MUNICIPALITY OF KINCARDINE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

PROJECT FILE REPORT

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MUNICIPALITY OF KINCARDINE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF TIVERTON WATER SUPPLY SYSTEM

PROJECT FILE REPORT

October 15, 2025

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File No. 24014

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List of Acronyms

ANSI	Area of Natural and Scientific Interest
ATRIS	Aboriginal and Treaty Rights Information System
BMROSS	B.M. Ross and Associates Limited
BPS	Booster Pumping Station
CHER	Cultural Heritage Evaluation Report
CWA	Clean Water Act
DWS	Drinking Water System
DWWP	Drinking Water Works Permit
DWQS	Drinking Water Quality Standards
EA Act	Environmental Assessment Act of Ontario
EA	Environmental Assessment
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approvals
ERU	Equivalent Residential Unit
ESA	Endangered Species Act
GUDI	Groundwater Under the Direct Influence of Surface Water
IPP	Inverhuron Provincial Park
KDWS	Kincardine Drinking Water System
MCEA	Municipal Class Environmental Assessment
MCM	Ministry of Citizenship and Multiculturalism
MAC	Maximum Acceptable Concentrate
MDWL	Municipal Drinking Water License
MECP	Ministry of Environment, Conservation and Parks
MNR	Ministry of Natural Resources
NHIC	Natural Heritage Information Centre
OP	Official Plan
PFR	Project File Report
PIC	Public Information Centre
PPS	Provincial Policy Statement
PTTW	Permit to Take Water
SARA	Species at Risk Act
SON	Saugeen Ojibway Nation
SVCA	Saugeen Valley Conservation Authority
TDWS	Tiverton Drinking Water System
WHPA	Wellhead Protection Area
ZBL	Zoning By-law

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MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF TIVERTON DRINKING WATER SYSTEM

PROJECT FILE REPORT

1.0 INTRODUCTION

1.1 Introduction

The Municipality of Kincardine (The Municipality) initiated a Municipal Class Environmental Assessment (MCEA) in February of 2024 to investigate potential water supply needs within the Village of Tiverton. The study process followed the procedures set out in the MCEA document, dated March 2023, as amended in 2007, 2011, 2015, and 2023 (Municipal Engineers Association, 2023). B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the MCEA investigation on behalf of the Municipality.

The Tiverton Drinking Water System (TDWS) services 372 connections from a groundwater supply. The Municipality completed a Water & Wastewater Servicing Master Plan Update in June 2023, which identified that an expansion of the existing TDWS is required to accommodate future development within the urban settlement area. Further, the Master Plan identified that indications suggest there is little potential for re-rating the existing municipal groundwater wells in Tiverton and recommended alternative water sources for the community be considered. This MCEA investigated options for alternative water sources and increasing the existing drinking water supply. The purpose of this report is to document the MCEA planning, and design process followed for this project. The report includes the following major components:

- An overview of the general project area.
- A review of the existing system and anticipated future needs
- A description of the alternative solutions considered for resolving the defined problem(s).
- A synopsis of the decision-making process conducted to select a preferred alternative.
- A detailed description of the preferred alternative.

1.2 Municipal Class Environmental Assessment (MCEA) Process

Municipalities must adhere to the Environmental Assessment Act of Ontario (EA Act) when completing road, sewer, or waterworks activities. The EA Act allows the use of the MCEA process for most types of municipal infrastructure projects. The MCEA is an approved planning document which describes the process that proponents must follow in order to meet the requirements of the EA Act. The MCEA approach allows for the evaluation of alternatives to a project, and alternative methods of carrying out a project, and identifies potential environmental impacts. The process involves mandatory requirements for consultation. MCEA studies are a method of dealing with projects that include the following common characteristics:

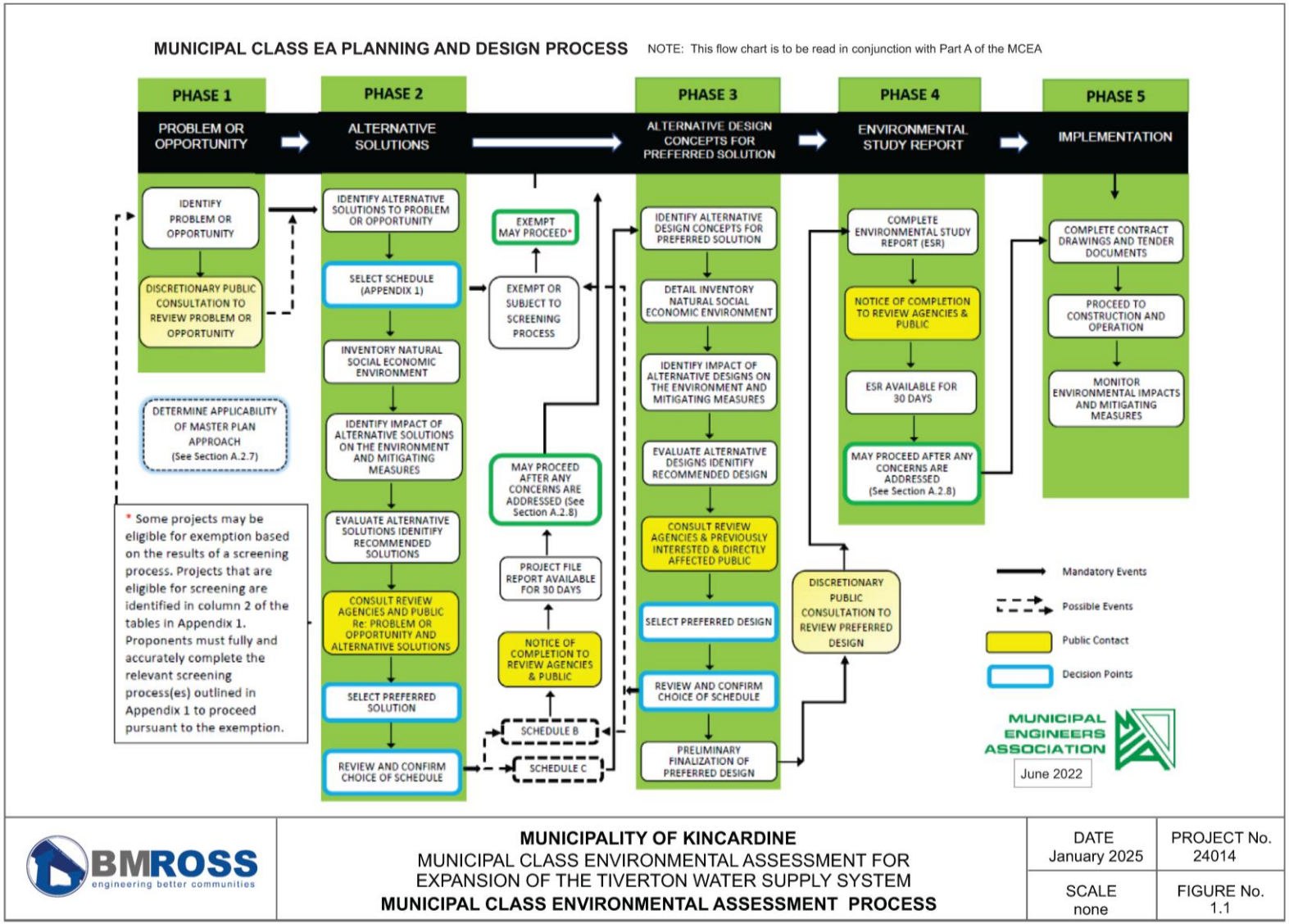
- They are recurring.
- They are usually similar in nature.
- They are usually limited in scale.
- They have a predictable range of environmental effects.
- They are responsive to mitigating measures.

If a MCEA 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 the procedures set out in the MCEA. Figure 1.1 presents a graphical outline of the procedures. The MCEA planning process is divided into the following phases:

- Phase 1 – Problem identification.
- Phase 2 – Evaluation of alternative solutions to the defined problems and selection of the preferred solution.
- Phase 3 – Identification and evaluation of alternative design concepts and selection of a preferred design concept.
- Phase 4 – Preparation and submission of a Project File Report for public and government agency review.
- Phase 5 – Implementation of the preferred alternative and monitoring of any impacts.

Figure 1.1 Municipal Class Environmental Assessment Process

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Throughout the MCEA process, proponents are responsible for having regard for these 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 decision-making process to permit traceability.

1.3 Classification of Project Schedules

Projects are classified into different project schedules according to the potential complexity and the degree of environmental impacts that could be associated with the project. The following schedules are included in the MCEA process:

- Exempt and exempt following completion of the archaeological potential screening and/or collector road screening.
- Schedule B – Projects that are approved following the completion of a screening process that incorporates Phases 1 and 2 of the MCEA process as a minimum.
- Schedule C – Projects that are approved subject to following the full MCEA process.

The MCEA process is self-regulating, and municipalities are expected to identify the appropriate level of environmental assessment based on the project and the alternatives they are considering.

1.4 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the MCEA, the requirements to prepare an Individual Environmental Assessment for approval are waived. However, if it is found that a project going through the MCEA process has associated with it significant environmental impacts, a person/party may request that the proponent voluntarily elevate the project to a higher level of environmental assessment. A request may be made to the Ministry of Environment, Conservation and Parks (MECP) for an order requiring a higher level of study, or that a condition be imposed on the grounds that the requested order may prevent, mitigate, or remedy adverse impacts on Aboriginal and treaty rights. Requests made to the Ministry on other grounds will not be considered.

2.0 BACKGROUND REVIEW

2.1 Methodology

A background review was carried out to obtain a general characterization of the project study area and to identify factors that could influence the selection of alternative solutions to the defined problem.

The background review for this MCEA process incorporated the following activities:

- Assembly of information on the existing infrastructure and the environmental setting.
- Identification of infrastructure deficiencies within the system.
- Preliminary assessment of the defined deficiencies and potential remediation.

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

- Bruce County GIS Mapping Services (Bruce County GIS, 2024).
- Government of Canada, Species at Risk Public Registry website (Government of Canada, 2017).
- Ministry of Natural Resources and Forestry, Natural Heritage Information Centre website (Ministry of Natural Resources and Forestry, 2024).
- Atlas of Breeding Birds of Ontario website (Bird Studies Canada, 2009).
- Saugeen Valley Source Protection Area, Saugeen Valley Source Protection Area Assessment Report (Saugeen Valley Source Protection Area, 2015).
- County of Bruce, Official Plan (OP) and Zoning By-Law (County Of Bruce, 2024).
- Municipality of Kincardine, Official Plan (OP) (Municipality of Kincardine, 2021)and Zoning By-Law (Municipality of Kincardine, 2012).

2.2 EA Framework

2.2.1 General MCEA Approach

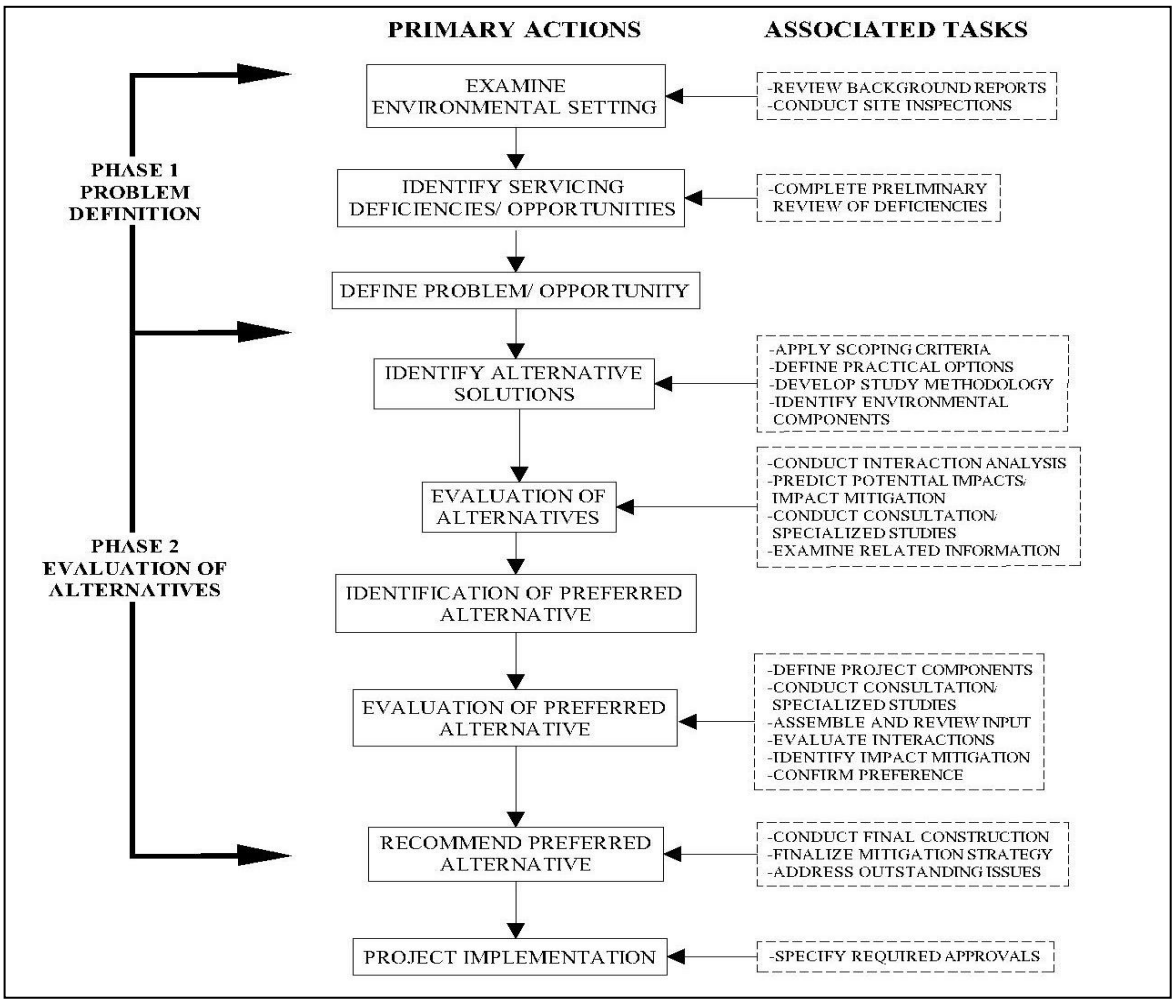
The Municipality of Kincardine initiated a formal MCEA process in May 2024 to investigate the water supply deficiencies within the village of Tiverton. It was identified at the outset of the MCEA process that the proposed project may include components that would categorize the work as a Schedule B activity (i.e., establish a well at a new municipal well site, install new wells or deepen existing wells or increase pump capacity of existing wells at an existing municipal well site where the existing rated yield will be exceeded, or construct a new booster pumping station at a new site). The assessment followed the environmental screening process prescribed for Schedule B projects in the

MCEA document. The Schedule B screening process incorporates the following primary components:

- Background review.
- Problem/opportunity definition.
- Identification of practical solutions.
- Evaluation of alternative solutions.
- Selection of a preferred alternative solution and implementation.

Figure 2.1 illustrates the general tasks associated with the screening process. The following section of this report documents the findings associated with each stage of the assessment.

Figure 2.1 MCEA Process and Tasks for Schedule B Activities



2.3 General Description of the Study Area

The Municipality of Kincardine is located within the central-western portion of the County of Bruce. The Municipality shares a boundary with the Township of Huron-Kinloss to the south, the Town of Saugeen Shores to the north, and the Municipality of Brockton to the east. West of the Municipality is Lake Huron. The Municipality is comprised mainly of agricultural land, with Kincardine serving as its main urban center. It also features several small villages and hamlets, including Tiverton, Inverhuron, and Underwood. In 2021, the population of the Municipality was 12,268 people (Statistics Canada, 2021). The village of Tiverton is located north of the town of Kincardine and south of Port Elgin, along Highway 21.

Figure 2.2 illustrates the location of the Municipality of Kincardine and Tiverton.

2.4 Project Study Area Description

The community of Tiverton is situated at the intersection of Bruce Road 15 (Main Street), and Highway 21 (King Street). Highway 21 provides the main entry and exit points to the community. The streets within the community follow a grid street plan creating a rectangular-shaped community. There is a small commercial core area along Highway 21 (King Street) and the village is primarily comprised of residential dwellings. The residential neighborhoods are low-density, primarily consisting of single detached homes.

Tiverton is serviced by the TDWS, which consists of three municipal groundwater supply wells, treatment facilities, a distribution system, and a standpipe for storage. It serves a population of 743 people.

For the purpose of this study, there are two study areas: the community of Tiverton and a potential site of a connection point to the existing Kincardine Drinking Water System (KDWS) and the new Booster Pumping Station (BPS) in Inverhuron. The study areas are shown in Figure 2.3. A connection point to the KDWS is situated at the intersection of Albert Street and Bruce Road 15.

Inverhuron is a small village located adjacent to Lake Huron. The community consists primarily of residential homes, with a mix of permanent and seasonal occupants. The community is accessed via Albert Road from the north, or Bruce Road 15 from the east. Inverhuron Provincial Park is located north of the community and has municipal water services from Kincardine via the Lakeshore Distribution System. Servicing in Inverhuron is a mix of municipal water and sewage services and private water and sewage services. Within the community there is a convenience store/restaurant and two municipal park areas.

Figure 2.2 Location of Tiverton, Municipality of Kincardine

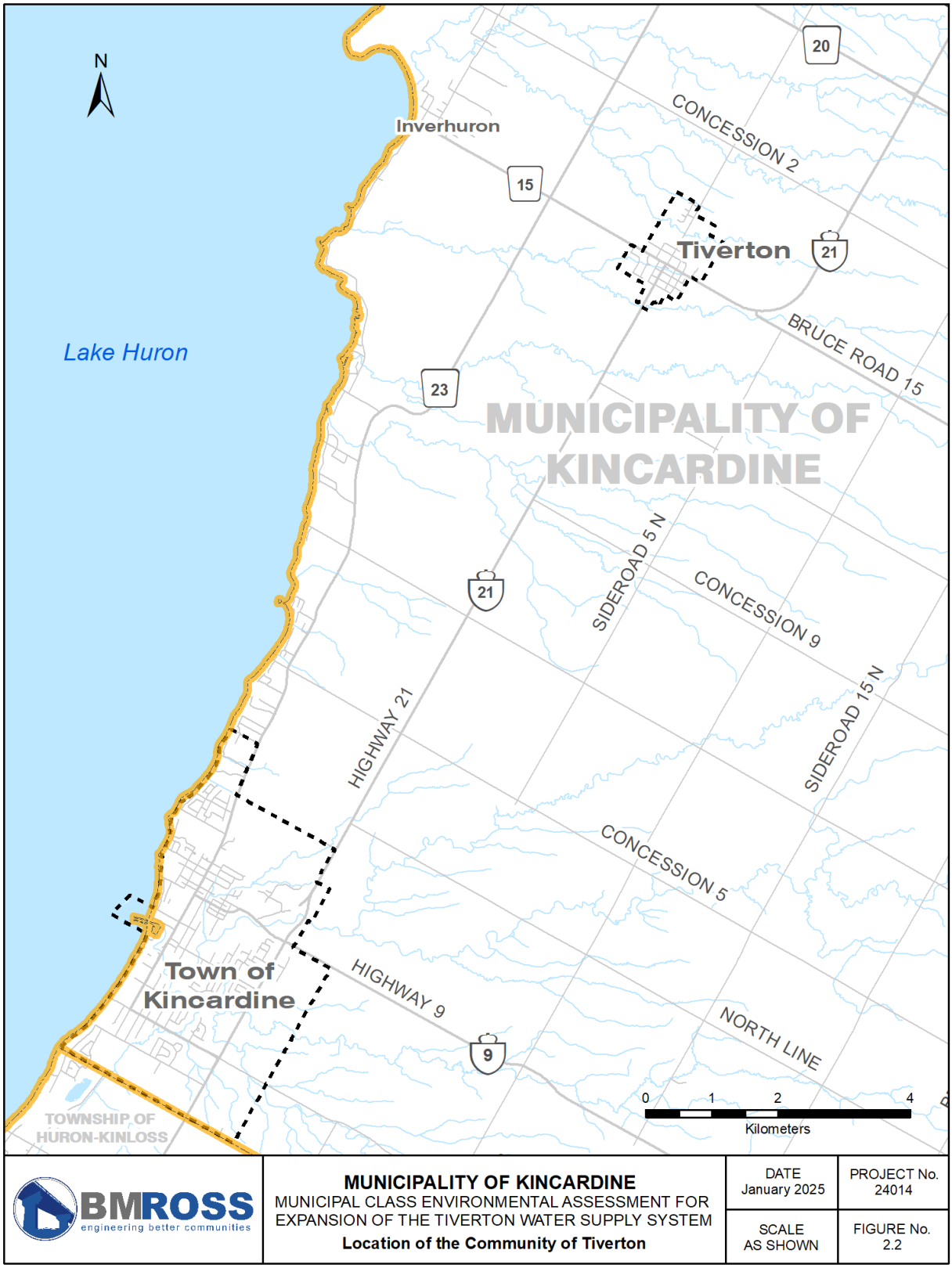
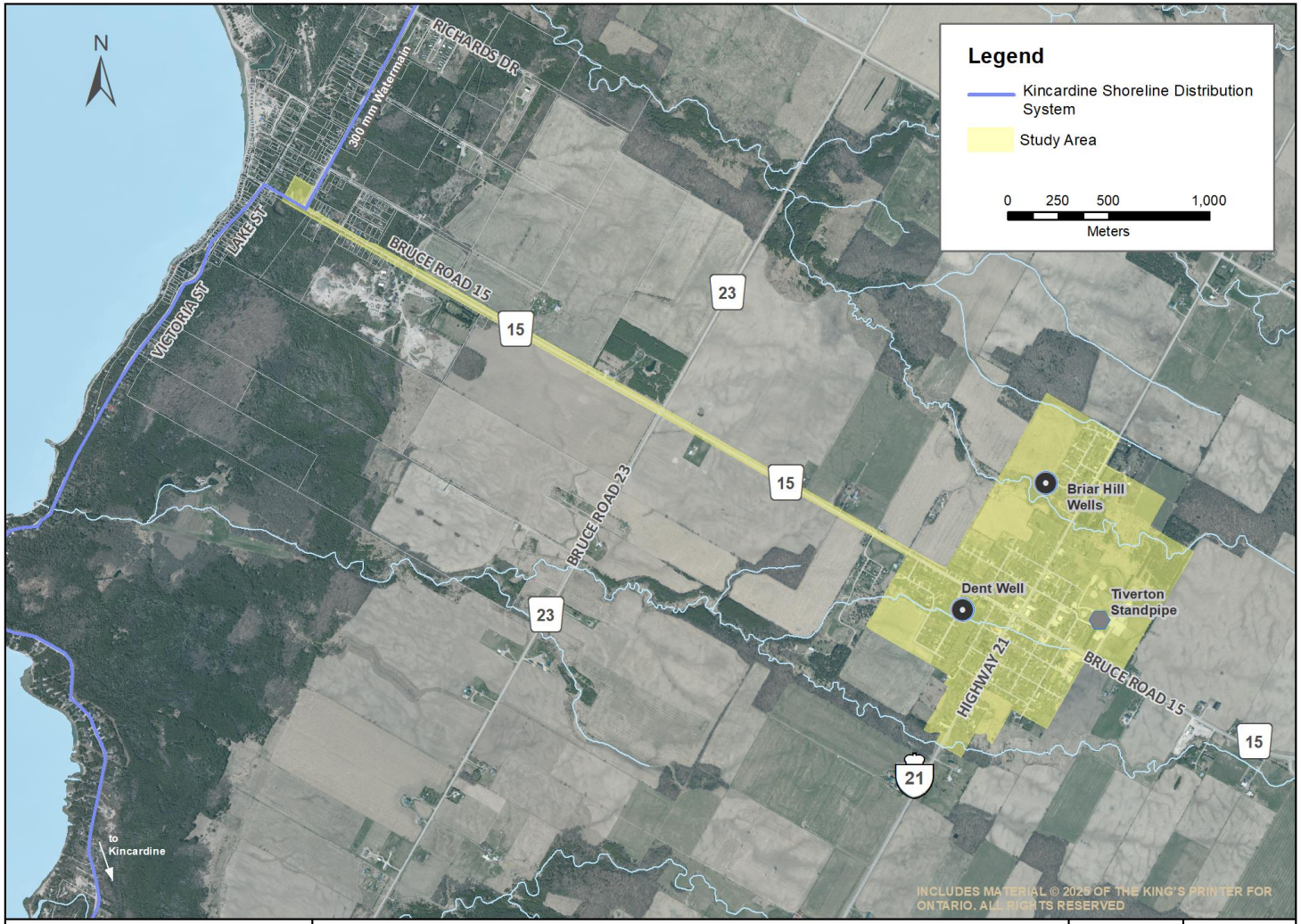


Figure 2.3 Project Study Area



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MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM
Project Study Area

DATE	PROJECT No.
January 2025	24014
SCALE	FIGURE No.
AS SHOWN	2.3

2.4.1 Significant Natural Areas

The study areas include the urban areas of Tiverton and Inverhuron. A review of sensitive natural heritage features in the vicinity of the project areas was carried out through the course of the MCEA process. The Ontario Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) database was consulted to identify significant features in the general vicinity of the study area.

From this database, the Inverhuron Provincial Park (IPP) was identified as a significant natural area within the general vicinity of the study area. The park is a seasonal campground, owned and operated by Ontario (Ontario Parks, 2025). Potable water in the park is supplied by the KDWS (BMROSS, 2023). Figure 2.5 illustrates the natural features located within the vicinity of the site.

2.4.2 Areas of Natural and Scientific Interest (ANSI)

The MCEA process considered the presence of areas of natural or scientific interest within or near the study area. ANSIs are provincially or regionally significant landscapes that contain unique geological, ecological, or biological features. These areas represent critical habitats, rare ecosystems, or scientific research opportunities and are protected under provincial policies to ensure their conservation (Government of Ontario, 2024). There are two ANSI features located within 15 km of the site including:

- Glammis Bog is a provincially significant Life Science ANSI located 14.5 kilometers east of the study area. The Glammis Bog contains diverse wildlife species and is a Class 3 Wetland including Mixed Wader Nesting Colony and provides habitat to aquatic and terrestrial life.
- Scott's Point is a provincially significant life science ANSI located 12.4 kilometres northwest of the study area.

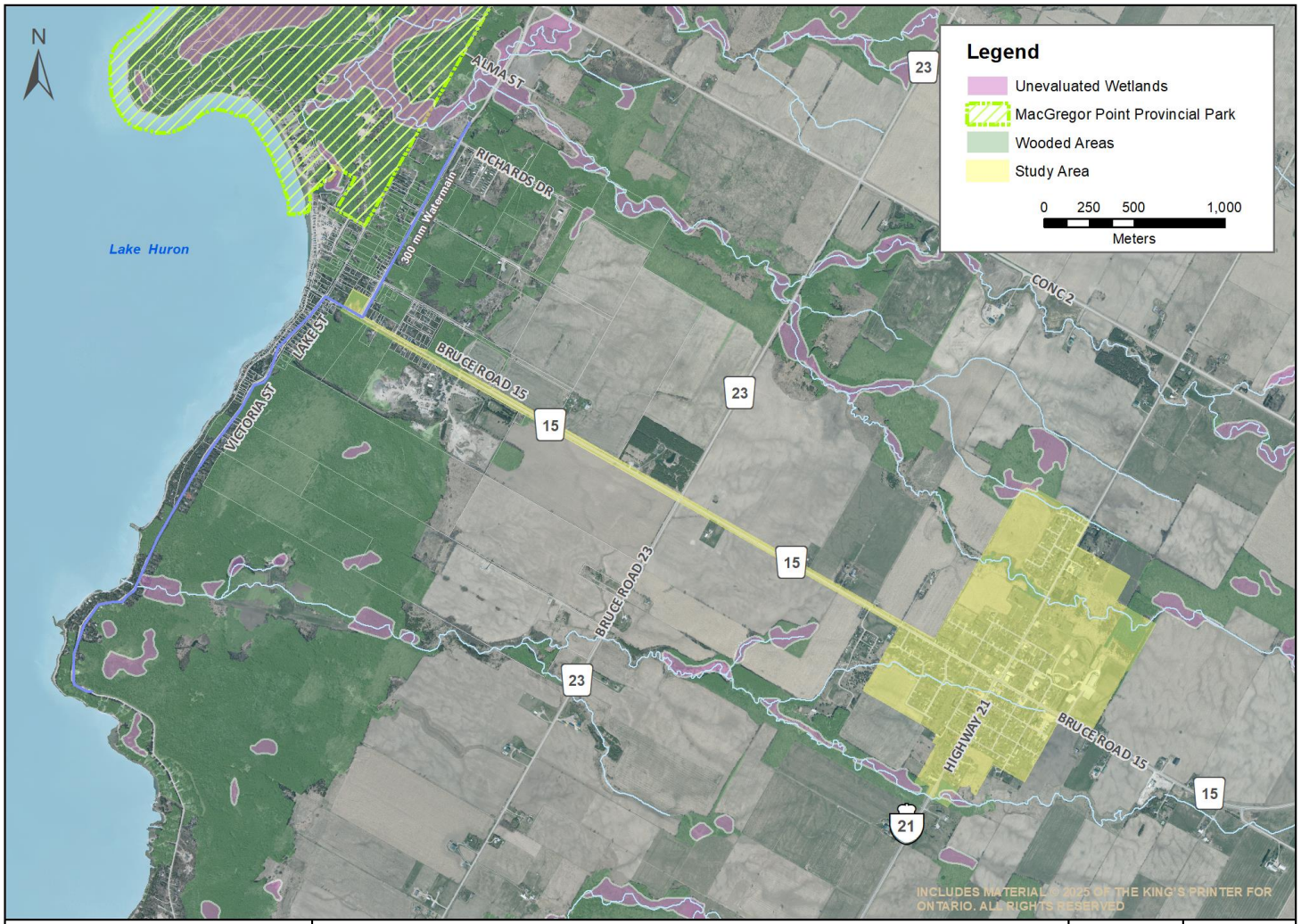
Given the distance from the project study area to these features, impacts on the above-listed ANSI are not anticipated.

2.4.3 Aquatic Habitat

The project area is located within the management area regulated by the Saugeen Valley Conservation Authority (SVCA) (Saugeen Valley Conservation Authority, 2018).

Tiverton Creek is located south of the community, flowing from east Tiverton to the southwest draining into Lake Huron at the southern end of Inverhuron. The creek is a cold-water stream. There are several unnamed tributaries associated with Tiverton Creek, one of which intersects the southern portion of the village. There are a variety of fish species present in the watercourse including but not limited to Rainbow Trout, Common Shiner, Northern Redbelly Dace, and Brown Trout.

Figure 2.4 Natural Heritage Features



BMROSS engineering better communities	**MUNICIPALITY OF KINCARDINE** MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM **Natural Heritage Features**	DATE January 2025	PROJECT No. 24014
		SCALE AS SHOWN	FIGURE No. 2.5

In the northern portion of Tiverton, there is an unnamed tributary of the Little Sauble River. This creek is a cold-water stream. It has been documented as being a habitat for a wide variety of fish species, including but not limited to Rainbow Darter, Creek Chub, and White Sucker.

2.5 Species at Risk

A desktop evaluation of the presence of significant species and their associated habitats within the general project area (Tiverton and Inverhuron) has been incorporated into the project planning process. The protection for species at risk and their associated habitats is directed by the following federal and provincial legislation:

- The Federal Species at Risk Act, 2002 (SARA) provides for the recovery and legal protection of listed wildlife species and associated critical habitats that are extirpated, endangered, threatened or of special concern and secures the necessary actions for their recovery on lands that are federally owned. Only aquatic species and bird species included in the Migratory Bird Convention Act (1994) are legally protected on lands not federally owned; and
- The provincial Endangered Species Act, 2007 (ESA) provides legal protection of endangered and threatened species and their associated habitat in Ontario. Under this legislation, measures to support their recovery are also defined.

A number of sources were consulted for information related to the occurrence of species at risk and their associated habitats. The sources are listed below. A summary of federally and provincially recognized species with the potential to be present within the project study area is listed in Table 2.1.

- Ministry of Natural Resources, Species at Risk by Area.
- Natural Heritage Information Centre, Make a Natural Heritage Map.
    - The 1 km NHIC squares corresponding with the study area in Tiverton are 17MK5601, and 17MK5602
    - The 1 km NHIC squares corresponding with the study area in Inverhuron are17MK5303
- Environment Canada, Species at Risk Public Registry. SARA Schedule 1 Species List (Government of Canada, 2017).
- Ontario Reptiles and Amphibian Atlas (Ontario Nature, 2020).
    - The 10 km square corresponding with the study area is Square 17MK50.
- Ontario Breeding Bird Atlas (Birds Canada, 2001-2005).
    - The 10 km square corresponding with the study area is Square 17MK50.
- Ontario Butterfly Atlas (Toronto Entomologist Associate, 2018).
    - The 10 km square corresponding with the study area is Square 17MK50.

- Atlas of the Mammals of Ontario (Federation of Ontario Naturalists, 1994).
- iNaturalist
    - Observations in the Tiverton and Inverhuron areas

Table 2.1 Species at Risk Within General Study Area

Type	Species Common Name	Species Scientific Name	Federal Status	Provincial Status	Likelihood of Presence or Impact to Habitat
Bird	Bank Swallow	*Riparia riparia*	Threatened	Threatened	Low
Bird	Barn Swallow	*Hirundo rustica*	Threatened	Special Concern	Low
Bird	Bobolink	*Dolichonyx oryzivorus*	Threatened	Threatened	Low
Bird	Canada Warbler	*Cardellina canadensis*	Threatened	Special Concern	Potential
Bird	Chimney Swift	*Chaetura pelagica*	Threatened	Threatened	Low
Bird	Common Nighthawk	*Chordeiles minor*	Special Concern	Special Concern	Low
Bird	Eastern Meadowlark	*Sturnella magna*	Threatened	Threatened	Potential
Bird	Eastern Wood-Pewee	*Contopus virens*	Special Concern	Special Concern	Potential
Bird	Eastern Whip-poor-will	*Antrostomus vociferus*	Threatened	Threatened	Potential
Bird	Grasshopper Sparrow	*Ammodramus savannarum pratensis*	Special Concern	Special Concern	Low
Bird	Least bittern	*Lxobrychus exilis*	Threatened	Threatened	Potential
Bird	Olive-sided flycatcher	*Contopus cooperi*	Special Concern	Special Concern	Low
Bird	Wood Thrush	*Hylocichla mustelina*	Threatened	Special Concern	Potential

Type	Species Common Name	Species Scientific Name	Federal Status	Provincial Status	Likelihood of Presence or Impact to Habitat
Insect	Monarch	*Danaus plexippus*	Endangered	Special Concern	Low
Mammal	Eastern Small-footed Myotis	*Myotis leibii*	Not on Schedule 1	Endangered	Low
Mammal	Little Brown Myotis	*Myotis lucifugus*	Endangered	Endangered	Low
Mammal	Northern Myotis	*Myotis septentrionalis*	Endangered	Endangered	Low
Mammal	Tri-coloured Bat	*Perimyotis subflavus*	Endangered	Endangered	Low
Plant	Black Ash	Fraxinus nigra	Not on Schedule 1	Endangered	Potential
Plant	Dwarf Lake Iris	*Iris lacustris*	Special Concern	Special Concern	Potential
Reptile	Eastern Milksnake	*Lampropeltis triangulum*	Special Concern	Special Concern	Low
Reptile	Eastern Ribbonsnake	*Thamnophis sauritus*	Special Concern	Special Concern	Low
Reptile	Midland Painted Turtle	*Chrysemys picta marginata*	Special Concern	-	Potential
Reptile	Northern Map Turtle	*Graptemys geographica*	Special Concern	Special Concern	Low
Reptile	Queensnake	*Regina septemvittata*	Endangered	Endangered	Low
Reptile	Snapping Turtle	*Chelydra serpentina*	Special Concern	Special Concern	Potential

The above table is based on potential habitats and occurrences throughout the general study area. This large area includes a wide variety of environs that include terrestrial and aquatic habitats. Vegetation removal within forested or open areas and along watercourses could potentially impact species. Impacts on the natural environment will be assessed later during the evaluation of alternatives on a site-specific basis. Depending

on the selected option, mitigation measures to avoid or minimize harm may need to be implemented to avoid impacts to the listed species.

2.6 Breeding Birds

The Atlas of Breeding Birds of Ontario (2001-2005) was consulted to identify the bird species with confirmed, probable, and possible breeding habitats in proximity to the study area. The study area of both Tiverton and Inverhuron is located within the 100 km^2 area covered in the Atlas as Square 17MK50, in Region 8: Bruce. Within the square, a total of 32 birds are confirmed to be breeding within the area, including species at risk such as Canada Warbler, Bank Swallow, Chimney Swift, and Barn Swallow. An additional 49 species were categorized as having probable breeding status and 11 are considered to have possible breeding status in the area (Bird Studies Canada, 2009).

The survey area includes key habitats for identified species, such as forests (in all stages of growth), riverine areas, and agricultural areas, The project area forms a very small portion of this region and includes urban areas with significant disturbance.

2.7 Source Water Protection

The intent of the Clean Water Act (CWA), 2006, is to "*protect existing and future drinking water*" sources in Ontario. The Act established source protection areas and regions, giving conservation authorities the duties and powers of a drinking water source protection authority. Focus on the development, implementation, monitoring, and enforcement of documentation, information, and policies related to source water protection is highlighted within this duty.

The Saugeen Valley Source Protection Assessment Report was consulted to determine if any areas of the study area have been identified as vulnerable or susceptible to groundwater threats and issues. The study area falls within the Saugeen Valley Conservation Authority administrative boundary.

The Tiverton well supply consists of three bedrock wells known as Dent Well, Briar Hill Well No. 1, and No. 2. The Briar Well No. 2 was constructed in 2006 and is used in conjunction with Briar Well No.1, which was constructed in 1971 (Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region, 2015). The Briar Well system is located at the west end of Conquergood Ave and Main. The Dent Well was constructed in 2003 and is located on Smith Street south of Main Street. All the wells within Tiverton are non-ground water under direct influence (non-GUDI). The raw water in Tiverton wells has naturally occurring fluoride, iron, and arsenic. The Well Head Protection Areas (WHPA) for the Dent and Briar Hill wells extend east through Tiverton into the agricultural lands (see Figure 2.6). Vulnerability scores range from 2 to 10 within the urban area of Tiverton. There are no significant drinking water threats within the Briar and Dent WHPAs A-D (Saugeen Valley Source Protection Area, 2015).

Much of the lakeshore area within the Municipality of Kincardine, including most of Inverhuron, is located within a Highly Vulnerable Aquifer as well as a Significant Groundwater Recharge Area, with a score of 6.

2.8 Climate Change

As part of the MCEA process, the impacts associated with climate change need to be evaluated. Some of the phenomena associated with climate change that will need to be considered include:

- Changes in frequency, intensity, and duration of precipitation, wind, and heat events.
- Changes in soil moisture.
- Changes in sea/lake levels.
- Shifts in plant growth and growing seasons.
- Changes in the geographic extent of species ranges and habitats.

There are two approaches that can be utilized to address climate change in project planning. These are as follows:

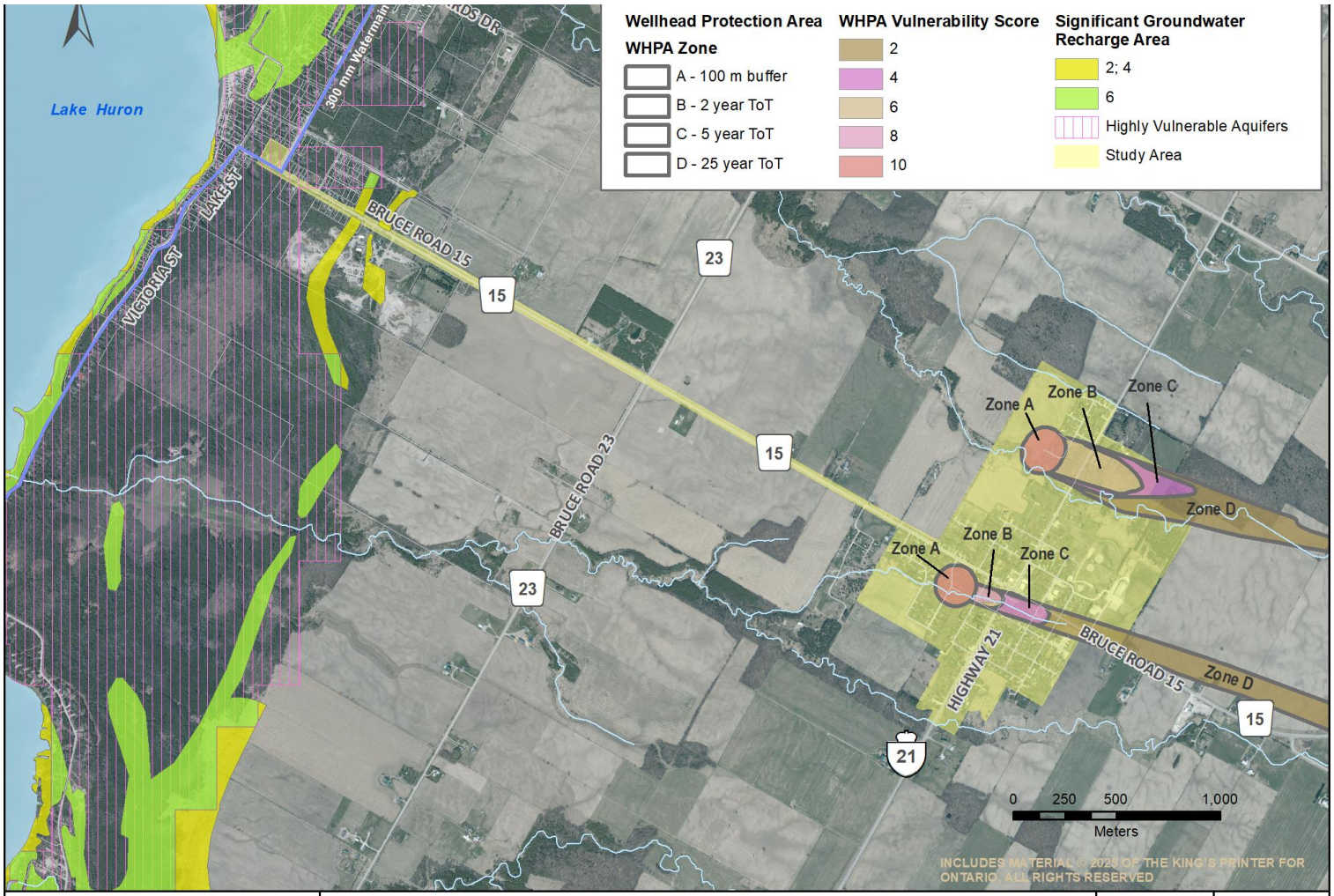
I. Climate Change Mitigation – reducing a project's impact on climate change. Strategies may include:
    a. Reducing the impact of greenhouse gas emissions related to the project.
    b. Alternative method to completing the project that would reduce adverse contributions to climate change.

II. Climate Change Adaption – increasing the projects and local ecosystems' resilience to climate change. Strategies may include:
    a. Reducing vulnerability to climate-related severe weather events.
    b. Alternative methods of carrying out the project that would reduce negative impacts associated with climate change.

Through the evaluation of alternatives to the MCEA process, a consideration of each of these approaches is included and considered in the final determination of the preferred approach to completing a project.

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Figure 2.5 Source Water Protection Areas in Vicinity of Study Area



BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM
Source Water Protection Vulnerable Areas

DATE	PROJECT No.
January 2025	24014
SCALE	FIGURE No.
AS SHOWN	2.6

2.9 Adjacent Land Uses

Adjacent land uses to the study area within Tiverton include primarily residential properties. The Dent well is located within a residential area south of Main Street. The Briar Hill wells is surrounded by residential and future development lands. In Inverhuron, land uses include residential, natural environment including areas of significant woodlands, and parkland. The lands adjacent to Bruce Road 15 are primarily residential within Inverhuron, and agricultural surrounding Tiverton.

