from industries and also have regulatory bylaws in place.

Q. What volume of wastewater is from infiltration?

Steve B. stated that the volume of wastewater that is the result of infiltration has not been calculated at this time. The average daily flow and maximum daily flow numbers were provided by Ryan D.

Q. What happens if flows exceed the capacity of the plant? Would raw sewage end up in the river?

Ryan D. explained that raw sewage would not end up in the river; however, the effluent may not be treated to the treatment levels required.

Q. How are biosolids handled?

Biosolids are dewatered and then stored at the plant. Steve B. further explained that the biosolids are then applied to licenced farmland for disposal.

Q. St. Marys recently installed a new system to manage biosolids, why is there a problem now?

Steve B. responded that the current biosolids system is working, just not to the levels expected. This is possibly related to the strength of the wastewater coming into the plant.

Q. Does St. Marys have any bylaws for what can be put down the drain?

Kevin M. responded that the Town has surcharge agreements and there are clauses within the agreements that allow the Municipality to renegotiate.

Q. What was the purpose of the previous expansion at the wastewater treatment plant?

Steve B. explained that in 2010 the treatment process and biosolid management systems at the WWTP were changed.

Q. Do biosolids have to meet certain concentration requirements before they are disposed of?

Steve B. stated that there are significant provincial regulations related to biosolids and that they are also tested for metals. The testing of the biosolids is done by the operator of the WWTP and a contractor takes the biosolids for disposal. Jed K. added that the biosolids are land applied only on fields approved under the Nutrient Management Act and that the Town has all the required approval certificates.

Q. Are odours from the WWTP being considered as part of the EA?

Steve B. responded that odours are being considered and that the EA will consider means to mitigate odours.

5.0 Water System

An overview of the existing water system, including the location of the existing storage facility and wells, was provided by Ryan D. He explained that BMROSS approached the investigation by first establishing the usage, flows and capacity, system pressures and potential future growth. From these investigations two problems were identified: low fire flows in two areas of St. Marys (in the east part of the town and an area near Emily Street) and a deficiency in the amount of treated water storage. Additional storage will be required for future demands related to growth.

Ryan D. suggested that the areas of low fire flow may be addressed through watermain improvements in the affected areas and that this work would not require an environmental assessment. To address the need for storage, two preliminary alternatives have been identified: construct an elevated storage facility at Well 4, or constructing a ground level reservoir at Well 1. The audience was then invited to ask questions.

Q. Why isn't a ground level reservoir being considered at Well 4?

Ryan D. responded that the site is better suited for an elevated tank. A reservoir would be more costly at Well 4 than at Well 1.

Q. Would the Town be responsible for the cost of this project?

Ryan D. replied that the Town would be responsible for funding the project; however funding sources, such as government grants, will be investigated.

Q. Was the Well 4 site identified as a potential site for an elevated storage facility because there is a well there?

Ryan D. responded that the site was identified because it is owned by the Town, there is already a well there, and there is suitable space for a facility. It was noted that the Well 1 site is too low for an elevated tank (would require a very tall tower which would be costly).

Q. Should we have underground water storage in a floodplain?

Ryan D. stated that potential impacts related to flooding will be examined as part of the EA.

Q. What risks are associated with having municipal wells in the floodplain?

Steve B. noted that an Environmental Assessment completed in 2002 examined flooding impacts to the wells located in the floodplain.

Q. Would an increase in storage increase flows in the WWTP?

Ryan D. explained that a greater volume of stored water would not impact the WWTP.

Q. Is it possible to put a storage facility near the existing storage facility?

The benefits of siting storage facilities away from each other (improving system efficiency and pressures across the system), was explained by Ryan D.

Q. How big is the current storage facility, how much more storage is needed?

Ryan D. stated that the existing storage facility has a capacity of 1,820 m^3 and that over the 50-year design period, an additional 2,400 m^3 is required. He explained that an elevated tank is not expandable and if that was chosen as the type of storage facility, it would be sized for 2,400 m^3. A reservoir could be built in phases, initially smaller with an expansion later, if required.

5.0 Water Street and Wellington Street Bridges

Andrew R. provided a brief history of the Water Street and Wellington Street Bridges and the Emily Street Underpass. Recent inspections of the bridges identified significant corrosion. From the inspections, it was recommended that a load limit be placed on the Water Street Bridge. It was also noted that the Wellington Street Bridge is nearing the end of its service life, due to the extent of corrosion present.