2.10 Planning Policies

2.10.1 Provincial Planning Policy

The Provincial Policy Statement, 2024 (PPS) provides policy direction for land use planning and development across the province. Local planning policies and land use decisions must conform with the policies of the PPS. The PPS intends to promote long-term prosperity, environmental health, public safety, and social well-being through efficient land use and development patterns (Ministry of Munical Affairs and Housing, 2024).

With respect to municipal infrastructure projects, there are a number of policies within the PPS that need to be considered. The first section of the PPS identifies policies directing land use to achieve efficient and resilient development and land use patterns.

The 2024 PPS provides planning for people and homes, stating creation of a new official plan (OP) and updating of subsequent versions of OP, sufficient land shall be made available to accommodate an appropriate range and mix of land uses to meet project needs for at least a 20-year planning horizon and a maximum of 30 years.

The PPS emphasizes the importance of ensuring an adequate and diverse housing supply to meet the needs of current and future residents in a regional market area. This involves two key components.

- 15-Year Residential Growth Capacity- municipalities must maintain sufficient lands that are designated and available for residential growth for at least 15 years. This includes ensuring that these lands are appropriately planned for new development, such as through official plans and zoning
- 3-Year Immediate Supply- A minimum three-year supply of residential units must also be ensured. These units are to be appropriately zoned and served (or capable of being serviced) and part of draft-approved or registered plans of subdivision to facilitate prompt development

This approach ensures that housing needs are met not only in the long term but also in the short term, supporting population growth, market demand, and economic sustainability. It also aligns with the broader objectives of the PPS to promote efficient land use and well-managed growth. Growth is to be concentrated in the settlement areas,

and where applicable, strategic growth areas, including major transit stations. Land use patterns within settlement areas should be based on densities and mix of land uses which efficiently use land and resources; optimize existing and planned infrastructure and public service facilities; support active transportation, transit, and freight supportive.

Section 3.1 of the PPS is dedicated to infrastructure and public services facilities. The policies in this section of the PPS promote the efficient provision of public infrastructure and service facilities to accommodate forecasted growth promptly, promote water and energy conservation, and accommodate future needs (3.6.1.a & 3.6.1.b). Planned infrastructure is to be financially viable over its life cycle and sufficient to meet existing and future needs. Additionally, infrastructure should support the effective and efficient delivery of emergency services and ensure public health and safety protection.

2.10.2 Land Use Planning

The Municipality of Kincardine's Official Plan (OP) and Zoning By-Law (ZBL) were consulted to determine land use designations within the project study area and related planning policies.

The Kincardine OP aims to ensure adequate and efficient water supply systems for all areas of development within the municipality. To achieve this all redevelopment and new development in Tiverton will be required to connect to full municipal services.

Land use designations within the Tiverton study area include Residential, Natural Environment, Open Space, Institutional, Core Commercial, and Highway Commercial. Official Plan designations in Inverhuron include Shoreline Development, Natural Environment, and Open Space.

In the Municipality of Kincardine ZBL, it is stated that public services and utilities such as pump stations and watermains can be installed in all zones. The zoning designations in Tiverton include Residential 1, Open Space, Institutional, Commercial, Planned Development, and Travel Trailer Park and Campground. Zoning designations in Inverhuron include Residential 1, Residential 5, Future Development, Environmental Protection 1 and 2, Open Space, and Commercial 4.

2.11 Built Heritage Resources & Cultural Heritage Landscapes

An assessment of potential impacts on heritage resources and cultural heritage landscapes must be undertaken in conjunction with the MCEA process. This section summarizes general information on built heritage resources and cultural heritage landscapes within the project areas of Tiverton and Inverhuron. Impacts and requirements for sites are identified later through the MCEA process are addressed in Section 5.0.

The study area does not include any sites identified under the *Ontario Heritage Act* for cultural heritage value, national historic sites, sites designated under the *Heritage*

Railway Stations Protection Act or *Heritage Lighthouse Protection Act*, or any federal heritage buildings.

From the Ontario Heritage Trust plaque database, one record of a historical plaque was found. The plaque recognizes the Douglas Point Nuclear Power Plant is located north of Tiverton at the Bruce Power Visitor Centre.

The Municipality of Kincardine has an active heritage committee that provides recommendations to Council on conservation and recognition of buildings and properties with historic or architectural value. The designated heritage properties, protected under the Ontario Heritage Act, within the project area include:

- 100 King Street, Tiverton – a log house built around 1858, designated in 2006.
- 7 McKay Street, Tiverton – designated in 2009, the designation is for the exterior façade and greenspace for this Italianate style structure, originally built as a school in 1875-1876.

There are also a number of properties on the heritage registry. Properties on the heritage registry are not legally protected under the Ontario Heritage Act but are listed for their cultural heritage value or interest. Table 2.2 summarizes the heritage registry properties in Tiverton and Inverhuron.

Table 2.2 List of Heritage Registry Properties in Tiverton and Inverhuron

Tiverton	Inverhuron
• 140 King Street • 116 King Street • 100 King Street • McKellar Block • Innes Block • 94 King Street • 68 Main Street • 73 Main Street • 75 Main Street • 79 Main Street	• 1 Alma Street • 2 Alma Street • The Secret Garden • 96 Victoria Street

The Bruce Township Places of Interest Driving Tour brochure also includes several local cultural points of interest in the Inverhuron area including: Inverhuron cemetery (part of Inverhuron Provincial Park), Inverhuron Beach, Inverhuron Pavillion at John and Victoria St., McIntyre Park, and the lime kilns.

Inverhuron Provincial Park is located north of the community of Inverhuron. The park was established in 1956 with operations beginning in 1959. The park contains several Aboriginal archaeological sites from the Archaic period, with some local sites of early European settlement with local and regional significance. Given this, the park is classified as a historic provincial park.

There are two cemeteries located within the general study areas. The Tiverton Cemetery, located at 45 King Street is an active cemetery owned and maintained by the Municipality of Kincardine. The Inverhuron Cemetery is located within Inverhuron Provincial Park and is managed by the Park.

2.12 Archaeological Resources

The Inverhuron area is known to have a number of archaeological sites and higher potential for archaeological resources. Previously registered archaeological sites, historic transportation routes, and proximity to a primary water source (Lake Huron) are factors that increase the potential for archaeological resources in that area.

The archaeological potential for sites and need for archaeological assessments is determined in Section 5.0 based on the alternative solutions and sites identified.

2.13 Air Quality, Dust and Noise

The study area includes residential properties, which are classified as sensitive receptors. The existing well sites, situated within residential neighborhoods, are not significant sources of noise.

Within Tiverton, there are relatively few sources of significant noise, dust or air pollution. A concrete plant is located approximately 580 m east of the village. Within Inverhuron, there is an aggregate pit located at the east end of the community, south of Bruce Road 15.

2.14 Contaminated Sites

There are no known contaminated sites or former landfill sites located within or in close proximity to the study area.

2.15 Servicing, Utilities and Facilities

In Tiverton, water is provided by the TDWS. Sewage servicing is provided by the municipal sewage system. Within the study area, electrical service is provided utilizing overhead lines. Telecommunication services are located within the road allowances in the study area. Natural gas utilities are also located within the road allowances.

The Lakeshore Water Distribution System, supplied by the KDWS, supplies residences in Inverhuron and Inverhuron Provincial Park. The distribution system runs north from the Lorne Beach area along Victoria Street to Bruce Road 15, and then north along Albert Road. Sewage servicing in the Inverhuron area includes municipal sewage services and private septic systems. There is a sanitary forcemain within the Bruce Road 15 road allowance from Tiverton to Lake and Albert Streets. In Inverhuron, electrical service is provided utilizing overhead lines. Telecommunication services are located within the road allowances in the study area. Natural gas utilities are also available in the area.

3.0 TECHNICAL REVIEW

3.1 Existing Tiverton Drinking Water System

The TDWS consists of three, drilled, non-GUDI groundwater supply wells. The Briar Hill Well Site is located at 36 Conquergood Avenue and has two wells. The Dent well site is located at 6 Smith Street and has one well. The pumphouses for the wells include sodium hypochlorite disinfection systems, iron and manganese sequestering equipment, and standby generators. Briar Hill Well #2 is the newest well of the three, constructed in 2007. The rated capacity of the TDWS is limited by the Permit To Take Water (PTTW) value of approximately 775 m^3/day.

Briar Hill Well #1 is 150 mm in diameter, 93 m deep, and is rated at 6.1 L/s or 524.16 m^3/d. Briar Hill Well #2 is 220 mm in diameter, 93 m deep, and has a maximum water taking of 8.3 L/s or 720 m^3/day. The Dent Well (Dent Well #2) is 200 mm in diameter, 87 m deep, and is rated 4.6 L/s or 250 m^3/d. The system also includes approximately 8 km of watermain and a standpipe, servicing approximately 372 customers. The system is shown in Figure 3.1.

Raw water from all the wells exceeds the Ontario Drinking Water Quality Standard (ODWQS) for fluoride (1.5 mg/L) and the notification criteria for the local Medical Officer of Health for sodium (20 mg/L). At the Dent Well, arsenic levels are tested quarterly as concentrations have exceeded half of the Maximum Acceptable Concentration (MAC) of 0.01 mg/L. The raw water is also considered mineralized, with total dissolved solids exceeding 500 mg/L. Figure 3.2 shows the average arsenic, sodium and fluoride concentrations between 2014 and 2023 at Dent Well #2.

There is concern that if the MAC for arsenic is further decreased, or if arsenic levels rise, the levels at Dent will be in exceedance and require the installation of arsenic treatment equipment.

Recent examinations of the Briar Hill well casings have raised concerns regarding the condition of Briar Hill Well #2. The casing of the well is deteriorating and is at risk of failure. Additionally, the mechanical and electrical equipment (e.g., process piping and valves, MCC and instrumentation) at the site is reaching the end of its useful life.

Figure 3.1 Tiverton Drinking Water System

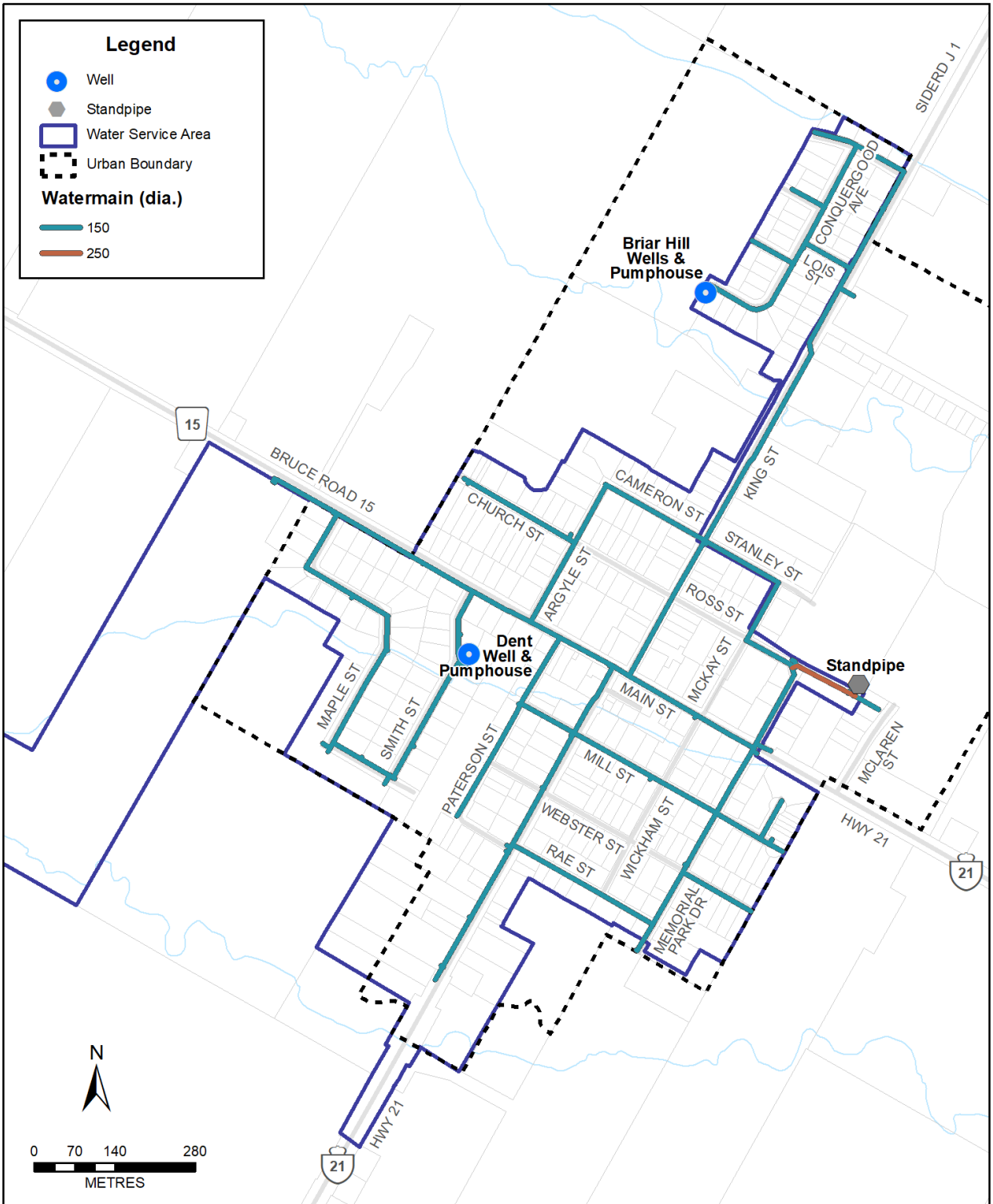
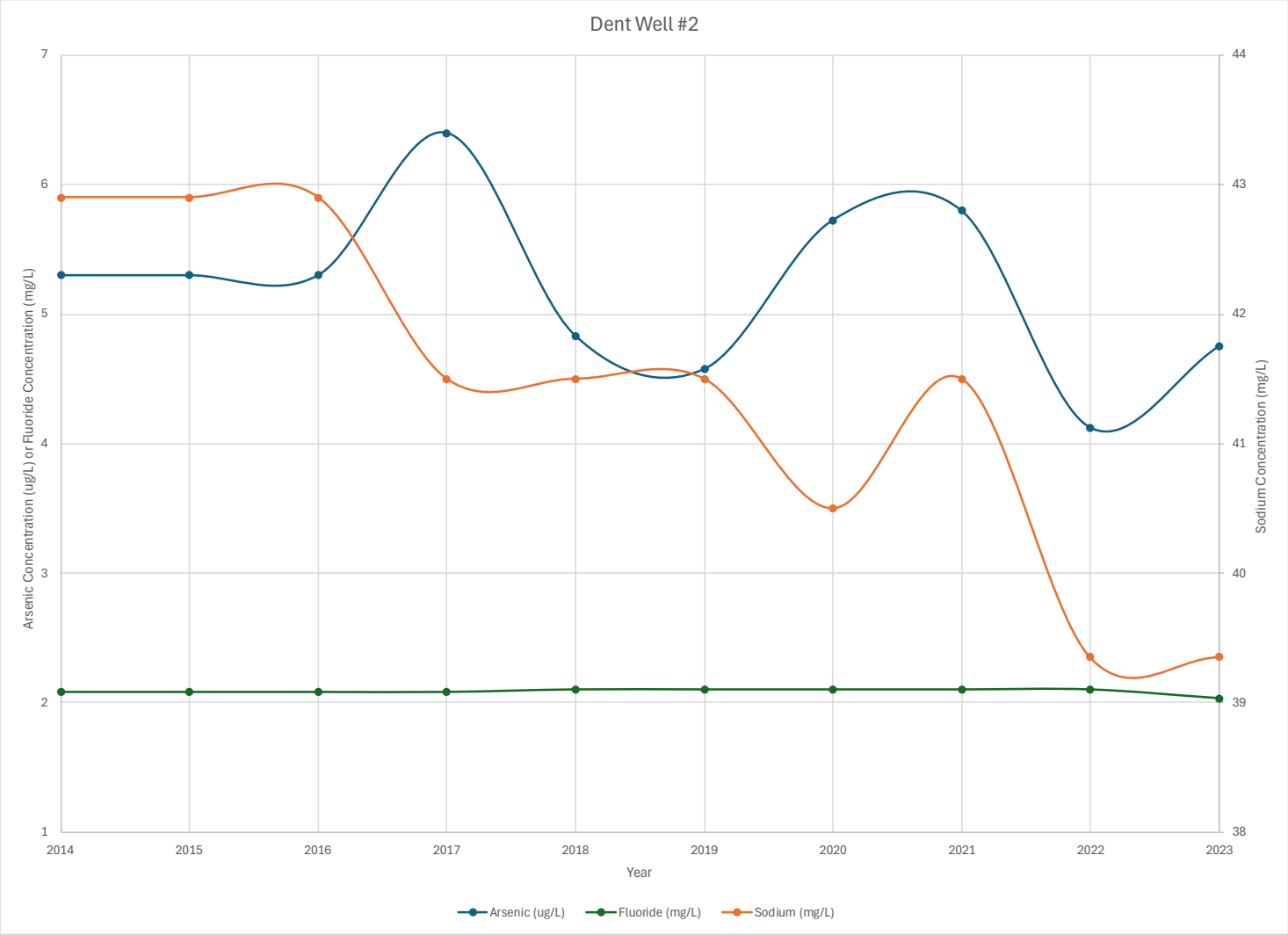


Figure 3.2 Arsenic, Sodium and Fluoride Concentrations at Dent Well #2



3.2 2022 Kincardine Water and Wastewater Servicing Master Plan

The 2022 Kincardine Water and Wastewater Servicing Master Plan examined the existing and future water demands for the TDWS. The Maximum Demand is currently 616 m^3/day and the total reserve capacity is 159 m^3/day with a maximum day usage of 1.66 m^3/day per Equivalent Residential Unit (ERU), meaning the demand from a typical single detached dwelling.

The Master Plan noted that for the Dent Well, water level data suggests that low water levels under maximum water taking are below the bottom of the well casing and likely below the upper water bearing zone. Generally, the water level in a bedrock well should not be maintained below the uppermost water bearing zone and preferably not below the base of the casing. Given this, it was suggested there is no additional capacity available from this well. Water level data for Briar Hill Well #2 suggested that the water level may also be below the base of the casing. The water level data for Briar Hill Well #1, which is used less frequently than Briar Hill Well #2, indicates interference occurs between the wells.

General comments regarding the TDWS from the Master Plan include:

- Indications are that Dent Well #2 is at capacity, but operating as expected.
- If the water level data after 2016 and the water taking data is accurate, the well efficiency of Briar Hill Well #2 has dropped significantly since 2006.

The Master Plan examined growth scenarios to project water demands over 20 years. It was noted that the current development commitments exceed the current capacity of the TDWS. Commitment demands equate to 424 m^3/day for 256 ERUs. Given the current capacity and demands, the system has an uncommitted reserve of - 265 m^3/day, or an over-commitment of approximately 160 ERUs. The Master Plan recommended an MCEA to evaluate alternatives to increase system capacity, including evaluating alternative water supply options.

3.3 2024 Hydrogeological Review

In conjunction with the MCEA process, a review of the hydrogeological information for the wells was conducted by Wilson Associates. The study consisted of a review of existing wells and provision of an opinion on future groundwater yields for the community of Tiverton. A copy of the report is included in Appendix A.

The work included a review of the existing wells and local well records within the vicinity of the community. There are records of 74 water wells within approximately 2 km of Tiverton. On average, the wells are 60 m deep, with average yields of 95 L/min. Groundwater from the bedrock aquifer in the vicinity of Tiverton can be expected to be mineralized, with elevated total suspended solids, sulphate, iron and sodium.

Pumping data from these wells was used to determine theoretical yields within the area. The greatest potential for high yielding wells (i.e. greater than 454 L/min) was within the community of Tiverton and to the south and west. The potential for higher-yielding wells decreased north and northeast of the community. The majority of the wells theoretically capable of greater yields were within the upper 20 m of the bedrock. The data did not suggest greater yield with deeper drilling. The data suggests a 54% chance of achieving the required yield (greater than 200 L/min) needed to increase the overall Tiverton raw water supply to future projected needs. It may require two separate well field sites to achieve the desired yield.

The 2020 monitoring data for the Tiverton wells was assessed. The low water data for all three wells indicated that at times, the wells appear to be using most of the available drawdown. From this analysis and previous testing results, it indicates the likelihood of increasing the permitted withdrawal rates from the existing wells is low.

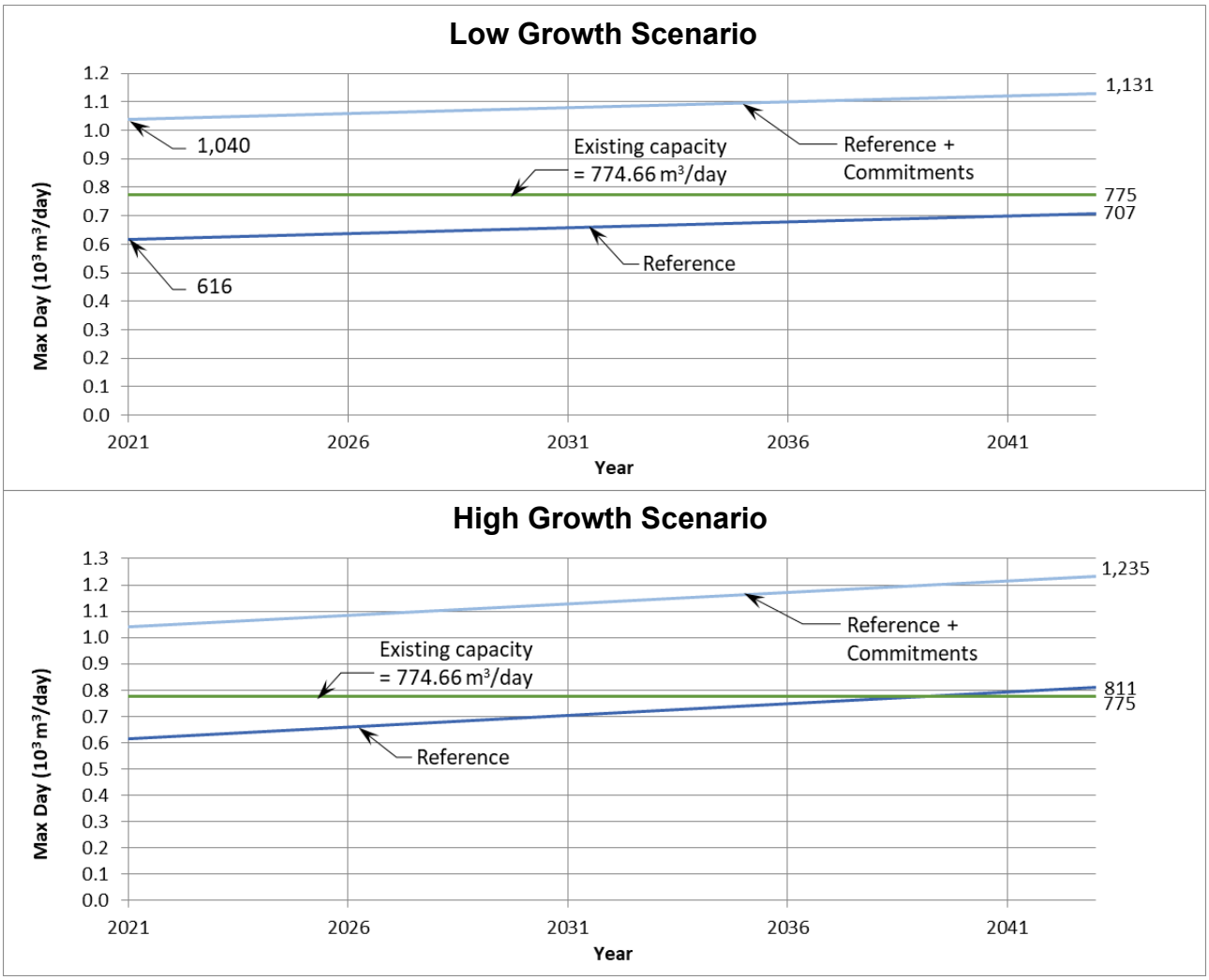
Data from previous pumping tests at the wells was also reviewed to provide a technical analysis on the potential for interference from additional wells. From data collected from well tests in 2003 and 2006, it was recommended that a higher yield well, such as a municipal well, be spaced approximately 700 m from existing municipal wells. It also recommended a minimum separation distance of 350 m from any domestic wells to avoid interference.

3.4 Future Demand

The 2023 Water and Wastewater Servicing Master Plan assessed development commitments and proposals in Tiverton and growth forecasts against the available capacity. There were 256 ERU of development commitments identified in the Master Plan, with additional lands available for future development. The reserve capacity calculations completed as part of the Master Plan for the TDWS identified a deficit in the uncommitted reserve capacity of – 265 m^3/day, equivalent to an overcommitment of 160 ERUs at 1.66 m^3/day per ERU. Additional supply will be required to support the committed developments, as well as any further development beyond such commitments.

The Master Plan also examined annual growth scenarios and forecasted water demands over time. Under the low growth scenario, though the supply is overcommitted as a result of approved development, the annual growth rate projects that actual demand would not exceed current supply capacity until several years beyond 2041. Under the high growth scenario, actual demand is projected to equal current supply capacity around 2039. Figure 3.2 shows the forecasted low and high growth scenarios, with commitments against the current capacity. It is important to note that increases in actual system demand will be a function of actual growth and development rates, which are expected to vary from year to year.

Figure 3.3 High and Low Growth Scenarios and Forecasted Annual Maximum Day Demand, Tiverton



4.0 MCEA PHASE 1 IDENTIFICATION OF PROBLEM

4.1 Phase 1 - Identification of the Problem/Opportunity

The first phase of the MCEA process is the identification and definition of the problem or opportunity to be addressed. The problem/opportunity statement is the framework for identifying practical and feasible alternative solutions.

The 2023 Water and Wastewater Master Plan identified the following issues for the TDWS:

- The system lacks adequate reserve capacity in terms of raw water supply for the proposed developments in Tiverton. The population of Tiverton is expected to increase over the next 20 years, with growth driven by the development of the Bruce C site at Bruce Power.
- The condition of the well casing, electrical and mechanical equipment at the Briar Hill site is approaching the end of its life.
- There is little potential for re-rating (i.e. expanding) the existing municipal groundwater wells in Tiverton and recommended alternative water sources for the community be considered
- The Master Plan recommended the Municipality undertake a MCEA to evaluate options for expanding the supply capacity of the TDWS as well as potential alternative water sources.

For the purposes of this MCEA, the following problem statement has been identified based on the above-noted needs.

The 2023 Water and Wastewater Master Plan identified the Tiverton Drinking Water System is overcommitted and additional supply capacity is required to support future growth.

5.0 MCEA PHASE 2 – IDENTIFICATION OF ALTERNATIVES

5.1 Identification of Alternatives

The second phase of the MCEA process involves the identification and evaluation of feasible and practical alternative solutions to the defined problem. Once the feasible and practical alternatives are identified, the technical, economic, and environmental impacts associated with each implementation are evaluated. Mitigation measures that could lessen environmental impacts are also defined. A preferred solution or solutions is then selected.

5.2 Initial List of Alternative Solutions

Initially, a list of alternatives is generated as part of Phase 2 of the MCEA process. These alternatives are evaluated in terms of practicality and feasibility to produce a short list of practical alternatives for a more detailed evaluation and review. The long list of alternatives and their evaluation is summarized in Table 5.1.

Table 5.1 Long List of Alternative Solutions

Alternative	Initial Evaluation	Carried Forward for Further Evaluation (Yes or No)
Expand existing or construct new groundwater wells	• May need to consider multiple well sites to achieve needed yields. • Potential to secure sufficient water supply for current and future needs. • Can connect new wells to existing water distribution system. • Will require drilling of a test well(s). • Potential for significant capital costs if multiple wells are required. • New wells will add new Source Water Protection areas. • Potential for highly mineralized raw water quality.	Yes – carry forward for further evaluation.
Construct a BPS to connect to the Kincardine Drinking Water System at Inverhuron	• Sufficient supply capacity available in the KDWS to accommodate existing and future growth in Tiverton. • Would have significant capital costs. • Would require a BPS in Inverhuron and watermain to Tiverton.	Yes – carry forward for further evaluation.

Alternative	Initial Evaluation	Carried Forward for Further Evaluation (Yes or No)
Reduce demands/ limit community growth	• Would require a significant decrease in current water usage to provide enough capacity for committed development. • Would limit future growth opportunities in Tiverton. • Does not address the need for additional supply.	No – not considered practical or feasible given the current demand commitments.
Do Nothing	• Considered if the impacts of other alternatives are too great or cannot be mitigated. • Does not address the need for additional supply. • Limits future growth opportunities. • Will be used as the benchmark for comparison of other alternatives.	Yes – must always be considered – Carry forward as Alternative 3.

From the preliminary analysis of the long list of alternatives, there are three alternatives carried forward for further evaluation:

- Alternative 1 – Expand existing or construct new groundwater supply
- Alternative 2 – Construct a connection to the Kincardine Drinking Water System at Inverhuron
- Alternative 3 - Do Nothing

Alternative 3 is not being carried forward for further investigation. This is because this alternative is not practical or feasible to implement. It is highly unlikely existing water demands and usage could be reduced enough to provide sufficient capacity for the committed development. Further, limiting community growth is not considered practical approach given provincial and local policies directing future growth to settlement areas, like Tiverton, that have full municipal servicing.

5.3 Alternative 1 - Expand Existing or Construct a New Groundwater Supply

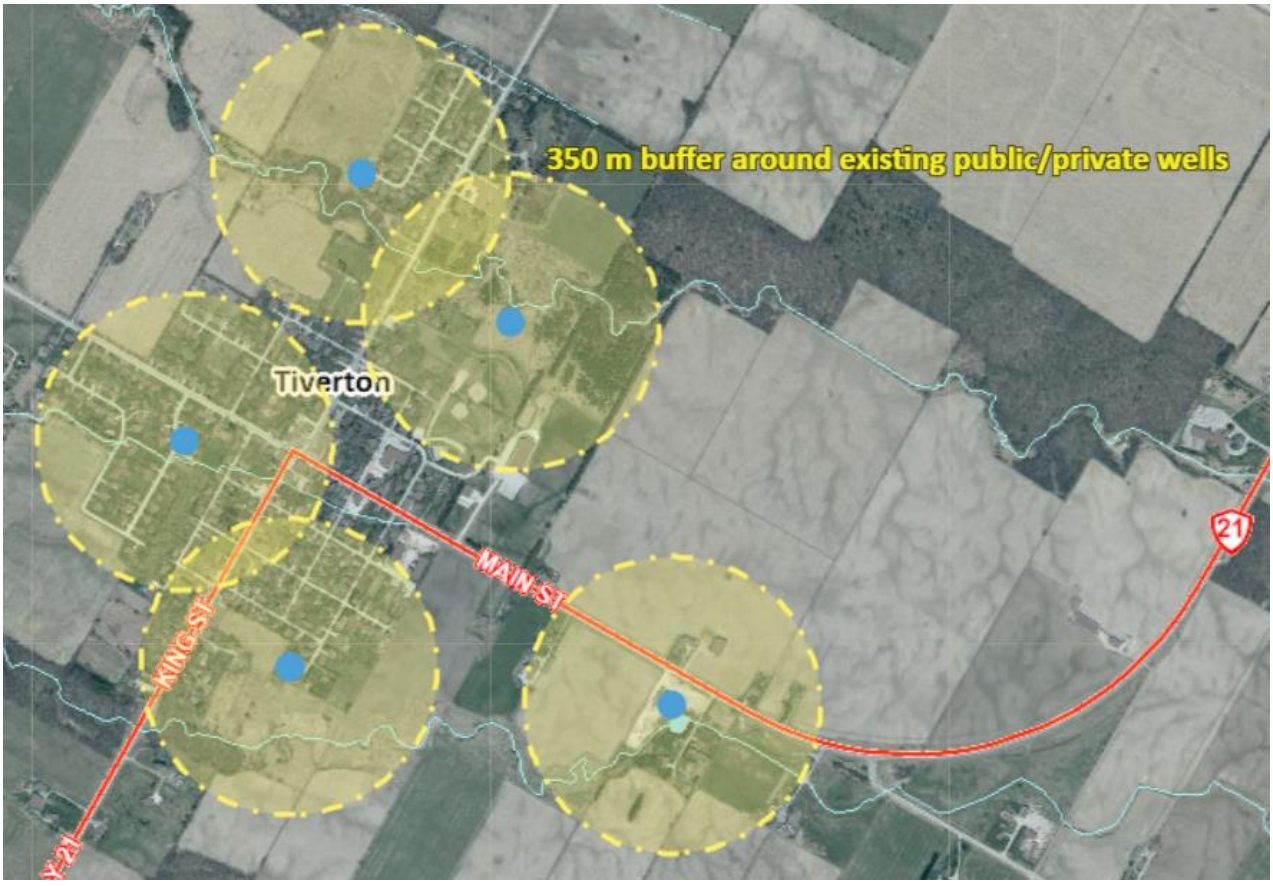
This alternative requires the expansion of the existing groundwater wells or construction of new municipal supply wells, or a combination of the aforementioned. The target additional future yield is 460 m^3/day.

From the hydrogeological study completed by Wilson Associates (see Section 3.3), it was identified that from historic testing results and monitoring data, there is limited potential for expanding the existing Tiverton municipal wells to achieve the needed capacity.

The hydrogeological study indicated that two additional wells may be required to achieve the desired yield to service future growth. Each well site would require a pumphouse building equipped with treatment facilities and related mechanical and electrical components, including a backup generator. It is likely that the Municipality will need to acquire land for siting new wells.

Further, from the information available, there was a 54% chance of achieving a yield over 200 L/min from a single well constructed in the bedrock aquifer in the vicinity of Tiverton. This may result in the need for multiple test drilling sites. The hydrogeological study recommended spacing new municipal wells a minimum of 700 m apart, and 350 m from any domestic wells to avoid interference. Figure 5.1 shows a 350 m setback from a small number of existing wells within the vicinity of Tiverton. From this preliminary examination of existing wells and the setbacks, any new wells will likely need to be located outside of the existing settlement area of Tiverton. This will require further extensions of watermain to connect to the existing distribution system.

Figure 5.1 Conceptual setback from sample of existing wells, Tiverton.



The raw water quality from new wells is also expected to be mineralized with elevated total dissolved solids, sulphate, iron and sodium, per the hydrogeological report.

New municipal wells will result in new WHPA policy areas. A hydrogeological study for each new well will be required to determine the extent and vulnerability scores of the WHPAs. Source Water Protection policies may restrict future development within vulnerable areas around the wells.

Under this alternative, rehabilitation of the Briar Hill Wellhouse is required to remediate existing mechanical and electrical deficiencies. This also includes replacing the Briar Hill Well #1 due to the deterioration of the casing. This may be avoided if the new wells achieve enough yield to replace the Briar Hill wells. The estimated cost for replacing the Briar Hill well and reconstructing the wellhouse is $3,600,000 + HST (2024$). This cost is based on other similar capacity wells and treatment buildings in other southwestern Ontario communities in recent years.

The capital costs to construct a singular new well site will be similar in range to the Briar Hill reconstruction and estimated at $3,600,000+ HST (2024$). These costs do not include land acquisition and additional watermain needed to connect to the system. Given the potential that two well sites will likely be required, the capital costs associated with this alternative may be in excess of $7,000,000 + HST (2024$) for the new wells. In the case of two well sites, they would not necessarily need to be constructed at the same time, and costs for the second site could be deferred until actual community growth requires further supply.

5.4 Alternative 2 Construct a BPS to Connect to the Kincardine DWS

The second alternative solution is to connect to the KDWS from a connection point in Inverhuron. This would require construction of a BPS and a trunk watermain to connect to the existing water distribution infrastructure in Tiverton.

In 2003, an MCEA was completed to provide municipal water from Kincardine to the lakeshore area north of Kincardine, including Inverhuron and IPP. At that time, the watermain from Kincardine to Inverhuron was designed with an allowance of 1,000 m^3/day for future supply to Tiverton.

In 2023, the Municipality had an MCEA completed that related to expansion of the Kincardine Water Treatment Plant (WTP) and construction of a new BPS, both of which activities were identified as preferred alternatives to provide municipal water servicing to Bruce Power. The project would also require an extension of the KDWS Lakeshore watermain from Inverhuron to the Bruce Power site. The MCEA included preservation of the future allocation for Tiverton that was considered in the 2003 MCEA

The design of the BPS and connecting watermain will need to consider pressure implications across the TDWS. Due to elevation rise from Inverhuron to Tiverton and given the need to be able to fill the existing Tiverton standpipe, a pressure starting at approximately 1,000 kPa at the BPS would be required. MECP Design Guidelines for Drinking Water Systems – 2008, recommend that distribution system maximum pressure not 700 kPa, and when the do, pressure reducing devices be provided on mains or

service connections. High pressure will therefore need to be considered in the design of the watermain and for any service connections within the first approximately two kilometres downstream of the BPS.

This alternative will provide sufficient supply for the existing and projected growth in Tiverton. It would eliminate the need for the replacement of Briar Hill Well #1 and rehabilitation of the electrical and mechanical equipment at that site. It would also reduce concerns related to water quality, specifically arsenic, associated with the groundwater supply.

5.4.1 Evaluation of Alternative Sites for BPS

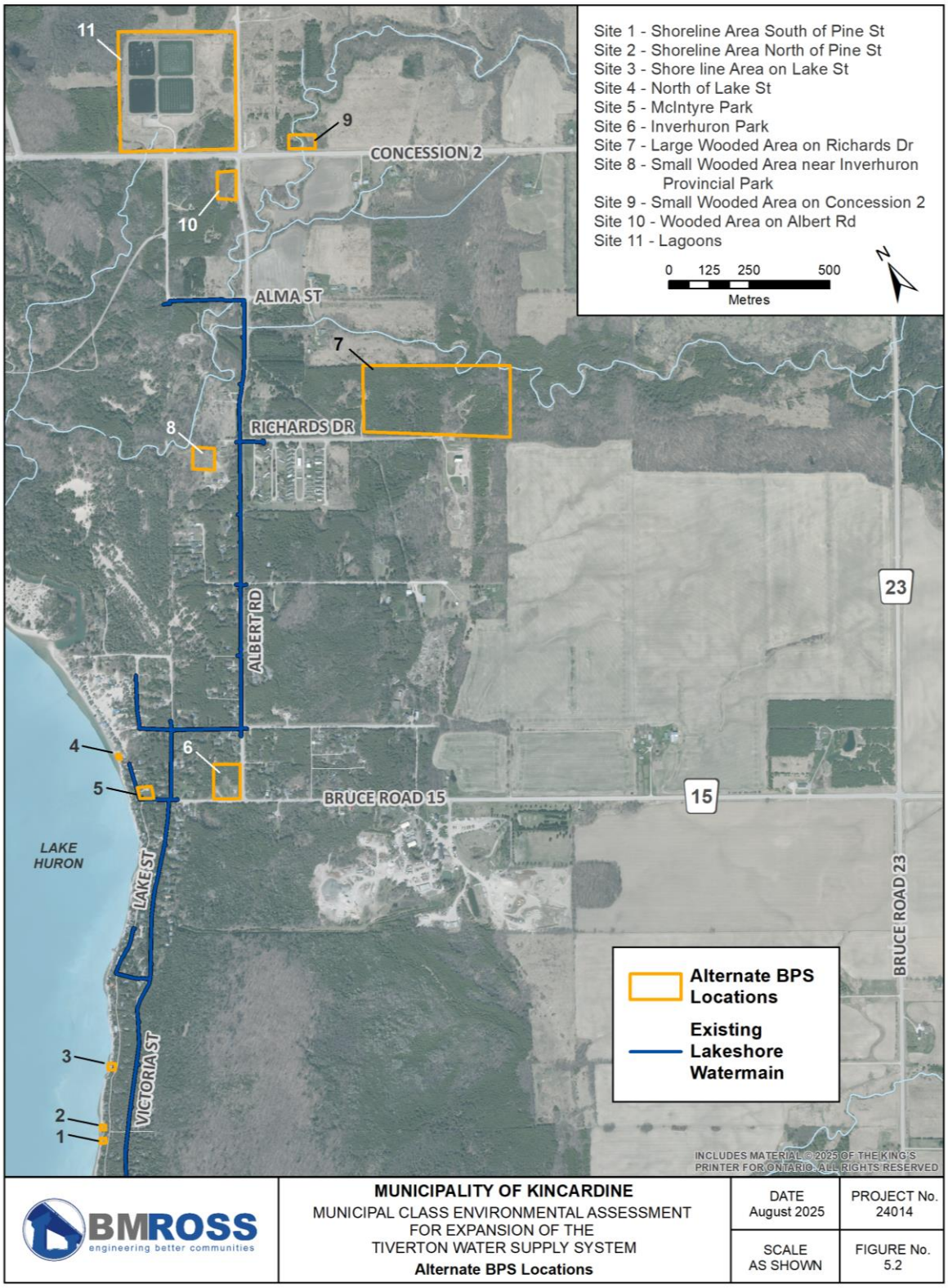
The consideration of this alternative included the evaluation of a number of potential sites for a BPS and watermain connection to Tiverton. The initial list of sites was based on lands already owned by the Municipality of Kincardine within the vicinity of the existing KDWS distribution network in Inverhuron.

The criteria or factors considered in the evaluations of alternative sites for the booster pumping station include:

- Proximity to the existing KDWS – closer proximity is preferred to reduce the need to construct additional watermain.
- Distance to Tiverton – closer proximity is preferred to reduce the amount of high pressure watermain required and reduce costs.
- Proximity to 3-phase electrical services – closer proximity is preferred for electrical servicing of site and reduced costs related to extended electrical services.
- Minimum site size of 20 m by 30 m for construction of BPS.
- Potential for species at risk.
- Impacts to adjacent properties during construction and operation.
- Impacts to the natural environment.
- Proximity to sensitive receptors as the BPS will include an emergency backup generator.
- Construction and operational impacts.

The alternative sites considered are shown in Figure 5.2.

Figure 5.2 Alternative BPS Sites



Eleven alternative sites around Inverhuron were evaluated to determine a preferred site for the BPS. The evaluation of the sites are summarized in Tables 5.3 and 5.4. Each location was given a score of 1 to 5 for each criteria, with 1 being less preferred and 5 being the most preferred.

From the evaluation of the alternative sites, site 6, Inverhuron Park was identified as the preferred location for a BPS. The site is a sufficient size to accommodate construction of a BPS, is in close proximity to the existing KDWS and three phase power, is the closest site to Tiverton, has a cleared area reducing the potential to impact the existing treed area and vegetation, and is unlikely to disturb adjacent properties during operation. It will use existing parkland; however, the BPS could be sited in the southwest corner of the property to minimize as much as possible the parkland disturbed. The ball diamond and playground will remain and still be available for public recreation, in addition to the majority of the grassed parkland.

A field visit to Inverhuron Park to review potential habitat opportunities for species at risk. The site includes a wooded area, with the southern portion of the property cleared for parkland. The parkland area is grassed with the exception of the playground area, gravel driveway and asphalt basketball court. There is a roadside ditch along Bruce Road 15 and Albert Road. Vegetation includes a mix of paper birch, poplar, cedar, silver birch, dogwood and sugar maple. Other vegetation observed at the site include chicory, Queen Anne's lace, and poison ivy. Potential species at risk, as noted in the NHIC databased include: midland painted turtle, wood thrush, eastern wood pewee, Canada warbler, eastern whip-poor-will, and eastern meadowlark. The cleared area of the park does not include typical habitat for any of the previously noted species. At the time of the site visit, the only species observed included blue jays, American robins and American gold finch.

At the May 23, 2025 open house for the project, members of the public indicated a strong preference for a site closer to Concession 2 and Albert Road over the Inverhuron Park site. Concerns were raised regarding loss of parkland and the facility not benefiting Inverhuron. In response to the feedback, the potential of an alternative site at Concession 2 and Albert Road was further examined to evaluate potential impacts and the following is noted:

- This site is located approximately 2 km further from Tiverton compared to the Inverhuron Park site. This will require an additional 2 km of high pressure watermain.
- The additional cost for the longer watermain is estimated to be in the order of $1.4 to $1.5 million.
- A small advantage to the alternate route would be avoiding watermain construction for several hundred metres within Inverhuron (i.e., shift all watermain construction to rural road out of town, except for some in Tiverton that is common to either location).

- Considering the forthcoming extension of the KDWS to the Bruce Power site, there are technical advantages for having the connection to Tiverton further south. The greater the water demand at the north end of the system, the greater the pressure loss along the watermain route will be which may ultimately require additional infrastructure upgrades upstream (i.e., further south) in the Lakeshore watermain. From ongoing work with Bruce Power that this may include an additional BPS and/or paralleling watermain along the Lakeshore.
- A potential advantage to a connection between Tiverton and Inverhuron is making the standpipe storage in Tiverton available to the Lakeshore if needed. Although not a major consideration, the further north the connection is made, the more this benefit is reduced due to pressure loss over a longer connecting watermain.
- The starting point of the new watermain (i.e., BPS location) at Concession 2/Albert Road is at a higher elevation than Inverhuron Park. This would be a benefit in terms of BPS discharge pressure requirement, except that the longer watermain route creates a greater pressure loss over the length of the watermain. The elevation gain is roughly equivalent to the additional pressure loss and therefore this consideration is a moot point.

The comparison of the cost for the two locations is summarized in Table 5.2

Table 5.2 Cost Comparison for BPS Sites

Project Component	**Estimated Cost (Inverhuron Park Site)**	**Estimated Cost (Concession 2/Albert Road Site)**
Booster Pumping Station	$2,200,000	$2,200,000
Trunk Watermain	$2,600,000	$4,000,000
Design and Approvals	$275,000	$275,000
Contract Administration	$335,000	$335,000
Total Estimated Cost (2025)	**$5,410,000**	**$6,810,000**

In light of the these technical and financial considerations, a BPS at Inverhuron Park remains the preferred site.

Table 5.3 Evaluation of Alternatives Sites for a BPS (Sites 1-5)

Criteria	Site 1 Shoreline Area South of Pine Street	Score (1 - 5)	Site 2 – Shoreline Area north of Pine Street	Score (1 - 5)	Site 3 – Shoreline area on Lake Street	Score (1 - 5)	Site 4 – North of Lake Street	Score (1 - 5)	Site 5 – McIntyre Park	Score (1 - 5)
Size of property	96m by 19.5m	1	33m by 47m	1	15m by 47m	1	30m by 16m	2	41 m by 50m	2
Species at Risk (from NHIC website)	Potential for wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	3	Potential for wood thrush, eastern wood-pewee, Canada warbler, eastern Whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	3	Potential for wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	3	Potential for dwarf lake iris, pitcher's thistle	3	Potential for wood thrush, eastern wood-pewee, Canada warbler, Eastern Whip-poor-will, Eastern milksnake, pitcher's thistle, eastern meadowlark	3
Proximity to Existing Watermain	48m – nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site.	4	46m from nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site.	4	231m from nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site. Approximately 40 m from connection point if an easement could be established between Lake Street and Victoria (note – ability to establish easement may be limited due to existing dwellings).	3	Watermain within unopened Lake St. road allowance	4	Adjacent to existing watermain	5
Distance to Tiverton connection	4.8 km	3	4.6km	3	4.95km	3	3.7 km	5	3.76km	5
Natural Environment	-Sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. -Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	3	-Sea rocket sand beach type, colonial waterbird nesting area, sand dune wildrye. -Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	3	-Sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. -Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	3	-Great Lakes Wheat Grass Dune Grassland type, slender wheat-grass sand barren type, sea rocket sand beach type, fringed candleflame lichen, prairie sandreed, Great Lakes sand cherry, Great Lakes sandreed, sanddune wildrye, colonial waterbird nesting area. -Located within SVCA's regulated area along the shoreline. -Greater potential to disturb sensitive dunes and beach environment	2	NHIC – sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. -Located within SVCA's regulated area along the shoreline. -Potential to avoid tree removals through use of existing open space area	4
Proximity to Sensitive Receptors	Directly adjacent to Lake Huron and cottages along shoreline (between 20 and 23 m from nearest receptors). -3 dwellings adjacent to site	1	Directly adjacent to Lake Huron and cottages along shoreline. Four dwellings within 31 to 42 m of centre of the site.	1	Directly adjacent to Lake Huron and cottages along shoreline. 5 dwellings between 17 and 35 m from centre of the site.	1	Directly adjacent to Lake Huron and cottages along shoreline. 6 dwellings within 30 from centre of the site	1	7 dwellings immediately adjacent to park. Nearest dwelling is 20 m from centre of park.	1

Criteria	Site 1 Shoreline Area South of Pine Street	Score (1 - 5)	Site 2 – Shoreline Area north of Pine Street	Score (1 - 5)	Site 3 – Shoreline area on Lake Street	Score (1 - 5)	Site 4 – North of Lake Street	Score (1 - 5)	Site 5 – McIntyre Park	Score (1 - 5)
Proximity to 3 Phase Power Services	2 phase power on Victoria Street (50m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2	2 phase power on Victoria Street (50m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2	2 phase power on Victoria Street (231 away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2	42m from Lake Street that has 3 phase power line.	2	Adjacent to 3 phase power line.	5
Construction Related Impacts	-Removal of most of the trees on the property would be required. Would impact SAR birds and reduce natural buffer between adjacent properties. -Construction activities within close proximity to existing dwellings -Potential impacts to SAR plants and sensitive beach environment -Potential for high groundwater at site due to proximity to lake	2	- Tree removal would be required – impacts to SAR birds and reduces natural sound buffer for adjacent dwellings. -Potential impacts to SAR plants and sensitive beach environment- -Construction activities within close proximity to existing dwellings. -Potential for high groundwater due to proximity to lake	2	Tree removal – impacts to SAR birds and reduction to natural buffer between adjacent dwellings. -Potential impacts to SAR plants and sensitive beach environment. -Construction activities within close proximity to existing dwellings -Potential for high groundwater due to proximity to lake	2	-Potential to impact SAR plants and sensitive beach environment. -Likely less vegetation to remove but greater potential to disturb sensitive beach areas. -Access site with large equipment may be difficult -Given size and location of site, materials and equipment will likely need to stored offsite -Construction activities within close proximity to existing dwellings -Potential for high groundwater at site due to proximity to lake	1	-Access to park will be limited during construction -Access to the parking area to the south of the property may also be limited -Limited impacts to vegetation (majority of site is grass lawn that is regularly mowed) -Construction activities within close proximity to existing dwellings	3
Operation Related Impacts	-Noise from generator impacting neighbouring cottages during power outages. -Floodproofing may be required during proximity to lake	3	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake	3	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake	3	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake -Loss of recreational beach area for BPS site.	2	-Noise from generator impacting neighbouring cottages during power outages -Will result in permanent loss of parkland for BPS site. Due to small size of park, proportion of site utilized by BPS is larger.	3
Total		**22**		**22**		**21**		**21**		**31**
Rank		**7**		**7**		**9**		**9**		**2**

Table 5.4 Evaluation of Alternatives Sites for a BPS (Sites 6-11)

Criteria	Site 6 – Inverhuron Park	Score (1.5)	Site 7 – Large Wooded Area on Richards Drive	Score (1-5)	Site 8 – Small Wooded Area near Inverhuron Provincial Park	Score (1-5)	Site 9 – Small wooded area on Concession 2	Score (1-5)	Site 10 – Wooded Area on Albert Road	Score (1-5)	Site 11 - Lagoons	Score (1-5)
Size of property	100m by 102m	4	212m by 415m	5	80m by 100m	4	38m by 73m	2	103m by 123	5	365m by 386m	5
Species at Risk (from NHIC website)	Potential for midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, Eastern Whip-poor-will, Eastern meadowlark	3	Potential for wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake and eastern meadowlark	2	Potential for Brewer's blackbird, pringle's coralroot, grasshopper sparrow, midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, Great Lakes sand cherry, eastern whip-poor-will, yellow-banded bumble bee, red-headed woodpecker, Great Lakes sandreed, spotted beebalm, sanddune wildrye, dwarf lake iris, golden-winged warbler, pitcher's thistle, loggerhead shrike, eastern meadowlark and bobolink	1	Potential for Grasshopper sparrow, midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, red-headed woodpecker, eastern meadowlark and bobolink	2	Potential for midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor-will, yellow-headed bumble bee, red-headed woodpecker, dwarf lake iris, eastern meadowlark, bobolink, grasshopper sparrow and eastern milksnake. -NHIC indicates potential for a restricted species	1	Potential for Midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor-will, yellow-banded bumble bee, red-headed woodpecker, dwarf lake iris, eastern meadowlark, bobolink, grasshopper sparrow and eastern milksnake -NHIC indicates potential for a restricted species	1
Proximity to Existing Watermain	Adjacent to existing watermain	5	578m from nearest connection point to existing distribution system.	1	110m to connection point at Albert Rd.	4	661m - based on current extent of distribution system. If water extended to Bruce Power, distance to watermain could decrease to 175 m	1	204m based on current extent of distribution system. If water extended to Bruce Power, site would be adjacent to watermain.	3	630m based on current extent of distribution system. If water extended to Bruce Power, site would be adjacent to watermain.	1
Distance to Tiverton connection	3.49km	5	5.17km	1	4.46km	3	5.69km	1	5.12km	1	5.43km	1
Natural Environment	– Colonial waterbird nesting area, sanddune wildrye. -Potential to avoid tree removals through use of existing open space area.	5	– Colonial waterbird nesting area -Majority of property is identified as significant woodland	1	– Colonial Waterbird Nesting Area. Located within SVCA's regulated area along watercourses.	3	– Colonial waterbird nesting area. Located within SVCA's regulated area along watercourses. -Entire lot zoned for natural hazard relating to watercourse running through the middle of the property -Potential for impacts to watercourse during construction	1	– Colonial waterbird nesting area, autumn coralroot, sanddune wildrye, ram's-head lady's-slipper -Property is classified as significant woodland	1	– Colonial waterbird nesting area, autumn coralroot, sanddune wildrye, ram's-head lady's-slipper	3

Criteria	Site 6 – Inverhuron Park	Score (1.5)	Site 7 – Large Wooded Area on Richards Drive	Score (1-5)	Site 8 – Small Wooded Area near Inverhuron Provincial Park	Score (1-5)	Site 9 – Small wooded area on Concession 2	Score (1-5)	Site 10 – Wooded Area on Albert Road	Score (1-5)	Site 11 - Lagoons	Score (1-5)
Proximity to Sensitive Receptors	Dwellings to west, east and north of park. Nearest dwelling is 70 m from centre of cleared area of park. Existing trees provide a natural buffer to west, east and north.	4	Majority of property is dense wooded area. One dwelling in proximity to property, located to the south	4	Little Sauble River flows through the site (sensitive coldwater fish species present). Area sparsely wooded. Four dwellings in proximity to site. Closest house is located 50 m from site.	3	No dwellings adjacent to site. Little Sauble River flows through the site (sensitive coldwater fish species present). Site is wooded.	4	Site is wooded. Closest house is 90m away.	4	No dwellings adjacent to site. Site is wooded.	4
Proximity to 3 Phase Power Services	Adjacent to 3 phase power line – close connection	5	Adjacent to 2 phase power.610 m from 3 phase power	3	Currently no hydro services to site. 3 phase power located on Albert Street, 105m from site	2	2 phase power at the intersection of Albert Street and Concession 2 (220 from site) and three phase power at the lagoons (415m away)	2	2 phase power is located at the intersection of Albert Street and Concession 2 (83m away). 3 phase power is located at the lagoons (280m away).	2	3 phase power is located at the lagoons.	5
Construction Related Impacts	-Access to a portion of the park will be limited during construction. Potential to keep access to existing play equipment during construction. -Limited impacts to vegetation if cleared area of site is utilized (southern portion of site is grass lawn that is regularly mowed) -Existing trees will buffer construction noise and activities for adjacent properties. -Sufficient laydown and material storage space on site.	3	-Tree removal will be required -potential impact to SAR birds. Site identified as Significant Woodland. Natural heritage study required. -Additional tree removal/trimming may be required for watermain extension	3	-Tree removal – impacts to SAR birds -Construction activities within close proximity to existing dwellings. -Additional tree removal/trimming may be required for watermain extension	3	-Tree removal – impacts to SAR birds -Potential impacts to Little Sauble River running through middle of the site.	3	-Tree removal – impacts to SAR birds -Site identified as Significant Woodland. Natural heritage study required.	2	-Potential for tree removal – impacts to SAR birds, depending on where BPS located on site. -Additional tree trimming/removal may be required for watermain extension.	4
Operation Related Impacts	-Will result in permanent loss of parkland for BPS site. Majority of park will remain available for recreational use. -Noise from generator during power outages may be mitigated by woodlands to east, north and west.	3	-Noise from generator may impact dwelling to the south during power outages	4	-Noise from generator impacting neighbouring dwellings during power outages.	4	-Not expected to have any impacts to adjacent properties	5	-Not expected to have any impacts to adjacent properties	5	-Not expected to have any impacts to adjacent properties.	5
Total		**37**		**24**		**27**		**21**		**24**		**29**
Rank		**1**		**5**		**4**		**9**		**5**		**3**

5.4.2 Preferred BPS Site

The preferred site for a BPS is 3194 Bruce Road 15, Inverhuron Park. The Municipally owned land includes a small playground on the eastern side, a small ball diamond, mowed open parkland, and driveway access from Bruce Road 15. The northern portion of the property is forested, featuring a mix of paper birch, poplar, cedar, silver birch, dogwood and sugar maple. Other vegetation observed at the site include chicory, Queen Anne's lace, and poison ivy. Photographs showing 3194 Bruce Road 15 are included as Figure 5.3. The property is within the urban boundary of Lakeshore Settlement Area.

Figure 5.3 Site Photographs of Inverhuron Park



The cleared area of the park property is approximately 3,200 m^2. The total area of the park property is 9,900 m^2. The proposed area for construction of the BPS (600 m^2) would utilize 18.75% of the cleared portion of the park. The estimated footprint of the completed BPS is 96 m^2, which is 3% of the cleared area of the park. The BPS at 3194 Bruce Road 15 would utilize the existing driveway and a portion of the parkland on site. The BPS could be located in the western portion of the site to minimize parkland disruption and minimize impacts to the adjacent wooded area. See Figures 5.3 and 5.4 for potential configurations of the BPS footprint.

The proposed BPS site at 3194 Bruce Road 15 does not have any aquatic habitat within the project lands. The closest aquatic habitat is the Little Sauble River which is located over 550 metres away. Given the distance from the property to the Little Sauble River there are no anticipated impacts to the aquatic habitat.

A site visit at 3194 Bruce Road 15 was conducted on May 21, 2024. The majority of the site is currently utilized for parkland and is regularly mowed. The northern portion of the site is treed, primarily consisting of poplar, cedar, sugar maple, dogwood, paper birch and silver birch. There were no species at risk observed during the site visit.

The Inverhuron BPS site of 3194 Bruce Road 15 is not located within any Intake Protection Zones or WHPA.

To determine the potential for archaeological resources, the Criteria for Evaluating Archaeological Potential checklist was completed for this site (see Appendix B). Given the proximity to known archaeological sites, water sources (Lake Huron) and early transportation routes, there was the potential for archaeological resources. A Stage 1-2 Archaeological Assessment was completed by Timmins Martelle Heritage Consultants. The Archaeological Assessment did not identify any archaeological resources and did not recommend further assessment. A copy of the Assessment is included in Appendix B.

The Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes checklist was also completed (see Appendix B) for this site. The checklist indicated low potential for built heritage or cultural heritage landscape on the site.

There are significant capital costs associated with the construction of the BPS and watermain extension. The probable costs (2025$) associated with this alternative are summarized in Table 5.5.

Table 5.5 Alternative 2 Probable Project Costs

Project Component	Estimated Cost (Inverhuron Park Site)
Booster Pumping Station	$2,200,000
Trunk Watermain	$2,600,000
Design and Approvals	$275,000
Contract Administration	$335,000
Total Estimated Cost (2025)	**$5,410,000**

Figure 5.4 Potential BPS Site Configuration in Southwest Corner



Figure 5.5 Alternative BPS Site Configuration



5.5 Alternative 3 - Do Nothing

Under the Do Nothing alternative, there would be no expansion of water supply capacity for the TDWS. Existing customers would be supplied by the existing groundwater wells and growth would be limited to remaining capacity in the system. Under this scenario, the Municipality would not be able to supply all the current development commitments in Tiverton, nor commit to any further development proposals.

This option would still require the Municipality to replace Briar Hill Well #1 and the mechanical and electrical equipment at the end of its life to maintain the supply to existing customers. The Municipality can expect capital costs of $3,600,000 + HST (2024$) to Well #1.

This alternative is carried forward through the MCEA process as it may be implemented should the other alternatives have impacts that are determined to be too significant (e.g., capital costs) or cannot be sufficiently mitigated.

5.6 Evaluation of Alternatives

Following the identification of practical and feasible alternative solutions, the alternatives are evaluated. The purpose of this is to examine the potential environmental impacts associated with the proposed works and to examine potential mitigation measures for any identified impacts. The evaluation stage generally involved the following activities:

- Evaluation of environmental impacts.
- Preliminary selection of a preferred alternative.
- Consultation with the general public and review agencies.
- Final selection of the preferred alternative.

5.6.1 Evaluation Methodology and Procedure

The evaluation of alternatives was carried out using a comparative assessment methodology, designed to predict the nature and magnitude of environmental impacts resulting from each defined option and to assess the relative merits of the alternative solutions. The evaluation methodology involved the following principal tasks:

- Identification of existing environmental conditions (baseline conditions, inventories).
- Assessment of existing land use activities, infrastructure, natural features, and socioeconomic characteristics.
- Review of proposed alternatives and related works.
- Determination of the level of complexity required to complete the impact assessment.

- Identification of environmental components and subcomponents that may be affected by the defined alternative (i.e., define evaluation criteria).
- Prediction of the environmental impacts (positive, negative) resulting from the construction and operation of the defined options.
- Identification and evaluation of measures to mitigate adverse effects.

Selection of a preferred alternative following a comparative analysis of the relative merits of each option.

5.6.2 Environmental Evaluation Methodology

The second phase of the MCEA process includes the evaluation of impacts associated with the alternative solutions. During the evaluation process, it is necessary to determine what effect or impact the practical alternatives will have on the environment and what measures can be taken to mitigate the impact. The intent of this exercise is to:

- Minimize or avoid adverse environmental effects associated with the 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.

Each environmental component can be further subdivided into specific elements that have the potential to be affected by the implementation of a solution. Table 5.5 provides an overview of the preliminary environmental components being considered as part of this investigation.

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 the assessment:

- Nature (direct, indirect or cumulative).
- 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 the applicable regulations and public policy objectives.

Table 5.6 Environmental Components Being Evaluated

Environmental Component	Sub-Component
Natural Environment	• Significant natural features • Species at Risk • Wildlife • Vegetation • Surface water quality and quantity • Groundwater resources • Air quality, dust and noise • Physiographic features and soils • Drainage characteristics • Climate change • Excess soil
Social	• Adjacent Land Uses • Visual Impacts and Aesthetics • Source Water Protection • Local disruptions • Noise • Health and safety • Construction impacts • Future development
Cultural	• Cultural heritage resources
Economic	• Capital and operating costs • Property acquisition • Lifecycle costs
Technical	• Water quality and quantity • Impacts on existing infrastructure • Source Water Protection

Using the above criteria, the potential impacts of each practical alternative were systematically evaluated. The significance of the potential impacts posed by each alternative was 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 the project.

For the purposes of this MCEA, 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 5.6 summarizes the impact criteria.

Table 5.7 Level of Impact Effects and Criteria

Level of Effect	General Criteria
High	Implementation of the project could threaten the sustainability of the 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	Implementation of the project could impact the resources during the construction phase of the project but would have a negligible impact on the resources during the operation phase.

Given the criteria defined above, 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 and;
- Impacts from a proposed alternative assessed as having a Minimal to Low level of effect on a given feature would not be considered significant.

5.6.3 Environmental Evaluation

The potential interactions between the identified alternatives and environmental features are examined as part of the second phase of the MCEA process. The purpose of this analysis is to determine, in relative terms, the environmental effects of constructing and operating each identified option on the defined environmental component and subcomponents. Table 5.7 summarizes the preliminary evaluation of alternatives. The following symbols are used to indicate:

○ Minimal Impact

◔ Low Impact

◑ Moderate Impact

● High Impact

Table 5.8 Evaluation of Alternative Solutions

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural – Significant Natural features	○ No significant natural features within the vicinity of or adjacent to the existing wells ◔ New well sites may have the potential to impact a significant natural feature as they will likely be located outside of the community of Tiverton. ◔ Low level of impact.	○No significant natural features within the vicinity of or adjacent to the proposed BPS site and road allowance. ○ Minimal level of impact.	○ No significant natural features within the vicinity of or adjacent to the existing wells. ○ Minimal level of impact.
Natural – Species at risk	◔ New well sites may have the potential to impact species at risk. ◔ Low level of impact.	◔ The BPS has a small footprint and could be placed in previously disturbed areas (cleared for parkland). No species at risk are present at the site. ◔ Operation of BPS and watermain extension is not expected to impact any species at risk or their habitat. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.
Natural – Wildlife	◔ New well sites may have the potential to impact wildlife and their habitat. ○ Operation of the well is not expected to impact any wildlife or their habitat. ○ Low level of impact.	◔ The BPS has a small footprint within a previously disturbed area (cleared for parkland). ○ Operation of BPS is not expected to impact any wildlife or their habitat. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural – Vegetation	◔ New well sites may require clearing of vegetation for wellhouses ◔ Low level of impact.	◔ BPS can be sited to avoid treed areas of site. ◔ Vegetation removal will occur during construction of BPS. Grass is the primary type of vegetation that will be removed ○ Operation or construction of the BPS is not expected to impact trees or vegetation adjacent to the well site. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.
Natural – Surface water quantity and quality	◑ Test wells will be drilled to conduct pumping test. Water from pumping tests will be directed to local stormwater infrastructure, if available, or discharged to ditch or overland. ◑ Potential for impacts to local surface water quantity and quality from pumping tests. ◑ Moderate level of impact.	○ The only surface water area feature in the immediate vicinity is the existing ditches along Bruce Road 15. ◔ Potential for impacts to surface water during construction, related to construction activities. ○ Sediment and erosion impacts on surface water are expected to be minor and can be minimized with standard construction mitigation measures. ◔ Low level of impact.	◑ Replacement of Briar Hill Well 1 still required under this alternative. Drilling and testing of new well may impact local surface water quantity and quality. ◑ Moderate level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural – Groundwater quantity and quality	◑ Drilling of wells has the potential to impact water levels in local wells utilizing the same aquifer. ◑ Construction of additional wells creates additional transport pathways to groundwater aquifers. ◔ Long-term operation of the well is not expected to impact local aquifer quantity as the pumping test and assessment showed acceptable water level recovery and a 10-year water level above the upper water-bearing zone. ◑ Moderate level of impact.	○ Would allow for all or some of the existing municipal wells to be decommissioned, reducing the number of transport pathways to the aquifer. ○ Reduces dependence on groundwater aquifers. ○ Minimal level of impact.	◑ Replacement of Briar Hill Well #1 still required under this alternative. Drilling and testing of new well may impact local groundwater levels. ◑ Moderate level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural – Air quality, dust and noise	◔ Drilling of wells will increase noise locally during drilling activities. ◔ Normal operation of well is not expected to create additional noise, dust, or air quality impacts. ◔ A diesel generator will be installed at the site for emergency power outages. ◔ Low level of impact.	◔ Construction of the Watermain connection will increase noise locally during construction activities. ◔ Normal operation of the BPS and watermain is not expected to create additional noise, dust, or air quality impacts. ◔ A diesel generator will be installed at the site for use in emergency power outages. Adjacent residents will experienced elevated noise levels during operation of the generator. Noises will be mitigated by acoustical enclosure of generator and existing tree buffer to north, west and east of the site. ◔ Low level of impact.	◔ Replacement of Briar Hill Well #1 will increase noise locally during drilling activities. ◔ Low level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural - Physiographic features and soils	◔ Soil and materials excavated during drilling will be disposed of appropriately. ◔ Operation of the well is not expected to have any impacts on physiographic features or soil conditions. ◔ Low level of impact.	◔ Soil and materials will be graded and excavated during the construction of the BPS building and watermain, excess soil will be disposed of appropriately. ◔ Operation of the watermain and BPS is not expected to have any impacts on physiographic features or soil conditions. ◔ Low level of impact.	◔ Soil and materials will be excavated for replacement of Briar Hill Well #1. ◔ Low level of impact.
Natural – Drainage characteristics	○ Not expected to impact or change local drainage characteristics. ○ Minimal level of impact	○ Not expected to impact or change local drainage characteristics. ○ Minimal level of impact	○ No change in current conditions. ○ Minimal level of impact.
Natural – Climate change	◔ Construction will require heavy equipment that will release Greenhouse Gases (GHG) as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ A backup diesel generator will be utilized during emergency power outages. ◔ Low level of impact.	◔ Construction will require heavy equipment that will release GHG as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ Operation of BPS will require electricity. Design of the BPS will consider energy efficiency. ◔ A backup diesel generator will be utilized during emergency power outages. ◔ Low level of impact	◔ Construction of replacement of Briar Hill well will require heavy equipment that will release GHGs as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ Low level of impact

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Natural – Excess soil	◔ Excess soil from the construction of the well and treatment building will be disposed of in accordance with O. Reg 406/19. Excess soil is not expected to be contaminated. ◔ Low level of impact.	◔ Excess soil from construction of BPS and watermain extension will be disposed of in accordance with O. Reg 406/19. Excess soil is not expected to be contaminated. ◔ Low level of impact.	◔ Excess soil from replacement of Briar Hill Well #1 will be disposed of in accordance with O. Reg 406/19. Excess soil is not expected to be contaminated. ◔ Low level of impact.
Social – Adjacent Land Uses	◔ Drilling of test wells and construction of wellhouses may impact adjacent properties. ◔ Impacts will vary depending on potential sites identified. ◔ Low level of impact.	◔ Adjacent land uses may be impacted temporarily during construction activities. ◔ Operation of the BPS and watermain extension is not expected to impact adjacent land uses. ◔ Low level of impact.	○ No change from current conditions. ○ Minimal level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Social – Source Water Protection	◑ Any new wells will create new WHPA areas. ◑ Residents within WHPA A or WHPA B with a vulnerability score of 10 will be required to have their septic systems inspected on a 5-year basis. ◑ No new lots serviced by septic systems will be permitted within the highly vulnerable area around the well. ◑ Residents will be impacted by Source Protection policies in WHPAs around new well. ◑ Moderate level of impact.	○ Potential to reduce WHPAs within Tiverton if wells are decommissioned. ○ Minimal level of impact	○ No change from current conditions. ○ Minimal level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Social – local disruptions	◑ Construction of well housing and drilling will result in temporary noise and construction disruptions for adjacent property owners. ◑ If extension of water distribution is required to connect to new wells, there is a potential for local road closures. ◑ Moderate level of impact.	◑ Construction of BPS and watermain extension will result in temporary noise and construction disruptions for adjacent property owners. ◑ Public access to the park will be restricted during the construction of the BPS. ◑ Will result in a loss of a portion of the existing parkland. ◑ Traffic along Bruce Road 15 can expect delays during the construction of the watermain extension. ● Members of the public expressed strong concern regarding loss of parkland for the BPS facility. ● High level of impact.	◑ May have service interruptions during replacement of Briar Hill Well #1. ◑ Moderate level of impact.
Social – health and safety	◑ Water supply from new wells is expected to be mineralized with elevated levels of total suspended solids, iron, fluoride and sulphates. ◑ May have service interruptions during replacement of Briar Hill Well #1. ● May need future arsenic treatment at Dent Well. ● High level of impact.	◔ Water supplied by KDWS has lower iron, fluoride and sulphate levels. ◑ Residents will notice difference in the taste of water supplied from KDWS as it is less mineralized. ◑ Moderate level of impact.	◑ Water quality will continue to have elevated levels of total suspended solids, iron, fluoride and sulphates. ◑ May have service interruptions during replacement of Briar Hill Well #1. ● May need future arsenic treatment at Dent Well. ● High level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Social – Construction Impacts	◔ New wells likely to be sited outside of the current community which may minimize construction impacts to adjacent properties. ◑ Replacement of Briar Hill Well would result in localized noise and traffic increases which may impact adjacent properties. ◑ Moderate level of impact.	◑ Construction of BPS at the proposed site will limit public access to a portion of the park. ◑ Adjacent properties will experience an increase in localized noise and traffic during construction. ◑ Construction of the watermain extension has the potential to interrupt traffic along Bruce Road 15. ◑ Moderate level of impact.	◑ Replacement of Briar Hill Well would result in localized noise and traffic increases which may impact adjacent properties. ◑ Moderate level of impact.
Social – future development	◑ Potential to secure sufficient capacity to support future growth. May require multiple new well sites. ◑ Water quality similar to the existing well. ◑ Moderate level of impact.	○ Sufficient supply capacity from the KDWS. ○ Sufficient capacity within distribution watermain from KDWS. ○ Minimal level of impact.	● Opportunity for future development will be restricted under this scenario due to limited capacity in existing wells. ● High level of impact.
Cultural – Cultural heritage resources	◑ Potential for impacts to built heritage resources, cultural heritage landscape and archaeological resources depending on the location of new well sites. ◑ Archaeological and cultural heritage studies could be required. ◑ Moderate level of impact.	◔ Stage 1-2 Archeological Assessment completed for BPS site and found low potential for archaeological resources. ◔ Checklist for built heritage resources and cultural heritage landscapes identified low potential for impacts. ◔ Low level of impact.	○ No change from current conditions. ○ Minimal level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Economic – capital cost and operating costs (costs shown are 2025$ and exclusive of HST)	◑ Will likely require acquiring additional land for new well sites. ● The preliminary probable cost for reconstruction of the existing well and pumphouse is: $3,600,000. ● The preliminary probable cost for a new well and pumphouse is $3,600,000. There will be additional costs associated with land acquisition and additional watermain needed to connect to the system from new well sites. ◑ May require additional treatment processes for arsenic in the future. ◑ Opportunity to defer costs associated with expansion (i.e. initially constructing one additional well site, waiting to construct a second) ◑ Expected to be paid through existing rates, reserves, and development charges. ● Additional operating costs will be incurred with additional wells. ● High level of impact.	○ No additional land acquisition required. ● Preliminary probable cost for the new BPS and watermain extension: $5,410,000. ◑ Expected to be paid through existing rates, reserves, and development charges. Minimal costs are expected to be attributed to existing residents. ◑ Will have operating expenses associated with new BPS and trunk watermain. ● No ability to phase or defer costs. ● High level of impact.	◑ Cost for reconstruction of the existing well and pumphouse is: $3,600,00 to maintain existing water commitments. ◑ May require additional treatment processes for arsenic in the future. ◑ Moderate level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Economic – Property Acquisition	◑ Will likely require acquiring additional land for new well sites. ◑ Property costs are in addition to those noted above. ◑ Moderate level of impact.	○ No additional land acquisition required. ○ Minimal level of impact.	○ No additional land acquisition required. ○ Minimal level of impact.
Economic – life cycle costs	◑ Additional lifecycle costs will be associated with new wells and associated treatment facilities. ◑ Mineralized raw water quality shortens the expected life of well equipment. ◑ Moderate level of impact.	◑ The addition of the BPS and watermain extension are additional assets that will require eventual replacement. ○ Will allow the Municipality to decommission some or all of the groundwater wells and associated aged assets. ◑ Moderate level of impact.	◑ Requires the replacement of Briar Hill Well #1. ◑ No additional lifecycle costs, but mineralized water will continue to shorten the expected life of well equipment in Tiverton. ◑ Minimal level of impact.
Technical – water quality and quantity	● Water quality from new wells is expected to be mineralized, with elevated total suspended solids, fluoride, sodium, iron and sulphates. ● Multiple wells will be likely be required to achieve required quantity. ◑ May require arsenic treatment at Dent Well site in the future. ● High level of impact.	◔ Water supplied from KDWS is not mineralized. Will have less impact on equipment/ distribution system. ◔ Sufficient supply and distribution capacity within KDWS. ◔ Low level of impacts.	● Water will continue to have elevated total suspended solids, fluoride, sodium, iron and sulphate. ◑ May require arsenic treatment at Dent Well site in the future. ● Insufficient supply to support committed future development. ● High level of impact.

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 3 – Do Nothing
Technical – impacts to existing infrastructure	◑ Requires replacement of Briar Hill Well #1 and replacement of end of life mechanical and electrical equipment. ◑ Limited potential to expand existing wells. ◑ Requires maintenance of Dent well and building ◑ Limited potential for a new well site within existing municipal lands and urban boundary – likely to require extension of distribution watermain. ◑ Moderate level of impact.	◔ An existing well could be maintained for backup supply if additional redundancy beyond existing storage is required. ◑ Design will have to consider pressure impacts to service connections near the BPS. May require reducers. ◑ Moderate level of impact.	◑ Existing infrastructure will require ongoing maintenance to ensure continued operation. ◑ Requires replacement of Briar Hill 1 Well and replacement of end of life mechanical and electrical equipment. ◑ Moderate level of impact.
Technical – Source Water Protection	◑ Requires modeling of new WHPAs and determination of vulnerability scores. ◑ Moderate level of impact.	○ If wells are decommissioned, this will eliminate the associated Source Water Protection WHPAs. ○ Minimal level of impact.	○ No change from current conditions. ○ Minimal level of impact.

5.7 Evaluation Summary

The evaluation completed in the previous section identified the potential impacts associated with the three alternative solutions. The evaluation process included consideration of natural, social, economic, cultural, and technical criteria.

The Do Nothing alternative (Alternative 3) has minimal impacts associated with the natural environment as it results in little change from the current conditions; however it is not without other impacts. Implementation of Alternative 4 would still require the replacement of Briar Hill Well #1 to address the deterioration of the well casing, and reconstruction of the pumphouse to address mechanical and electrical components at the end of their life. The estimated cost of replacing this infrastructure is approximately $3,600,000 + HST. Doing nothing will also have long term implications as growth will be limited to the existing supply capacity of the existing wells. There may also be additional capital and operating costs if arsenic treatment is required at the Dent Well. Given that this alternative does not address the identified problem, it should only be considered if the other alternatives are deemed unfeasible.

From the review of hydrogeological conditions, for Alternative 1 it appears unlikely that the existing wells can be expanded and new well sites would be required to supply additional capacity for growth. Under this alternative, the deteriorating Briar Hill Well #1 would also still need to be replaced as well as the end of life mechanical and electrical equipment. The estimated cost of the replacement of the Briar Hill Well and pumphouse is $3,600,000 + HST. It is estimated the cost for a new well and treatment and pumphouse building at each new well site would be comparable to the cost of similar new infrastructure at Briar Hill, resulting in significant economic impacts related to the capital costs. Siting new supply wells may also be challenging, given the recommended setbacks of a minimum of 350 m from existing domestic wells and 700 m to the municipal supply wells. While this alternative has the potential to provide a sufficient supply of water for existing and future growth within Tiverton, there are also concerns the water quality of any new wells will be similar to the existing wells, with elevated levels of total suspended solids, fluoride, sodium, sulphates and iron. If this alternative is implemented, it is noted there may someday be a need for arsenic treatment at the Dent Well if concentrations increase and/or regulation imposes tighter criteria.

The construction of a connection to the KDWS (Alternative 2), utilizing a BPS sited at 3194 Bruce Road 15 and watermain extension along Bruce Road 15 will provide sufficient supply capacity for the existing and future population of Tiverton. The treatment plant in Kincardine has sufficient capacity as does the watermain that will supply the water via Inverhuron. The proposed site of the BPS is owned by the Municipality and is currently utilized for parkland/open space. A Stage 1-2 Archaeological Assessment was completed on the site and no archaeological resources were found. A trunk watermain would be installed within the road allowance of Bruce Road 15 to connect to the TDWS. Under this alternative, the existing groundwater wells could be decommissioned or retained for redundancy. This alternative eliminates the need to replace Briar Hill Well #1.

If the Dent Well is also decommissioned, it will eliminate the potential need for arsenic treatment facilities.

Residents can expect temporarily increased noise, dust, and traffic/access disruptions during the construction of the BPS and watermain extension. Operation of the BPS is expected to have minimal impacts on adjacent residences but would result in a slight loss of parkland in Inverhuron. A backup generator will be sited with the BPS and residences will experience increased local noise levels when the generator is operating during emergency situations.

Inverhuron residents expressed opposition to the use of the Inverhuron Park site for the BPS. Opposition stemmed from loss of parkland and a lack of benefits for residents of Inverhuron. The construction of the BPS will utilize parkland; mitigation for this could include siting the BPS in the southwest corner to minimize disturbance to the existing parkland, as well as incorporating landscaping to blend the facility into the surroundings.

This alternative will result in a change to the water taste and chemistry compared to the existing groundwater supply in Tiverton.

There are significant capital costs associated with the construction of the BPS building, generator, and watermain extension, and are estimated to be in the order of $ 5,410,000 + HST. Costs could be paid through existing rates, reserves**,** and development charges. Ongoing operating and maintenance costs for the BPS and watermain are expected to be lower than the current, multiple well sites.

5.8 Selection of Preferred Alternative

Following the evaluation of alternatives a preferred solution was identified. **The preferred solution is Alternative 2 – connection to the KDWS through construction of a BPS and watermain.** This alternative addresses the problem statement through the provision of a sufficient supply of water to address existing and future development commitments in Tiverton.

The installation of a new BPS 3194 Bruce Road 15 makes use of an existing municipally owned site with access to the existing water distribution system. It is expected to have minimal impacts on adjacent properties but will reduce the amount of parkland in Inverhuron.

Connecting to the KDWS eliminates the need to replace the deteriorating Briar Hill Well #1 and pumphouse. It will also eliminate the potential future need for arsenic treatment equipment at the Dent Well. Over time, it is expected that operating and maintenance costs for the BPS and trunk watermain will be less than the continued operation of a groundwater well based system.

The ability to expand or rerate the existing wells is considered limited (see Section 3.3), so new groundwater supply wells would be required. This option was evaluated as Alternative 1. Given the capacity needed, it is assumed that two new wells would

ultimately be required in addition to replacing the deteriorating Briar Hill Well #1. This option is less preferred, given the capital costs associated with constructing two new wells, potentially limited supply capacity of the local aquifer, potential for raw water high in fluoride, total suspended solids, sodium and sulphates. Over the long term, this alternative is expected to have greater maintenance costs, given the age of the assets and the impact of the mineralized water on treatment and distribution equipment.

6.0 CONSULTATION PROGRAM

6.1 General

Consultation is an integral component of the MCEA process. 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, review agencies, and stakeholders who might have an interest in the project.

The components of the consultation program employed during the initial MCEA study are summarized in this section of the Project File Report and documented in Appendix C.

6.2 Initial Notice

Contents:	General study area description, summary of proposed works
Issued:	May 3rd, 2024
Placed in:	Municipality of Kincardine Website
Circulated to:	6 review agencies, and 6 Indigenous communities
Input period:	May 24th, 2024, and June 17th, 2024

There were no comments received from the public following the publication of the initial notice and during the initial commenting period. A copy of the initial notice is included in Appendix C.

6.3 Government Review Agencies

Input into the MCEA process was solicited from government review agencies and identified stakeholders by way of email correspondence. Agencies and organizations that might have an interest in the project were sent an information package detailing the nature of the proposed works, an outline of the assessment process, and a general location plan of the project site. The information was circulated to six review agencies on May 2, 2024. The organizations were asked to comment on the project on or before May 24, 2024. A copy of the agency letter and list of agencies contacted is included in Appendix C.

Table 6.1 summarizes the comments received from review agencies following the initial circulation letter.

Table 6.1 Summary of Review Agency Comments

Review Agency	Comments	Action Taken
Monika Macki Environmental Resource Planner /Environmental Assessment Coordinator, MECP Received May 7, 2024 via email	- Provided updated "Areas of Interest" regarding ministry's interests with respect to the MCEA process. - MECP is delegating procedural aspects of consultation with the following Indigenous communities: Saugeen First Nation, Chippewas of Nawash Unceded First Nation, Metis Nation of Ontario and Georgian Bay Metis Council. - Please ensure a copy of the Notice of Completion is sent to the EA notification email account.	Identified Indigenous communities contacted as part of consultation plan.
Michael Oberle Environmental Planning Coordinator, Saugeen Valley Conservation Authority Received May 6, 2024 via email	- The SVCA does not have any specific comments at this time. The SVCA looks forward to working together with our municipal partners, where required, as this proposal progresses.	None required
Joseph Harvey, Heritage Planner, Ministry of Citizenship and Multiculturalism Received May 27, 2024	- Under the EA process, the proponent is required to determine a project's potential impact on known and potential cultural heritage resources. - Noted screening process for archaeological and built heritage and cultural heritage landscapes. - Recommended a Cultural Heritage Report given the project study area covers a large area. - Please advise MCM if any technical cultural heritage studies will be completed for this EA project and provide them prior to issuing a Notice of Completion. - Include completed checklists and documentation in EA report or file.	The Stage 1-2 Archaeological Assessment was provided to MCM. A cultural heritage study was not undertaken following the completion of the screening checklist for built heritage and cultural heritage landscapes.

6.4 Aboriginal Consultation

6.4.1 Aboriginal Consultation Process

The Crown has a duty to consult with First Nation and Métis communities if there is a potential to impact Aboriginal or treaty rights. This requirement is delegated to project proponents as part of the MCEA process, therefore the project proponent has a responsibility to conduct an adequate and thorough consultation with Aboriginal communities as part of the MCEA consultation process. The information was circulated to six Aboriginal communities on May 3rd, 2024. They were asked to comment on the project on or before June 17th, 2024

6.4.2 Background Review

In order to identify Aboriginal Communities potentially impacted by the project the Aboriginal and Treaty Rights Information System (ATRIS) was consulted. A search was conducted for Aboriginal Communities, including their traditional territories that would lie within a 50 km radius of the project study area. Utilizing this process and feedback received from the MECP, six aboriginal communities/organizations were identified in conjunction with this project including:

- Chippewas of Nawash Unceded First Nation,
- Chippewas of Saugeen First Nation,
- Saugeen Ojibway Nation (SON),
- Métis Nation of Ontario,
- Great Lakes Métis Council, and
- Historic Saugeen Métis.

Correspondence was subsequently forwarded to each community/ organization detailing the proposed project and asking for input.

6.4.3 Aboriginal Consultation Log

The consultation with local Indigenous communities is summarized in Table 6.2.