Given these problems, a number of preliminary alternative solutions have been identified. These options include, but are not limited to:

- Replace both bridges
- Replace Wellington Street Bridge and remove the Water Street Bridge

- Replace Wellington Street Bridge and restore Water Street Bridge to a pedestrian-only crossing
- Replace Water Street Bridge and close Wellington Street Bridge.
- Do nothing.

It was also noted that any option involving the replacement of the Water Street Bridge could result in upgrading and widening of the Emily Street Underpass to address increased traffic from the crossing.

Q. Could Water Street Bridge be restored to vehicular traffic?

Andrew R. responded that it will be examined as an alternative.

Q. Would restoring Water Street Bridge to a pedestrian only crossing be similar in cost to restoring it to vehicle traffic?

Andrew R. responded that restoring the Water Street Bridge to pedestrian traffic would cost less than restoring it to vehicle traffic.

Q. Would the Water Street Bridge last long if restored to pedestrian traffic rather than vehicle traffic?

Andrew R. answered that if the bridge was restored to pedestrian traffic, it is likely it would have a longer service life than if it were restored to vehicle traffic. This is due to the addition of salt required for maintenance of the roads for vehicle traffic, which escalates the rate of corrosion.

Due to the age of the bridges, a structural heritage study was completed. Kelly V. provided an overview of the heritage assessment. The assessment examined the bridges and underpass with respect to their heritage attributes, the historical context of the area, and how they fit into the cultural landscape.

The Wellington Street Bridge was found to have no cultural value or interest, as it was reconstructed in the 1970s. The Emily Street Underpass was deemed to have no cultural value, but to have contextual value associated with its former railway use. The Water Street Bridge was found to have relatively rare pin connected pratt trusses and abutments that were designed and built by local craftsmen. It was also considered to have cultural value associated with downtown St. Marys and Trout Creek.

The structural heritage assessment recommended that the Wellington Street Bridge be replaced and that the replacement contribute to the existing character of the area. For the Emily Street Underpass, it was recommended that any widening minimize impacts to the existing character and earthworks. Lastly, it was recommended that the Water Street Bridge be either restored or replaced using sympathetic design features or retained for pedestrian traffic. Also, the report recommended that the Town consider designating the Water Street Bridge under Part IV of the Ontario Heritage Act.

The existing hydraulic model for the St. Marys area is outdated and given the hydraulic complexity of the area (due to multiple crossing and the confluence of the Thames River), an updated hydraulic model is needed. BMROSS plans to work cooperatively with Upper Thames River Conservation Authority (UTRCA) to update the model. The model will be used to evaluate the flooding impacts associated with the bridge alternatives.

Q. Would the mill race be included in the hydraulic assessment?

Kelly V. responded that the mill race will be included as a component of the hydraulic assessment.

Q. Are impacts to the floodwall being looked at?

Kelly V. responded that the floodwall will be considered in the hydraulic assessment, but as the floodwall is a structure owned by the UTRCA any significant changes would need to be assessed under a separate class environmental assessment process used by Conservation Authorities.

Q. It is difficult to limit vehicles on the Water Street Bridge. Could additional height or weight restrictions be added presently?

Chad P. replied that the Town has looked at additional measures for restricting vehicles on Water Street, but it is difficult to find a way to limit all vehicles that may exceed the load limit (such as a low vehicle pulling a heavy trailer).

A member of the public commented that the Water Street Bridge certainly is a cultural feature and added that there is value in the Wellington Street Bridge, as you can see two other bridges from it. The resident added that cultural value should be included as part of the evaluation of alternatives.

Q. If a bridge has a load limit and someone drives a vehicle over it that is over the limit, what implications does that have for liability?

Andrew R. responded that a lawyer would be able to address that question.

A resident suggested that Water Street Bridge could be rebuilt to have its original form. Another resident raised concerns about safety and suggested that the Water Street Bridge may become submerged in a flood event.

Q. Could the Water Street Bridge be used for events, such as a farmers market, if it was restored to a pedestrian crossing?

Andrew R. responded that those types of uses would have to be assessed to determine what potential load (weight) could be present.

Q. Why haven't any costs been presented?

Andrew R. replied that cost will be examined during the evaluation of alternatives.

Q. Are there any examples of bridges like the Water Street Bridge being restored to vehicle traffic? Who is doing the construction?

Andrew R. explained that the Watson's Bridge in Bruce County, near Paisley, is being restored for vehicle traffic. AJN Builders from Dublin is the contractor.

A resident suggested that the Water Street Bridge could be saved and used on the Emily Street Overpass.