Table 6.2 Summary of First Nation and Métis Community Comments

Log No.	To	From	Comments	Action Taken/Response
1	Chippewas of Nawash Unceded First Nation (via email) – Chief Gregory Nadjiwon, May 2, 2024	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
2	Chippewas of Saugeen First Nation Chief Lester Anoquot, (via email), May 2nd, 2024,	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
3	Saugeen Ojibway Nation (SON)- (via email)- Charlene Leonard, May 2nd, 2024	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
4	Historic Saugeen Metis (via email)- Georgia McLay, May 2nd, 2024	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
5	Metis Nation of Ontario (via email)- Consultation Email, May 2nd, 2024	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
6	Great Lakes Metis Council (via email)- Consultation Email, May 2nd, 2024	BMROSS	• Provided letter outlining project scope and map of project area.	• No response received
7	SON Environmental Office – Charlene Leonard and Amber Debassige via email May 29, 2024	BMROSS	• Email informing SON that a Stage 1-2 Archaeological Assessment was going to be undertaken at 3194 Bruce Road 15. Invited SON to participate in field work.	• Response received May 29, 2024 (see Log No. 8)
8	BMROSS via email May 29, 2024	Saugeen Ojibway Nation (SON)- (via email)- Amber Debassige	• Provided Consultation Application Form	• Consultation form returned to SON on May 31, 2024

Log No.	To	From	Comments	Action Taken/Response
9	BMROSS via email June 13, 2024	SON Archaeology, Kove Sartor	• Asked how many days fieldwork for the Stage 1-2 Archaeology Assessment	• Timmins Martelle responded (June 13, 2024) indicated two field days, scheduled for June 17-18
10	Timmins Martelle via email June 17, 2024	SON Archaeology, Natalie Kuipers	• Provided dates available for fieldwork	• Timmins Martelle confirmed field dates of June 19 and 20 via email on June 17, 2024
11	Timmins Martelle via email June 17, 2024	SON Archaeology, Natalie Kuipers	• Confirmed participation in fieldwork	• None required.
12	Timmins Martelle via email June 19, 2024	SON Archaeology, Kove Sartor	• Asked for workplan	• Forwarded to BMROSS
13	SON Archaeology via email June 19, 2024	BMROSS	• Provided preliminary site plan for BPS site. Noted the BPS, if identified as the preferred solution, would be sited close to the road and existing watermain. Provided picture of a similar style BPS.	• No response.
14	SON Archaeology via email July 24, 2024	SON Archaeology, Kove Sartor	• Provided copy of draft Stage 1-2 Archaeological Assessment. Asked for comments by August 23, 2024	• No response received.
15	BMROSS via email July 25, 2024	HSM, Georgian Lumley	• Confirmed the HSM has no comments or concerns regarding the project. HSM wishes to be kept informed of any future updates on the project.	• BMROSS provided a copy of the Stage 1-2 Archaeology Assessment via email on August 6, 2024

Log No.	To	From	Comments	Action Taken/Response
16	HSM via email August 6, 2024	BMROSS	• Provided a copy of the draft Stage 1-2 Archaeological Assessment.	• HSM confirmed receipt via email on August 12, 2024
17	SON Archaeology via email September 4, 2024	Timmins Martelle	• Asked if there were any questions or comments on the draft Stage 1-2 Archaeological Assessment	• Responded on September 4, 2024
18	Timmins Martelle via email September 4, 2024	SON Archaeology, Kove Sartor	• SON has received the report and has no concerns	• None required.

6.5 Public Information Centre

A Public Information Centre (PIC) was held on October 30th, 2024 at the Underwood Community Centre from 3:00 pm -8:00 PM. A Notice of Public Information Centre was placed in the Kincardine News and Kincardine Independent in the October 16 and 23 editions. It was also placed on the Municipality's website.

The format of the meeting included two sessions, one in the afternoon and a second in the evening. Each session consisted of an open house component with display boards with a formal presentation with a question-and-answer period. Representatives from BMROSS and the Municipality were in attendance. The meeting was arranged to serve several purposes:

- Provide local residents and other stakeholders with additional details on the MCEA process and a forum to express their views.
- Provide area residents with an overview of the alternatives being considered and potential impacts associated with each.
- Provide residents with an opportunity to ask questions.
- Identify the preliminary preferred alternative.

There were approximately 15 residents in attendance. A copy of the presentation materials is included in Appendix C. The questions and comments received during and following the PIC are summarized in Table 6.3.

Table 6.3 Comments and Questions from PIC

Question/Comment	Response
Is there capacity at the Kincardine Water Treatment Plant to supply Tiverton?	Yes, there is sufficient supply at the Water Treatment Plant and in the lakeshore watermain to accommodate Tiverton.
Could an existing well be used or could new wells be drilled at the existing well sites?	The hydrogeologist consulted indicated the ability to utilize the existing wells and sites is limited. It is unlikely we would secure the supply of water needed.
What will the financial impact be on existing residents?	It is expected the costs attributable to the existing population of Tiverton will be recovered through rates and reserves. The Municipality is also actively pursuing grant opportunities. The costs attributable to future growth could be recovered through development charges.
Will this fix pressure issues?	Will be able to supply water to the distribution system at the same pressure, but it is difficult to say if it will address localized issues.

Question/Comment	Response
Should we be concerned about the existing well water quality?	Elevated fluoride and sodium and mineral levels are not uncommon in the groundwater locally. The sodium levels are above the level that requires notification of the local medical officer of health for people who may be on a reduced sodium diet. The current drinking water is considered safe to consume.
What are the long-term impacts financially?	The existing wells, specifically Briar Hill Well #1, require rehabilitation. It is likely a new Briar Hill Well will be needed to replace Well #1, as well as replacement of some of the electrical and mechanical equipment. In the future, the other wells will also rehabilitation. There will be ongoing financial costs associated with maintaining the existing wells. The BPS is another asset that will need to be maintained over the long term, but it is expected to have a relatively long life with less maintenance requirements than the existing wells.
Can the BPS be sited to minimize impacts to the park?	Yes, exact placement of the BPS will determined during the design phase, but shifting the BPS towards the road or west side of the property could be considered.
There is a group interest in redevelopment of the park at Inverhuron and have been working with the Municipality. Interested in the placement of the BPS.	Noted and will work with the group through the Municipality.

Following the PIC, a copy of the presentation with narrations was posted on the Municipality's website. A subsequent municipal newsletter identified where residents could view the video.

6.6 Letter to Residents

A letter to residents in Tiverton and Inverhuron informing them of the MCEA and work to date was mailed on May 7, 2025. The letter summarized the identified problem, alternatives being considered, preliminary preferred solution of a BPS at Inverhuron Park, as well as invited residents to the open house scheduled for May 23 ,2025 (see Section 6.7). A copy of the letter is included in Appendix C.

6.7 Public Open House

A Public Drop-in Open House was held on May 23rd, 2025, from 4pm – 6 pm at the Whitney Crawford Community Center in Tiverton. Notice of Open House was placed in the Kincardine News and Kincardine Independent in the May 14th and 21st editions. It was also placed on the Municipality's website and circulated via their social media accounts.

The purpose of the open house was to provide members of the public, stakeholders and Indigenous groups with an opportunity to review the project background, existing conditions, problem/opportunity, and the alternative solutions or design concepts under consideration.

Attendees had the opportunity to view display materials, speak with BMROSS and Municipal Staff, ask questions and provide feedback. Input received will be considered in the evaluation of alternatives and will help guide the selection of the preferred alternative. The project team gave an oral presentation and invited attendees to ask questions and provide comments.

There were approximately 57 residents in attendance. A copy of the presentation materials is included in Appendix C. The questions and comments received during and following the Open House are summarized in Table 6.4.

Table 6.4 Comments and Questions Received Prior to and Following the Open House

Submission	Comments	Action/ Response Taken
Resident Received May 16th ,2025 Via Email	A resident expressed support for Option 2 with a request that municipal water be extended to 17 Archie Street, a long-standing seasonal cottage without running water and plumbing. The resident noted the owner's age (80) and past efforts by his late mother to obtain water service. The comment also raised concerns about the lack of municipal water maintenance on Archie Street, Ruff Road, and Cedar Street, as recently purchased seasonal cottages by private individuals are being converted into permanent residences. The resident suggested that road maintenance and water service be addressed concurrently, highlighting equity and service level concerns given the taxes paid.	Thanked the resident for their comment, confirming it will be included in the summary for the council. Due to the nature of the concerns raised being outside the scope of the EA, the comment was also directly forwarded to the Municipality.
Resident Received May 19th. 2025 Via Email	Resident indicated they were at the May 18th, 2025, Meeting held by Councillor Bill Stuart, and that they are happy with the preferred alternative. The resident attached a photo of the pumping station located behind No Fills in Kincardine, circling the exterior generator stating that Bill detailed the size of the building, but no generator placement. The resident asked for a rendering of the proposed BPS station that details the placement of the generator.	A location plan and mock-up of the BPS will be provided in the EA project file.

Submission	Comments	Action/ Response Taken
Resident Received May 21st, 2025 Via Email	The residents noted that their property backs onto the proposed BPS site. The resident also questioned the scheduling of the meeting during daytime hours, expressed concern that timing may limit attendance by residents and cottagers, potentially limit turnout by residents and cottagers, potentially discouraging public input.	It was noted that the meeting time was selected to strike a balance for attendees from both Tiverton and Inverhuron. It was also indicated that if participants continued to arrive toward the end of the meeting, the project team would be happy to stay longer. Additionally, it was confirmed that copies of the display boards will be posted on the municipal website and provided a link to the Municipal website.
Resident Received May 21st, 2025, Via Email	Residents indicated they are familiar with the project alternatives and don't have a strong opinion on the project. However, it was noted that there may be other comments "that the municipality of Kincardine needs to support our community more positively and not ask us to give constantly and pay constantly (i.e. taxes, garbage, schools, water, streets)." Many residents are seasonal.	Thanked the residents for reaching out and said that their comments will be included in the summary provided to the Municipality.
Resident Received May 22nd, 2025 Via Email	An Inverhuron Property Owner expressed appreciation for the seasonal rhythm of busy summers and quiet winters. The residents also noted they are unable to attend the Open House. They suggested locating the BPS station on municipally owned land near Bruce Power on Concession 2.	Thanked the residents for their comments and noted that the municipally owned lands on Concession 2 were evaluated as part of the EA process. While each site has its advantages and disadvantages, the Concession 2 location is farther from Tiverton, requiring a longer high-pressure watermain, which could add $750,000- 1,000,000 in additional costs.

Submission	Comments	Action/ Response Taken
		The resident's comments will be included in the summary provided to the municipality
Resident Form left during May 23, 2025 Open House	The resident inquired if the remaining cost associated with the project will be left to the entire municipality or only the residents of Tiverton? Additionally, the resident asked if other municipal projects, like the skate park, proceed when Tiverton needs water?	Council will make decision on how the project is financed.
Resident Form left during May 23, 2025 Open House	Resident notes that Tiverton needs clean water, but the associated works should have minimal disruption to Inverhuron residents. The resident suggested putting the BPS at Bruce Road 15 and the B-Line.	The BPS cannot be located at Bruce Road 15 and the Bruce Road 23 (B-Line) as there is no connection to the KDWS there.
Resident Form left during May 23, 2025 Via Open House	The resident preferred Layout Option 1 for the BPS, leaving the rest of the park open for current and future needs. Resident suggests adding a washroom to the BPS building for public use.	Comment filed and noted on May 26th, 2025.
Resident Form left at May 23, 2025 Via Open House	The resident asked what benefit Inverhuron beach residents will gain from implementing the BPS, seeing as they pay 4,500 in property taxes a year. The resident suggested that when the BPS be constructed, a community hall with a washroom could be implemented.	Comment filed and noted on May 26th, 2025.
Resident Received May 25th, 2025 Via Email	A resident attending Councillor Bill Stuart's meeting expressed concern that public meetings affecting cottagers are often scheduled at times that are inconvenient or inaccessible for seasonal residents. The resident also noted that the proposed location for the BPS station is currently a valuable open space where local children gather and play, especially when the weather limits beach use. As an alternative, the resident suggested a site at the opposite end of Albert Road near the	Thanked the residents for taking the time to submit a comment. Their comments will be summarized and provided to staff and Council following the meeting.

Submission	Comments	Action/ Response Taken
	"Hydro property". This location could be serviced via Concession 2 to Tiverton, while maintaining Bruce Power access along Concession 4	
Residents Received May 27th, 2025 Via Email	The residents inquired if it is possible to use the well located in the northeast area of Tiverton to supply water for future development (the resident attached two photos of the wells). Additionally, inquiring if SVCA takes samples from operating wells.	Resident was provided additional information about the well, which is a Provincial Groundwater Monitoring Network owned by SVCA. Historic records about the well's pumping rates indicate that, theoretically, the well would not be able to produce the quantity of water needed to service Tiverton.
Resident Received June 2nd, 2025 Via Email	The resident stating that despite moving to Inverhuron in 2017, they have a long family heritage in the area, highlighting the cottage built by their great-grandparents in Circa 1900s. The resident expressed strong opposition to the proposed BPS at 3194, Bruce Road 15, citing concerns over transparency, process integrity, and community impact. They noted that announcing a preferred solution prior to completing the EA undermines public trust and contradicts the 2022 Master Plan (MP). The reference to a 2023 MP was also challenged, as no such document exists in the public record. They questioned the urgency of the project, referencing the 2022 Master Plan executive summary, which indicates no additional water supply is needed until 2039. Concerns were also raised about incomplete cost details and a lack of financial transparency. The resident emphasized the importance of the park as one of the few public green spaces in Inverhuron and criticized the lack of analysis of alternative sites. They argued that the project does not benefit Inverhuron residents, most of whom rely on well water, and that it contradicts	Thanked the resident for their comments, confirming they will be included in the EA report and shared with municipal staff and council. The resident was also added to the project mailing list for future updates. The response clarified that identifying a preferred solution before finalizing Class EA is standard practice. Thus, allowing public input before decisions are finalized. It was noted the EA remains ongoing. The reference to a 2023 Master Plan was acknowledged as an error; the correct reference for the date it was presented to the council.

Submission	Comments	Action/ Response Taken
	local and provincial planning policies meant to protect open space. Additional concerns include insufficient public engagement, potential negative effects on tourism and the local economy, and a lack of alignment with environmental justice principles. In closing, the resident called for an honest, transparent process and asked that their letter be included in the official EA record.	Clarification was also provided on the cost estimates, distinguishing between preliminary Class EA costs and broader costs for full system upgrades. The importance of the park was acknowledged, and the response confirmed that alternative sites were evaluated and presented at the May Open House. Public feedback is being reviewed as part of the process. Regarding planning policies, it was noted that infrastructure servicing policies must be balanced with those for parks and open space. The public notice efforts undertaken to date were stated and acknowledged the residents' frustration with engagement efforts.
Resident Received June 3rd, 2025 Via Email	The resident indicated they object to the selected location for the BPS, stating that the BPS could be in a space not used by the public, rather than intruding into a space used by the community	Thanked the resident for taking the time to provide a comment, and that their comments will be filed and shared with the council.
Resident Received June 3rd, 2025 Via Email	Resident indicated they are opposed to the location proposed for the BPS, as it is a recreational community facility and green space	Thanked the resident for their comment and indicated that it would be incorporated into the EA and provided to staff.

Submission	Comments	Action/ Response Taken
Resident Received June 3rd, 2025 Via Email	The resident noted that the park is an essential recreation/community area. Additionally, the municipality has had very few investments that encourage sports and outdoor gatherings, and previously requested that bathrooms be placed at the park. The residents questioned why a BPS needs to be in Inverhuron to service Tiverton and requested that more appropriate locations be considered.	Thanked the residents for their comments and confirmed they will be included in the EA report. Clarified that the Kincardine DWS currently services parts of Inverhuron and the Provincial Park. The closest connection point to supply Tiverton is in Inverhuron. A BPS re is required due to a 200 ft elevation difference between Inverhuron and Tiverton, which prevents the use of gravity to move the water.
Resident Received June 4th, 2025 Via Email	The resident expressed strong opposition to the construction of a BPS or any municipal infrastructure at Inverhuron Park, emphasizing the park's importance as a valued community and recreational space. They support Option 1- expanding or developing new wells in Tiverton- citing increased water security, independent from Kincardine's system, and reduced risk in water transport. The resident also highlighted the lack of past investment in the park and concern over the visual and community impact of proposed infrastructure in a cherished public space.	Thanked the residents for their comments and confirmed they will be included in the EA report, and provided in a summary to the council.
Resident Received June 6th, 2025 Via Email	The resident noted that she and her daughters' family do not want a BPS to be constructed at the park. The construction period for the park will span two summers and will disrupt community events, including the bake sale, corn roast, and play. Meanwhile, nothing is being done for Inverhuron residents. Identified two sites on the second concession that the municipality owns. They should be considered for the station.	Thanked the residents for their comments and confirmed they will be included in the EA report, and provided in a summary to the council

Submission	Comments	Action/ Response Taken
Resident Received June 6th, 2025 Via Email	Resident noted they oppose the construction of the BPS or any other municipal infrastructure related to water supply at Inverhuron Park. Stating that the BPS provides no benefits to Inverhuron residents, especially to those who do not have access to the municipal water supply. The resident indicated that they own two residences in Inverhuron and would like their previous comment and current comments recorded on the public record twice, one for each residence. The resident additionally indicated that the municipality has not provided investment to Inverhuron that would enhance the park space. Previous requests have been made to construct bathrooms and a pavilion at the park. The resident pointed out that these would be a far more appropriate investment of their tax dollars. The resident also stated that they oppose the addition of bathrooms to the pumping station due to the footprint outside of the appropriate recreational planning. The resident is unclear why the BPS needs to be located within Inverhuron when the water supply is for Tiverton. The resident stated that they have strong family roots in Inverhuron dating back to the early 1900s, and want to preserve it for future generations, requesting that more appropriate locations for the BPS be explored.	Thanked the residents for their comments and confirmed that their two separate comments will be documented in the EA reports' individual submissions and provided in a summary to the council.
Resident Received June 6th, 2025 Via Email	The resident is deeply disappointed with how the planning process was executed, stating that the local community around the park should have been engaged in the early stages of site selection. The resident is frustrated that an archaeological assessment was conducted prior to seeking public input. The resident notes that the community should have been presented with a few potential locations for consideration, allowing for a more transparent process. Thus, indicating that the	Thanked the residents for their comments and confirmed they will be included in the EA report and provided in a summary to the council.

Submission	Comments	Action/ Response Taken
	resident is opposed to the current proposal and urges the Municipality to reconsider the location and community engagement process.	
Resident Received June 6th, 2025 Via Email	The resident indicated they are opposed to the construction of the BPS or any other municipal infrastructure related to water supply in Inverhuron Upper Park. Stating that the proposal offers no benefits to Inverhuron residents, especially those who do not utilize municipal water. The resident stated that they had been advised that there is no room for separation between water and sewer on Lake Street South. The resident noted that the Municipality has not provided the community of Inverhuron with any investments to enhance the park and facilitate events (outdoor concerts, sports, family events), despite requests for washrooms to be implemented at the park. The resident pointed that this would be a better use of tax dollars and the BPS would be better suited somewhere else. The resident detailed that it is unclear as to why the BPS needs to be located in Inverhuron if the water supply is for Tiverton, and requests that acquiring land across from the Inverhuron Park or other locations be explored.	Thanked the residents for their comments and confirmed they will be included in the EA report and provided in a summary to the council. It was noted that it is not uncommon practice for sewage lines to be placed in the centreline of the road when servicing both sides of the road and to provide enough separation from watermains (or potential future watermain).
Resident Received June 6th, 2025 Via Email	The resident indicated that they do not support the BPS to be constructed at Inverhuron Park The resident noted that they do support the construction of a BPS at sites 9, 10 or 11 as per your evaluation Map/ Report that was presented at the meeting in Tiverton on Friday, May 23rd, 2024. The resident indicated uncertainty as to why the BPS could not be constructed at these other sites.	Thanked the residents for their comments and confirmed they will be included in the EA report and provided in a summary to the council.
Resident Received June 9th, 2025 Via Email	The resident indicated they are opposed to the construction of the BPS or any other municipal infrastructure related to water supply in Inverhuron Upper Park. Stating that the proposal offers no benefits to Inverhuron residents, especially those who do not utilize municipal water.	Thanked the residents for their comments and confirmed they will be included in the EA report and provided in a summary to the council

Submission	Comments	Action/ Response Taken
	The resident noted the park has many different uses (children's playground, baseball, family picnics, social events, community dinners and evening concerts). Requests have been previously made to upgrade the area, as it lacks a public washroom and a covered shelter. The proposed design of the BPS does not allow for washrooms, due to its size. The space required for this BPS (laneway, parking, generator, clearing of streets) takes space away from the essential recreational green space The resident hopes that Tiverton residents are given the opportunity to choose the best water solution for their community, understanding that there is support to expand the existing wells. If the second option of constructing a BPS to connect Tiverton to Kincardine DWS is selected, an alternative site other than Inverhuron needs to be developed. The resident suggests a watermain extension along B-Line with a BPS at the junction of B-Line and County Road 15.	
Resident Received August 14, 2025 Via Email	Stated it is difficult to believe one well and wellhouse could cost $3.6 vs an entire pipeline for $5.4. How deep is the Briar Hill well. Suggested costs are being padded to push the pipeline. Asked if a review was done on the Inverhuron pipeline costs and if there were project cost overruns and if the costs presented included potential cost overruns and were reflective of today's costs. Asked if 3 wells are required for Option 1 and if each well will cost $3.6 million. The following comments were directed to Municipal Council. The letter states water quality is in Tiverton is in question but meets all standards. Please confirm. How realistic is it to expect multiple projects in Tiverton in the future. Suggested growth may not occur in Tiverton. Is Council prepared to move forward without grant funding? Is Bruce Power/OPG willing to	Thanked resident for submitting comments. The cost projections for replacing the Briar Hill well and wellhouse are based on recent experiences with costs to replace wells in other municipalities. The costs include not only a drilling a new well, but also the total replacement of the wellhouse as the building itself and much of the equipment in it has reached the end of its life. The Briar Hill wells are 93 m deep. The pipeline cost includes costs for constructing and equipping a Booster Pumping Station (BPS)

Submission	Comments	Action/ Response Taken
	make up the shortfall. Does not shortfall put on the back of residents. Will costs be assessed and taken into consideration prior to a Council decision. Noted a large reserve fund had been built for specifically for water expansion. Asked for timeline on decisions. Suggested more information and time needed.	and the high-pressure watermain from the BPS to Tiverton. The costs are based on recent costs per meter for high pressure watermain and recent construction costs for a BPS. These cost estimates also included a contingency factor. The costs associated with Inverhuron pipeline were not evaluated as part of this project, as more than 20 years has passed since that project was constructed. If a groundwater supply is chosen as the preferred solution for Tiverton, in order to have enough supply capacity for the existing and future residents, it will require replacing the existing Briar Hill Well and potentially up to two additional new wells. The hydrogeological work done has indicated that is unlikely that just one additional new well will be able to supply enough water and that is more likely that two new wells (plus replacing the Briar Hill well) will be required. The cost of each new well and associated wellhouse is $3.6 million.
Resident Received September 5, 2025 Via Email	Asked for environmental assessment. Asked who prepared cost estimates, what assumptions were made, if contingencies, long-term maintenance or lifecycle costs were included. Suggested a line by line cost breakdown is required. Suggested a lack of alternative analysis. Raised concerns about	Provided a link to the draft Project File Report on the Municipality's website. BMROSS prepared the cost estimate BMROSS maintains a record of

Submission	Comments	Action/ Response Taken
	routing water downhill from Tiverton to Inverhuron and then back to Tiverton. Asked if there was a hydraulic model completed. Noted the park was used on the Labour Day weekend with 150 people in attendance. Was a public use audit, site visitation analysis, or community feedback gathered? What is the zoning of the parcel? Would the project require a zoning amendment, minor variance or site plan approval?	pricing from municipal infrastructure projects within our service area. We use this record when preparing estimates for studies such as this Class EA, as well as asset management planning, municipal budgeting, etc. for projects that have been identified in terms of general scale and requirements, but no detailed design has yet been completed. We also believe it is important to note that two of the key uses of cost estimates for a project such as this are: 1. Establishing, when there are multiple alternatives in a Class EA, which alternative is relatively more or less costly than competing options. 2. Establishing the general order of magnitude cost for each alternative. It should be understood that a final, detailed design and pre-tender estimate will generally provide more accurate cost details than can be achieved at the Class EA level of a project. The costs for all options include capital costs, costs related to design and obtaining approvals, and contract administration during construction. Contingencies are also

Submission	Comments	Action/ Response Taken
		included given the preliminary stage of the project relative to a final design that is complete and ready for tender. Long-term maintenance and life-cycle costs are not included in the costs. Further information on the evaluation of alternative sites is provided in the Project File Report, the information presented in the Council presentation is a summary. Under normal operational conditions, water will flow from the booster pumping station in Inverhuron to Tiverton (i.e., lower elevation to higher elevation). In an emergency situation in Inverhuron or along the lakeshore, water could be routed from the Tiverton standpipe if needed. The current zoning of the park is OS – Open Space. This project would not require a zoning amendment, nor a site plan approval.
Resident September 6, 2025 Via email	Thank you for your response. At this point, I'm not writing to debate engineering jargon or weigh in on projected scenarios. I'm writing as a resident of Inverhuron, and I know I speak for many in this community when I say: we are tired of the spin. It's clear from the May 23rd presentation and your revent email that a decision has essentially already been made, and the current	Comments noted and filed.

Submission	Comments	Action/ Response Taken
	effort is now focused on justifying that choice, not evaluating alternatives transparently. Your email highlights projected costs, potential benefits, and high-level technical assumptions, but these are not concrete facts. The public is still being asked to trust vague marketing language like "may", "could", and "potential advantage" in place of actual side-by-side comparisons or data-supported conclusions. If this process is truly about responsible planning, then: Where is the complete cost breakdown for each site, including long-term operations, maintenance, and efficiency? Where is the hydraulic modeling to support the decision to pump water down to Inverhuron only to push it back uphill to Tiverton? Where is the proof that the Tiverton well system is failing now, or even soon? Where is the planning report showing that the 400 new homes mentioned are a real, shovel-ready development, not just a theoretical projection? None of these questions have been answered. What we've been given instead is a set of assumptions dressed as conclusions. You continue to position Upper Inverhuron Park as unused. Just last weekend, over 150 people gathered there for a concert in the park. These events aren't rare. They are a regular and meaningful part of our community life. Families use that park year-round. There has been no usage data, no public use survey, no needs assessment - nothing to support your belief that this is an underused space. To push this project forward without those basic checks is more than a technical oversight. It's a failure to engage with the community you are impacting most.	

Submission	Comments	Action/ Response Taken
	Let's also be honest about who benefits. This project does not serve Inverhuron. We are already serviced. The water will be pulled from Kincardine, pushed downhill into Inverhuron, and then back uphill to Tiverton - an inefficient system that doesn't serve us and isn't being built for us. This is clearly about future growth that may or may not happen, and potentially to meet the needs of Bruce Power. Again, where is the proof that Tiverton is actually growing? Where are the developers waiting to break ground? We can't even get lots already held to be built on, let alone justify the need for expanded infrastructure. Meanwhile, we are being told that maybe the pump station can be landscaped, that maybe a washroom could be added, and that maybe this won't impact the rest of the park. We are supposed to accept these vague possibilities in exchange for the permanent loss of public parkland and community trust. While you may not require rezoning, make no mistake, this impacts our lives. And once again, Inverhuron is left to fend for itself while being told it's for the greater good. I also ask Council, does this money even need to be spent right now? We are talking about five to seven million dollars - not including future overruns or operational costs - and no real return on investment. Could this not be spent on arenas, pools, or other local infrastructure that is used daily and in desperate need of attention? This is a large financial decision being pushed forward without certainty, without clarity, and without respect for the people being asked to absorb the burden. We are not uninformed. We are not unengaged. We are asking for basic transparency, accountability, and human respect in a process that seems to be moving forward regardless of logic or local support. I urge Council to stop this project until a full alternatives review is done, community engagement is properly conducted, and the	

Submission	Comments	Action/ Response Taken
	case for need - not just speculation - is clearly presented. Please ensure this email is included in the public record.	
Resident September 8, 2025 Via email	Is there an option to extend the high-pressure watermain from the intersection of Lorne Beach Road and the B-line, north along the B-line to Bruce Road 15 and then east along Bruce Road 15 into Tiverton. This option may negate the need for a booster pumping station and will reduce infringement on the inhabitants of Inverhuron. It would also support growth along the B-line.	

7.0 IDENTIFICATION OF POTENTIAL IMPACTS AND MITIGATION MEASURES

7.1 Framework of Analysis

Following the selection of Alternative 2 as the preliminary preferred solution, a study framework was developed to further evaluate the potential impacts of implementing this project. For reference, Figures 7.1A and 7.1B illustrates the preferred solution. 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 that would generate potential environmental impacts.

The assessment of the preferred alternative incorporated these activities:

- Preliminary assessment of potential design options.
- Assessment of the construction and operational requirements of the proposed works.
- Consultation with the public, stakeholder groups, and government agencies.
- Reviewing engineering methodologies associated with the construction of a new well and associated facilities.
- Prediction of the environmental interactions between the proposed works and the identified environmental components.
- Evaluation of the potential impacts of the project on the environmental features, including residual effects following mitigation.

Figure 7.1A Preferred Solution – Construct BPS to Connect to the KDWS

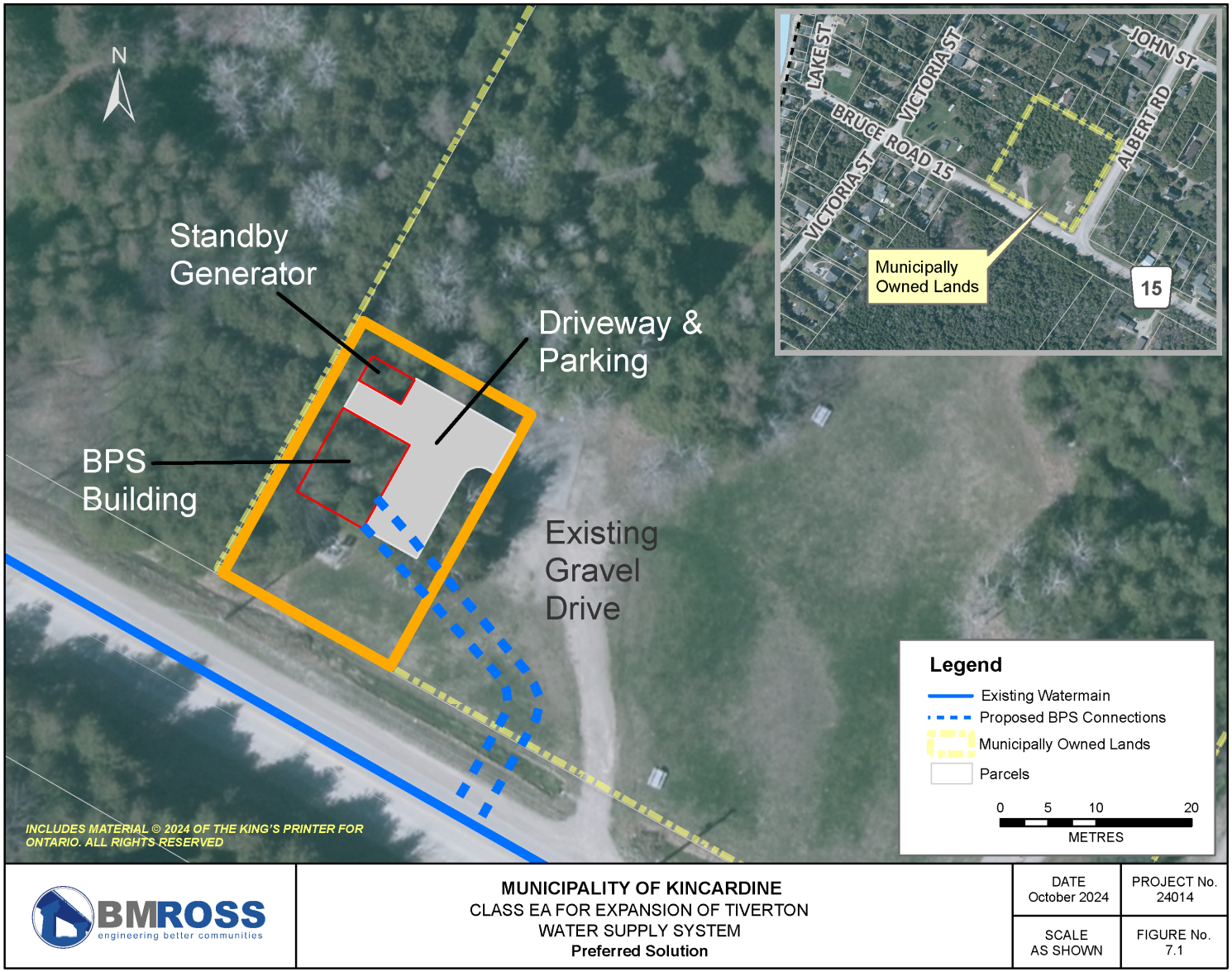


Figure 7.1B – Preferred Solution -Connection to TDWS



BMROSS engineering better communities	**MUNICIPALITY OF KINCARDINE** MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM **Preferred Solution - Connect to Tiverton Drinking Water System**	DATE January 2025	PROJECT No. 24014
		SCALE AS SHOWN	FIGURE No. 7.1B

7.2 General Project Scope

The works summarized below and illustrated conceptually in Figures 7.1A and 7.1B represent the scope of construction planned for this project. It is expected that the connection to Inverhuron will be the primary water supply source. The project is expected to involve the following general components:

- Municipality applies for Drinking Water Works Permit (DWWP) amendment and update of the PTTW.
- Contractor mobilization to the site.
- Construction of a masonry block building.
- Installation of all pumps, pressure tanks, controls, and related mechanical and electrical equipment.
- Installation of an outdoor, weather/ acoustic enclosed standby diesel generator set.
- Construction of the new watermain within the Bruce Road 15 road allowance and connection to existing water distribution system.
- Decommissioning of the existing groundwater well facilities.
- Restoration work (seeding/ topsoil) and
- Demobilization

7.3 Impact Assessment and Mitigation Measures

7.3.1 Assessment of Impacts

In reviewing the various criteria identified in Section 5.4 of this report and additional comments received during the consultation program, a number of specific environmental elements were identified which could be adversely affected by the implementation of the preferred alternative. The potential impacts are associated with the following environmental or project components:

- Local disruptions
- Construction related impacts
- Capital and operating costs
- Lifecycle costs
- Impacts on existing infrastructure

7.4 Discussion of Potential Impacts and Mitigation

7.4.1 Local Disruptions

Construction of the BPS and associated watermain connection to the TDWS, is expected to result in local disruptions. During construction, public access to the park will be restricted. The final site of the BPS on the site and contractor needs for laydown and material storage will determine the specific area of the park that will be inaccessible. At this time, the preferred location of the BPS is at the western end of the park. It may be possible to retain access to the play equipment located on the east side of the park. The portion of the park utilized during the construction will be fenced off. This may impact the use of the park for larger community gatherings during the length of construction. This impact will be limited to the period of construction.

At the public open house and in subsequent comments received, there was public opposition from residents of Inverhuron to the use of the park for a BPS site. Concerns included the loss of public park space, noise and operation of the BPS, lack of benefit to the community and aesthetics. BPS facilities are generally not significant generators of noise during operation and landscaping can be used to help mitigate the appearance of the facility. Design of the building can also incorporate choices in façade and cladding to increase the aesthetic appeal. The addition of the BPS to the park will not impact the types of events or use of the park.

To demonstrate the relative scale of the building in the park, renderings of the building have been made. Figure 7.2 shows the BPS in the southwest corner of the park and Figure 7.3 shows the building at a larger scale to show the relative size and position of the BPS within the park. The building could be moved even further west if desired. It should be noted that the colour and materials of the façade are shown as an example only and will be chosen during design.

Figure 7.2 Rendering showing potential BPS in Inverhuron Park



Figure 7.3 Rendering showing scale of BPS within Inverhuron Park



Local residents will experience increased activity at the site associated with the construction of the BPS. Construction will result in localized increases in noise and traffic. These impacts may be mitigated by the existing tree buffer between the park and surrounding residences. Siting of the BPS will consider how to minimize any tree removal to ensure the buffer remains intact.

The construction of the watermain connecting the BPS to the TDWS is expected to occur within the road allowance of Bruce Road 15. The construction activities may result in temporary lane reductions along Bruce Road 15. There also may be times when access to driveways is temporarily restricted. Construction notices will provide local residents with information on the planned activities and potential impacts.

There may be temporary water service interruptions when the BPS is connected to the KDWS. Any interruptions are expected to limited in length and as much notice will be given to local residents as possible. Similarly, there may be an interruption to water supply in Tiverton when the system is connected to the new watermain. Notice will be provided to residents ahead of the switch over.

Operation of the BPS is expected to have minimal impacts on the use of the park and adjacent residences. The BPS will not generate significant noise during operation and can be sited to maintain a significant portion of the existing open space in the park. During the design of the BPS, consideration can be given to the façade of the building and features such as fencing. There will be an emergency backup generator located at the site. The generator will run during power outages and be tested monthly. During operation of the generator, there will be localized noise impacts. The existing trees surrounding the site are expected to function as a noise barrier.

7.4.2 Species at Risk

The cleared area of the park is generally not considered habitat for any species at risk, given the regular mowing of the area and existing level of disturbance. Should tree removal be required, to mitigate against potential impacts to species at risk birds any trimming or cutting should take place between September 31 to April 1.

Efforts should be made to minimize impacts to the wooded area of the site. Mitigation measures could include exclusion fencing and ensuring materials and equipment are stored or kept within the cleared area of the park.

7.4.3 Health and Safety

The preferred alternative will result in a safe and secure supply of water for existing and future residents of Tiverton. Existing residents will notice a change in the taste and potentially aesthetic quality of the water supply from the KDWS compared to the water supplied from the groundwater wells. Water supplied from KDWS has lower total suspended solids, sulphates, iron and fluoride levels and that change in chemical composition will give the water a different taste. The change in water supply will also eliminate the need for in-home water softeners and residents can chose to remove or not replace softeners at the end of their life.

New service connections along Bruce Road 15 may require a pressure reducer.

The planned works involve construction work that has the potential to adversely impact the health and safety of the workers and the public. A series of measures will be set out in the construction contract documentation to minimize the risk posed by construction in a manner consistent with health and safety regulations. These specifications may need to be altered depending on the nature of the construction activity and the requirements of regulatory agencies.

7.4.4 Construction-Related Impacts

Construction-related activities associated with project implementation have the potential to impact existing environmental features, the general public, and construction workers. The Contractor will 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 7.1 outlines a series of mitigation measures that are typically incorporated into construction specifications. For this project, contract specifications may need to be modified depending on the nature of the construction activities and any additional requirements of the regulatory agencies.

Table 7.1 Summary of Mitigation Measures for Construction Activities

Construction Activity	Planned Mitigation
Refueling and Maintenance	• Identify suitable locations for designated refueling and maintenance areas outside of any vulnerable areas. • Restrict refueling or maintaining equipment near watercourses and ditches. • 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 that may occur (whether on land or water).
Traffic Control	• The Contractor shall prepare and submit a traffic plan to the Project Engineer for review and acceptance. If it is necessary to detour traffic, the Contractor will co-ordinate the routing and provide adequate signage and barricades. • Traffic flow for private access should generally be maintained at all times during construction. If access to a private driveway has to be restricted for a period of time the property owner will be notified and access would be restored by the end of each working day. • A minimum of one lane of traffic, controlled by barricades, delineators, etc. shall be maintained for emergency vehicles to access the road. • Provide adequate signage and barricades.
Disposal	• Dispose of all construction debris in approved locations. • Avoid emptying fuel, lubricants or pesticides into sewers or watercourses.
Silt Control	• Silt fences shall be installed and maintained downslope from any stockpile locations.
Work in Sensitive Areas	• All work will occur in dry conditions. • Any 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. • Provide splash pads where water is discharged to a watercourse.
Dust Control	• Cover or wet down dry materials and rubbish to prevent blowing dust or debris. • Avoid the use of chemical dust control products.

Construction Activity	Planned Mitigation
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. • Minimize stripping of topsoil and vegetation. • Soils excavated from the site are to be re-used on site if possible or disposed of in accordance with Excess Soil regulations. • Restrict tree removal to areas designated by the Contract Administrator.
Sedimentation and Erosion Control	• Erect sediment fencing to control excess sediment loss during the construction period. • Minimize the removal of vegetation from slopes. • Protect ditches from sediment intrusion. • Complete restoration works following construction.
Noise Control	• Site procedures should be established to minimize noise levels in accordance with local bylaws. This should include avoidance of weekend work and encouraging the contractor to avoid letting equipment idle. • Employ devices to minimize noise levels in the construction area (as practical), which could include white-noise reversing alarms. • Nighttime or Sunday work shall not be permitted, except in emergency situations.

7.4.5 Capital and Operating Costs

The capital costs associated with the preferred alternative are considered a significant impact. The estimated capital costs are summarized in Table 7.2, below.

Table 7.2 Capital Costs Associated with the Preferred Alternative (Construct a BPS)

Project Component	Estimated Cost
Booster Pumping Station	$2,200,000
Trunk Watermain	$2,600,000
Design and Approvals	$275,000
Contract Administration	$335,000
Total Estimated Cost (2024$)	**$5,410,000 + HST**

The Municipality has indicated it will be pursuing grant opportunities to reduce the economic impacts of this project on existing and future residents. It is expected that the portion of project costs benefiting future growth will be collected through development charges. The portion of project costs attributed to the existing population of Tiverton is expected to be recovered through rates and reserves.

To evaluate the potential impact of this project on water rates, the cost per system user was calculated. The current fee structure for residents supplied with municipal water is not based on location. The financial rates for the water systems based on operating and capital costs for all the systems. Given this, it was assumed the costs for this project would be borne across all users. The calculation also assumes a grant is not received, no inputs from reserves, and a 10-year debenture loan for the project. The estimated average impact to rates under this scenario is an increase of 15%, or an additional $22.98 per month per customer. Receiving a grant and contributions from reserves will reduce the potential impact to rates.

Table 7.3 Potential Impact to Water Rates

Cost	BPS at Inverhuron Park
Initial Capital Costs	$5,410,000.00
10-year debenture interest	$1,427,095.00
Total Cost	6,837,095.00
Annual Payment for debenture	683,709.50
Annual cost per customer (2024)	138.12
Cost per customer per month (2024)	11.51
Current average annual water bill per customer	950
Average annual cost including project	1,088.12
Increase	15%

The existing customer demand in Tiverton is 616 m^3/day. The proposed capacity of the new BPS will be approximately 1,235 m^3/day. Given this, approximately 50% of the costs of the project are attributable to the existing customers and 50% to future growth (committed and uncommitted). The portion of project costs attributed to future growth could be collected through development charges.

7.4.6 Life Cycle Costs

The preferred alternative will add an additional BPS and watermain assets to the Municipality's inventory. The BPS is expected to have an estimated service life of greater than 50 years. Pumps and mechanical equipment are expected to have service lives of 25 years. Regular maintenance is an important component in maximizing the service life of municipal infrastructure.

7.4.7 Operational Phase

Upon completion of the planned construction, the Municipality will assume and maintain the BPS in accordance with regular Municipal practices. In this regard, the new infrastructure would be subjected to maintenance activities in the future, including the replacement of pumps and associated equipment, and will be added to the works department maintenance schedule and budget allocation, as determined by the Municipality.

8.0 APPROVALS AND ENVIRONMENTAL COMMITMENTS

8.1 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 a number of approvals are required prior to implementation of the preferred solution. This section of the report identifies the applicable legislation and summarizes the intent of the associated approvals process.

8.2 Environmental Assessment Act

The recommended solution is considered a Schedule B project under the terms of the MCEA document, as the project involves the construction of a new booster pumping station at a new municipal site. This project is considered approved under the requirements of the MCEA and Environmental Assessment Act following the completion of an environmental screening process.

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

- Complete the 30-day review period, defined in the Notice of Completion.
- Address any outstanding issues.
- Finalize the Screening Report.
- Advise the Municipality and MECP when the MCEA study process is complete.

8.3 Safe Drinking Water Act

The construction of a new BPS and watermain extension will require an amendment to the Municipal DWWP and Municipal Drinking Water License (MDWL) issued under the Safe Drinking Water Act. Additionally, the watermain will be incorporated with such amendment.

8.4 Ontario Heritage Act

The recommendations of the Stage 1-2 archaeological assessment (AA) will be followed. Any further recommended assessment (e.g., Stage 2, 3, and 4 AAs) will be completed as early as possible in the detailed design phase and prior to any ground disturbing activities. Proponents should wait to receive the MCM's written confirmation that the archaeological assessment report(s) has been entered into the Ontario Public Register of Archaeological Reports before issuing a decision or proceeding with any ground disturbing activities.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease

alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the Ontario Heritage Act.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

8.5 Ontario Water Resources Act

If dewatering is required, and if the dewatering is over 50,000 L/day, but less than 400,000 L/day; the Contractor will be required to register the water-taking activity with the Environmental Activity and Sector Registry (EASR). A PTTW would be required for water-takings over 400,000 L/day under section 34.1 of the Ontario Water Resources Act is required. Should a PTTW be required, the Municipality will apply for the permit and not undertake dewatering activities until the required permit is received.

8.6 County of Bruce

The construction of the watermain from the BPS to Tiverton will take place in the Bruce Road 15 road allowance, which is under the jurisdiction of the County of Bruce. The Municipality will be required to seek approval/permission from the County to undertake construction within their road allowance.

8.7 Ontario Regulation 406/19 – Excess Soil Management

Management of excess soils will be completed in conformity with the guidelines and regulations issued under Ontario Regulation 406/19 – On-Site and Excess Soil Management regulation.

8.8 Migratory Birds Convention Act

The Migratory Birds Convention Act protects migratory birds and their nests from destruction. Should any tree removal be required in conjunction with this project, tree removal will be take place September to April 1 of a given year, outside of active nesting periods. Should tree removal be required within nesting periods, a biologist will be required to attend the site and make a determination on the presence of active nests.

8.9 Saugeen Valley Conservation Authority

The watermain connection from the proposed BPS to Tiverton fall within areas identified as screening areas for Saugeen Valley Conservation Authority. SVCA will be consulted with during the design phase and a permit submitted under O. Reg 41/24 prior to construction.

8.10 Environmental Commitments

As an outcome of the MCEA process, the Municipality is committed to carrying out the following measures to mitigate potential environmental impacts related to project implementation:

- Implementation of standard construction mitigation measures (e.g., sediment and erosion control, site restoration) as presented in Table 7.1, where appropriate, during the construction phase of the project to minimize constructed-related impacts to the natural and social environments.
- Construction area should be fenced to prevent wildlife from entering the disturbed area. The active construction area should be inspected for wildlife before heavy equipment is moved within the project area. The Contract will include provisions requiring the Contractor not to harm, feed or unnecessarily harass wildlife.
- Wildlife encountered during construction activities should be allowed to exit the site on their own, via safe routes. Removal of wildlife should be done by a qualified wildlife service provider.
- Any tree removal should take place between September 1 and April 1. Outside of this period, a qualified biologist should be engaged to check for any active bird nests.
- Any activities occurring as a result of the construction that result in the management of excess soil will be completed in accordance with Ontario Regulation 406/19, On-Site and Excess Soil Management, and current guidance documents entitled Management of Excess Soil – A Guide for Best Management Practices.
- Submission of relevant applications for required approvals, as well as implementation of all conditions issued in association with the subsequent approvals.
- Adjacent property owners will be advised in advance of the construction.
- Property owners in Tiverton and Inverhuron will be advised, with as much notice of possible, of any planned service interruptions.

9.0 CONCLUSIONS AND PROJECT IMPLEMENTATION

9.1 Selection of a Preferred Alternative

Given the foregoing, **Alternative 2 – Construct a BPS to connect to the Kincardine Drinking Water System** is identified as the preferred solution to the identified problem. Figure 7.1 illustrates the location of the preferred solution.

9.2 Impact Mitigation

Based upon a review of the current environmental setting, there were no significant impacts associated with the implementation of the preferred alternative that could not be mitigated. Therefore, the implementation of the proposed preferred alternative is appropriate for the identified problem and is not expected to result in any significant impacts to the natural, social, economic, cultural, or technical environment. The merits of this option were also seen to substantially outweigh those identified for the other alternative solution considered in this process.

9.3 Final Public Consultation

A Notice of Completion will be circulated to local residents, stakeholders, government review agencies and Indigenous communities. The Notice will identify the preferred alternative and provide the process for providing comments and submitting a Section 16 Order request to the Minister of Environment, Conservation, and Parks.

9.4 MCEA Schedule

The recommended solution has been evaluated as a Schedule B activity under the terms of the MCEA document, as the project involves the construction of a new water pumping station at a new municipal site. The project is approved following the completion of an environmental screening process.

9.5 Section 16 Order

Under Section 16 of the EA Act, the Ministry of Environment, Conservation and Parks may order a proponent to undertake an Individual EA or impose conditions on the project. A person may request an order under Section 16 if there is a concern that potential adverse impacts to Aboriginal or treaty rights have not been addressed through the MCEA process. A request can only be made on the grounds that the order may prevent, mitigate or remedy adverse impacts on Constitutionally protected Aboriginal or treaty rights. Requests on other grounds will not be considered. If a Section 16 Order is submitted, the project may not proceed until direction is provided by the Minister.

A Section 16 Order must be made within the 30 day public comment period. A Section 16 order request must include:

- Name, address and email address of the submitter
- Project name

- Proponent name
- Type of order being request (i.e. a request for additional conditions or request for an individual environmental assessment)
- Details about concerns on impacts to constitutionally protected Aboriginal or treaty rights and how an Order may prevent, mitigate or remedy the impacts
- Information on any efforts to discuss or resolve concerns with the proponent
- Any other information to support your request.

10.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to investigate options to increase the supply capacity of the Tiverton Drinking Water System. A recent Water and Wastewater Master Plan completed for the Municipality identified that the Tiverton Drinking Water System is overcommitted. Additional supply is required to accommodate approved future residential growth within Tiverton. It was also noted that the casing of Briar Hill Well #1 is deteriorating and the well will likely require replacement in the near future. Furthermore, there is mechanical and electrical equipment that have reached the end of their life and also need replaced.

Initially, a background review was carried out to characterize the project study area and identify factors influencing the selection of alternative solutions. The background review included investigations of the natural heritage and cultural landscape, species at risk, and an examination of the existing water supply infrastructure within the community of Tiverton. The background review found no natural heritage or cultural resources, Areas of Natural and Scientific Interest are within the study area and there is limited habitat opportunity for Species at Risk within the proposed sites.

The MCEA process considered several options to address the identified problem –

The 2023 Water and Wastewater Master Plan identified the Tiverton Drinking Water System is overcommitted and additional supply capacity is required to support future growth

To address the identified problem the following alternative solutions were identified

- Alternative 1 - Expand existing or construct a new groundwater supply
- Alternative 2 - Construct a BPS to connect to the Kincardine Drinking Water System
- Alternative 3 - Reduce demands/limit community growth
- Alternative 4 - Do Nothing

Through the initial review of alternatives, it was determined that Alternative 3 is not practical or feasible to implement. It is not possible to reduce existing demands to provide sufficient capacity for the forecasted future growth. Further, local and provincial planning policies direct growth to settlement areas like Tiverton where there are full municipal services. For these reasons, this alternative was not evaluated any further.

The potential impacts on the natural, social, cultural, economic, and technical environments of the other alternatives were evaluated. Alternative 1: Expanding existing or constructing a new groundwater supply, is anticipated to require implementing an

additional two wells to meet future development commitment needs. This alternative also requires replacing Briar Hill Well #1 and its pumphouse to have sufficient capacity for existing residents and future growth.

Alternative 4: Do Nothing would require the municipality to limit future growth and still repair the deficiencies of Briar Hill Well #1 to supply existing connections within the community of Tiverton. Alternative 3 does not address the issues of water supply within the community of Tiverton.

The result of the evaluation is a preference for implementation of **Alternative 2 – Construct a connection to the Kincardine Drinking Water System.** The following are the key attributes associated with this alternative that justify its selection as the preferred option:

- It addresses the identified problem statement.
- There is sufficient capacity in the KDWS to supply the existing residents and future development commitments in Tiverton.
- Municipally owned land is available at 3194 Bruce Road 15 to site a BPS.
- It is compatible with existing and future infrastructure services in the area.
- In the short term it removes the need to replace Briar Hill Well #1 and potential need for arsenic treatment equipment at the Dent Hill Well.
- In the long term is expected to have lower maintenance and operating costs compared to the current groundwater system.
- Will allow for future growth and development within the community of Tiverton.

The proposed project is a Schedule B activity under the terms of the MCEA document. The project is considered approved subject to the completion of this screening process. It is expected that following completion and approval of this EA, the Municipality will proceed to detail design, followed by construction.

All of which is respectfully submitted.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED



Per _____

Lisa J. Courtney, MCIP, RPP
Environmental Planner



Per _____

Andrew Garland, P. Eng.
Senior Engineer

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Appendix A

Hydrogeological Report

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August 6, 2024

Mr. Andrew Garland, P. Eng.
B. M. Ross and Associates Limited
62 North Street
Goderich, ON
N7A 2T4

Dear Mr. Garland:

Re: Desktop Analysis of Future Well Field Yield Potential
Community of Tiverton, Municipality of Kincardine

As requested, in support of a Class EA to review alternatives to increase water supply in the Community of Tiverton, we have reviewed historical files as well as readily available background hydrogeological information to provide a preliminary opinion of future groundwater yield viability for municipal supply in Tiverton. It is understood that future combined water demand requirements of 1,235m^3/day are anticipated within a 20-year time frame, and that future combined yield requirements of 1,430m^3/day are anticipated within a 40-year time frame.

Tiverton is currently supplied with water from three municipal water wells, these being the Dent Well #2 and Briar Hill Wells #1 and #2. The Dent well is located in the southwest part of Tiverton, on Smith Street near Sara Street. The Briar Hill wells are located in the northern part of Tiverton, at the south end of Conquergood Avenue. The current available daily yield from these three wells is 970.5m^3/day maximum (combination of Dent Well #2 and Briar Hill Well #2), and therefore additional yield of upwards of 460m^3/day will be required.

For this analysis, the following were reviewed:

- Evaluation of Existing Municipal Wells and Hydrogeological Regime, Village of Tiverton, Dames & Moore, Canada, October 29, 1992.
- Hydrogeological Assessment of the Tiverton Groundwater Supply for GUDI, Lotowater Ltd., June 14, 2002.
- Well Evaluation, Production Well 2, Dent Well Field, Community of Tiverton, Ian D. Wilson Associates Limited (Wilson), February 2, 2004.
- Well Evaluation, Production Well 2, Briar Hill Well Field, Wilson, October 2, 2006.
- Monitoring Data Analysis Report (2007-2016), Briar Hill Wells #1 and #2, Dent Well #2, Community of Tiverton, Wilson, January 9, 2017.
- Desktop Review Assessment of Groundwater Supply Potential, Bruce Power Development, Wilson, May 22, 2018.

- Monitoring Data Analysis Report (2017-July 2020), Briar Hill Wells #1 and #2, Dent Well #2, Community of Tiverton, Wilson, October 13, 2020.
- Permit to Take Water No. 5581-BVHT5L (the PTTW), issued January 21, 2021, expires January 22, 2031.
- Ministry of the Environment, Conservation and Parks (MECP) water well records database.
- MECP Access Environment website.
- Other background documents, as detailed below.

GEOLOGICAL SETTING

The community of Tiverton is located within the Huron Slope physiographic region of southern Ontario, a clay plain situated nearby the eastern shore of Lake Huron between the Algonquin shore cliff and the Wyoming Moraine to the east. According to the Ministry of Natural Resources Map P.2314 "Quaternary Geology of the Chesley-Tiverton Area", the upper soils in the vicinity of the Dent and Briar Hill wells are described as glaciolacustrine deposits of silt and clay, likely underlain by St. Joseph Till, a clayey silt to silt till.

According to the records for Dent Well #2 and former Dent Well #1, the overburden is between 37 and 38 metres deep and, except for an isolated upper overburden granular lens, consists mostly of fine-grained deposits described as clay or hardpan. According to the records for the two wells at the Briar Hill well field, the overburden at the well field is somewhat thicker, at between 47 and 51 metres deep, and consists essentially entirely of fine-grained deposits described as clay or hardpan. A review of the Ministry of the Environment water well record database for the area indicates a similar geologic log for most other local wells, this being a predominantly fine-grained overburden with discontinuous lenses of granular materials occasionally reported in the upper overburden. It is noted that several records for water wells about 1 to 2 km east and southeast of Tiverton report a substantial granular deposit in the lower overburden.

The bedrock beneath the site consists of limestone and dolostone of the Middle Devonian Detroit River Group of rock.

The bedrock aquifer is regionally the primary source of potable groundwater. As with any bedrock aquifer, well yields can vary considerably between sites due to distribution and connection of fracture systems in the rock.

WATER WELL DATA

Well Construction and Historical Testing Summary:

The following provides a summary of basic well construction and historical testing details for the three current Tiverton municipal wells. Copies of the water well records are attached.

	Briar Hill Well #1	Briar Hill Well #2	Dent Well #2
Construction Date	August 1971	June 2006	Sept. 2003
MECP Water Well Record #	14-2748	A030071	14-10577
Well Depth	93.0m	93.0m	87.2m
Well Casing Setting	47.6m	52.1m	39.0m
Open Bedrock Borehole	47.6m to 93.0m	52.1m to 93.0m	39.0m to 87.2m
Static Water Level	13.7m*	22.69m	18.91m
Available Drawdown in Casing	33.9m	29.4m	20.1m
Pumping Test Rate	273L/min*	500L/min	273L/min
Test Period	24 hours*	24 hours	24 hours
Drawdown During Testing	24.4m*	15.93m	19.00m
Percent Available Drawdown Used	72%*	54%	95%
Specific Capacity	11.2L/min/m*	31.4L/min/m	14.4L/min/m

Note: * Contractor's test data, as reported on the original water well record.

During the 2003/2006 well testing programs, the quality of water from the two well fields was identified to be mineralized (i.e. total dissolved solids exceeding 500mg/L), with the water from Dent Well #2 being aesthetically worse than the water from Briar Hill Well #2. Elevated sulphate (Dent Well #2 only), iron (Dent Well #2 only), fluoride and sodium (above 20mg/L) were also identified in the water from both wells in 2003/2006.

Tiverton PTTW Summary:

The PTTW (copy attached) authorizes the following rates of withdrawal from the three current Tiverton municipal wells:

- Briar Hill Well #1 - 364L/min, 24 hours per day to 524,160L/day
- Briar Hill Well #2 - 500L/min, 24 hours per day to 720,000L/day

Withdrawals from Briar Hill Wells #1 and #2 cannot be concurrent.

- Dent Well #2 - 273L/min, 24 hours per day to 250,500L/day (limited by aquifer recharge)

- Combined available daily yield = 970.5m^3/day maximum

Other Local Permits:

According to MECP Access Environment, there are no other active PTTW's in the Tiverton Area. A PTTW (No 1154-AZELR6, copy attached) was until recently in effect for the Teeswater Concrete site at the east end of Tiverton at 180 Main Street (about 1.3km to the east of Dent Well #2), but expired in January 2024. It is unknown if it is intended by the landowner to renew the Teeswater Concrete PTTW.

The Teeswater Concrete PTTW allowed for the combined maximum taking of up to 500m^3/day from two wells (the Teeswater Concrete PTTW references Wells PW-1 (A061744) and OW-1 (14-02397 [*sic*], which is likely 14-02307), copies attached) on a maximum of 15 days in a calendar year, up to 300m^3/day for an additional 30 days per year, and up to 200,000m^3/day for the remainder of the year. While the rationale for the staggered yield PTTW is unknown, slow aquifer recharge is one likely factor in establishing such a pumping scenario. The long-term safe yield of 200m^3/day (320 days per year) is consistent with the long term yield of Dent Well #2 (250.5m^3/day), which was reduced from the test rate of 393m^3/day after analysis of aquifer recharge rates following the 2003 pumping test program.

All other historical Permits in the vicinity of Tiverton have been for surface water diversion during bridge construction projects, and are expired.

Water Well Records Analysis

Reported Well Yields:

The MECP water well record database currently contains the records for 74 water wells within about 2km of Tiverton. Records for well upgrades, abandonments and shallow environmental wells are not included. A summary table of the 74 water well records and photo-reduced copies of the records are attached for reference.

The average well in the study area is completed to a depth of 60.0m in the bedrock aquifer, and is reported to yield an average of 95L/min for a period of at least 4.4 hours, substantially more than sufficient for domestic water demand. Only six of the 74 reported wells (8%) are reported by contractors to have been tested at minimum rates typical of modest municipal demand (i.e. ≥200L/min (44igpm), four of these being at the Dent and Briar Hill well fields, the fifth being for a trailer park west of Tiverton, and the sixth being one of the Teeswater Concrete wells nearby to the east of Tiverton.

Theoretical Yields:

As most water wells in the vicinity of Tiverton have been completed for domestic purposes, and therefore have not been subjected to higher rate contractor's pumping tests, an analysis of contractor's pumping test data was conducted to identify theoretical higher-yielding wells. The theoretical yield of the wells was assessed by identifying the specific yields of each well (pumping rate divided by the drawdown), and then multiplying the specific yield by the available drawdown in the wells (distance from static water level to the bedrock surface in each well). The theoretical yields were then multiplied by a safety factor of 50% to 80% (depending on test rate) to account for well efficiency losses at higher pumping rates, inconsistent contractor's reporting of the depths to upper water bearing zones and inconsistent contractor's reporting of pumping tests results. The attached water well record summary table provides the results of the theoretical well yield analysis.

Based on this theoretical yield analysis, approximately 40 of the 74 reported water wells (54%) in the community may be capable of a minimum factored theoretical yield typical of a modest municipal demand (i.e.≥200L/min (44igpm)). About 24 wells in the community (32%) may be capable of substantial factored theoretical municipal well yield (i.e.≥454L/min (100igpm)).

A review of the locations of the theoretically higher-yielding wells (i.e.≥454L/min (100igpm)) indicates that the majority of these wells are located within the community of Tiverton, and to the south and west of Tiverton. The density of theoretically higher-yielding wells appears to decrease to the north and northeast of Tiverton.

A review of the depths of the theoretically higher-yielding wells indicates that the majority of these wells are completed in the upper 20m of the bedrock. Deeper drilling is not indicated to consistently obtain greater well yields.

As indicated above, aquifer recharge rates are limited in portions of the community, and for planning purposes, each properly-spaced (see interference potential below) future successful well field site should conservatively be assumed to be capable of a safe long-term yield in the range of 250m^3/day.

Monitoring Data:

Based on the most recent available data from the 2020 Monitoring Data Analysis Report (charts attached), overall late 2017 to July 2020 water level data (when transducers appear to be operating correctly) for Briar Hill Well #1, Briar Hill Well #2 and Dent Well #2 is indicative of stable static water levels, with pumping levels generally within the range of water level response during the applicable 2003/2006 well testing programs. However, the reported low water data for each of the three wells indicates that at times, the wells appear to be using most of the available drawdown (above base of casing). It is recommended that the water level in a bedrock well be maintained above the base of well casing, wherever possible, so that the open bedrock portion of the well is not exposed to air. Accordingly, based on previous testing results and the available historical monitoring data, a meaningful increase in the permitted rates of withdrawal are unlikely for the three current Tiverton wells.

Interference Potential:

During the 2003 24 hour pumping test conducted on Dent Well #2, water levels were observed on a regular basis in former Dent Well #1 which is located 13.3m from Dent Well #2. No other wells are known to exist within approximately 400m of the Dent Well Field. The water level in Dent Well #1 lowered a total of 5.83m by the conclusion of pumping from PW2. This agrees with a Theis estimation of the degree of drawdown at PW1 (5.79m), assuming a transmissivity value of $25m^2$/day, a storage coefficient of $3x10^{-3}$ and a rate of taking of $384.9m^3$/day.

During the 2006 24 hour pumping test conducted on Briar Hill Well #2, water levels were observed on a regular basis in Briar Hill Well #1 (approximately 25m from Briar Hill Well #2) and in a well at 12 King Street (approximately 350m from Briar Hill Well #2). The water level in Briar Hill Well #1 lowered a total of 9.75m by the conclusion of pumping from Briar Hill Well #2. The water level at 12 King Street lowered a total of 2.76m by the conclusion of pumping from Briar Hill Well #2, but was in occasional use during the testing program. The degree of interference at Briar Hill Well #1 agrees with a Cooper and Jacob estimation of the degree of drawdown at PW1 (9.56m), assuming a transmissivity value of $30m^2$/day, a storage coefficient of $1x10^{-3}$ and a rate of taking of $772m^3$/day. The degree of interference at 12 King Street agrees with a Cooper and Jacob estimation of the degree of drawdown at 12 King Street (2.83m), assuming a transmissivity value of $46m^2$/day, a storage coefficient of $1x10^{-4}$ and a rate of taking of $772m^3$/day.

The interference observations collected during the 2003 and 2006 well testing programs indicate that for planning purposes higher-yielding future municipal wells should conservatively be spaced apart approximately a similar distance to the Dent-Briar Hill distance (i.e. ≥700m) so that mutual interference potential is minimized. Furthermore, for planning purposes future municipal wells should conservatively be set back from existing domestic wells a similar distance to the Briar Hill Well #2 to 12 King Street distance (i.e. ≥350m) to avoid adverse interference potential at domestic wells. Should Teeswater Concrete elect to renew the PTTW for 180 Main Street, future well site setbacks from 180 Main Street will also need to be established to also avoid adverse mutual interference.

SUMMARY:

1. The bedrock aquifer is the only realistically viable aquifer for municipal use.

2. The water from the bedrock aquifer can be expected to be mineralized, with potential for elevated total dissolved solids, sulphate, iron and sodium also indicated by previous well testing programs.

3. Available information indicates that wells completed in the bedrock aquifer have a 54% chance that they are capable of meaningful yields for municipal use (i.e. ≥200L/min). As in most bedrock aquifers, actual yields can vary considerably over short distances due to distribution and connection of fracture systems in the rock. Multiple test drilling sites can be required in bedrock aquifer settings.

4. Previous testing data and information from other PTTW's indicate that bedrock aquifer recharge rates are limited in portions of the community. For planning purposes, each properly-spaced future successful well field site should conservatively be assumed to be capable of a safe long-term yield in the range of 250m^3/day. To achieve a sufficient combined yield to meet future demand (i.e. upwards of 460m^3/day in addition to current supply), it is likely that two additional, properly-spaced, successful well field sites may be required.

5. Based on previous testing results, for planning purposes higher-yielding future municipal wells should conservatively be spaced apart approximately a similar distance to the Dent-Briar Hill distance (i.e. ≥700m) so that adverse mutual interference potential is minimized.

6. Based on previous testing results, for planning purposes future municipal wells should conservatively be set back from existing domestic wells a similar distance to the Briar Hill Well #2 to 12 King Street distance (i.e. ≥350m) to avoid adverse interference potential at domestic wells.

7. Should Teeswater Concrete elect to renew the PTTW for 180 Main Street, future well site setbacks from 180 Main Street will also need to be established to also avoid adverse mutual interference.

8. Based on secure geological setting, standard WHPA setbacks of 100m will be required.

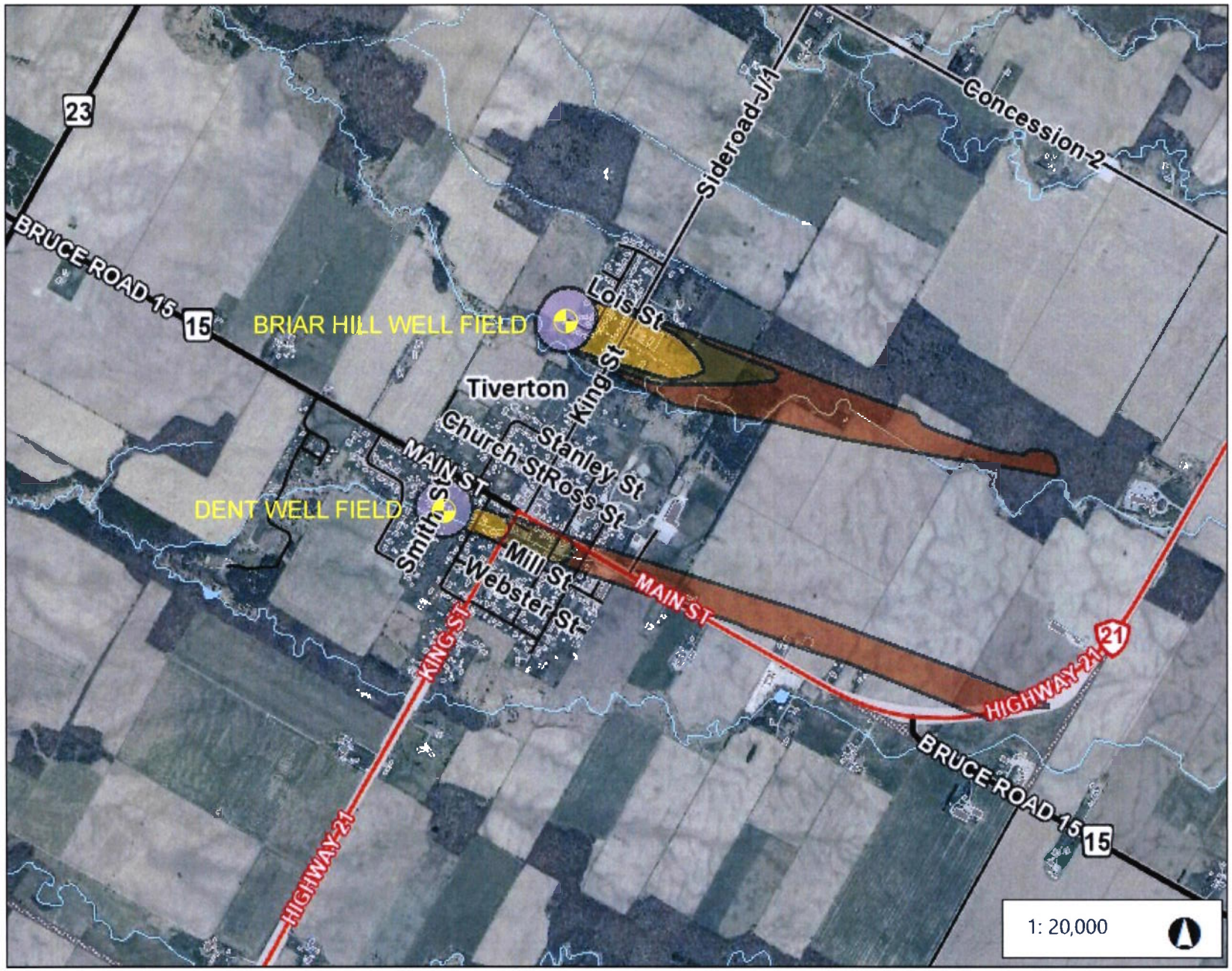
Should there be any questions regarding the above information and analysis, please do not hesitate to contact this office.

Yours sincerely,
IAN D. WILSON ASSOCIATES LIMITED

Geoffrey Rether, P.Geo.

PROFESSIONAL GEOSCIENTIST
GEOFFREY B. RETHER
PRACTISING MEMBER
0426
ONTARIO

County of Bruce





Legend

- Intake Protection Zone
  - 4 - 5.9
  - 6 - 7.9
  - 8 - 9.9
  - 10
- Wellhead Protection Area Boundaries
  - Zone A - 100m Buffer
  - Zone B - 2 yr ToT
  - Zone C - 10 yr ToT
  - Zone D - 25 yr ToT
- Ferry
- Provincial Highway
- County Road
  - County Road
  - Bridge reconstruction
- Municipal or Other Road
  - Municipal or Other Road
  - Bridge Detrou
- Building Footprint
- Body of Water
- Evaluated Wetland
- Watercourse
  - Permanent Stream
  - Intermittent Stream
- Road Allowance and Right-of-Wa
  - Private Road Allowance
  - Right-of-Way
  - Road Allowance or Condo Road
  - Unopened Road Allowance
- Wetland
- Body of Water
- Stream
- Built-up area
- Adjacent Counties

Notes

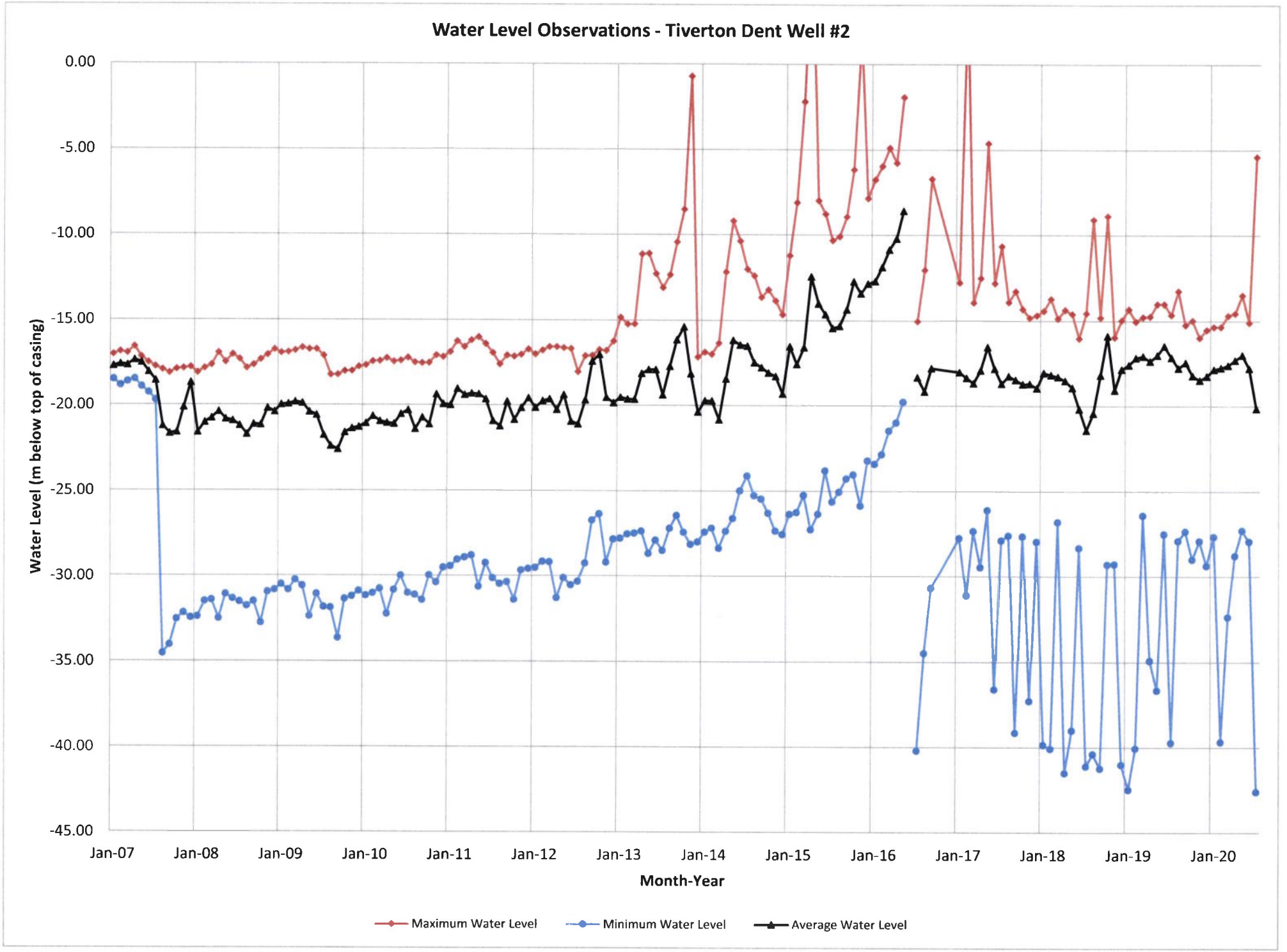
1.0 0 0.51 1.0 Kilometers

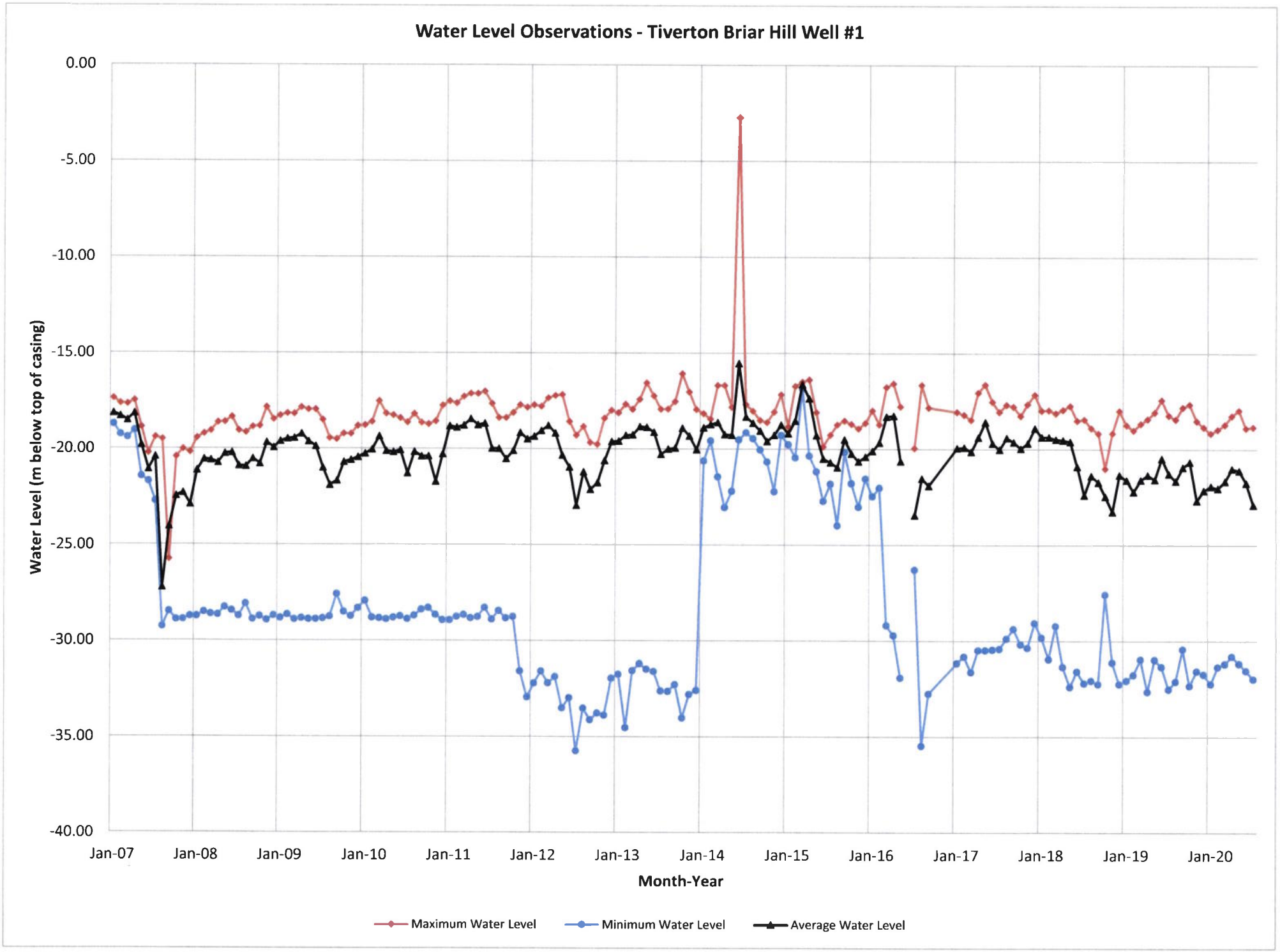
NAD_1983_UTM_Zone_17N

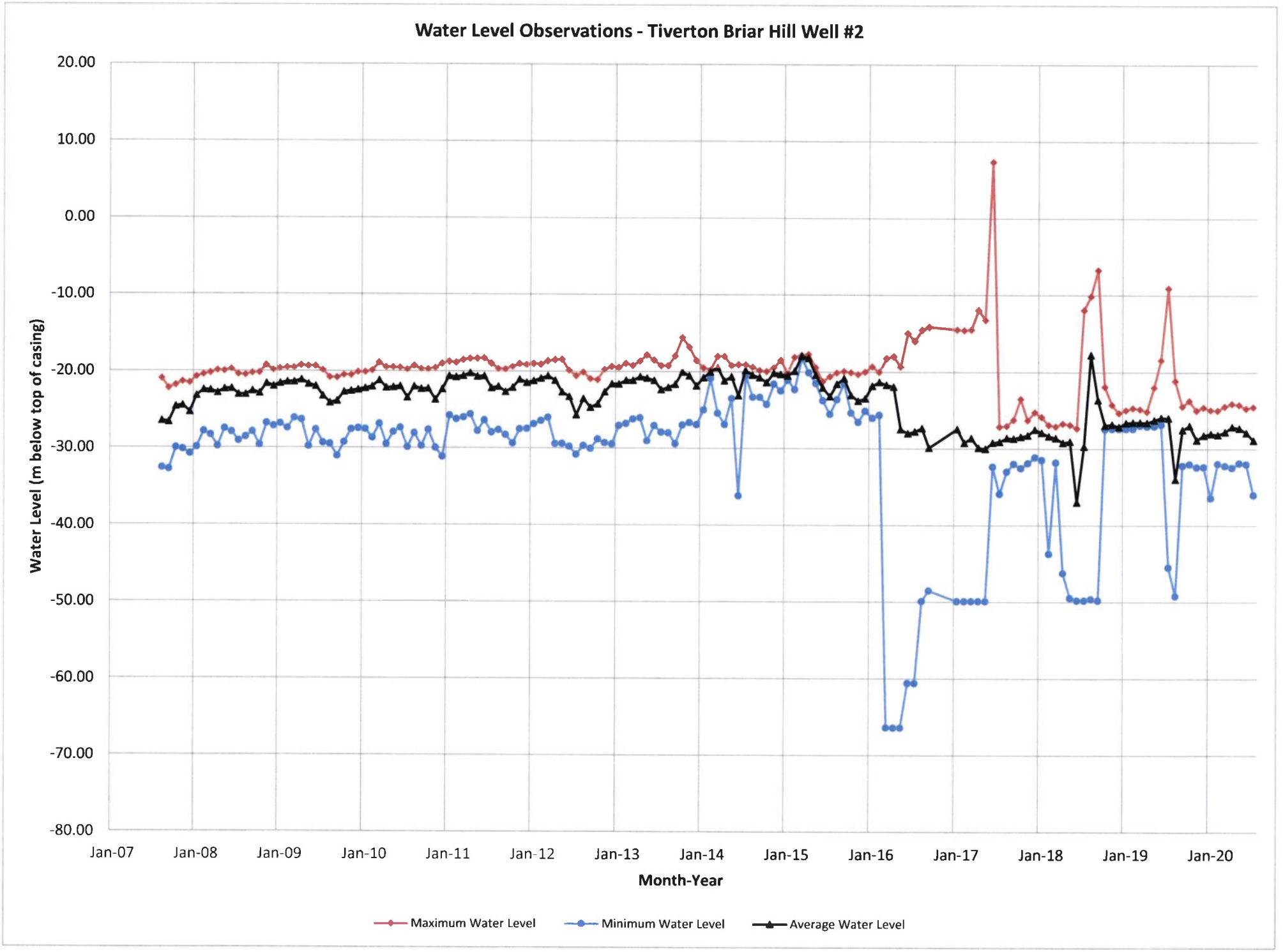
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This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION


Water Level Observations - Tiverton Dent Well #2
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00
-45.00
Water Level (m below top of casing)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Month-Year
Maximum Water Level
Minimum Water Level
Average Water Level


Water Level Observations - Tiverton Briar Hill Well #1
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00
Water Level (m below top of casing)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Month-Year
Maximum Water Level
Minimum Water Level
Average Water Level


Water Level Observations - Tiverton Briar Hill Well #2
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
Water Level (m below top of casing)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Month-Year
Maximum Water Level
Minimum Water Level
Average Water Level

Tiverton Water Supply
Desktop Water Well Records Review

MECP Well No. (14-xxxxx)	Well Depth feet	Depth to Bedrock Surface (feet)	Static Water Level (feet)	Reported Final Pumping Level (feet)	Reported Test Yield GPM	Test Period hours	Reported Drawdown feet	Available Drawdown feet above BR	Specific Capacity GPM/ft	Theoretical Yield GPM	Factored Yield GPM	Comment
781	152	130	60	70	15	6	10	70	1.5	105.0	52.5	
782	161	116	76	78	10	5	2	40	5.0	200.0	100.0	
783	221	162			13							
784	231	156	45	50	10	6	5	111	2.0	222.0	111.0	
792	181	112	56	57	12	4	1	56	12.0	672.0	336.0	NDD
793	193	99	22	82	4		60	77	0.1	5.1	2.6	
794	199	176	18	55	6	8	37	158	0.2	25.6	12.8	
795	244.5	198	35	60	20	6	25	163	0.8	130.4	65.2	
1662	131	84	40	50	12	5	10	44	1.2	52.8	26.4	
1675	150	90	55	70	7	5	15	35	0.5	16.3	8.2	
1677	143	118	40	55	12	6	15	78	0.8	62.4	31.2	
1678	138	92	46	47	10	5	1	46	10.0	460.0	230.0	NDD
1680	201	143	60	68	10	1	8	83	1.3	103.8	51.9	
1700	187	155	13	17	10	1	4	142	2.5	355.0	177.5	
1702	175	134	42	50	12	6	8	92	1.5	138.0	69.0	
1703	185	143	38	45	13	1	7	105	1.9	195.0	97.5	
1704	170	104	41	55	10	6	14	63	0.7	45.0	22.5	
2120	224	161	55	69	9		14	106	0.6	68.1	34.1	
2121	233	148	50	90	30	30	40	98	0.8	73.5	36.8	
2204	157	100	20	22	10	1	2	80	5.0	400.0	200.0	
2307	260	195	65	90	30	8	25	130	1.2	156.0	78.0	
2557	211	167	30	34	16	1.3	4	137	4.0	548.0	274.0	
2662	217	174	19	39	8	2.6	20	155	0.4	62.0	31.0	
2681	174	127	75	79	18	1.2	4	52	4.5	234.0	117.0	
2682	162	87	67	72	10	1	5	20	2.0	40.0	20.0	
2692	146	91	60	72	10	3	12	31	0.8	25.8	12.9	
2693	133	70	64	80	8	3	16	6	0.5	3.0	1.5	
2695	157	126	48	115	107	24	67	78	1.6	124.6	99.7	Dent Well #1

MECP Well No. (14-xxxxx)	Well Depth feet	Depth to Bedrock Surface (feet)	Static Water Level (feet)	Reported Final Pumping Level (feet)	Reported Test Yield GPM	Test Period hours	Reported Drawdown feet	Available Drawdown feet above BR	Specific Capacity GPM/ft	Theoretical Yield GPM	Factored Yield GPM	Comment
2748	305	154	45	125	80	24	80	109	1.0	109.0	87.2	Briar Hill #1
2753	205	145	45	203	200	3	158	100	1.3	126.6	101.3	
2772	139	88	53	70	8	1	17	35	0.5	16.5	8.2	
2774	140	75	61	66	7	1	5	14	1.4	19.6	9.8	
3153	199	169	54	56	15	1	2	115	7.5	862.5	431.3	
3204	219	167	46	65	6	1	19	121	0.3	38.2	19.1	
3309	225	189	32	35	15	1	3	157	5.0	785.0	392.5	
3459	210	179	30	60	15	4	30	149	0.5	74.5	37.3	
3908	220	167	68	80	10	1.2	12	99	0.8	82.5	41.3	
4000	142	86	54	58	12	1	4	32	3.0	96.0	48.0	
4005	291	191	43	72	33	1.25	29	148	1.1	168.4	84.2	
4185	136	64	52	65	10	1	13	12	0.8	9.2	4.6	
4483	255	115	40	125	36	24	85	75	0.4	31.8	15.9	
4505	200	162	38	40	20	1	2	124	10.0	1240.0	620.0	
4788	245	198	44	120	15	2.2	76	154	0.2	30.4	15.2	
4839	141	79	46	53	10	1	7	33	1.4	47.1	23.6	
4840	216	187	64	97	8	1	33	123	0.2	29.8	14.9	
4895	216	160	38	42	12	1.2	4	122	3.0	366.0	183.0	
5274	150	145	25	35	20	6.25	10	120	2.0	240.0	120.0	OB
6318	245	126	64	125	4	2	61	62	0.1	4.1	2.0	
6337	228	189	62	81	20	1.5	19	127	1.1	133.7	66.8	
6591	201	158	86	98	8	1.5	12	72	0.7	48.0	24.0	
7761	186	151	35	37	10	5	2	116	5.0	580.0	290.0	
7830	184	148	56	67	10	1.5	11	92	0.9	83.6	41.8	
8287	138	85	62	75	15	1.5	13	23	1.2	26.5	13.3	
8560	204	120	60	61	15	1	1	60	15.0	900.0	450.0	NDD
8638	142	120	72	100	30	1.5	28	48	1.1	51.4	25.7	
8796	224	203	51	52	15	2	1	152	15.0	2280.0	1140.0	NDD
8797	129	82	51	52	12	2	1	31	12.0	372.0	186.0	NDD
8907	158	102	26		30	1						
8933	228	189	62	81	20	1.5	19	127	1.1	133.7	66.8	

MECP Well No. (14-xxxxx)	Well Depth feet	Depth to Bedrock Surface (feet)	Static Water Level (feet)	Reported Final Pumping Level (feet)	Reported Test Yield GPM	Test Period hours	Reported Drawdown feet	Available Drawdown feet above BR	Specific Capacity GPM/ft	Theoretical Yield GPM	Factored Yield GPM	Comment
9506	208	177	66	120	10	2	54	111	0.2	20.6	10.3	
9819	250	170	44	60	15	2	16	126	0.9	118.1	59.1	
10577	286	123	62	124	60	24	62	61	1.0	59.0	47.2	Dent Well #2
A011613	146	85	59	65.8	10	1	6.8	26	1.5	38.2	19.1	
A030071	305	167	74.4	126.7	120	24	52.3	92.6	2.3	212.5	170.0	Briar Hill #2
A045567	202	168	58	63	8	2	5	110	1.6	176.0	88.0	
A061744	290	192	58	58.5	50	1	0.5	134	100.0	13400.0	6700.0	NDD
A078121	140	130	33	39	15	2	6	97	2.5	242.5	121.3	
A078131	200	180	54	62	15	2	8	126	1.9	236.3	118.1	
A218836	216	155	34	52.1	10	1	18.1	121	0.6	66.9	33.4	
A258361	257	134	57	57.5	10	1.75	0.5	77	20.0	1540.0	770.0	NDD
A260591	197	144	34	46.4	15	2	12.4	110	1.2	133.1	66.5	
A294514	225	107	28	55	8	1	27	79	0.3	23.4	11.7	
A303713	230	191	33.4	85.1	10	1	51.7	157.6	0.2	30.5	15.2	
A303718	225	185	33.4	41.4	18	1	8	151.6	2.3	341.1	170.6	
Count	74											
Max	305	203			200	30	158	163	100	13400	6700	
Min	129	64			4	1	0.5	6	0.065574	3	1.5	
Avg	197.8	140.0			20.8	4.4	21.1	91.5	4.1	418.7	212.0	

Note: GPM = gallons per minute, BR = bedrock, OB = Overburden well, NDD = little to no drawdown reported at low pumping rate, theoretical yield unlikely to be realistic.
Factored yield is 50% of theoretical yield for low test rates (i.e. below 60gpm) and 80% of theoretical yield for higher test rates, to account for well construction and testing uncertainties, and well losses

Dent Well #1

The Ontario Water Resources Commission Act

WATER WELL RECORD

1402695 | 16709

Peterson Park Subdivision

County	Township, Borough, City, Town, Village	Concession	Lot
Bruce County	Village of Tiverton	Block 1	Plan 210

Owner	Address	Date Completed
Dent, ~~Albert~~ A	Tiverton, Ontario	20 May 71

Location: Lot 4 | Concession 4 | Elevation | Easting | Northing

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
Brown	Clay	Sand	soft	0	6
Blue	Clay		hard	6	18
Blue	Clay	Gravel streaks	hard	18	42
	Sand	Gravel	dense	42	52
Blue	Clay		hard	52	105
Brown	Hardpan	Stones	hard	105	126
Brown	Limestone		soft	126	138
Brown	Limestone		hard	138	157

API

31 | 32

WATER RECORD

Water found at - Feet	Kind of Water
0138	1 Fresh 2 Salty 3 Sulphur 4 Mineral
0156	1 Fresh 2 Salty 3 Sulphur 4 Mineral

CASING & OPEN HOLE RECORD

Inside Diameter	Material	Wall Thickness	Depth - Feet From	Depth - Feet To
08	1 Steel 2 Galvanized 3 Concrete 4	.264	0	0132
	1 Steel 2 Galvanized 3 Concrete 4 Open Hole		132	157
	1 Steel 2 Galvanized 3 Concrete 4 Open Hole			0157

SCREEN

Material and Type | Depth to Top of Screen - Feet

PLUGGING & SEALING RECORD

Depth Set at - Feet From	To	Material and Type	Amount (Cubic Yards, Cubic Metres, etc.)