Q. When will the hydraulic modelling be completed?

Kelly V. responded that the hydraulic modelling is expected to be completed this fall.

Q. Is the environmental assessment a provincial requirement or due-diligence on the part of the Town?

Kelly V. explained that the Town is the proponent for the purposes of the environmental assessment and the process is driven by the proponent; however, there is provincial legislation requiring environmental assessments.

Q. Is it possible that the hydraulic modelling will identify deficiencies with the Church Street Bridge?

Andrew R. stated that the Church Street Bridge will not be assessed with the hydraulic model.

Q. Who establishes the load limits?

Andrew R. responded that an engineer will recommend a load limit, but Council has to approve placing the limit on the structure.

A resident suggested that copies of the presentation material be made available at the local library and friendship centre.

6.0 Next Steps

The meeting concluded with Kelly V. providing an outline of the next steps for the environmental assessments for the three projects. She explained that there will be another public meeting following further investigations and the evaluation of alternatives.

The meeting adjourned at 8:30 PM

Should there be any errors or omissions to these meeting notes, please notify the undersigned.

Meeting Notes Prepared By:

Lisa J. Courtney

B. M. ROSS AND ASSOCIATES LIMITED

Ministry of the Environment
733 Exeter Road
London ON N6E 1L3
Tel': 519 873-5000
Fax: 519 873-5020

Ministère de l'Environnement
733, rue Exeter
London ON N6E 1L3
Tél.: 519 873-5000
Téléc.: 519 873-5020

Ontario

Delivered by e-mail

June 3, 2014

B. M. Ross and Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: Lisa J. Courtney, Environmental Planner

Dear Ms Courtney:

RE: MEA Class EA Notice of Commencement – Water Works Improvements, Town of St. Marys (Your File No. 13014)

MEA Class EA Notice of Commencement – Wastewater Treatment Plan Expansion, Town of St. Marys (Your File No. 13014)

Road Infrastructure – Bridge Crossings of Trout Creek

This letter is in response to the Public Information Notice that was issued for the above-noted projects.

This is to advise you of the following Ministry instruction regarding First Nations and Métis community consultation in the MEA Class EA process, and to inquire or to provide direction regarding the following:

Documentation:
We wish to be provided with an electronic copy of the 2012 Burnside Master Service Strategy for the Town (or a paper copy, if one is not available).

MOE Review of Documentation:
The draft Project File/ESR for the projects should be circulated to this office for our review and comment. We normally require 30 to 45 days.

Meetings or Consultation with MOE

Please advise this office if you wish to meet with the Ministry's Regional technical experts to discuss assimilative capacity and effluent quality requirements or other matters relating to the MOE's Design Guidelines for Sewage Works and Drinking-Water Systems.

Future Growth

If the water and sewage projects are intended to service growth that was the subject to any on-going or recently- concluded *Planning Act* process, please advise us of the status of these proposals or applications. Furthermore, consideration should be given to the applicability of the integration (*EAA/Planning Act*) provisions of the MEA Class EA.

Consultation with First Nation and Métis Communities

Your proposed project may have the potential to affect Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. The Crown has a duty to consult First Nation and Métis communities when it knows about established or credibly asserted Aboriginal or treaty rights, and contemplates decisions or actions that may adversely affect them.

Although the Crown remains responsible for ensuring the adequacy of consultation with potentially affected Aboriginal communities, it may delegate procedural aspects of the consultation process to project proponents.

The environmental assessment process requires proponents to consult with interested persons and government agencies, including those potentially affected by the proposed project. This includes a responsibility to conduct adequate consultation with First Nation and Métis communities. The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process.

Where the Crown's duty to consult is triggered in relation to your proposed project, the Ontario Ministry of the Environment is delegating the procedural aspects of rights-based consultation to you through this letter.

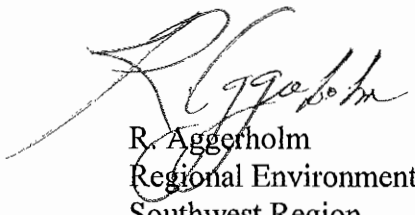
Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the attached "Aboriginal Consultation Information" document. Please complete the checklist contained there, and keep related notes as part of your consultation record. Doing so will help you assess your project's potential adverse effects on Aboriginal or treaty rights.