PUMPING TEST

Pumping ☐ Bailer | 0107 GPM | 24 Hours 00

Static Level	Water Level End of Pumping	Water Levels Taken	10 Minutes	20 Minutes	40 Minutes	60 Minutes
048	115	Pumping / Recovery	099	102	104	105

If Flowing, Rate | Pump Intake Set at 125 | Water at End of Test ☒ Clear ☐ Cloudy

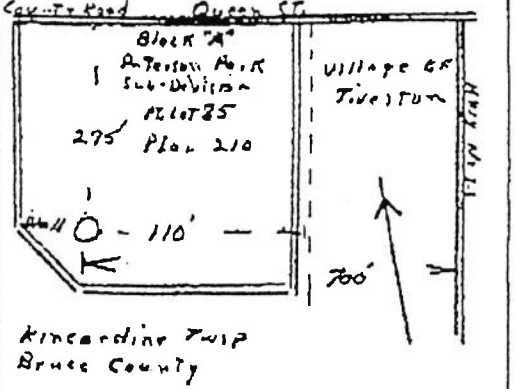
Recommended Pump Type ☐ Shallow ☐ Deep | Recommended Pump Setting 125 | Recommended Pump Rate 0100 GPM

0076 GPM/FT. Specific Capacity

Final Status of Well	☒ Water Supply 2 ☐ Observation Well 3 ☐ Test Hole 4 ☐ Recharge Well 5 ☐ Abandoned, Insufficient Supply 6 ☐ Abandoned, Poor Quality 7 ☐ Dewatered
Water Use 06	1 ☐ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☒ Municipal 7 ☐ Public Supply 8 ☐ Cooling or Air Conditioning 9 ☐ Not Used 10 ☐ Other
Method of Drilling	1 ☒ Cable Tool 2 ☐ Rotary (Conventional) 3 ☐ Rotary (Reverse) 4 ☐ Rotary (Air) 5 ☐ Air Percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Kincardine Twp
Bruce County

CONTRACTOR

Name of Well Contractor	Licence Number
Davidson Well Drilling Ltd.	1737
Address: Box 486, Wingham, Ontario	
Name of Driller or Borer: Ed. Thompson, Wingham	Licence Number
Signature of Contractor: per H J Davidson	Date of Completion: 22 May 71

OFFICE USE ONLY

Date Received: 1	Contractor: 1737	Well Record: 250571	
Date of Inspection	Inspector		
Remarks			P71
	CSS.58		WI

OWRC COPY

Ontario Ministry of Environment and Energy

The Ontario Water Resources Act

WATER WELL RECORD

Dent Well #2

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
BRUCE	TIVERTON VILLAGE					

Owner's surname	First Name	Address of Well Location	Date completed (day / month / year)
MUNICIPALITY OF KINCARDINE		KINCARDINE ONT.	18 / 9 / 2003

Zone | Easting | Northing

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see Instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
YELLOW	CLAY	BROWN CLAY		0	10
GREY	CLAY			10	28
BROWN	STONES		LAYERED	28	35
GREY	CLAY	STONES		35	52
GREY	STONES	GREY CLAY	PACKED	52	119
GREY	HARDPAN	STONES	PACKED	119	123
BROWN	LIMESTONE		MED.	123	130
BROWN	LIMESTONE		FRATURED	130	140
BROWN	LIMESTONE		HARD, WITH FRACTURES	140	286

WATER RECORD

Water found at - feet	Kind of water		
130	☒ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
250-255	☒ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam Inches	Material	Wall thickness Inches	Depth - feet From	Depth - feet To
8"	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.264	+2	128
8"	☐ Steel ☐ Galvanized ☒ Concrete ☐ Open hole ☐ Plastic		128	286
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

PLUGGING & SEALING RECORD

ANN ☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0	128	HIGH SOLIDS BENTONITE

PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
☒ Pump ☐ Bailer	50 GPM	4 Hours ___ Mins

Static level	Water level end of pumping	Water levels during ☒ Pumping ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
66 feet	140 feet	feet	feet	feet	140 feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	150 feet	☒ Clear ☐ Cloudy

Recommended pump type	Recommended pump setting	Recommended pump rate
☐ Shallow ☐ Deep	150 feet	50 GPM

FINAL STATUS OF WELL

☐ Water supply ☐ Abandoned, insufficient supply ☐ Unfinished
☐ Observation well ☐ Abandoned, poor quality ☒ Replacement well
☐ Test hole ☐ Abandoned (Other)
☐ Recharge well ☐ Dewatering

WATER USE

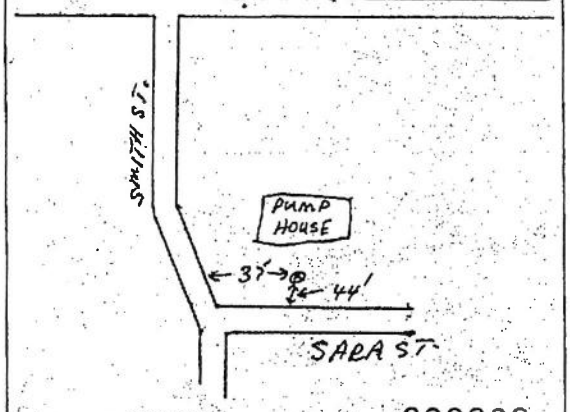
☐ Domestic ☐ Commercial ☐ Not use
☐ Stock ☐ Municipal ☐ Other
☐ Irrigation ☐ Public supply
☐ Industrial ☐ Cooling & air conditioning

METHOD OF CONSTRUCTION

☐ Cable tool ☐ Air percussion ☐ Driving
☒ Rotary (conventional) ☐ Boring ☐ Digging
☐ Rotary (reverse) ☐ Diamond ☐ Other
☐ Rotary (air) ☐ Jetting

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



44 16.04N 81 32.48W

266909

Name of Well Contractor	Well Contractor's Licence No.
W.D.HOPPER & SONS LTD.	2504

Address	
RR# 2 SEAFORTH ONT.	

Name of Well Technician	Well Technician's Licence No.
ALLAN HOPPER	T-2578

Signature of Technician/Contractor	Submission date (day / mo / yr)
	23 / 9 / 2003

MINISTRY USE ONLY

1 - CONTRACTOR'S COPY

0506 (06/02) Front Form 9

Briar Hill #1

Water management in Ontario 1 PRINT ONLY IN SPACES PROVIDED 2 CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402748 | MUNICIP. 14209 | CON.

COUNTY OR DISTRICT: Bruce County
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Village of Tiverton
CON., BLOCK, TRACT, SURVEY, ETC.: ~~Plan 169, 210 King St. W.~~ LOT:

OWNER (SURNAME FIRST): ~~McArthur, Herbert L.~~
ADDRESS: Box 941, Acton, Ontario.
DATE COMPLETED: DAY 05 MO ~~Aug.~~ YR 71

21 | ZONE: 17 | EASTING: 461671 | NORTHING: 4842465 | RC: 4 | ELEVATION: 0750 | BC: 5 | BASIN CODE: 42

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	Topsoil			0	1
Brown	Clay	Sandy	Soft	1	4
	~~Sand~~		Soft	4	9
Blue	Clay	Grit	Hard	9	22
Brown	Hardpan	Small Stones	Hard	22	48
~~Blue~~	~~Clay~~		Soft	48	~~107~~
Brown	Clay	Silt, Sand, Gravel, Stones	Mixed	107	111
Brown	Hardpan	Small Stones	Hard	111	124
~~Brown~~	~~Hardpan~~	~~Stones, Boulders~~	Hard	~~124~~	~~154~~
Brown	Limestone		Med. Hard	154	214
Dk. Brn.	Limestone		Med. Soft	214	233
Brown	Limestone		Hard	233	254
Brn. White	Limestone		Med. Hard	254	267
Lt. Brown	Limestone		Hard	267	282
Brown	Limestone		Med. Soft	282	293
Brown	Limestone		Hard	293	296
Grey- Brn.	Limestone		Hard	296	305

APL

31 | 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
228	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
284	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
296	1 ☐ FRESH 2 ☒ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE	.264	0	156-1
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		156-1	305
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN: SIZE(S) OF OPENING (SLOT NO.) | DIAMETER | LENGTH (INCHES) | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN (FEET)

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC)
0	156	Bentonite Grout

71 PUMPING TEST

PUMPING TEST METHOD: ~~Turbine~~ BAILER | PUMPING RATE: 60 GPM | DURATION OF PUMPING: 24 HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING ☐ PUMPING ☐ RECOVERY: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
45 FEET	125 FEET	115 FEET	117 FEET	118 FEET	118 FEET

IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 155 FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 155 FEET | RECOMMENDED PUMPING RATE: 80 GPM

GPM /FT. SPECIFIC CAPACITY

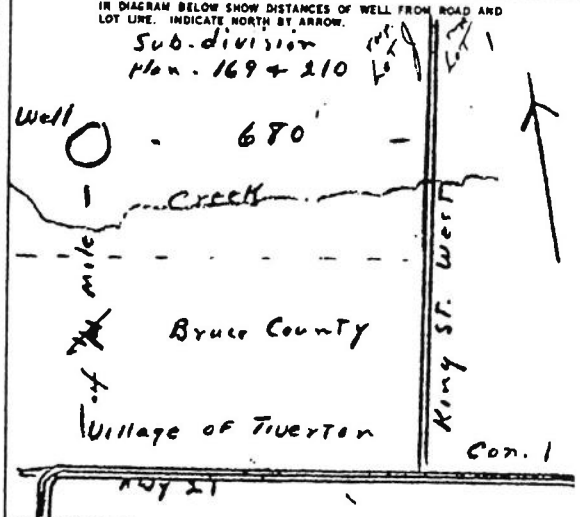
FINAL STATUS OF WELL: 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE: 1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING ☐ OTHER Sub-division ☐ NOT USED

METHOD OF DRILLING: 1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. | LICENCE NUMBER: 1737
ADDRESS: Box 486, Wingham, Ontario
NAME OF DRILLER OR BORER: Doug. Davidson, E. Thompson | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: per H. L. Davidson | SUBMISSION DATE: DAY 6 MO Aug. YR 71

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR | DATE RECEIVED: 250871
DATE OF INSPECTION | INSPECTOR
REMARKS:
P 71
WI

OWRC COPY

Ontario the Environment

Regulation 903 Ontario Water Resources Act

#A030071

page ___ of ___

Briar Hill #2

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10th of a metre.
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

First Name | Last Name: MUNICIPAL ADMIN CENTER OF KINCARDINE

Mailing Address (Street Number/Name, RR, Lot, Concession): RR#5 1475 CON 5

County/District/Municipality | Township/City/Town/Village: KINCARDINE | Province: Ontario | Postal Code: N2Z 2X6 | Telephone Number (include area code)

Address of Well Location (County/District/Municipality): BRUCE

Township: SAUGEEN SHORES | Lot: E T | Concession: 1

RR#/Street Number/Name | City/Town/Village | Site/Compartment/Block/Tract etc.

GPS Reading | NAD: 8 3 | Zone: 17 | Easting: 456783 | Northing: 4902424 | Unit Make/Model: MAGELLEN | Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify | UTM

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	CLAY			0	54ft
BROWN	CLAY & STONES			54ft	60ft
GRAY	CLAY			60ft	102ft
GRAY	CLAY & STONES			102ft	167ft
BROWN	LIMESTONE SOFT			167ft	169ft
BROWN	LIMESTONE MED			169ft	305ft

Hole Diameter

Depth From	Depth To	Diameter Centimetres
236ft		
0	171ft	12.25in
171ft	305ft	8in

Water Record

Water found at Metres	Kind of Water	
236ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
272ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
282ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify

Chlorinated? ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To Metres
Casing				
8.65in	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.219	0	171ft
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		171ft	305ft

Test of Well Yield

Pumping test method: pump test to be done later

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at (metres)	Static Level			
Pumping rate (litres/min)	1		1	
Duration of pumping ___ hrs + ___ min	2		2	
Final water level end of pumping ___ metres	3		3	
Recommended pump type: ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___ metres	5		5	
Recommended pump rate. (litres/min)	10		10	
	15		15	
If flowing give rate - (litres/min)	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record ☐ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	171ft	BENSEAL BENTONITE SLURRY	

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☒ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☒ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Well Contractor/Technician Information

Name of Well Contractor: KEITH LANG WELL DRILLING INC | Well Contractor's Licence No.: 7154

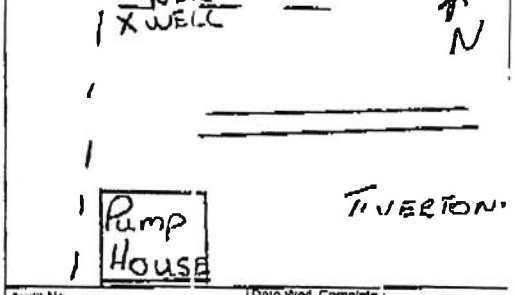
Business Address (street name, number, city etc.): 251 ELDON ST GODERICH ONT

Name of Well Technician (last name, first name): KEITH LANG | Well Technician's Licence No.: T446

Signature of Technician/Contractor: Keith Lang | Date Submitted YYYY MM DD

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No.: Z 48442 | Date Well Completed: YYYY 2006 MM 12 DD

Was the well owner's information package delivered? ☐ Yes ☒ No | Date Delivered YYYY MM DD

Ministry Use Only

Data Source | Contractor

Date Received YYYY MM DD | Date of Inspection YYYY MM DD

Remarks | Well Record Number

0506E (03/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ Cette formule est disponible en français

UTM 17 E 4516191010
5 N 4910131510
Elev. 5 R 0171317
Basin 22 A 11

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

GROUND WATER BRANCH
AUG 23 1960
ONTARIO WATER RESOURCES COMMISSION

14 No 781

County or District Bruce — Township, Village, Town or City Bruce
Con. I — Lot PT. 1 — Date completed 21 (day) June (month) 1960 (year)
[redacted] — Address Tiverton

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 132'
Type of screen —
Length of screen —
Depth to top of screen —
Diameter of finished hole 4"

Pumping Test

Static level 60'
Test-pumping rate 15' G.P.M.
Pumping level 70'
Duration of test pumping 6 hrs.
Water clear or cloudy at end of test Clear
Recommended pumping rate 12 G.P.M.
with pumping level of 70'

Well Log

Overburden and Bedrock Record	From ft.	To ft.
clay	0	18
gradely hardpan	18	36
soft clay	36	76
hardpan	76	91
clay & shales	91	130
brown rock	130	152

Water Record

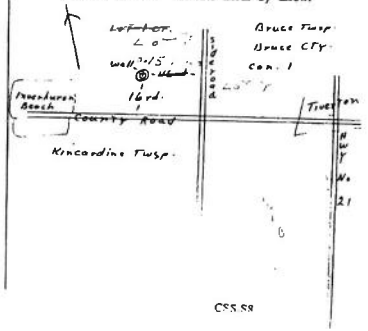
Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
152	92'	Fresh

For what purpose(s) is the water to be used?
Farm - Domestic
Is well on upland, in valley, or on hillside?
upland
Drilling Firm G. L. Davidson
Address Wingham

Licence Number 593
Name of Driller Geo. Chetterbury
Address Wingham
Date July 21/60
G. L. Davidson
(Signature of Licensed Drilling Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

UTM 17 E 4516121010
5 N 4910121010
Elev. 5 R 0171717
Basin 22 A 11

The Ontario Water Resources Commission Act

WATER WELL RECORD

14 No 782

County or District Bruce — Township, Village, Town or City Bruce
Con. I — Lot PT. 1 — Date completed 29 (day) Sept (month) 1966 (year)
[redacted] — Address R.R.2, Tiverton, Ont

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 135
Type of screen —
Length of screen —
Depth to top of screen —
Diameter of finished hole 4"

Pumping Test

Static level 76'
Test-pumping rate 10 G.P.M.
Pumping level 78'
Duration of test pumping 5 hrs.
Water clear or cloudy at end of test Clear
Recommended pumping rate 10 G.P.M.
with pump setting of 90 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.
clay	0	4'
sand	4	42'
clay	42	48
gravel, sand, clay	48	116
shale, clay, SHET	116	137
rock, brown, med. SOFT	137	161

Water Record

Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
161	Fresh

For what purpose(s) is the water to be used?
Domestic - Stock
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson
Address Wingham

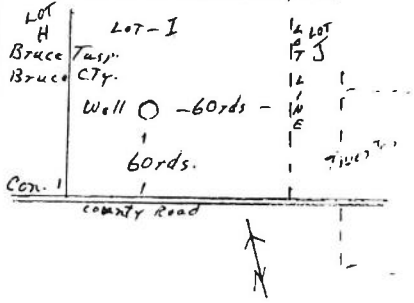
Licence Number 2069
Name of Driller or Borer E. Thompson
Address Wingham
Date Sept. 30
G. L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4136

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

4

UTM 17 E 415716715 E
N 4910121012215 N
Elev. 7 R 018101 1
Basin 212 1 1

The Well Drillers Act
Department of Mines, Province of Ontario

RECEIVED
FEB 4 1948
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

No. 783

Water Well Record

(Now in Village of Tiverton)

County or District Bruce Co. To Bruce Co. Con. 1 Lot 2 Pt. Lot
[redacted] Ont. Acres 100
(including pump)

Pipe and Casing Record	Pumping Test
Casing diameter(s) 4 - I.D.	Date Nov 6
Length(s) of casing(s)	Developed Capacity
Length of screen	Duration of Test
Type of screen	Pumping Rate 13 gal
Type of pump	Drawdown
Capacity of pump	Static level of completed well 4.6
Depth of pump setting	Is well a gravel-wall type?

Water Record

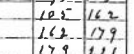
	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
Kind (fresh or mineral) fresh			175
Quality (hard, soft, contains iron, sulphur etc.) hard			
Appearance (clear, cloudy, coloured) clear			
For what purpose(s) is the water to be used? Domestic			
How far is well from possible source of contamination?			
What is source of contamination?			
Enclose a copy of any mineral analysis that has been made of water			

Well Log

Drift and Bedrock Record	From	To
Fine gravel	0 ft.	90 ft.
Clay	90	105
Gravel	105	162
Till	162	179
hard brown limestone w/c/p	179	221

Location of Well

In diagram below show distances of well from road and lot line



175 ft from con 1 road
47 rods from W line

Situation: Is well on upland, in valley, or on hillside?
Drilling Firm J. J. Davidson
Address Wingham
Recorded by Gordon Davidson Driller Address Wingham
Date Dec. 31 '47 Licence Number

CSS.S8

3

Roadside Picnic Site
UTM 17 E 415818715 E
Con 3 R 4910111218 D N
Elev. 60 T 5 R 6 018113

The Ontario Water Resources Commission Act

WATER WELL RECORD

GROUND WATER BRANCH
14 No 784
MAY 9
ONTARIO WATER RESOURCES COMMISSION

Basin 212
County ~~or District~~ Bruce
Township, ~~Village, Town or City~~ Bruce
Con. 1 Lot pt 6
Date completed 29 (day) March (month) 1948 (year)
Owner Dept. of Highways (print in block letters)
Address Owen Sound (D.C.), Ont.

Casing and Screen Record	Pumping Test
Inside diameter of casing 4"	Static level 45'
Total length of casing 199-4	Test-pumping rate 10 G.P.M.
Type of screen —	Pumping level 90'
Length of screen —	Duration of test pumping 6 hrs.
Depth to top of screen —	Water clear or cloudy at end of test Clear
Diameter of finished hole 4"	Recommended pumping rate 6 G.P.M.
	with pump setting of 55 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
clay, blue	0	52		
fine Sand	52	62		
Clay, blue	62	76		
Sand & clay	76	122		
hardpan	122	134		
Sand	134	136		
Stony hardpan	136	196		
Limestone, dark brown hard	196	221	221	Fresh

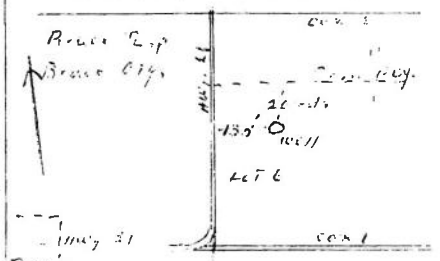
For what purpose(s) is the water to be used? Public Service - PARK
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson "Davidson's Well Drilling"
Address Jerophine St Wingham, Ont.
Licence Number 951
Name of Driller or Borer E. Thompson
Address Wingham
Date Mar. 29/48
G. L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 10M-62-1152

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

D5-C

UTM 17 E 415151910
N 4910412510
Elev. 9 R 017512
Basin 212

17

RECEIVED
JUL 24 1952
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

14 No 792

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

[redacted], Village, Town or City [illegible]
(Township, Town or City) Limestone P.O.
Date Completed 22 (day) June (month) 1952 (year) Cost of Well (excluding pump)

Pipe and Casing Record

Casing diameter(s) 4"
Length(s) of casing(s) 150'
Type of screen
Length of screen
Distance from top of screen to ground level
Is well a gravel-wall type?

Pumping Test

Date
Static level 56
Pumping level 80 draw down
Pumping rate 12 Gal per min Pump Capacity
Duration of test
Distance from cylinder or bowls to ground level

Water Record

Kind (fresh or mineral) Fresh
Quality (hard, soft, contains iron, sulphur, etc.) Soft
Appearance (clear, cloudy, coloured) Clear
For what purpose(s) is the water to be used? Farm
How far is well from possible source of contamination?
What is the source of contamination?
Enclose a copy of any mineral analysis that has been made of water

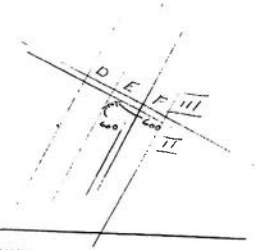
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
150	fresh	
180	"	

Well Log

Overburden and Bedrock Record	From 0 ft.	To ft.
Clay Well	0	42
Gravel	42	50
Clay & Boulders	50	87
Clay Gravel	87	112
Clay Shale	112	140
Brown Limestone	140	170
Yellow Limestone	170	181

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Situation: Is well on upland, in valley, or on hillside?
Drilling Firm R. Lawson & Co. Limited
Address R.R. 1 Clifford
Name of Driller Wellington L. Clarke Address R.R. 1 Clifford
Date July 2 - 52 Licence Number 358
Boxwood Driller
Signature of Licensee

Form 5

C55.58

UTM 17 E 415171514810
N 4910413101215
Elev. 9 R 017510
Basin 212

14 No 793

RECEIVED
DEC 20 19[illegible]
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

[redacted] Con. N Mallard No 7 Lot A
Township Clinton Concession 2 Lot Pt. Lot
(Township, Town or City) Clinton R R 3 Acres
Date Completed [illegible] Cost of Well (excluding pump)

Pipe and Casing Record

Casing diameter(s) 4
Length(s) of casing(s)
Length of screen
Type of screen
Type of pump
Capacity of pump
Depth of pump setting

Pumping Test

Date
Developed Capacity
Duration of Test
Pumping Rate 4 Gal
Drawdown 60 ft
Static level of completed well 22 ft
Is well a gravel-wall type?

Water Record

Kind (fresh or mineral) Fresh
Quality (hard, soft, contains iron, sulphur etc.) hard
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? Domestic & stock
How far is well from possible source of contamination? —
What is source of contamination?
Enclose a copy of any mineral analysis that has been made of water

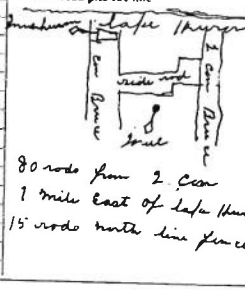
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
		173

Well Log

Drift and Bedrock Record	From 0 ft.	To ft.
sand	0	99
rock	99	193

Location of Well

In diagram below show distances of well from road and lot line



80 rods from 2 Con
1 mile East of Lake Huron
15 rods north line fence

Situation: Is well on upland, in valley, or on hillside?
Drilling Firm Fred L. Wansbrough
Address Wingham
Recorded by Fred Sturdy driller Address Wingham
Date Aug 13 - 1949 Licence Number

C58 ce

UTM 17 | 4515716010 E
17 | 4910131018415 N
Elev. 17 | 017115
Basin 212

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

RECEIVED
JUN 21 1955
GEOLOGICAL BRANCH
DEPARTMENT of MINES

794

Water-Well Record

County or Territorial District Bruce Township, Village, Town or City Bruce
[redacted] Village, Town or City)
(day) (month) (year) Address TIVERTON

Pipe and Casing Record

Casing diameter(s) 4½"
Length(s)
Type of screen
Length of screen

Pumping Test

Static level ~~[illegible]~~ 181'
Pumping rate 6 g.p.m.
Pumping level 550'
Duration of test 8 hrs

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Dug well	0	23			
Clay, gravel	23	132			
Stoney Hardpan	132	176			
Rock, hard	176	199	199'	181'	fresh

Water Record

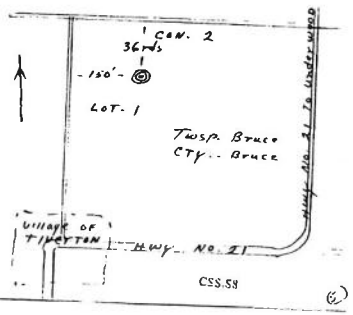
For what purpose(s) is the water to be used? Domestic & Farm Stock
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? Hillside
Drilling firm G. L. DAVIDSON
Address Wingham
Name of Driller E. THOMPSON
Address WINGHAM
Licence Number 73

I certify that the foregoing statements of fact are true.

Date 4 X 55 Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.58

(2)

UTM 17 | 4515716010 E
15 | 4910151715 N
Elev. 15 | 018
Basin 212

APL

The Ontario Water Resources Commission Act, 1957

14 No 795

WATER WELL RECORD

BRUCE

County or District BRUCE Township, Village, Town or City [illegible]
Con. 2 Lot 5 Date completed 12 5 61
(day) (month) (year)
Owner [redacted] Address TIVERTON

Casing and Screen Record

Inside diameter of casing 6.5"38
Total length of casing 201'-3"
Type of screen N/A
Length of screen
Depth to top of screen
Diameter of finished hole 6"

Pumping Test

Static level 35'
Test-pumping rate 20 G.P.M.
Pumping level 60'
Duration of test pumping 6 HRS
Water clear or cloudy at end of test CLEAR
Recommended pumping rate 5' G.P.M.
with pumping level of 60'

Well Log

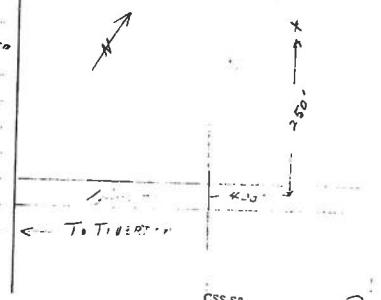
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
CLAY & GRAVEL	0	53			
HARDPAN	53	64			
LIMESTONE	64	198	225'	190	FRESH.
	198	244½			

Water Record

For what purpose(s) is the water to be used? GARAGE
Is well on upland, in valley, or on hillside? UPLAND
Drilling Firm C. GOODBERRY WELL DRILLING LTD
Address 196 INDIAN RD
KINGSTON
Licence Number 55
Name of Driller A. MUNRO
Address CLAYTON
Date 12/5/61
(Signature of Licensed Drilling Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7

CSS.58

(2)

UTM 17 | 453,850 E
9 | 4,900,900 N
Elev. 9 | 0825

14 No. X 1662

GROUND WATER BRANCH
OCT 2 1962
GROUND WATER
COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22
County or District Bruce
Township, Village, Town or City Kincardine
Con. A Lot 62 61 Date completed 13 June 1962
[redacted] Tiverton, ONT

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 98'
Type of screen —
Length of screen —
Depth to top of screen —
Diameter of finished hole 4"

Pumping Test

Static level 40'
Test-pumping rate 12 G.P.M.
Pumping level 50'
Duration of test pumping 3 hrs.
Water clear or cloudy at end of test Clear
Recommended pumping rate 10 G.P.M.
with pump setting of 55' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top Soil	0	6"		
Stones	6"	2'		
Clay, Stones, Hardpan	2'	34'		
gravelly hardpan	34	54		
Stony hardpan	54	84'		
Shale, brown	84	94		
Limestone, brown, soft	94	131'	131	Fresh

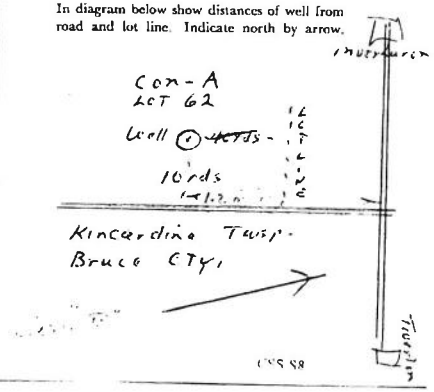
For what purpose(s) is the water to be used? Farm
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson
Address Wingham
Licence Number 560
Name of Driller or Borer G. Showers
Address Wingham
Date Jan 29/62
(Signature of Licensed Drilling or Boring Contractor)

Form 7 5M-61-3852

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

UTM 17 | 454,550 E
5 | 4,902,620 N
Elev. 5 | 0725

14 No. 1675

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22
County or District Bruce
Township, Village, Town or City Kincardine
Con. "A" Lot 69 70 Date completed 4 July 1966
[redacted] Tiverton, ONT

Casing and Screen Record

Inside diameter of casing 4"
Total length of casing 107'
Type of screen —
Length of screen —
Depth to top of screen —
Diameter of finished hole 4"

Pumping Test

Static level 55'
Test-pumping rate 7 G.P.M.
Pumping level 70'
Duration of test pumping 5 hrs.
Water clear or cloudy at end of test clear
Recommended pumping rate 6 G.P.M.
with pump setting of 90 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Clay	0	12		
gravel	12	35		
Sand & gravel	35	41		
gravel	41	46		
Sand	46	58		
Blue clay	58	78		
gravel	78	86		
Sand & gravel	86	90		
Shale, brown, soft	90	107		
Rock, brown, medium	107	150	150	Fresh

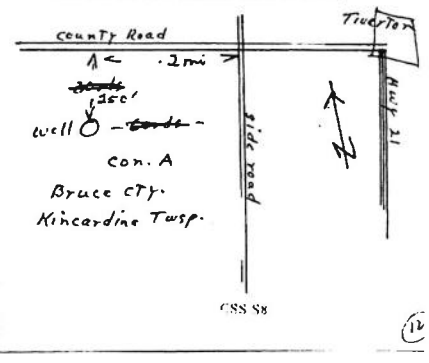
For what purpose(s) is the water to be used? D-Stock
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm Davidson's Well Drilling
Gordon L. Davidson
Address Wingham
Licence Number 2069
Name of Driller or Borer E. Thompson
Address Wingham
Date July 7/66
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

UTM 17 E 453700 E
19 N 4900200 N
Elev. 19 E 10750
Basin 22

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

14 No 1677
GROUND WATER BRANCH
SEP 17 1957
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

County or Territorial District Bruce — Township, Village, Town or City Kincardine
[redacted] Village, Town or City)
Address R.R. 3 Tiverton
Date completed [redacted] (day) [redacted] (month) [redacted] (year)

Pipe and Casing Record

Casing diameter(s) 4¼" I.D.
Length(s) 120'
Type of screen
Length of screen

Pumping Test

Static level 40'
Pumping rate 12 g.p.m.
Pumping level 55'
Duration of test 6 hrs.

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Dug well	0	16'			
Sand & gravel	16'	22'			
Clay, blue	22	62'			
Stoney clay	62	97'			
Clay & shale	97	118'			
Limestone, hard, brown	118	143'	143'	103'	Fresh

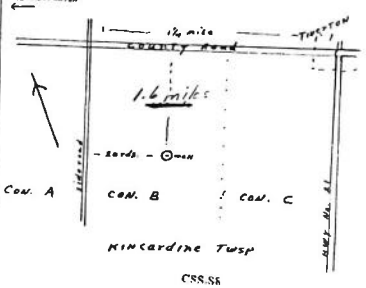
Water Record

For what purpose(s) is the water to be used?
Domestic - Farm Stock
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? Upland
Drilling firm G. L. Davidson
Address Wingham
Name of Driller E. Thompson
Address Wingham
Licence Number 23

I certify that the foregoing statements of fact are true.
Date [redacted] G. L. Davidson
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.58

WAM

UTM 17 E 454250 E
LOT 19 N 4901275 N
Elev. 19 E 10750
Basin 22

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER BRANCH
14 No 1678
[illegible]
ONTARIO WATER
[illegible]

Water-Well Record

County or Territorial District Bruce — Township, Village, Town or City Kincardine
[redacted] Village, Town or City)
Address R.R. 3 Tiverton
[redacted] (day) [redacted] (month) [redacted] (year)

Pipe and Casing Record

Casing diameter(s) 4½ O.D.
Length(s) 112'
Type of screen
Length of screen

Pumping Test

Static level 46'
Pumping rate 10 g.p.m.
Pumping level 46'
Duration of test 5 hrs.

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Dug Well	0	3'			
Brown Clay	3'	18			
Blue Clay	18	46			
Clay & Sand	46	62			
Sand & gravel	62	92			
soft dirty shale	92	112'			
Soft Bruce Limestone	112	138'	138'	92'	fresh

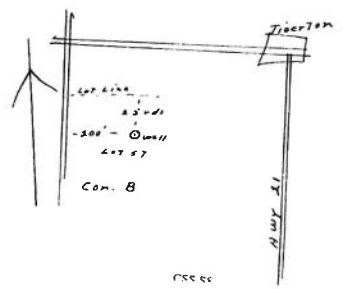
Water Record

For what purpose(s) is the water to be used?
Farm Stock & Domestic
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside? hillside
Drilling firm G. L. Davidson
Address Wingham
Name of Driller E. Thompson
Address Wingham
Licence Number 23

I certify that the foregoing statements of fact are true.
Date [redacted] G. L. Davidson
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.58

WAM

1

UTM 17 E 456045 N 4900700
Elev. 5 R 07165

WATER WELL RECORD

The Ontario Water Resources Commission Act

14 № 1680

Basin 22 County or District Bruce

Township, Village, Town or City Kincardine

Con. C Lot 58 Date completed 14 (day) Sept. (month) 1965 (year)

[redacted] Address R.R.A, GLAMIS

Casing and Screen Record

Inside diameter of casing	4"
Total length of casing	152.2
Type of screen	—
Length of screen	—
Depth to top of screen	—
Diameter of finished hole	4"

Pumping Test

Static level	60'
Test-pumping rate	5.10 G.P.M.
Pumping level	68' at 10 p.m.
Duration of test pumping	1 hr.
Water clear or cloudy at end of test	clear
Recommended pumping rate	10 G.P.M.
with pump setting of	80 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Topsoil	0	1		
brown clay, stoney	1	14		
blue clay	14	68		
Sand & gravel	68	80		
gravel	80	98		
gravelly hardpan	98	112		
Hardpan,	112	143		
Shale, white & brown	143	148		
Limestone, light brown, Med. Hard	148	201	201	Fresh

For what purpose(s) is the water to be used? D-S

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm G.L. Davidson

Address Wingham

Licence Number 1758

Name of Driller or Borer Doug. Davidson

Address Wingham

Date Sept 15, 1965

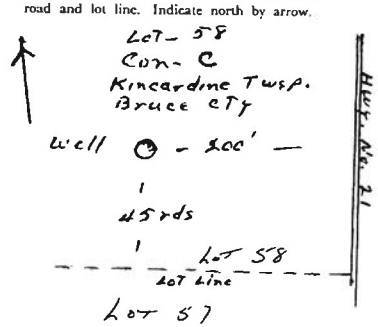
G. L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

(13)

UTM 17 E 455450 N 4899425
Elev. 5 R 07150

WATER WELL RECORD

The Ontario Water Resources Commission Act

14 № 1700

Basin 22 County or District Bruce

Township, Village, Town or City Kincardine

Con. 10 Lot 1 Date completed 22 (day) August (month) 1967 (year)

[redacted] Address R. R. 2, Tiverton, Ont.

Casing and Screen Record

Inside diameter of casing	4"
Total length of casing	155-6
Type of screen	----
Length of screen	----
Depth to top of screen	----
Diameter of finished hole	4"

Pumping Test

Static level	13'
Test-pumping rate	23 G.P.M.
Pumping level	17' (at 10 g.p.m.)
Duration of test pumping	1 hr.
Water clear or cloudy at end of test	clear
Recommended pumping rate	10 G.P.M.
with pump setting of	25 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Topsoil	0	6"		
Clay & Sand	6"	34'		
Clay	34'	48		
Sand	48	60		
Sand & Gravel	60	64		
Stoney Hardpan	64	155		
Limestone, brown, hard & soft	155	187	187	fresh

For what purpose(s) is the water to be used? D - S

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm G. L. Davidson
"Davidson Well Drilling"

Address Box 486
Wingham, Ontario.

Licence Number 2466

Name of Driller or Borer Doug Davidson

Address Wingham, Ontario.

Date August 22, 1967

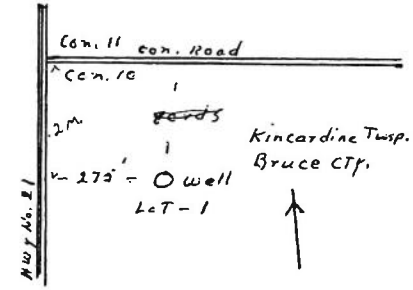
Gordon L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

(6)

UTM 17 455900E
9 4900150N
Elev. 0750
Basin 22
County or District Bruce

GROUND WATER BRANCH
14 No 1703
ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, ~~Village, Town or City~~ Kincardine
Con. 11 Lot 1
Date completed 23 (day) Sept (month) 1963 (year)
[redacted] ress R.R.5, Kincardine

Casing and Screen Record

Inside diameter of casing	4"
Total length of casing	150'
Type of screen	—
Length of screen	—
Depth to top of screen	—
Diameter of finished hole	4"

Pumping Test

Static level	42'
Test-pumping rate	12 G.P.M.
Pumping level	50'
Duration of test pumping	6 hrs.
Water clear or cloudy at end of test	clear
Recommended pumping rate	10 G.P.M.
with pump setting of	55 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
clay & sand	0	28		
Clay	28	66		
Sand & clay	66	108		
Sand & gravel	108	134		
Shale, brown	134	152		
Rock, brown	152	175	175	Fresh

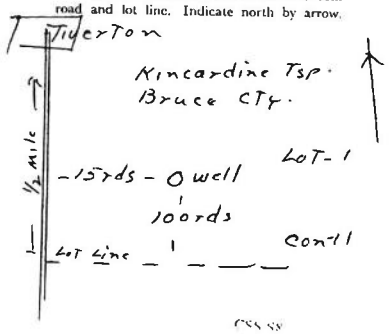
For what purpose(s) is the water to be used? Farm
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G.L. Davidson
Address Wingham
Licence Number 951
Name of Driller or Borer E. Thompson
Address Wingham
Date Oct 5, 1967
(Signature of Licensed Drilling or Boring Contractor) H.L. Davidson

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.58

9

UTM 17 456050E
4999600N
Elev. 1775
Basin 22
County or District Bruce

14 No 1703

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, ~~Village, Town or City~~ Kincardine
Con. ~~11~~ XI Lot Wh 2
Date completed 23 (day) August (month) 1967 (year)
[redacted] ress R. R. 4, Glamis, Ontario

Casing and Screen Record

Inside diameter of casing	4"
Total length of casing	145-6
Type of screen	-----
Length of screen	-----
Depth to top of screen	-----
Diameter of finished hole	4"

Pumping Test

Static level	38'
Test-pumping rate	13 G.P.M.
Pumping level	45'
Duration of test pumping	1 hr.
Water clear or cloudy at end of test	clear
Recommended pumping rate	10 G.P.M.
with pump setting of	65' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Topsoil	0	6"		
Clay	6"	28'		
Sand	28'	31'		
Clay	31'	34'		
Sand & gravel	34'	100'		
Hardpan	100'	143'		
Limestone, brown, med. hard	143'	185'	185	fresh

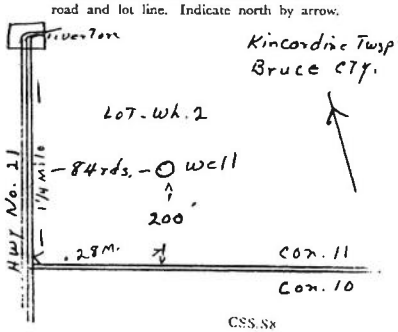
For what purpose(s) is the water to be used? D - S
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson "Davidson Well Drilling"
Address Box 486 Wingham, Ont.
Licence Number 2466
Name of Driller or Borer Doug. Davidson
Address Wingham, Ont.
Date Aug. 28/67
(Signature of Licensed Drilling or Boring Contractor) H.L. Davidson

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.58

10

UTM 17 E 456500 E
9 N 4894350 N
Elev. 9 R 0775
Basin 23 41
Lot 3

14 № 1704

GROUND WATER BRANCH
APR 29 1957
ONTARIO WATER RESOURCES COMMISSION

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

[redacted] Township, Village, Town or City Kincardine
in Village, Town or City)
Address R.R.A. Glamis

Date completed 27 March 1957
(day) (month) (year)

Pipe and Casing Record	Pumping Test
Casing diameter(s) 4"	Static level 41'
Length(s)	Pumping rate 10 g.p.m.
Type of screen	Pumping level 55
Length of screen	Duration of test 6 hrs.

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
brown clay	0	26			
blue clay	26	72			
sandy gravel	72	104			
Shale (brown)	104	115			
Limestone (brown)	115	170	170'	129'	Fresh

Water Record

For what purpose(s) is the water to be used?
Farm Stock - Domestic
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? Upland
Drilling firm E. L. Davidson
Address Wingham
Name of Driller E. Thompson
Address Wingham
Licence Number 73

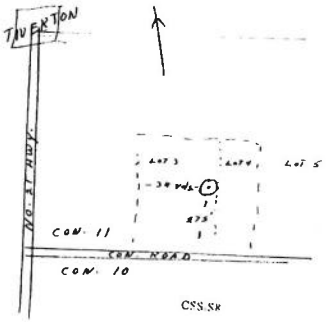
I certify that the foregoing statements of fact are true.

Date ... H. L. Davidson
Signature of Licensee

Form 6

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

14 № 2120

UTM 17 E 456165
5 N 4894350
Elev. 5 R 0775
Basin 23

RECEIVED
DEC 15 1949
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

The Well Drillers Act
...nt of Mines, Province of Ontario

Water Well Record

Village Tiverton, Highway ... Village of Tiverton
[redacted] ...dy Con. 11 Lot ... Pt. Lot 74
...nton P.O. ... Acres 2.5
...including pump)

Pipe and Casing Record	Pumping Test
Casing diameter(s) 4	Date Dec 15
Length(s) of casing(s)	Developed Capacity
Length of screen	Duration of Test
Type of screen	Pumping Rate 9 gal
Type of pump	Drawdown 14 ft.
Capacity of pump	Static level of completed well 55 ft.
Depth of pump setting	Is well a gravel-wall type?

Water Record

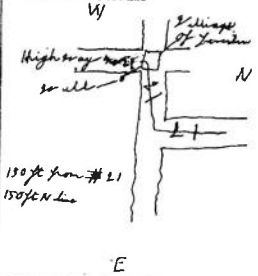
	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
Kind (fresh or mineral) Fresh			
Quality (hard, soft, contains iron, sulphur etc.) Hard			129
Appearance (clear, cloudy, coloured) Clear			
For what purpose(s) is the water to be used? Domestic & Stock			
How far is well from possible source of contamination? —			
What is source of contamination? —			
Enclose a copy of any mineral analysis that has been made of water			

Well Log

Drift and Bedrock Record	From	To
Clay	0 ft.	80 ft.
gravel	80	110
Till	110	140
Sand	140	161
rock	161	224

Location of Well

In diagram below show distances of well from road and lot line



Situation: Is well on upland, in valley, or on hillside?
Drilling Firm Fred L. Davidson
Address Wingham
Recorded by Gordon Davidson Driller Address Wingham
Date Dec 11 1948 Licence Number

CSS.S8

UTM [illegible] E
Permit ISSUED [illegible] N
Elev. [illegible] THIS 01 7 19
Basin 212
County or District Bruce

14 No 2121

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, Village, Town or City Village of Tiverton
Con. [illegible] Lot [illegible] Date completed 12 (day) April (month) 1968 (year)
[redacted] Address Tiverton, Ont

Casing and Screen Record

Inside diameter of casing 6"
Total length of casing 172'-2"
Type of screen —
Length of screen —
Depth to top of screen —
Diameter of finished hole 6"

Pumping Test

Static level 30
Test-pumping rate 30 G.P.M.
Pumping level 90'
Duration of test pumping 30 hrs
Water clear or cloudy at end of test clear
Recommended pumping rate 30 G.P.M.
with pump setting of 100 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Sandy clay	0	4		
clay	4	16		
Sand	16	32		
clay, stony	32	102		
gravel	102	106		
hardpan	106	140		
Shale, brown, soft	140	168		
Limestone, brown, soft	168	192	192	fresh
Limestone, brown, hard	192	237	ft	
			237	

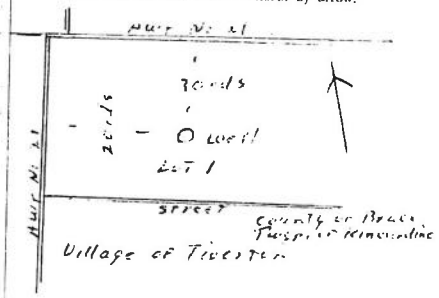
For what purpose(s) is the water to be used? Public Service
Is well on upland, in valley, or on hillside? Upland
Drilling or Boring Firm G L Davidson
Address Wingham
Licence Number 951
Name of Driller or Borer E. Thompson
Address Wingham
Date May 1st, 1968
G. L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

1

UTM [illegible] Con & 212 CODED 402204
Elev. [illegible]
Basin 212

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Bruce Township, Village, Town or City Kincardine
Con. 10 Lot 2 Date completed 6 (day) Sept. (month) 1968 (year)
[redacted] Address R. R. # 2, Glamis

Casing and Screen Record

Inside diameter of casing 4-inch
Total length of casing 102'-6"
Type of screen ————
Length of screen ————
Depth to top of screen ————
Diameter of finished hole 4"

Pumping Test

Static level 20'
Test-pumping rate 15 G.P.M.
Pumping level 22' @ 10 GPM
Duration of test pumping 1 hour
Water clear or cloudy at end of test clear
Recommended pumping rate 10 G.P.M.
with pump setting of 40 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top soil	0	2		
Clay and sand	2	19		
Sand, fine, dirty gravel	19	96		
Hardpan and stones	96	100		
Limestone, brown, med.	100	157	149-157	fresh

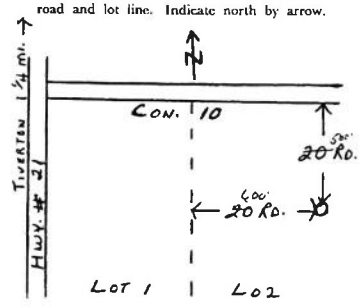
For what purpose(s) is the water to be used? Domestic-stock
Is well on upland, in valley, or on hillside? Upland
Drilling or Boring Firm G. L. Davidson "Davidson Well Drilling"
Address P. O. Box 486, Wingham, Ontario.
Licence Number 2801
Name of Driller or Borer Doug. Davidson
Address Wingham
Date September 6, 1968
Gordon L. Davidson per Doug. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.58

UTM [17Z] [4515761810] Con XII Lot 4 CODED
[4R] [4491018710]
Elev. [5T R] [07915]
Basin [21] [ ]

41A/5E
1402307 7

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or ~~District~~ Bruce
Township, Village, ~~Town or City~~ Kincardine
Con. 12 Lot 4
Date completed 1 (day) May (month) 1969 (year)
[redacted] Tiverton, Ontario.

DIVISION OF WATER RESOURCES
ONTARIO WATER RESOURCES COMMISSION rcvd

Casing and Screen Record

Inside diameter of casing	6-1/2"
Total length of casing	193-4
Type of screen	----
Length of screen	----
Depth to top of screen	----
Diameter of finished hole	6-1/2"

Pumping Test

	65'
Test-pumping rate	30 G.P.M.
Pumping level	90'
Duration of test pumping	8 hrs.
Water clear or cloudy at end of test	clear
Recommended pumping rate	30 G.P.M.
with pump setting of	125 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Clay, brown	0	24		
Gravel	24	26		
Clay, Blue	26	104		
Clay, gravel stones	104	148		
Hardpan	148	184		
Gravel & Hardpan	184	195		
Rock, dark brown, hard	195	260	210' to 260	fresh

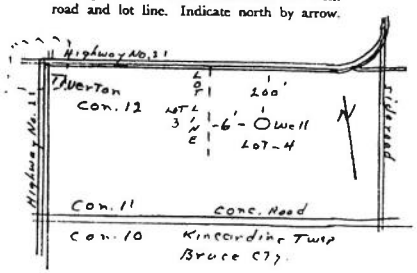
WELL APPD. 4689 GAL

For what purpose(s) is the water to be used? Industrial
Is well on upland, in valley, or on hillside? Upland
Drilling or Boring Firm G. L. Davidson "Davidson Well Drilling"
Address Box 486 Wingham, Ontario.
Licence Number 3356
Name of Driller or Borer Edwin Thompson
Address Wingham, Ontario.
Date May 6, 1969
Gordon L Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7
OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS 58

SC

The Ontario Water Resources Commission Act

41A/4E

WATER WELL RECORD

1402557

County or District: Bruce County
Township, Borough, City, Town, Village: Kincardine Township
Con. ~~11~~ XI Lot 006
R. R. 1, Tiverton, Ont.
Date completed 07 (month) Day 21 July 70

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
Brown	Clay		hard	0	18
Blue	Clay		soft	18	80
Blue	Marl		soft	80	101
Brown	Hardpan		hard	101	120
	Sand			120	126
	Gravel	Stones	Coarse	126	138
Brown	Hardpan	Stones	hard	138	167
Brown	Rock		hard	167	178
Brown	Rock		med. soft	178	211

WATER RECORD: 0211 — Fresh

CASING & OPEN HOLE RECORD: 04 — Steel, Galvanized, .205, 0 to 168-2 ~~231~~; 0211

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST: Pump; Pumping Rate 0016 GPM; Duration of Pumping 01 hours 20 minutes; Static Level 030; Water Levels During Pumping 034 034 034 034; Pumping Level 034; Recovery 004; Recommended Pump Type; Recommended Pump Rate 050; Recommended Pump Setting 0010; Clear; Specific Capacity

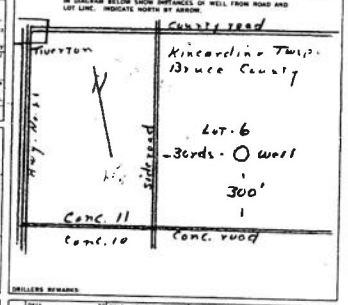
FINAL STATUS OF WELL: Water Supply; Observation Well; Test Hole; Recharge Well; Abandoned, Insufficient Supply; Abandoned, Poor Quality; Unfinished

WATER USE 12: Domestic; Stock; Irrigation; Industrial; Other; Commercial; Municipal; Public Supply; Cooling or Air Conditioning; Not Used

METHOD OF DRILLING: Cable Tool; Rotary (Conventional); Rotary (Reverse); Rotary (Air); Air Percussion; Boring; Diamond; Jetting; Driving

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



DRILLERS REMARKS

CONTRACTOR
Name of Well Contractor: Gordon L. Davidson — Licence Number 1705
Address: Box 486, Wingham, Ontario
Name of Driller or Borer: Doug. Davidson, Wingham
Signature of Contractor: Gordon L Davidson — Submission Date: Day 21 July 70

OFFICE USE ONLY: Data Source 1; Contractor 1705; Date Received 220970; Date of Inspection; Inspection; Remarks

CSS 58

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The Ontario Water Resources Commission Act

WATER WELL RECORD

41A5E

1402662

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK (X) CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Bruce Cty	Bruce Twsp.	Con. 3	002 2

[redacted], R. 2, Tiverton — DATE COMPLETED: DAY 18 MO. 11 YR. 70

ELEVATION 03600 — BASIN CODE 4 07801 5 12

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
Blue	Clay			0	38
Blue	Marl clay		Soft	38	146
	Sand	Gravel, Hardpan, Stones	Mixed	146	151
	Hardpan	Stones		151	174
Brown	Limestone		Medium	174	217

31 0146305 0151 09MN14 0178 V4V12 0217V15

32

41 WATER RECORD

WATER FOUND AT — FEET	KIND OF WATER
0214	1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL

51 CASING & OPEN HOLE RECORD

OPEN HOLE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FROM	DEPTH TO
04	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	.205	0	175-5
04	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE		175-5	0217

SCREEN — MATERIAL AND TYPE — DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT — FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD 1 PUMP 2 BAILER — PUMPING RATE 0008 GPM — DURATION OF PUMPING 1 HRS. 02 MINS. 40

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
019 FEET	039 FEET	037 FEET	038 FEET	039 FEET	039 FEET

IF FLOWING, GIVE RATE — GPM — PUMP INTAKE SET AT 150 FEET — WATER AT END OF TEST: 1 CLEAR 2 CLOUDY

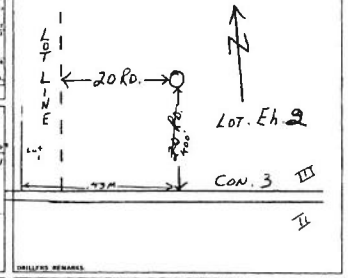
RECOMMENDED PUMP TYPE: 1 SHALLOW 2 DEEP — RECOMMENDED PUMP SETTING 050 FEET — RECOMMENDED PUMPING RATE 0007 GPM

000.4 GPM/FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL	1 WATER SUPPLY 2 OBSERVATION WELL 3 TEST HOLE 4 RECHARGE WELL 5 ABANDONED, INSUFFICIENT SUPPLY 6 ABANDONED, POOR QUALITY 7 UNFINISHED
WATER USE 01	1 DOMESTIC 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 5 COMMERCIAL 6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING 9 NOT USED
METHOD OF DRILLING	1 CABLE TOOL 2 ROTARY (CONVENTIONAL) 3 ROTARY (REVERSE) 4 ROTARY (AIR) 5 AIR PERCUSSION 6 BORING 7 DIAMOND 8 JETTING 9 DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: Gordon L. Davidson — LICENCE NUMBER: 1705

ADDRESS: Box 486, Wingham, Ont.

NAME OF DRILLER OR BORER: Doug. Davidson — LICENCE NUMBER

SIGNATURE OF CONTRACTOR: Gordon L. Davidson — SUBMISSION DATE: DAY 19 MO. 11 YR. 70

OWRC COPY

OFFICE USE ONLY

DATE RECEIVED: 1705 150171 — DATE OF INSPECTION: 10/c/71 — INSPECTION — REMARKS — P C — WI

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A5E

COPIED 1402681

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Bruce County	Bruce Township	Conc. 1	G

[redacted] R. R. 2, Tiverton, Ontario. — DATE COMPLETED: DAY 6 MO. Apr. YR. 71

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
	Topsoil			0	1
Brown	Clay		dense	1	14
Blue	Clay	Marl	soft	14	63
Brown	Hardpan	Stones	hard	63	127
Brown	Rock		med. hard	127	168
Brown	Rock		soft	168	174

(M) 1 1 7 12 4 1 5 5 10 6 1 5

4 R 1 4 1 9 1 0 1 2 1 2 1 6 1 0

5 R 0 1 7 8 1 0

.sin 2 1 2

WATER RECORD

WATER FOUND AT — FEET	KIND OF WATER
174	(X) 1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL

CASING & OPEN HOLE RECORD

OPEN HOLE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FROM	DEPTH TO
4	(X) 1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	.205	0	129-2
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE		129-2	174

SCREEN — MATERIAL AND TYPE — DEPTH TO TOP OF SCREEN

PLUGGING & SEALING RECORD

DEPTH SET AT — FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

PUMPING TEST

PUMPING TEST METHOD (X) 1 PUMP 2 BAILER — PUMPING RATE 18 GPM — DURATION OF PUMPING 1 HRS. 10 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
75 FEET	79 FEET	77 FEET	78 FEET	79 FEET	79 FEET

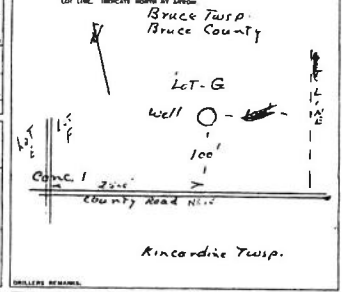
IF FLOWING, GIVE RATE — GPM — PUMP INTAKE SET AT 170 FEET — WATER AT END OF TEST: (X) 1 CLEAR 2 CLOUDY

RECOMMENDED PUMP TYPE: 1 SHALLOW (X) 2 DEEP — RECOMMENDED PUMP SETTING 90 FEET — RECOMMENDED PUMPING RATE 10 GPM

FINAL STATUS OF WELL	(X) 1 WATER SUPPLY 2 OBSERVATION WELL 3 TEST HOLE 4 RECHARGE WELL 5 ABANDONED, INSUFFICIENT SUPPLY 6 ABANDONED, POOR QUALITY 7 UNFINISHED
WATER USE	(X) 1 DOMESTIC 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 5 COMMERCIAL 6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING 9 NOT USED
METHOD OF DRILLING	1 CABLE TOOL (X) 2 ROTARY (CONVENTIONAL) 3 ROTARY (REVERSE) 4 ROTARY (AIR) 5 AIR PERCUSSION 6 BORING 7 DIAMOND 8 JETTING 9 DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. — LICENCE NUMBER: 1737

ADDRESS: 475 Josephine St., Wingham, Ont.

NAME OF DRILLER OR BORER: Doug. Davidson, Wingham — LICENCE NUMBER

SIGNATURE OF CONTRACTOR: A Davidson — SUBMISSION DATE: DAY 9 MO. Apr. YR. 71

CONTRACTOR'S COPY O.W.R.C.

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The Ontario Water Resources Commission Act

WATER WELL RECORD

41 P/5-E

CODED 1402682

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK (X) CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Bruce County	Bruce Township	Conc. 1	F

[redacted]. R. 2, Tiverton, Ont. DATE COMPLETED: DAY 7 MO. Apr. YR. 71

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	Topsoil			0	1
Brown	Clay		dense	1	24
	Gravel	Sand		24	33
Brown	Hardpan	Stones	hard	33	87
Brown	Rock		med. soft	87	162

M 17 45 05 05 0
4R 4 19 01 25 5 0
V. 5 R 01 7 5 5
sin 2 2

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER		
162	X FRESH	SALTY	SULPHUR / MINERAL

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
4	X STEEL	.205	0	92-9
	X OPEN HOLE		92-9	162

SCREEN: MATERIAL AND TYPE; DIAMETER; LENGTH; DEPTH TO TOP OF SCREEN

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER, ETC.)

PUMPING TEST

PUMPING TEST METHOD: X PUMP (AIT) BAILER
PUMPING RATE: 10 GPM
DURATION OF PUMPING: 1 HOURS
PUMPING: X RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	10 MINUTES	20 MINUTES	45 MINUTES	60 MINUTES
67 FEET	72 FEET	70 FEET	72 FEET	72 FEET	72 FEET

WATER LEVELS DURING

If flowing, give rate: GPM
Pump intake set at: 160 FEET
WATER AT END OF TEST: X CLEAR CLOUDY
RECOMMENDED PUMP TYPE: SHALLOW X DEEP
RECOMMENDED PUMP SETTING: 85 FEET
RECOMMENDED PUMPING RATE: 9 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.

Bruce Twsp.
Bruce County

LOT - F
30rds - O well
150'
Conc. 1
Tiverton
County Road No 15
Kincardine Twsp.

DRILLERS REMARKS:

FINAL STATUS OF WELL	X WATER SUPPLY; OBSERVATION WELL; TEST HOLE; RECHARGE WELL; ABANDONED, INSUFFICIENT SUPPLY; ABANDONED, POOR QUALITY; UNFINISHED
WATER USE	X DOMESTIC; STOCK; IRRIGATION; INDUSTRIAL; COMMERCIAL; MUNICIPAL; PUBLIC SUPPLY; COOLING OR AIR CONDITIONING; OTHER; NOT USED
METHOD OF DRILLING	CABLE TOOL; X ROTARY (CONVENTIONAL); ROTARY (REVERSE); ROTARY (AIR); AIR PERCUSSION; BORING; DIAMOND; JETTING; DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. LICENCE NUMBER: 1737
ADDRESS: 475 Josephine St., Wingham, Ont.
NAME OF DRILLER OR BORER: Doug. Davidson, Wingham
SIGNATURE OF CONTRACTOR: D. Davidson
SUBMISSION DATE: DAY 9 MO. Apr. YR. 71

CONTRACTOR'S COPY O.W.R.C.

OFFICE USE ONLY

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CPR 33

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 P/5-E

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK (X) CORRECT BOX WHERE APPLICABLE

11 1402692 1740/2 Can. 41 P/5-E

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Bruce County	Kincardine Township	Conc. B	

[redacted] R. R. 2, Tiverton, Ontario. DATE COMPLETED: DAY 16 MO. Apr. YR. 71

4 00300 4 07418 6T 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Blue	Clay	Stones	Hard	0	26
	Gravel		Loose	26	34
Brown	Hardpan		Hard	34	42
	Sand	Gravel	Hard	42	46
Brown	Clay	Gravel Streaks	Hard	46	62
Blue	Clay		Bridging	62	72
	Gravel	Silty	Dense	72	91
Brown	Shale		Soft	91	108
Brown	Limestone		Soft	108	146

31 10220105178 10034 10244114 10046 10911 10062205111 10072205 11
32 10291 1102 10188117 10188117 11

47 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER		
0146	X FRESH	SALTY	SULPHUR / MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
[redacted]	X STEEL	.205	0	0106 106
4 04	X OPEN HOLE		106	146
				0146

SCREEN: MATERIAL AND TYPE; DIAMETER; LENGTH; DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: X PUMP BAILER
PUMPING RATE: 0010 GPM 03 HOURS 00 MINUTES
DURATION OF PUMPING: PUMPING X RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	10 MINUTES	20 MINUTES	45 MINUTES	60 MINUTES
060 FEET	072 FEET	072 FEET	072 FEET	072 FEET	072 FEET

WATER LEVELS DURING

If flowing, give rate: GPM
Pump intake set at: 92 FEET
WATER AT END OF TEST: X CLEAR CLOUDY
RECOMMENDED PUMP TYPE: SHALLOW X DEEP
RECOMMENDED PUMP SETTING: 090 FEET
RECOMMENDED PUMPING RATE: 0010 GPM
000.8 GPM/FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.

Bruce Twsp
Con. A Road
Tiverton
Conc. A
Conc. B
602 Line 627 52
1-2-54
10 rods
16 rods - O well
Lot pt. 52
Kincardine Township
Bruce County

DRILLERS REMARKS:

FINAL STATUS OF WELL	X WATER SUPPLY; OBSERVATION WELL; TEST HOLE; RECHARGE WELL; ABANDONED, INSUFFICIENT SUPPLY; ABANDONED, POOR QUALITY; UNFINISHED
WATER USE	01 X DOMESTIC; STOCK; IRRIGATION; INDUSTRIAL; COMMERCIAL; MUNICIPAL; PUBLIC SUPPLY; COOLING OR AIR CONDITIONING; OTHER; NOT USED
METHOD OF DRILLING	X CABLE TOOL; ROTARY (CONVENTIONAL); ROTARY (REVERSE); ROTARY (AIR); AIR PERCUSSION; BORING; DIAMOND; JETTING; DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. LICENCE NUMBER: 1737
ADDRESS: Box 456, Wingham, Ontario
NAME OF DRILLER OR BORER: E. Thompson, Wingham
SIGNATURE OF CONTRACTOR: per D. Davidson
SUBMISSION DATE: DAY 19 MO. Apr. YR. 71

OWRC COPY

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 1737 DATE RECEIVED: 170571
DATE OF INSPECTION: INSPECTOR:
REMARKS:
P 71
WI

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 B/5 E

Water Management in Ontario. 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402693 | MUNICIP. 15A12 | CON. Con I | LOT B

COUNTY OR DISTRICT: Bruce County | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Kincardine Township | CON. BLOCK, TRACE, SURVEY, ETC: Conc. B | LOT: Sth 54

[redacted] R. 2, Tiverton, Ont.

DATE COMPLETED: DAY 23 MO. Apr. YR. 71

900.150 N | ELEVATION | 900.748 E | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay			0	24
Blue	Clay			24	34
Brown	Hardpan			34	56
	Sand	Gravel		56	70
Brown	Shale		Soft	70	90
Brown	Limestone		Hard	90	133

31 | 0024905 | 0034305 | 0056614 | 0070 09 11 | 0078617 | 0133015

32

41 WATER RECORD

KIND OF WATER	DEPTH FOUND AT - FEET				
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL	0133				
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL					
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL					
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL					

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
04	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	.205	0	0089 88-8
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE		88-8	133 0133

SCREEN: MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10		

71 PUMPING TEST

METHOD: ☒ PUMP ☐ BAILER | PUMPING RATE: 0008 GPM | DURATION OF PUMPING: HOURS 03 MINUTES 00 | RECOVERY DATA

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
064	080	072	080	080	080

PUMP INTAKE SET AT: 94 FEET | WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING: 090 FEET | RECOMMENDED PUMPING RATE: 0007 GPM

0002.5 GPM/FT. SPECIFIC CAPACITY

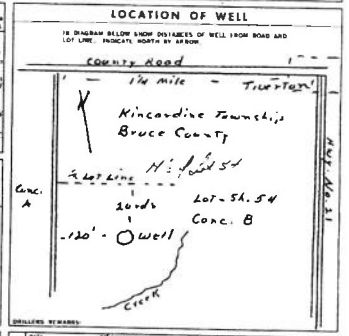
FINAL STATUS OF WELL: ☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED

WATER USE 12: ☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED

METHOD OF DRILLING: ☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling | LICENCE NUMBER: 1737
ADDRESS: Box 486, Wingham, Ont.
NAME OF DRILLER OR BORER: E. Thompson, Wingham | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: per A L Davidson | SUBMISSION DATE: DAY 24 MO. Apr. YR. 71

OFFICE USE ONLY: DATA SOURCE 1 | SW CONTRACTOR 1737 | SW DATE RECEIVED 70571 | DATE OF INSPECTION | INSPECTOR | REMARKS | CSS.S8 | P 7 | WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 B/5 E

Water Management in Ontario. 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402695 | 14709 | Paterson Park Subdivision

COUNTY OR DISTRICT: Bruce County | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Village of Tiverton | CON. BLOCK, TRACE, SURVEY, ETC: ~~Block A~~ Plan 210 | LOT: ~~Pt 85~~

[redacted] iverton, Ontario

DATE COMPLETED: DAY 20 MO. May YR. 71

900.159 N | ELEVATION 0.735 | LOT 12 | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay	Sand	soft	0	6
Blue	Clay		hard	6	18
Blue	Clay	Gravel streaks	hard	18	42
	Sand	Gravel	dense	42	52
Blue	Clay		hard	52	105
Brown	Hardpan	Stones	hard	105	126
Brown	Limestone		soft	126	138
Brown	Limestone		hard	138	157

API

31 | 0000000509 | 0018305 | 0022165 11 | 0052 09 AA | 0165305 | 0222015 11

32 | 0157015

41 WATER RECORD

KIND OF WATER	DEPTH FOUND AT - FEET				
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL	0138				
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL	0156				
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL					
1 FRESH 2 SALTY 3 SULPHUR 4 MINERAL					

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
~~06~~ 08	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	.264	0	0132
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE		132	~~157~~ 0157

SCREEN: MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

METHOD: ☒ Turbine ☐ BAILER | PUMPING RATE: 0107 Imp. GPM | DURATION OF PUMPING: HOURS 24 MINUTES 00 | WATER LEVELS DURING ☒ PUMPING ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
048	115	099	102	104	105

PUMP INTAKE SET AT: 125 FEET | WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 125 FEET | RECOMMENDED PUMPING RATE: 0100 ~~100 5.8~~ GPM

001.6 GPM/FT. SPECIFIC CAPACITY

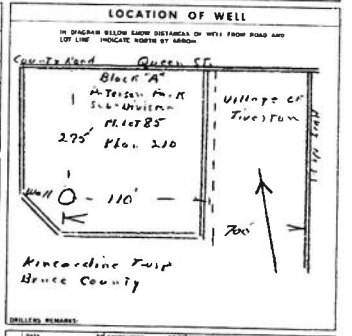
FINAL STATUS OF WELL: ☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED

WATER USE 06: ☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☒ INDUSTRIAL ☐ OTHER ☒ COMMERCIAL ☒ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED

METHOD OF DRILLING: ☒ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. | LICENCE NUMBER: 1737
ADDRESS: Box 486, Wingham, Ontario
NAME OF DRILLER OR BORER: Ed. Thompson, Wingham | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: per A L Davidson | SUBMISSION DATE: DAY 22 MO. May YR. 71

OFFICE USE ONLY: DATA SOURCE 1 | SW CONTRACTOR 1737 | SW DATE RECEIVED 250571 | DATE OF INSPECTION | INSPECTOR | REMARKS | CSS.S8 | P 71 | WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 A/E

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402748 | 147109 | CON.

COUNTY OR DISTRICT: Bruce County
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Village of Tiverton
BLOCK, TRACT, SURVEY, ETC.: ~~Plan 169, 210 King St. W.~~
LOT: [redacted]
DATE COMPLETED: 05 Aug 71
[redacted] 941, Acton, Ontario.
02165 | 07501 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	Topsoil			0	1
Brown	Clay	Sandy	Soft	1	4
	Sand		Soft	4	9
Blue	Clay	Grit	Hard	9	22
Brown	Hardpan	Small Stones	Hard	22	48
Blue	Clay		Soft	48	107
Brown	Clay	Silt, Sand, Gravel, Stones	Mixed	107	111
Brown	Hardpan	Small Stones	Hard	111	124
Brown	Hardpan	Stones, Boulders	Hard	124	154
Brown	Limestone		Med. Hard	154	214
Dk. Brn.	Limestone	APL	Med. Soft	214	233
Brown	Limestone		Hard	233	254
Brn. White	Limestone		Med. Hard	254	267
Lt. Brown	Limestone		Hard	267	282
Brown	Limestone		Med. Soft	282	293
Brown	Limestone		Hard	293	296
Grey- Brn.	Limestone		Hard	296	305

31 | 1001 | 107 | 1000 | 0503 | 1009 | 09 | 1022 | 05 | 1004 | 14 | 12 | 1012 | 05
32 | 011 | 4 | 05 | 03 | 012 | 14 | 14 | 12 | 13 | 015 | 14 | 12 | 13 | 12 | 15 | 02 | 14 | 15 | 02 | 9 | 4 | 15

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER				
0228	1 ☒ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0284	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0296	1 ☒ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
8	2 ☒ STEEL	.264	0	156-1
	4 ☒ OPEN HOLE		156-1	305

SCREEN — SLOT(S) OF OPENING (SLOT NO.) | DIAMETER | SET AT - FEET | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
		~~SURFACE TO ROCK~~	

71 PUMPING TEST

METHOD: ☒ Turbine ☐ BAILER — PUMPING RATE: 80 GPM — DURATION OF PUMPING: 24 HOURS — ☐ PUMPING ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
45 FEET	125	115	117	118	118

If Flowing: Give Rate — GPM — Pump Intake Set At: 155 FEET — Water at End of Test: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 155 FEET — RECOMMENDED PUMPING RATE: 80 GPM

GPM/FT. SPECIFIC CAPACITY

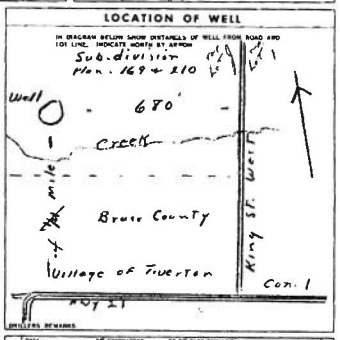
FINAL STATUS OF WELL: ☒ WATER SUPPLY; ☐ OBSERVATION WELL; ☐ TEST HOLE; ☐ RECHARGE WELL; ☐ ABANDONED, INSUFFICIENT SUPPLY; ☐ ABANDONED, POOR QUALITY; ☐ UNFINISHED

WATER USE: ☐ DOMESTIC; ☐ STOCK; ☐ IRRIGATION; ☐ INDUSTRIAL; ☐ COMMERCIAL; ☐ MUNICIPAL; ☐ PUBLIC SUPPLY; ☐ COOLING OR AIR CONDITIONING; ☐ OTHER Sub-division; ☐ NOT USED

METHOD OF DRILLING: ☐ CABLE TOOL; ☒ ROTARY (CONVENTIONAL); ☐ ROTARY (REVERSE); ☐ ROTARY (AIR); ☐ AIR PERCUSSION; ☐ BORING; ☐ DIAMOND; ☐ JETTING; ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR
NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. — LICENCE NUMBER: 1737
ADDRESS: Box 486, Wingham, Ontario
NAME OF DRILLER OR BORER: Doug. Davidson, E. Thompson — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: per A L Davidson — SUBMISSION DATE: DAY 6 MO Aug YR 71

OFFICE USE ONLY
DATA SOURCE: CONTRACTOR — DATE RECEIVED: 25 0871
DATE OF INSPECTION: — INSPECTOR:
REMARKS: CSS.58 — P 71 — WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 B/E

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402753 | 740.12 | CON. | RON. | XI

COUNTY OR DISTRICT: Bruce
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Kincardine
RECEIVED AUG 27 1971 GENERAL MANAGER'S OFFICE
OWNER (SURNAME FIRST): Bigelow Mobile Homes
ADDRESS: P.O. Box 190, Tiverton, Ontario
DATE COMPLETED: 26 07 71
17.1 | 4.55715.0 | W | 9.0.1660 | W | 67.55 | 22 | AUG 27 1971

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Brown	clay	sand - silt	silty sandy clay	0	8
Grey	clay	stones	grey clay stones	8	97
Grey	clay	sand stones	grey clay till stones	97	145
Brown	Limestone		medium brown limestone	145	205

31 | 0208 | 05 | 09 | 04 | 0097 | 20 | 5 | 12 | 0145 | 20 | 5 | 09 | 7 | 4 | 0205 | 15
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER				
0147	1 ☐ FRESH	2 ☒ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0183	1 ☐ FRESH	2 ☒ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0197	1 ☐ FRESH	2 ☒ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0201	1 ☐ FRESH	2 ☒ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	
0203	1 ☐ FRESH	2 ☒ SALTY	3 ☐ SULPHUR	4 ☐ MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	2 ☒ STEEL	.250	0+1	0153 ~~153~~
06	4 ☒ OPEN HOLE		153	0205

SCREEN — SLOT(S) OF OPENING (SLOT NO.) | DIAMETER | SET AT - FEET | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

METHOD: ☒ PUMP ☐ BAILER — PUMPING RATE: 200 GPM — DURATION OF PUMPING: 03 HOURS 00 MINUTES — ☐ PUMPING ☒ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
045 FEET	203	045	045	045	045

If Flowing: Give Rate — GPM — Pump Intake Set At: 203 FEET — Water at End of Test: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 180 FEET — RECOMMENDED PUMPING RATE: 120 GPM

001.5 GPM/FT. SPECIFIC CAPACITY

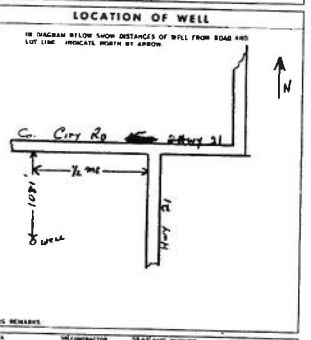
FINAL STATUS OF WELL: ☒ WATER SUPPLY; ☐ OBSERVATION WELL; ☐ TEST HOLE; ☐ RECHARGE WELL; ☐ ABANDONED, INSUFFICIENT SUPPLY; ☐ ABANDONED, POOR QUALITY; ☐ UNFINISHED

WATER USE 07: ☐ DOMESTIC; ☐ STOCK; ☐ IRRIGATION; ☐ INDUSTRIAL; ☐ COMMERCIAL; ☐ MUNICIPAL; ☒ PUBLIC SUPPLY; ☐ COOLING OR AIR CONDITIONING; ☐ OTHER; ☐ NOT USED

METHOD OF DRILLING: ☐ CABLE TOOL; ☐ ROTARY (CONVENTIONAL); ☐ ROTARY (REVERSE); ☒ ROTARY (AIR); ☐ AIR PERCUSSION; ☐ BORING; ☐ DIAMOND; ☐ JETTING; ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR
NAME OF WELL CONTRACTOR: P.E. Johnston Drilling Co. Ltd — LICENCE NUMBER: 3002
ADDRESS: Box 1138, Stn. "B", Ottawa, Ontario.
NAME OF DRILLER OR BORER: R.W. Renwick — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: — SUBMISSION DATE: DAY 16 MO 8 YR 71

OFFICE USE ONLY
DATA SOURCE: 1 — CONTRACTOR: 3002 — DATE RECEIVED: 270871
DATE OF INSPECTION: — INSPECTOR:
REMARKS: CSS.58

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A/5E

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402772 | UTM Zone | Grid N | Grid E

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT	DATE COMPLETED
Bruce County	Kincardine Township	Cone. A	59	Day 10 Mo. Sept. Yr. 71

[redacted] R. 2, Tiverton, Ontario

UTM Zone 17 | Grid N 0047[illegible] | Grid E 0735 | Elevation | Basin Code 12

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	TO
Brown	Clay			0	23
Brown	Clay	gravel streaks		23	58
Brown	Hardpan		hard	58	88
Brown	Limestone		med. hard	88	139

31 | 0023 | 0058 | 0088 | 0139

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER				
0139	☒ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	

51 CASING & OPEN HOLE RECORD

MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	TO
☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	.258	0	89-11
☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☒ OPEN HOLE		89-11	139
☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN: SIZE(S) OF OPENING (SLOT NO.) | DIAMETER | LENGTH | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER, ETC.)

76 PUMPING TEST

PUMPING TEST METHOD: ☒ PUMP ☐ BAILER | PUMPING RATE: 0008 GPM | DURATION OF PUMPING: 01 HOURS 00 MINUTES | ☐ PUMPING ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
053	070	061	069	070	070

IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 80 FEET | WATER AT END OF TEST: ☐ CLEAR ☐ CLOUDY

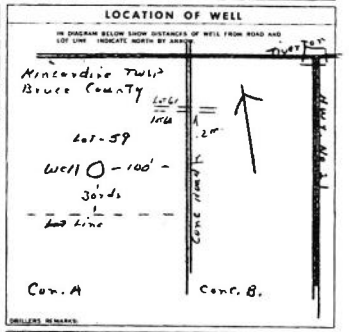
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 080 FEET | RECOMMENDED PUMPING RATE: 0008 GPM

000.5 GPM/FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL	☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL	☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED
WATER USE 12	☒ DOMESTIC ☒ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF DRILLING	☐ CABLE TOOL ☒ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION	☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. | LICENCE NUMBER: 1737

ADDRESS: Box 486, Wingham, Ontario

NAME OF DRILLER OR BORER: Doug. Davidson, Wingham | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: per H.L. Davidson | SUBMISSION DATE: Day 10 Mo. Sept. 71

OFFICE USE ONLY

DATA SOURCE: 1 | MO. CONTRACTOR: 1737 | DATE RECEIVED: 220971

DATE OF INSPECTION | INSPECTOR | REMARKS | P | WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A/5E

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1402774 | UTM Zone | Grid N | Grid E

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT	DATE COMPLETED
Bruce County	Kincardine Township	Cone. B	Pt 55	Day 09 Mo. Sept. Yr. 71

[redacted] Oak, Windsor, Ontario.

UTM Zone 17 | Grid N 4209359 | Grid E 0715[illegible] | Elevation | Basin Code 12

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	TO
	Topsoil			0	½
Brown	Clay		hard	½	19
	Gravel	stones	coarse	19	62
Brown	Hardpan		hard	62	75
Brown	Limestone		hard, soft streaks	75	140

31 | 0001 | 0019 | 0062 | 0075 | 0140

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER				
0140	☒ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	
	☐ FRESH	☐ SALTY	☐ SULPHUR	☐ MINERAL	

51 CASING & OPEN HOLE RECORD

MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	TO
☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	.205	0	77-0
☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☒ OPEN HOLE		77-0	140
☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN: SIZE(S) OF OPENING (SLOT NO.) | DIAMETER | LENGTH | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER, ETC.)