You must contact the Director, Environmental Approvals Branch if you have reason to believe that your proposed project may **adversely affect an Aboriginal or treaty right, consultation has reached an impasse**, or if a **Part II Order request** is anticipated. The Ministry will then assess the extent of any Crown duty to consult in the circumstances, and will consider whether additional steps should be taken and what role you will be asked to play in them.

A draft copy of the Project File or Environmental Study Report (ESR) should be sent to the appropriate Ministry of Environment regional office prior to the filing of the final report as applicable, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments. Please also forward the Notice of Completion and Project File/ESR to the appropriate regional office when completed.

Should you have any questions, please do not hesitate to contact me at (519) 873-5012.

Yours truly,



R. Aggerholm
Regional Environmental Assessment Coordinator
Southwest Region

/ra
Encl.

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

http://www.ene.gov.on.ca/environment/en/resources/STD01_076108.html

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Metis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to

Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBgen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;

- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
- Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
- Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
    - summarize the nature of any comments and questions received from First Nation and/or Métis communities
    - describe your response to those comments and how their concerns were considered
    - include a communications log indicating the dates and times of all communications; and
    - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted. If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have the potential to impact any archaeological sites?		

Kelly Vader

From: Ken Bettles [KBettles@perthsouth.ca]
Sent: June-24-14 10:55 AM
To: Kelly Vader
Cc: Tim Ivanyshyn; Ken Bettles
Subject: RE: St. Marys Infrastructure Class EA

Kelly, please see Perth South's comments
At an appropriate time within the EA process such as, if well site 4 becomes a preferred alternative, or if existing wells are expected to have a significant change in pumping rates.
please ensure to consider any new or changes to significant threat areas in relation to source water protection
Please keep us informed as to any outcomes

Ken Bettles, C.E.T., CRS.
Director of Public Works
Township of Perth South, 3191 Road 122 St. Pauls, ON N0K 1V0
Tel: 519-271-0619, ext. 230, Fax 519-271-0647, Toll Free: 1-866-771-0619
kbettles@perthsouth.ca
www.perthsouth.ca

From: Kelly Vader [mailto:kvader@bmross.net]
Sent: Thursday, May 29, 2014 4:55 PM
To: Ken Bettles
Cc: Lisa Courtney (lcourtney@bmross.net); Steve Burns; Ryan DeVries (rdevries@bmross.net)
Subject: St. Marys Infrastructure Class EA

Hi Ken:

The presentation material is attached for your information. I will make sure that Perth South is added to the mailing list for the Water Supply EA.

Kelly Vader, MCIP, RPP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Ph: (519) 524-2641
Fax: (519) 524-4403
kvader@bmross.net
www.bmross.net

UPPER THAMES RIVER
CONSERVATION AUTHORITY

The Thames
A Canadian
Heritage River

"Inspiring a Healthy Environment"

July 2, 2014

B.M. Ross & Associates Limited
62 North Street
Goderich, Ontario
N7A 2T4

Attention: **Lisa Courtney** (lcourtney@bmross.net)

Dear Ms. Courtney:

Re: **Town of St. Marys**
Municipal Class Environmental Assessment
For Improvements to the Water Works Facilities

Upper Thames River Conservation Authority (UTRCA) staff are in receipt of the "Notice of Study Commencement" for the Municipal Class Environmental Assessment (EA) regarding review of Improvements to the Water Works Facilities in the Town of St. Mary's. We offer the following comments under Ontario Regulation 157/06 and our responsibilities as a commenting agency providing technical review and advisement related to natural heritage, water resources and natural hazard management pursuant to relevant legislation and policies set out in the UTRCA Planning Policy Manual (June 28, 2006):

General Comments

1) We would appreciate the opportunity for our technical staff to review and provide comments on any upcoming draft documents and proposed alternatives including any draft Environmental Study Report. Please note that our scope of review is based on the policies set out in the Upper Thames River Conservation Authority Planning Policy Manual (June 28, 2006). EA and subsequent detail design project review for the Improvements to the St. Marys Water Works Facilities would generally be guided by, but not limited to, natural heritage, natural hazard and pollution prevention areas of concern for lands regulated within our jurisdiction.

UTRCA Regulated Areas

2) According to the enclosed project location mapping, portions of the works may occur within natural hazard and natural heritage areas regulated by the Conservation Authority. The UTRCA regulates development within the Regulation Limit in accordance with Ontario Regulation 157/06 made pursuant to Section 28 of the *Conservation Authorities Act*. This regulation requires proponents to obtain written approval from the UTRCA prior to undertaking any works in the

regulated area including filling, grading, construction, alteration to a watercourse and/or interference with a wetland.

3) According to the enclosed project location mapping, Well Site #1 (Potential Site for Additional Water Storage Facility) occurs within natural hazard areas (riverine flood and erosion hazard lands) regulated by the Conservation Authority. Please be advised that the Upper Thames River Conservation Authority takes the 1: 250 year flood event as our Regulatory Flood Event Standard. At the detail design stage, all designs will need to ensure adherence to UTRCA flood policies and incorporate flood proofing to the 1: 250 year flood event.

Geotechnical Considerations

4) Depending on project specifics a favourable geotechnical assessment may be required for any potential water storage facility in the erosion hazard associated with Trout Creek.

Drinking Water Source Protection

5) The proponent should be aware that the Municipal Engineers Association (MEA) is updating the Class EA to account for Source Water Protection. We understand that one set of revisions has been consulted on and that more detail is being added through further revisions. Both revisions, among other things, highlight the importance of considering the Clean Water Act (CWA) and local Source Protection Plan in assessing the alternatives through the EA process. The EA is the best time to consider regulatory requirements of the Clean Water Act and Source Protection Plan as well as designated vulnerable areas. The EA planning process offers an excellent opportunity to document how these factors have been considered in the planning process.

6) This EA includes alternatives for municipal water supply and pumping which could have an implication on the vulnerable areas defined in the approved Assessment Reports. Therefore the proponent should consider this in their assessment of alternatives.

7) It is also worth noting that work undertaken through the Water Quantity Risk Assessment (Water Budget) has improved the understanding of the municipal drinking water sources in the St Marys area. This work has not yet been incorporated into the Assessment Report, but could be considered at the same time as new wells or changes in pumping are considered. The advanced model developed through the water budget could be applied to determine the net changes to the vulnerable areas. The proponent should consider applying the new models to the delineation of vulnerable areas for the proposed new well and refinements to the vulnerable areas associated with the existing wells.

8) Changes in the vulnerable area delineation such as those discussed above may change what activities are drinking water threats and the areas where they are drinking water threats. While it is not always possible to undertake the vulnerability assessment as part of the EA, it should be considered at some level to be able to adequately consider the alternatives. It is recommended that a vulnerability assessment following the CWA technical rules, be undertaken for the preferred alternative if the alternative is likely to result in changes to the vulnerable areas such as in the case of a new well.

9) The CWA has very specific requirements for notification related to those who are engaged in significant drinking water threats as a result of revisions to the Assessment Report. One of the revisions proposed for the MEA Class EA draws attention to these requirements. It is important

that this be considered to ensure that those affected by the proposal are engaged through the EA process while alternatives are being considered.

10) While it is obvious that a new well will have impacts on the vulnerable areas, it is important to consider whether the storage alternatives being considered may also have impacts on the vulnerable areas. If the pumping from the wells is changed substantially this could have an impact on the size and shape of the vulnerable areas. This should be considered through the EA. If it is determined that there would be no change expected, this can be documented in the EA.

11) If the proponents have questions on how source protection and the local plan may affect the proposed alternatives they may contact UTRCA Drinking Water Source Protection (DWSP) staff or their municipal Risk Management Official (RMO).

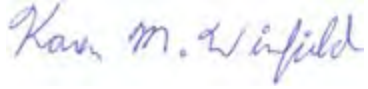
Summary

Please be advised that we have not yet received enough information to provide detailed comments regarding the project. However, we appreciate being contacted early in the process and are always open to meeting with you to discuss and work through any concerns or complications along the way.

Our office would like to be included in future circulations regarding this project. We would appreciate receiving information and reports as they become available in order to ensure that we can meet the project deadlines with our comments.

If you have any questions regarding the above information, please contact the undersigned.

Yours truly,
UPPER THAMES RIVER CONSERVATION AUTHORITY



Karen M. Winfield
Land Use Regulations Officer
CT/KW/kw

c.c. – Chad Papple, Town of St. Marys – (via e-mail: cpapple@town.stmarys.on.ca)
- Kelly Vader, B.M. Ross – (via e-mail: kvader@bmross.net)

Town of St. Marys
Water System Upgrades
Class EA

Presentation to Council
February 3, 2015

Agenda

1. The purpose and approach to the Class EA.
2. What decisions are required?
3. Review of Existing and Future Conditions
4. Alternative Solutions
5. Discussion
6. Next Steps

Purpose of the Class EA

- The purpose of this Class EA is to determine the best approach to upgrading the St. Marys Water System to ensure a safe and secure supply of water for the present and future.

The General Approach

The steps we are following are:

1. Understanding what the existing water demands are.
2. Projecting future water demands.
3. Understanding the existing system and constraints.
4. Determining what will need to be addressed, and when, to ensure adequate pressure and flow throughout the system – Defining the PROBLEM
5. Evaluating alternative solutions.
6. Determining a preferred solution.

Decisions Required by Council

1. What future growth to allow for?
2. How best to address the Perth South Industrial lands?
3. Additional water storage is required:
   a) What type should be provided?
   b) Where should it be located?

The Existing Situation

Existing Storage and Supply

- Well 1 (60 L/s) + Well 2 (60 L/s) + Well 3 (60 L/s) = 180 L/s; or 120 L/s of firm capacity = **10,368 m^3/d** (firm capacity assumes one well is offline).
- The existing elevated tank has available storage of **1,820m^3.**
- A number of studies were completed in 2002 to identify additional well supply sites. Future Well Site 4 was identified with a capacity = 22.7 L/s **(1960 m^3/d)**

Existing Water Demands

- Based on 2009-2013 usage data, the existing Average Day Flow (ADF) and Max Day Flow (MDF) values were determined as **3,034** and **4,910** m^3/day, respectively.
- Also, the 4 largest industrial users account for an ADF of 849 m^3/day and an MDF of **1,455** m^3/day.
- Historical data suggests Dana was consuming an ADF of 273 m^3/day and an MDF of **324** m^3/day. These values will be used to project Green Arc Tire demands.

Existing Demands (Continued)

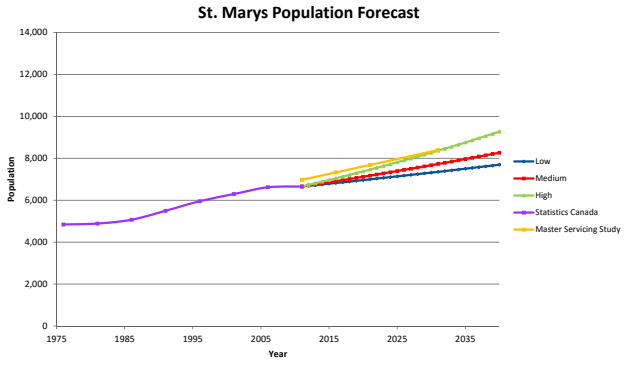
- Excluding the top 4 industrial users from the existing ADF and MDF, the existing max day peak factor and per capita usage values can be calculated as 1.67 and **328 L/cap•day**, respectively.

Growth Considerations

Projecting Growth

- For the Water System we have considered a **50 year** design period.
- We considered 3 population growth scenarios:
  - Low growth @ 0.50% (2001 to 2011)
  - Medium growth @ 0.75% (1996 to 2011)
  - High growth @ 1.15% (1986 to 2011)

Projecting Growth (Continued)

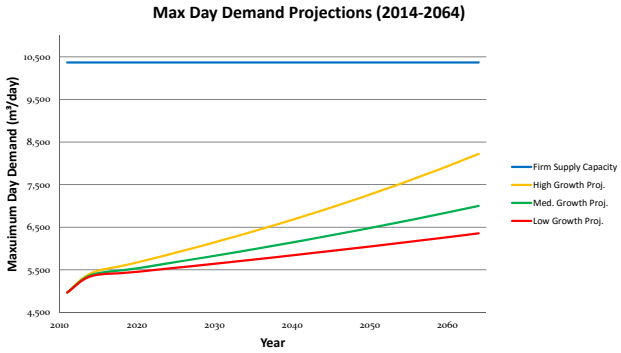


Water Demands

Projecting Demands

- Generally, the approach for determining future water demands was as follows:
  - Remove the 4 largest industrial users from the existing ADF and MDF values.
  - Apply the revised ADF and MDF values to the projected populations.
  - Add the 4 largest industrial users + Dana back onto the projected ADF and MDF values.

Projecting Demands (Continued)



Conclusions re Supply

- Water Supply (i.e. well capacity) is not an issue.
- More supply is not required.
- Equipping Well 4 is not necessary.

Growth and Development Assumptions and their Impacts on Water Storage Needs

Perth South Lands - Assumptions

- The Perth South Lands (industrial) are ultimately planned for servicing through extension of the existing St. Marys water distribution system.
- Burnside's *Master Servicing Study* and Stantec's *Preliminary Servicing Plan for James Street South Employment Lands* predicted different future demands for this area.
- Existing industrial usage is consistent with Stantec's values and we have assumed that future development of these lands will require an ADF of 15 m^3/ha•day and an MDF of 30 m^3/ha•day

Initial Growth Assumptions

- Population growth over the next 50 years will be at the MEDIUM projected rate of 0.75% per year (15 year average).
- We have assumed development of the Perth South Lands will be included in the municipal growth projections identified earlier and not in addition to that growth rate.
- We have also looked at the possible impact if development occurs in addition to the municipal growth projection.

Projecting Storage Requirements

- The MOE provides guidelines to calculate how much storage a community should have.
- The guidelines allow for a reduction in the required storage volume if the firm supply capacity of the system exceeds the system's maximum day demands.
- Assuming the supply continues to consist of Wells 1-3 only, the first step was to predict what the future surplus capacities would be using the max day flow projections identified earlier.

Projecting Storage Requirements (Continued)

- The next step was to calculate the future water storage required (less the available surplus well capacity).
- The final step was to subtract the existing storage (provided from the elevated tank) from the projected storage requirement.

Problem Definition

- *According to MOE guidelines, the St. Marys Drinking Water System does not have sufficient water storage. The storage deficit will become greater as the community grows.*

Storage Requirements

Identified Deficiencies - Storage

- There is currently and will continue to be a large amount of surplus well capacity available to the system.
- After taking that surplus into account, there is an existing storage deficiency of **1,255 m^3**.
- This storage shortage will continue to grow as the community grows.
- Assuming a medium growth scenario (which includes some development of the Perth South Lands), the storage deficiency will be approximately **2,400 m^3** by 2064.

Projecting Storage Requirements

Calculated Storage Deficiencies for Various Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	3,776	4,200	5,096
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**1,956**	**2,380**	**3,276**

Projecting Storage Requirements (Continued)

Calculated Storage Deficiencies with Perth South Lands Considered Additional to Growth Scenarios

Storage Required	Existing Population (2011) (m^3)	Projected Conditions (2064)		
		Low Growth (m^3)	Medium Growth (m^3)	High Growth (m^3)
2014	3,075	-	-	-
2064	-	4,901	5,327	6,133
Existing Storage	1,820	1,820	1,820	1,820
Total Deficiency	**1,255**	**3,081**	**3,507**	**4,313**

- In all cases, the addition of the Perth South Lands translates to a requirement for approximately 1,100 m^3 of additional storage.

Storage Deficiencies Continued

- In the High Growth Scenario 2400 m^3 → 3,300 m^3
- If Perth South is additional 2400 m^3 → 3500 m^3
- For both combined 2400 m^3 → 4300 m^3

- 1000 m^3 of storage costs approximately $400,000 to $500,000

Decisions Required

- Question 1 -- Is use of the "medium growth rate" (i.e. 0.75%) acceptable?
- Question 2 – Is it ok to assume that development of the Perth South lands will occur as part of normal growth – not in addition?
- The answers effect the additional volume required.

Alternative types and locations for Storage

Alternatives Considered - Assumptions

- We have identified two storage alternatives and compared them based on cost. Additional work is necessary to evaluate them based on environmental, historical, social, and other factors. For this part we have carried forward the following assumptions:
  - Communal growth will occur at the medium growth rate (0.75%).
  - Industrial development in the Perth South Lands is assumed to be included within this 0.75% growth rate and not in addition to it.

Evaluation of the Alternatives

- We looked at 2 types of storage.
  - Elevated Tanks
  - Reservoirs with Booster Pumping
- We considered Capital as well as Operating and Maintenance Costs:
  - Energy
  - Re-coating
  - Equipment replacement

Type and Location Issues

- The Well 1 site is ideally suited for construction of a ground-level reservoir and booster pumping system.
  - Well 1 can discharge to the reservoir.
  - An adequate site area.
  - Good power supply and distribution system connections.
- The Well 4 site is ideally suited for an elevated tank.
  - High ground elevation.
  - Future development of Well 4.

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Comparison of Opinion of Probable Cost

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Total Construction Cost	2,400,000	1,589,000
Contingencies	312,000	238,000
Engineering	264,000	207,000
Initial Construction Costs (Subtotal)	**2,976,000**	**2,034,000**
Interest Charges[1.]	**900,000**	**615,000**
Reservoir expansion in 25 years	-	295,000
Elevated tank recoating costs in 25 years	260,000	-
Future Contingency, engineering and inspection	83,000	83,000
Future Construction Costs (Subtotal)	**343,000**	**378,000**
Power + heat costs for first 25-years	64,000	324,000
Power + heat costs for year 25-50	78,000	399,000
Power Costs (Subtotal)	**142,000**	**723,000**
Equipment Replacement Costs	**-**	**200,000**
Total Lifecycle Costs	**$4,361,000**	**$3,950,000**

Cost Comparison

Comparison of Opinion of Probable Costs based on Repayment over 10 years at 2.8%

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 2.8% for 10 years	477,000	326,000
Future Costs	485,000	1,301,000
Total Lifecycle Costs	**$3,938,000**	**$3,661,000**

Cost Comparison

Comparison of Opinion of Probable Costs and Considering Revenue from Leasing Space at top of ET

Breakdown Items	Elevated Tank ($)	Reservoir ($)
Initial Construction Costs	2,976,000	2,034,000
Interest at 3.5% for 15 years	900,000	615,000
Future Costs	485,000	1,301,000
Revenue from leasing space on top of ET	(650,000)	-
Total Lifecycle Costs	**$3,711,000**	**$3,950,000**

Cost Comparison

Elevated Storage Tank versus Ground Level Reservoir
Summary of Opinion of Probable Cost

Alternative	Initial Capital Cost	50 Year Life Cycle Cost
Scenario 1 – Interest = 3.5% for 15 years		
Elevated Tank at Well Site 4	$2,976,000	$4,361,000
Ground Level Reservoir at Well 1	$2,034,000	$3,950,000
Scenario 2 – Interest = 2.8% for 10 years		
Elevated Tank at Well Site 4		$3,938,000
Ground Level Reservoir at Well 1		$3,661,000
Scenario 3 – Sc1 with $13K Annual Revenue for 50 years.		
Elevated Tank at Well Site 4		$3,711,000
Ground Level Reservoir at Well 1		$3,950,000

Decisions Required

- Question 3 – Do we proceed with:
  - A Groundlevel Reservoir/Booster Pumping Station at Well 1,

    or
  - An elevated tank at the Well 4 site

Next Steps

1. Prepare a draft report and circulate to interested parties.
2. Compile comments received.
3. Incorporate comments into a final report.
4. Provide notice of completion to review agencies and the public.

Questions?

Lisa Courtney

From: O'Leary, Emilee (MOECC) <Emilee.OLeary@ontario.ca>
Sent: August 25, 2015 9:18 AM
To: Lisa Courtney
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Thanks Lisa. Noted.

From: Lisa Courtney [mailto:lcourtney@bmross.net]
Sent: August 24, 2015 10:35 AM
To: O'Leary, Emilee (MOECC)
Subject: RE: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Hi Emilee,

Hope you had a nice weekend.

The EA for improvements to the St. Mary's waterworks is still open/on-going. In February of this year, we brought some growth projections forward to the Town, as well as questions regarding future development lands. The Town was also asked about preference for a reservoir or elevated tank for water storage. We are currently waiting for a response to these questions before we proceed further with the EA investigation.

Let me know if you have any further questions. Cheers,

Lisa J. Courtney, MSc.
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Goderich, ON N7A 2T4

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From: O'Leary, Emilee (MOECC) [mailto:Emilee.OLeary@ontario.ca]
Sent: August 13, 2015 11:52 AM
To: Kelly Vader <kvader@bmross.net<mailto:kvader@bmross.net>>;
lcourtney@bmross.net<mailto:lcourtney@bmross.net>
Cc: cpapple@town.stmarys.on.ca<mailto:cpapple@town.stmarys.on.ca>;
jkelly@town.stmarys.on.ca<mailto:jkelly@town.stmarys.on.ca>
Subject: St. Mary's Class EAs for three infrastruction projects - water, wastewater adn road

Dear Ms. Courtney and Ms. Vader,

As you are aware, Mr. Bob Aggerholm has since retired from the MOECC and I am your new Regional Environmental Assessment Coordinator contact at the MOECC's southwest regional office for Class EA projects in Perth County.

Can you please provide an update with respect to the Town of St. Mary's Class EAs for the following three projects:

* Expansion of the WWTP

* Improvements for the Water Works Facilities

* Two bridge crossings of Trout Creek - Wellington Street and Water Street

Thanks in advance.

Regards,
Emilee

Emilee O'Leary | Environmental Planner/Environmental Assessment Coordinator Technical Support Section, Southwest Region, Ministry of the Environment and Climate Change
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