76 PUMPING TEST

PUMPING TEST METHOD: ☒ PUMP ☐ BAILER | PUMPING RATE: 0007 GPM | DURATION OF PUMPING: 01 HOURS 00 MINUTES | ☐ PUMPING ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
061	066	066	066	066	066

IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 125 FEET | WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

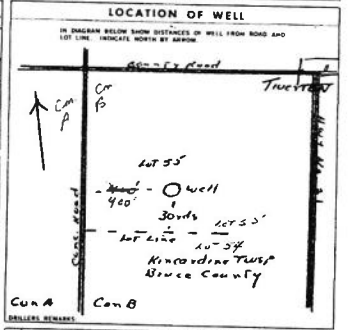
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 070 FEET | RECOMMENDED PUMPING RATE: 0007 GPM

001.4 GPM/FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL	☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL	☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED
WATER USE 12	☒ DOMESTIC ☒ STOCK ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF DRILLING	☐ CABLE TOOL ☒ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION	☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Ltd. | LICENCE NUMBER: 1737

ADDRESS: Box 486, Wingham, Ontario

NAME OF DRILLER OR BORER: D. Davidson & E. Thompson | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: per H.L. Davidson | SUBMISSION DATE: Day 9 Mo. Sept. 71

OFFICE USE ONLY

DATA SOURCE: 1 | MO. CONTRACTOR: 1737 | DATE RECEIVED: 220971

DATE OF INSPECTION | INSPECTOR | REMARKS | P | WI

OWRC COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

ONTARIO

1403153

County of District: Bruce County
Township, Borough, City, Town, Village: ~~Kincardine Township~~ Tiverton
Con. Block, Tract, Survey, etc.: ~~Conc. 12~~
Lot: ~~Pt 1~~
[redacted] verton, Ontario.
Date Completed: 07 ~~May~~ 73

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
Blue	Clay	Stones	Hard	0	52
Grey	Hardpan	Boulders	Hard	52	102
	Gravel Stones Boulders		Very Hard	102	107
Grey ~~White~~ Brown	Hardpan	Stones	Hard	107	169
	Shale		Loose	169	171
Brown	Rock		Hard	171	199

WATER RECORD: 0198 Fresh; ~~199~~

CASING & OPEN HOLE RECORD: 04 Steel; .205; 0 ~~172~~ 172-3 199

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST: Air; 0015 LPM; 01 Hours 00 Mins; Static Level 054; Water Levels During 056 056 056 056 056; Pumping Level (End of Test) 056; Recommended Pump Depth 120; Recommended Pump Rate 003 GPM; Pumping Rate (End of Test) 15 GPM; Clear; Cloudy

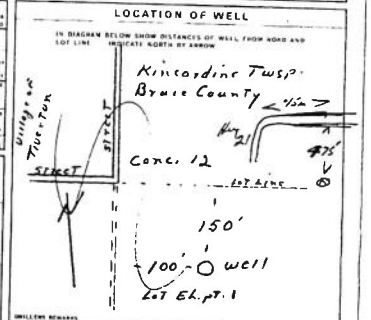
FINAL STATUS OF WELL: Water Supply

WATER USE: 01 Domestic

METHOD OF DRILLING: Rotary (Conventional)

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLER'S REMARKS

CONTRACTOR: Davidson Well Drilling Ltd. 1737
Box 486, Wingham, Ont.
E. Thompson, Wingham
per A. Davidson
7 May 73

OFFICE USE ONLY: 1737 220573 CSS.58 P WI

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MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

ONTARIO

1403204

County of District: Bruce County
Township, Borough, City, Town, Village: Bruce Township
Con. Block, Tract, Survey, etc.: Conc. 2
Lot: 001
[redacted] R. 2, Tiverton, Ontario
Date Completed: 16 May 73

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
Brown	Clay		Soft	0	22
Blue	Clay		Hard	22	38
Blue	Clay	Gravel Stones	Mixed	38	167
Brown	Shale		Loose	167	170
~~Grey~~ Brown	Rock		Hard	170	219

WATER RECORD: 0219 Fresh; ~~Sulphur~~; ~~Mineral~~

CASING & OPEN HOLE RECORD: 04 Steel; .205; 0 ~~169-11~~ 167 169-11 219

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST: Pump; 0006 LPM; 02 Hours 00 Mins; Static Level 046; Water Levels During 065 052 058 065 065; Pumping Level (End of Test) 065; Recommended Pump Depth 120; Recommended Pump Rate 006 GPM; Pumping Rate (End of Test) 0 80 GPM; 000.3 GPM/FT. Specific Capacity; Clear; Cloudy

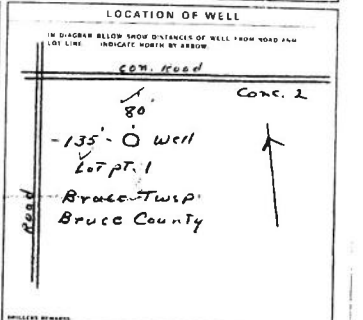
FINAL STATUS OF WELL: Water Supply

WATER USE: 01 Domestic

METHOD OF DRILLING: Rotary (Conventional)

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLER'S REMARKS

CONTRACTOR: Davidson Well Drilling Ltd. 1737
Box 486, Wingham, Ontario.
D. Davidson & E. Thompson
per A. L. Davidson
29 May 73

OFFICE USE ONLY: 1737 090773 CSS.58 P WI

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FORM 7 07-091

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

41A/SE

1403309 | 14709

County or District: Bruce County | Township, Borough, City, Town, Village: Bruce Township | Con. Block, Tract, Survey, etc.: Concession 1 | Lot: 66

[redacted] Tiverton, Ontario | Date Completed: Day 25 Month Sept Year 73

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
Brown	Clay		Soft	0	14
Blue	Clay		Soft	14	112
Grey	Hardpan	Sand, Stones	Mixed	112	151
	Sand	Gravel	Coarse	151	153
Grey	Hardpan	Stones	Hard	153	189
Dk Brn.	Limestone		Hard	189	223
Dk Brn.	Limestone		Soft	223	225

31: 0019805 | 01123005 | 01512140280 12 | 01533 1011

32:

41 WATER RECORD

Water Found At Feet	Kind of Water										
0225	X Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	
	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth From	Depth To
04	X Steel ☐ Galvanized ☐ Concrete ☐ Open Hole	.205	0	0191-2
	X Steel ☐ Galvanized ☐ Concrete ☐ Open Hole		191-2	225

SCREEN: Make | Model No. | Diameter | Slot No. | Length | Depth Set At | Material and Type | Inside Diam. | Slot No. | Depth To Top of Screen

61 PLUGGING & SEALING RECORD

Depth Set At | From | To | Material | Kind and Type | Length | Diameter

OWRC P.8

71 PUMPING TEST

Pumping Test Method: X Pump ☐ Bailer | Pumping Rate: 015 | Duration of Pumping: Hours 01 Minutes 00

Static Level: 032 | Water Level End of Pumping: 035 | Pumping Level: X Pumping ☐ Recovery

Water Levels During: 1 min 035 | 2 min 035 | 3 min 035 | 4 min 035 | 5 min 035

If Flowing, Give Rate: | Pump Intake Set At: 205 | Water at End of Test: X Clear ☐ Cloudy

Recommended Pump Type: ☐ Shallow X Deep | Recommended Pump Setting: 055 | Recommended Pump Rate: 0.015 GPM | Recommended Pump Rate: GPM

005.0

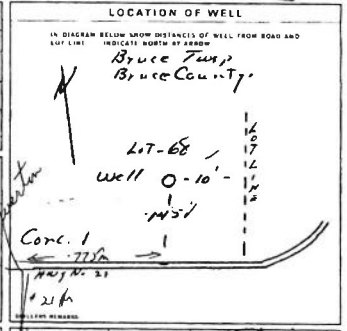
FINAL STATUS OF WELL: X Water Supply ☐ Observation Well ☐ Test Hole ☐ Recharge Well ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Quality ☐ Unfinished

WATER USE 01: X Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Other ☐ Commercial ☐ Municipal ☐ Public Supply ☐ Cooling or Air Conditioning ☐ Not Used

METHOD OF DRILLING: ☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Rotary (Air) X Air Percussion ☐ Boring ☐ Diamond ☐ Jetting ☐ Driving

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



Drilling Methods Remarks:

CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Ltd. | Licence Number: 1737

Address: Box 486, Wingham, Ontario

Name of Driller or Borer: Gary Reavie, Wingham | Licence Number:

Signature of Contractor: per A L Davidson | Submission Date: Day 29 Month Sept Year 73

OFFICE USE ONLY

Date Source: 1 | Contractor: 1737 | Date Received: 10 01 73

Date of Inspection: 041073 | Inspection:

Remarks:

CSS 58

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MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

4A/SE

1403459 | 14005 | C.O.N. 102

County or District: BRUCE | Township, Borough, City, Town, Village: BRUCE | Con. Block, Tract, Survey, etc.: II | Lot: 006

[redacted] RR#2 TIVERTON | Date Completed: Day 29 Month 04 Year 74

Zone | Easting | Northing | Elevation | Elevation Reliability | Data Source

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BLACK	TOP SOIL			0	1
GREY	CLAY			1	122
BROWN	GRAVEL		BOULDERS	122	174
BROWN	LIMESTONE			174	179
GREY	SHALE	LIMESTONE STREAKS		179	192
BROWN	LIMESTONE			192	210

OWRC P.5

31: 0001805 | 01222105 | 01746M133 | 01794135 | 01922174 | 02101 5

32:

41 WATER RECORD

Water Found At Feet	Kind of Water										
0185	X Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	☐ Fresh	☐ Sulphur	
0209	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	☐ Salty	☐ Mineral	

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth From	Depth To
04	X Steel ☐ Galvanized ☐ Concrete ☐ Open Hole	.205	0	0175
04	X Steel ☐ Galvanized ☐ Concrete ☐ Open Hole		0175	0210

SCREEN: Make | Model No. | Diameter | Slot No. | Length | Depth Set At | Material and Type | Inside Diam. | Slot No. | Depth To Top of Screen

61 PLUGGING & SEALING RECORD

Depth Set At | From | To | Material | Kind and Type | Length | Diameter

71 PUMPING TEST

Pumping Test Method: X Pump ☐ Bailer | Pumping Rate: 0015 | Duration of Pumping: Hours 04 Minutes 00

Static Level: 030 | Water Level End of Pumping: 060 | Pumping Level: X Pumping ☐ Recovery

Water Levels During: 1 min 060 | 2 min 060 | 3 min 060 | 4 min 060 | 5 min 060

If Flowing, Give Rate: | Pump Intake Set At: 60 | Water at End of Test: X Clear ☐ Cloudy

Recommended Pump Type: ☐ Shallow X Deep | Recommended Pump Setting: 060 | Recommended Pump Rate: 0015 GPM | Recommended Pump Rate: GPM

0005 GPM/FT SPECIFIC CAPACITY

FINAL STATUS OF WELL 1: X Water Supply ☐ Observation Well ☐ Test Hole ☐ Recharge Well ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Quality ☐ Unfinished

WATER USE 01: X Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Other ☐ Commercial ☐ Municipal ☐ Public Supply ☐ Cooling or Air Conditioning ☐ Not Used

METHOD OF DRILLING 4: ☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) X Rotary (Air) ☐ Air Percussion ☐ Boring ☐ Diamond ☐ Jetting ☐ Driving

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



Drilling Methods Remarks:

CONTRACTOR

Name of Well Contractor: RAY SPENCER SON WELL DR. INC. | Licence Number: 3237

Address: R#3 MT FOREST | 4856

Name of Driller or Borer: Ray Spencer | Licence Number: 3237

Signature of Contractor: Ray Spencer | Submission Date:

OFFICE USE ONLY

Date Source: 1 | Contractor: 4856 | Date Received: 1705 74

Date of Inspection: July 31/75 | Inspection:

Remarks:

CSS 58

P

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The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

1403908 | 14.05 | CAN | 101

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey, etc.	Lot
Bruce	Bruce Twp.	Con. 1	001

[redacted] eral Delivery, Tiverton, Ontario.

Date Completed: 08 Aug. 75

1403908 17 451159 WL2312 3 180 3 22 JUL 13, 1977 309

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	To
Brown	Sand		Soft	0	3
Blue	Clay		Soft	3	45
Blue	Clay	Stones	Soft	45	106
Grey	Hardpan	Stones	Hard	106	167
Dk.Brown	Limestone		Soft	167	200
Lt.Brown	Limestone		Soft	200	220

31 D003H2885 | D045130585 | D1463051285 | D14721H12173 | D20D41H585 | D222W1585

32

41 WATER RECORD

Water Found At - Feet	Kind of Water
0204 ~~210~~	X Fresh
0219	X Fresh

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth - Feet From	To
	X Steel			0169
05	X Galvanized	.188	0	169-2
05	X Open Hole		169-1	0220

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping Test Method: ~~Bailer~~ Pump | Pumping Rate: 0010 GPM | Duration of Pumping: 01 hrs 10 min

Static Level	Water Levels During Pumping				Recovery
	1 Minute	10 Minutes	20 Minutes	30 Minutes	40 Minutes
068	080	072	075	080	080

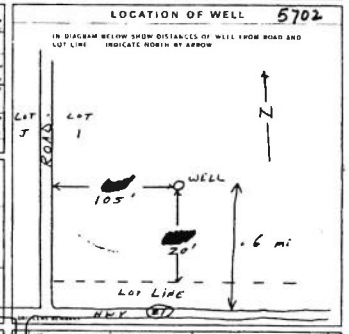
If Flowing Give Rate: GPM | Pump Intake Set At: 220 Feet | Water at End of Test: X Clear ☐ Cloudy

Recommended Pump Type: ☐ Shallow X Deep | Recommended Pump Setting: 100 Feet | Recommended Pump Rate: 0008 GPM

GPM / Ft. Specific Capacity

LOCATION OF WELL 5702

In diagram below show distances of well from road and lot line. Indicate North by arrow.



Final Status of Well	1
Water Use	01
Method of Drilling	2

CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited | Licence Number: 1737

Address: Box 486, Wingham, Ontario.

Name of Driller or Borer: R. Jardine

Signature of Contractor: Douglas F. Davidson | Submission Date: Aug. 11, 75

OFFICE USE ONLY

Data Source: 1 | Contractor: 1737 | Date Received: 250975

Date of Inspection: Aug 4/76 | Inspection: 7

Remarks:

CSS.S8 | P BR | WI

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FORM 7 MOE 07 04

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The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

1404000 | 14.01.2 | CAN | A

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey, etc.	Lot
Bruce County	Kincardine Township	Concession A	068

[redacted] . # 2, Tiverton, Ontario

Date Completed: 29 Oct. 10 75

1404000 17 451159 WL2312 3 180 3 22 JUL 13, 1977 309

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	To
Brown	Topsoil			0	1
Brown	Clay	Stones	Hard	1	22
Brown	Clay		Soft	22	68
Brown	Hardpan	Stones	Hard	68	86
Brown	Limestone		Medium	86	102
Dk. Brown	Limestone		Soft	102	142

31 D0016D2 | D02760512173 | D068B0585 | D08861H12173 | D1826115 | D1H2615B5

32

41 WATER RECORD

Water Found At - Feet	Kind of Water
0140 ~~220~~	X Fresh
~~142~~	

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth - Feet From	To
05	X Steel	.188	0	0087
	X Galvanized		87-9	~~192~~
	X Open Hole			0142

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping Test Method: X Pump ☐ Bailer | Pumping Rate: 0012 GPM | Duration of Pumping: 01 hrs 00 min

Static Level	Water Levels During Pumping				Recovery
	1 Minute	10 Minutes	20 Minutes	30 Minutes	40 Minutes
054	058	057	058	058	058

If Flowing Give Rate: GPM | Pump Intake Set At: 122 Feet | Water at End of Test: X Clear ☐ Cloudy

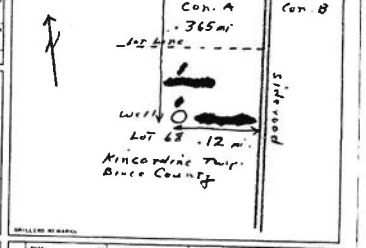
Recommended Pump Type: ☐ Shallow X Deep | Recommended Pump Setting: 075 Feet | Recommended Pump Rate: 0012 GPM

GPM / Ft. Specific Capacity

LOCATION OF WELL Lot E Lot 5402

In diagram below show distances of well from road and lot line. Indicate North by arrow.

Con. A (11) Tiverton



Final Status of Well	1
Water Use	12
Method of Drilling	2

CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited | Licence Number: 1737

Address: Box 486, Wingham, Ontario.

Name of Driller or Borer: Rick Jardine

Signature of Contractor: per H.F. Davidson | Submission Date: Nov. 3, 75

OFFICE USE ONLY

Data Source: 1 | Contractor: 1737 | Date Received: 311275

Date of Inspection: Aug 4/76 | Inspection: 7

Remarks:

CSS.S8 | P BR | WI

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FORM 7 MOE 07 04

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

1404005 | 14709

County or District: Bruce
Township, Borough, City, Town, Village: TIVERTON
Con. Block, Tract, Survey, etc.: 12
Lot: 25
Address of Well Location: [redacted] Queen St, Kincardine, Ontario.
Date Completed: 10 [redacted] 75

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
Brown	Clay	Stones	Soft	0	16
Blue	Clay	Stones	Soft	16	93
Grey	Hardpan	Stones	Hard	93	191
Brown	Limestone		Hard	191	226
Dk.Brown	Limestone		Medium soft	226	232
Dk.Brown	Limestone		Hard	232	254
Brown	Limestone		Hard	254	289
Brown	Limestone		Soft	289	291

31 | 32

WATER RECORD: 0229 (39) FRESH; 0264 (45) FRESH; 0290 (45) FRESH

CASING & OPEN HOLE RECORD: 06 Galvanized .188 0 0194 (104-6); 06 Open Hole 194-6 0291

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST: Air; 0033 for 01 hr 15 min; Static Level 043; Water Levels During 072 / 059 / 065 / 070 / 072; Pumping Rate 291 GPM; Recommended Pump Setting 150 ft; Recommended Pumping Rate 0030 GPM; Clear; Shallow

FINAL STATUS OF WELL: Water Supply

WATER USE: 01 Domestic

METHOD OF DRILLING: 2 Rotary (Conventional)

LOCATION OF WELL — Lot 5700

Diagram below show distances of well from road and lot line. Indicate North by arrow.

TOWNLINE
HWY 21
.7 mi.
.085 mi.
WELL
N

CONTRACTOR: Davidson Well Drilling Limited — Licence Number 1737
Address: Box 486, Wingham, Ontario.
Name of Driller or Borer: G. Reavie
Signature of Contractor: Douglas F. Davidson
Submission Date: 14 Oct. 75

OFFICE USE ONLY: 1 | 1737 | 311275
Date of Inspection: Aug 4/76
CSS.S8

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FORM 7 MOE 07 051

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

1404185 | 14012 CON B

County or District: Bruce
Township, Borough, City, Town, Village: Kincardine Twp.
Con. Block, Tract, Survey, etc.: Con. B
Lot: 054
Address of Well Location: [redacted] R.R. # 2, Tiverton, Ontario.
Date Completed: 05 May 76

00074 5 0735 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	1
Brown	Clay		Soft	1	24
	Gravel	Sand	Soft	24	39
Brown	Hardpan	Stones	Hard	39	64
Brown	Limestone	White shale	Soft	64	69
Brown	Limestone		Soft	69	136

31 | 32

WATER RECORD: 0136 (45) FRESH

CASING & OPEN HOLE RECORD: 05 Steel .188 0 0069 (68-7); 05 Galvanized 68-7 0136

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST: Air; 0010 for 01 hr 00 min; Static Level 052; Water Levels During 065 / 058 / 065 / 065 / 065; Pumping Rate 130 GPM; Recommended Pump Setting 085 ft; Recommended Pumping Rate 0010 GPM; Clear; Cloudy

FINAL STATUS OF WELL: Water Supply

WATER USE: 01 Domestic

METHOD OF DRILLING: 2 Rotary (Conventional)

LOCATION OF WELL

Diagram below show distances of well from road and lot line. Indicate North by arrow.

Concession A
Con. B
Lot 56
1.24 mi.
240'
WELL
N

CONTRACTOR: Davidson Well Drilling Limited — Licence Number 1737
Address: Box 486, Wingham, Ontario.
Name of Driller or Borer: R. Jardine
Signature of Contractor: Douglas F. Davidson
Submission Date: 17 May 76

OFFICE USE ONLY: 1 | 1737 | 150776
Date of Inspection: Aug 17/77

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FORM 7 MOE 07 051

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1404483

County or District: BRUCE
Township, Borough, City, Town, Village: TIVERTON
Lot 62, Part 1, 3R-581
Owner: SOUTH BRUCE REV. CORP.
Address: P.O. Box 269, Kincardine, Ontario
Date completed: 16 June 77

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BLACK	TOP SOIL			0	2
GREY	CLAY	& GRAVEL STONES		2	74
GREY	CLAY	& HARDPAN		74	105
GREY	DRY GRAVEL			105	115
BROWN	MOOSE SHALE			115	130
	SHALE			130	160
	LIMESTONE			160	189
DARK BROWN	ROCK			189	215
BLACK & BROWN	ROCK			215	240
WHITE & BROWN	ROCK			240	255

30 0002180 2 | 0074 2051 1112 | 0105 2051 14 | 0115 2111 58 | 0130 6177 77 | 0160 6177 | V
31 0189 4151 | 0215 6116 6 | 0240 7124 | 0255 126

41 WATER RECORD

Water Found At - Feet	Kind of Water
030	X Fresh
155	X Sulphur

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth From	Depth To
06	X Steel	.231	0	030
06	X Open Hole		130	255

SCREEN: NIL

61 PLUGGING & SEALING RECORD

PUMPING TEST

Method: X Pump
Pumping Rate: 0036 GPM
Duration of Pumping: 24 hrs 00 min
Static Level: 040 ft
Water Levels During: 1 min 125; 2 min 102; 3 min 105; 4 min 107; 5 min 109
Pumping: X Recovery
Pump Intake Set At: 150 ft
Water at End of Test: X Clear
Recommended Pump Type: X Deep
Recommended Pump Setting: 150 ft
Recommended Pumping Rate: 0036 GPM
Specific Capacity: — GPM/ft

FINAL STATUS OF WELL 1: X Water Supply
WATER USE 06: X Domestic; X Municipal
METHOD OF DRILLING 1: X Cable Tool

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.

TOWN OF TIVERTON
ALLAN CRESC.
COMC
21
22
70
70.17'
46.4'
ROBINSON STREET
-45 me TIVERTON
-3.910 ft from
NORTH EAST
CORNER OF SPACE TRACT
18
17

CONTRACTOR
Name of Well Contractor: McLAUGHLIN WATER WELLS — Licence Number: 3518
Address: Box 51 BRESLAU ont
Name of Driller or Borer: BRIAN CAREY
Signature of Contractor: R. McLaughlin
Submission Date: 27 June 77

OFFICE USE ONLY
Data Source: 1 — Contractor: 3518 — Date Received: 120777
Date of Inspection: 5 5 77 — Inspector: APL
Remarks:
CSS.S8
P R/ WI 4/

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1404505

County or District: Bruce
Township, Borough, City, Town, Village: Kincardine Twp.
Con. 10 — Lot 005 — 43 & 5
[redacted] Sunnyvale Dr., Oakville, Ont.
Date completed: 28 June 77

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	2
Brown	Clay		Soft	2	28
Blue	Clay		Soft	28	113
Brown	Clay	Stones, sand streaks	Soft	113	145
Brown	Hardpan	Stones	Hard	145	162
Brown	Limestone		Soft, broken	162	167
Brown	Limestone		Soft	167	200

31 0002 1021 | 0028 6058 51 | 0113 3905 55 | 0145 6051 1121 | 0162 6441 73 | 0167 6158 51 | V
32 0200 6155

41 WATER RECORD

Water Found At - Feet	Kind of Water
0189 200	X Fresh

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth From	Depth To
05	X Steel	.188	0	0169 169-0
05	X Open Hole		169-0	0200

SCREEN

61 PLUGGING & SEALING RECORD

PUMPING TEST

Method: X Pump
Pumping Rate: 0020 GPM
Duration of Pumping: 1 hrs 00 min
Static Level: 038 ft
Water Levels During: 1 min 040; 2 min 040; 3 min 040; 4 min 040; 5 min 040
Pumping: X Recovery
Pump Intake Set At: 180 ft
Water at End of Test: X Clear
Recommended Pump Type: X Deep
Recommended Pump Setting: 060 ft
Recommended Pumping Rate: 0020 GPM
Specific Capacity: — GPM/ft

FINAL STATUS OF WELL 1: X Water Supply
WATER USE 12: X Domestic; X Public Supply
METHOD OF DRILLING 2: X Rotary (Conventional)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.

11 mi
CON 10
300'
WELL
1000'
LOT LINE

CONTRACTOR
Name of Well Contractor: Davidson Well Drilling Limited — Licence Number: 1737
Address: Box 486, Wingham, Ontario.
Name of Driller or Borer: R. Jardine
Signature of Contractor: D Davids
Submission Date: 29 June 77

OFFICE USE ONLY
Data Source: 1 — Contractor: 1737 — Date Received: 300877
Date of Inspection: 5/8/78 — Inspector: F
Remarks:
CSS.S6
P M/ WI 5/

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The Ontario Water Resources Act

WATER WELL RECORD

41 NE

Ontario

1404788

14005 CON 02

BRUCE | BRUCE | 2 | 005

14 | 03 | 78

[redacted] CITY CENTRE DR. RD 25 STATION A MISSISSAUGA ONTARIO

LOG OF OVERBURDEN AND BEDROCK MATERIALS

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
BROWN	FILL			0	2
BROWN	CLAY			2	140
BROWN	CLAY & HARDPAN & STONES & BOULDERS			140	198
"	Limestone			198	245

0002601 | 0440605 | 0198605 1412 | 0245615

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
0225	FRESH
To	
245	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	DEPTH FEET TO
05"	STEEL	.244	0	198
	OPEN HOLE		198	245

SCREEN

61 PLUGGING & SEALING RECORD

1980245

PUMPING TEST

METHOD	PUMPING RATE	DURATION OF PUMPING	STATIC LEVEL	WATER LEVELS DURING PUMPING	10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
PUMP	0015 GPM	02 HRS 10 MIN	044 FEET	120	080	050	044	044		

RECOMMENDED PUMP TYPE: SHALLOW / DEEP — SETTING 120 FEET — RATE 0008 GPM — HOURS 08

WATER AT END OF TEST: CLEAR — CLOUDY

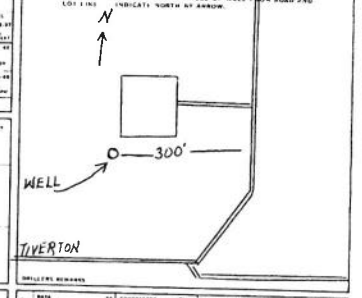
FINAL STATUS OF WELL: WATER SUPPLY

WATER USE: 01 DOMESTIC

METHOD OF DRILLING: 2 ROTARY (CONVENTIONAL)

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: DURHAM DRILLING ENT. | LICENCE NUMBER 1804

ADDRESS: RR2 DURHAM

NAME OF DRILLER OR BORER: RIER DRILLING

SIGNATURE OF CONTRACTOR: P.E. Johnston

SUBMISSION DATE: 17 | 3 | 78

OFFICE USE ONLY

DATE RECEIVED: 18 04 78

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41 NE

Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1404839

14012 CON B

COUNTY OR DISTRICT: Bruce County | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Kincardine Township | CON. | BLOCK, TRACT, SURVEY, ETC.: Concession B | LOT: 039 Sh 59

[redacted] James St., Kincardine, Ont.

DATE COMPLETED: 05 | 18 | 78

201950 5 07301 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
Brown	Clay		Hard	0	17
Blue	Clay		Soft	17	35
Blue	Clay	Stones	Hard	35	47
Grey	Hardpan	Stones	Hard	47	58
Blue	Clay		Soft	58	79
Brown	Limestone		Broken - Soft	79	81
Lt. Brown	Limestone	Dark Brown Limestone	Layered - Med. Hard	81	141

0017605 73 | 0035305 85 | 0047305 1273 | 0058214 1273 | 00

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
131	FRESH
140	

5 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	DEPTH FEET TO
05	STEEL	.188	0	2082 82-4
	OPEN HOLE		82-4	141

0141

SCREEN

61 PLUGGING & SEALING RECORD

PUMPING TEST

METHOD	PUMPING RATE	DURATION OF PUMPING	STATIC LEVEL	WATER LEVELS DURING PUMPING	10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
AIR	0010 GPM	01 HRS 00 MIN	046 FEET	053	051	053	053	053	053	

RECOMMENDED PUMP TYPE: SHALLOW / DEEP — SETTING 070 FEET — RATE 0010 GPM — HOURS

WATER AT END OF TEST: CLEAR — CLOUDY

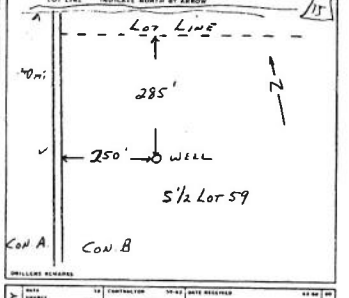
FINAL STATUS OF WELL: WATER SUPPLY

WATER USE: 01 DOMESTIC

METHOD OF DRILLING: 2 ROTARY (CONVENTIONAL)

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Limited | LICENCE NUMBER 1737

ADDRESS: Box 486, Wingham, Ontario

NAME OF DRILLER OR BORER: Doug. Casemore

SIGNATURE OF CONTRACTOR: [signature]

SUBMISSION DATE: 23 | May | 78

OFFICE USE ONLY

DATE RECEIVED: 26 | 9 | 79

190678

CSS.SS

P

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Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

4/A/5E

1404840 14005 CON 03

County or District	Township, Borough, City, Town, Village	Lot	Con. Block, Tract, Survey, etc.
Bruce County	Bruce Township	001	Concession 3

[redacted] Tiverton, Ontario. Date completed 05 day 19 May 78

17 459350 4902350 5 0790 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	To
	Gravel fill			0	6
Blue	Gritty Clay		Hard	6	73
Blue	Clay		Soft	73	137
Brown	Sand			137	145
Blue Clay	Clay		Soft	145	159
Grey	Hardpan	Stones	Hard	159	187
Dk Brown	Limestone		Hard	187	193
Lt. Brown	Limestone		Med. Hard	193	216

31 0004 1101 0073305 1873 0137905 1851 0145428 0159 1605 1851 0187 2141 2173

32 0193 1656 5731 0216 1657 3

41 WATER RECORD

Water Found at - Feet	Kind of Water
210 ~~220~~	Fresh

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth - Feet From	To
05	Steel	.188	0	0190 ~~184 6~~
	Open Hole		189-8	~~210~~ 0216

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping Test Method: air; Pumping Rate: 0008; Duration of Pumping: 01 hrs 00 min

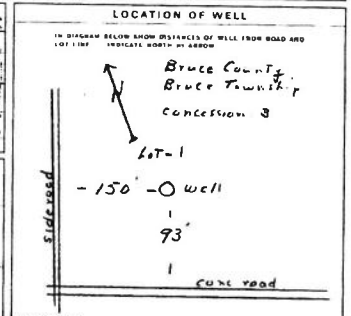
Static Level	Water Levels During	10 Minutes	20 Minutes	30 Minutes	40 Minutes	50 Minutes	60 Minutes
064	097	083	091	097	097		

Pump Intake Set At: 180; Water at End of Test: Clear; Recommended Pump Type: Shallow; Recommended Pump Setting: 120; Recommended Pump Rate: 0008

Final Status of Well	1 Water Supply
Water Use	01 Domestic
Method of Drilling	2 Rotary (Conventional)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited; Licence Number: 1737

Address: Box 486, Wingham, Ontario

Name of Driller or Borer: Doug. Casemore

Signature of Contractor: [signature]; Submission Date: day 23 May 78

OFFICE USE ONLY

Data Source: 1; Contractor: 1737; Date Received: 190678

Date of Inspection: 20979

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Form No. 0506-4-77

Ministry of the Environment

Ontario

The Ontario Water Resources Act

4/A/5E

WATER WELL RECORD

1404895 14005 CON 02

County or District	Township, Borough, City, Town, Village	Lot	Con. Block, Tract, Survey, etc.
Bruce County	Bruce Township	005	Concession 2

[redacted] R.R. 3, Tiverton, Ont. Date completed 06 day 28 ~~June~~ 78

17 459300 4902300 5 0810 5 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (See Instructions)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	To
Brown	Clay		Hard	0	13
Blue	Gritty Clay		Hard	13	63
Brown	Sand	Boulders, Clay streaks		63	102
Grey	Hardpan	Stones	Hard	102	160
Brown	Shale		Medium Hard	160	162
Brown	Limestone		Hard	162	216

31 0013 6057 3 0063 2061 8731 0102 6813 1051 0162 1412 1781 0162 6177 3 0216 6857 1

32

41 WATER RECORD

Water Found at - Feet	Kind of Water
190 ~~220~~	Fresh

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth - Feet From	To
05	Steel	.188	0	~~163 6~~ 0164
	Open Hole		163-6	~~216~~ 0216

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping Test Method: ~~pump~~; Pumping Rate: 0012; Duration of Pumping: 01 hrs 10 min

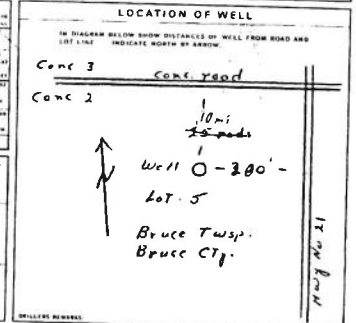
Static Level	Water Levels During	10 Minutes	20 Minutes	30 Minutes	40 Minutes	50 Minutes	60 Minutes
038	042	041	042	042	042		

Pump Intake Set At: 90; Water at End of Test: Clear; Recommended Pump Type: Shallow; Recommended Pump Setting: 060; Recommended Pump Rate: 0012

Final Status of Well	1 Water Supply
Water Use	12 Industrial
Method of Drilling	2 Rotary (Conventional)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited; Licence Number: 1737

Address: Box 486, Wingham, Ontario

Name of Driller or Borer: E. Thompson, Wingham

Signature of Contractor: [signature]; Submission Date: day 29 June 78

OFFICE USE ONLY

Data Source: 1; Contractor: 1737; Date Received: 180878

Date of Inspection: 20979

CSS 58

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Form No. 0506-4-77

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

41A15E

1 PRINT ONLY IN SPACES PROVIDED. 2 CHECK ☒ CORRECT BOX WHERE APPLICABLE

(11) 1405274 | 14005 | CON | 03

COUNTY OR DISTRICT: Bruce | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Bruce | CON: III | LOT: 004 W

[redacted] R#2 Tiverton Ont. | DATE COMPLETED: 02 11 78

(26) 0026500 | (15) 10800 | (16) 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	TO
Brown	Sand	Clay		0	22
Grey	Hardpan	Clay		22	49
Blue	Clay			49	130
Brown	Gravel	Sand		130	152

(31) 0022612905 | 0049211405 | 0130305 | (32) W5016/11/28

(41) WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
0148	

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
05"	Steel, Open Hole	205	0	0145
05"	Steel, Open Hole		145	0150

SCREEN

(61) PLUGGING & SEALING RECORD

DEPTH SET AT FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER ETC.)

(71) PUMPING TEST

PUMPING TEST METHOD: AIR | PUMPING RATE: 020 GPM | DURATION OF PUMPING: 06 HOURS 15 MINUTES

STATIC LEVEL	WATER LEVELS DURING PUMPING	10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
005	035	035	035	035	035	035	035

PUMP INTAKE SET AT: 40 FEET | RECOMMENDED PUMP SETTING: 040 FEET | RECOMMENDED PUMPING RATE: 0005 GPM

WATER AT END OF TEST: CLEAR | RECOVERY: 1/2 IN 2 MINUTES

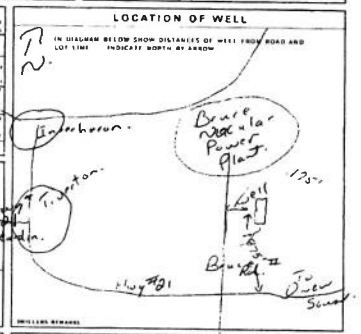
FINAL STATUS OF WELL 1: WATER SUPPLY

WATER USE 01: DOMESTIC

METHOD OF DRILLING 2: CABLE TOOL

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: Spencer Well Drilling | LICENCE NUMBER: 1669

ADDRESS: Mount Forest Ont.

NAME OF DRILLER OR BORER: John C. Spencer | LICENCE NUMBER: 1465

SIGNATURE OF CONTRACTOR: Peter McClellan | SUBMISSION DATE: DAY 31 MO 12 YR 78

OFFICE USE ONLY

WELL RECEIVED: 150180

CSS.S8

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FORM NO. 0506-4-77

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

41A15E

1 PRINT ONLY IN SPACES PROVIDED. 2 CHECK ☒ CORRECT BOX WHERE APPLICABLE

(11) 1406318 | 14005 | CON | 03

COUNTY OR DISTRICT: Bruce | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Bruce Twp. | CON: Con. 3 | LOT: G

[redacted] Bell Farm Rd., Barrie, Ontario. L4M 1H1 | DATE COMPLETED: 11 Sept. 85

(26) 0041100 | (15) 0750 | (16) 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	TO
	Topsoil			0	1
Brown	Sand	Clay		1	18
Blue	Clay		Soft	18	62
Grey	Hardpan	Stones		62	126
White	Shale		Soft	126	129
Grey-Brn.	Limestone		Hard	129	205
Dk.Brn.	Limestone		Medium	205	245

(31) | (32)

(41) WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
189	
231	
244	

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
5	Steel, Open Hole	.188	0	130-5
5	Open Hole		130-5	245

SCREEN

(61) PLUGGING & SEALING RECORD

DEPTH SET AT FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY PACKER ETC.)

(71) PUMPING TEST

PUMPING TEST METHOD: air | PUMPING RATE: 4 GPM | DURATION OF PUMPING: 2 HOURS

STATIC LEVEL	WATER LEVELS DURING PUMPING	10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
64	125	93	116	121	125		

PUMP INTAKE SET AT: 225 FEET | RECOMMENDED PUMP SETTING: 150 FEET | RECOMMENDED PUMPING RATE: 4 GPM

WATER AT END OF TEST: CLEAR | RECOVERY: 1/2 IN 2 MINUTES

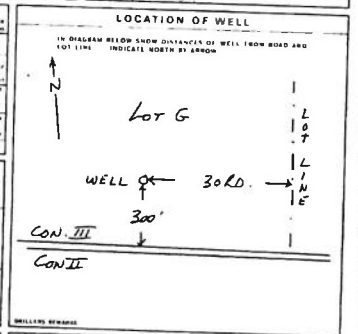
FINAL STATUS OF WELL: WATER SUPPLY

WATER USE: DOMESTIC

METHOD OF DRILLING: CABLE TOOL

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: Davidson Well Drilling Limited | LICENCE NUMBER: 1737

ADDRESS: Box 486, Wingham, ONtario. N0G 2W0

NAME OF DRILLER OR BORER: EE Thompson

SIGNATURE OF CONTRACTOR: D. Davidson | SUBMISSION DATE: DAY 18 MO Sept. 85

OFFICE USE ONLY

WELL RECEIVED: 231285 | DATE: 23/9/86 | INSPECTION: WDE

CSS.S8

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FORM NO. 0506-4-77 FORM 7

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 1408933
Well Audit Number: 146337
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	BRUCE TOWNSHIP
Lot	003
Concession	CON 01
County/District/Municipality	BRUCE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 457383.00 Northing: 4901364.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	CLAY	HARD		0 ft	63 ft
BRWN	CLAY	SNDY	SOFT	63 ft	127 ft
GREY	HPAN	HARD		127 ft	144 ft
BRWN	CLAY	STNS	HARD	144 ft	189 ft
BRWN	LMSN	MGRD	SOFT	189 ft	207 ft
BRWN	LMSN	MGRD	HARD	207 ft	228 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed

Method of Construction & Well Use

Method of Construction	Well Use
	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		196 ft
6 inch	OPEN HOLE		228 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 1737

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	20 GPM
Duration of Pumping	1 h:30 m
Final water level	81 ft
If flowing give rate	
Recommended pump depth	120 ft
Recommended pump rate	10 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	62 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15	69 ft	15	
20		20	
25		25	
30	74 ft	30	
40		40	
45	79 ft	45	
50		50	
60	81 ft	60	

Water Details

Water Found at Depth	Kind
212 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: 146337

Date Well Completed: July 23, 1996

Date Well Record Received by MOE: November 21, 1996

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/1031864f-e372-4b05-888c-c1dead62f7f7)

Updated: January 10, 2024
Published: March 20, 2014

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

41 A 15 E

1406591 T4005 CON 02

County or District: Bruce
Township, Borough, City, Town, Village: Bruce Twp.
Con. Block, Tract, Survey etc.: Con. 2
Lot: Pt. F
[redacted] R. 3, Tiverton, Ont. N0G 2T0
Date Completed: Day 15 Mo. Apr. Yr. 87
T04105 750

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	1
Brown	Fine Sand			1	6
Brown	Clay		Hard	6	13
Grey	Clay		Soft	13	44
Grey	Clay	Gravel	Hard, mixed	44	127
Grey	Hardpan	Boulders	Hard	127	158
Lt.Brown	Limestone		Medium	158	168
Dk.Brown	Limestone		Medium	168	201

WATER RECORD

Water Found at Depth - Feet	Kind of Water
194	Fresh
198	Sulphur

CASING & OPEN HOLE RECORD

Inside Diameter (inches)	Material	Wall Thickness (inches)	Depth From	Depth To
5	Steel, Galvanized	.188	0	155-4
4	Steel, Galvanized	.188	137	158-4
4	Open Hole		158-4	201

SCREEN

Material and Type:
Depth to Top of Screen:

PLUGGING & SEALING RECORD

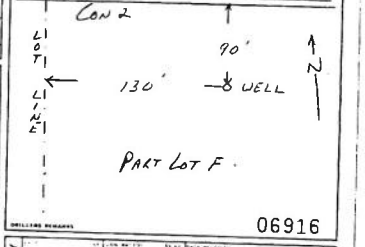
Depth Set at - Feet From	To	Material and Type	Amount (cement grout, sand pack etc.)

PUMPING TEST

Pumping Test Method: Bailer
Pumping Rate: 8 GPM
Duration of Pumping: 1 Hours 30 Minutes
Final: Pumping
Static Level: 86 Feet
Water Level End of Pumping: 98 Feet
Water Levels During: 10 Minutes 94 Feet; 20 Minutes 96 Feet; 30 Minutes 98 Feet; 40 Minutes 98 Feet
Recovery
If Flowing Give Rate: GPM
Pump Intake Set at: 130 Feet
Water at End of Test: Clear
Recommended Pump Type: Deep
Recommended Pump Setting: 120 Feet
Recommended Pumping Rate: 8 GPM

LOCATION OF WELL

In diagram below show distance of well from road and lot line. Indicate north by arrow.



Drilling Remarks: 06916

Final Status of Well: Water Supply

Water Use: Domestic

Method of Drilling: Rotary (Conventional)

CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited
Licence Number: 1737
Address: Box 436, Wingham, Ontario. N0G 2W0
Name of Driller or Borer: D. Casemore
Licence Number: T0154
Signature of Contractor: [signature]
Submission Date: Day 27 Mo. Apr. Yr. 87

OFFICE USE ONLY

Date: JUL 10 1987
10/8/88
CSS SR

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506-4-77 FORM 7

Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1407761

[redacted] R.R. 2, Tiverton, Ontario. N0G 2T0

Bruce | Bruce Twp. | Con. 3 | Lot 5

Date completed: 8 Nov. 90

702494 | 800

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	1
Brown	Clay		Hard	1	63
Grey	Clay	Stones	Hard	63	97
Grey	Hardpan		Hard, sandy	97	134
Brown	Clay	Boulders	Hard	134	151
Grey	Limestone		Med. hard	151	186

41 WATER RECORD

Water Found at Feet	Kind of Water
183	Fresh, Sulphur
186	

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth Feet From	Depth Feet To
6	Steel, Open Hole	.188	0	156-9
6	Steel, Open Hole		156-9	186

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Air / Bailer — Pumping rate: 10 L/min for 5 hours

Static level: 33.1 ft

Water levels during: 10 min: 36 ft; 20 min: 37 ft; 30 min: 37 ft; 40 min: 37 ft

Pump intake set at: 50 ft — Pump setting: 50 ft — Recommended pumping rate: 10 L/min

Recommended pump type: Shallow / Deep

FINAL STATUS OF WELL

Water Supply / Observation Well / Test Hole / Recharge Well / Abandoned, Insufficient Supply / Abandoned, Poor Quality / Unfinished / Dewatering

WATER USE

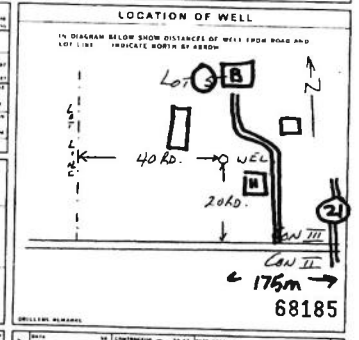
Domestic / Stock / Irrigation / Industrial / Commercial / Municipal / Public Supply / Cooling or Air Conditioning / Other / Not Used

METHOD OF CONSTRUCTION

Cable Tool / Rotary (Conventional) / Rotary (Reverse) / Rotary (Air) / Air Percussion / Boring / Diamond / Jetting / Driving / Digging / Other

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



CONTRACTOR

Davidson Well Drilling Limited — Well Contractor's Licence Number: 1737

Box 486, Wingham, Ontario. N0G 2W0

Name of Well Technician: G. Wright — Well Technician's Licence Number: T0166

Signature of Technician/Contractor — Submission Date: 7 Dec. 90

OFFICE USE ONLY

1737 JAN 16 1991

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1407830

Bruce | Bruce Twp. | Con. 3 | Lot I(i) → I

Owner: ONTARIO HYDRO — Address: 5670 Yonge St. Toronto, Ontario. M2M 3T7

Date completed: 12 Mar. 91

17 457165 4903736 | 775

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	1
Brown	Clay		Hard	1	14
Grey	Clay	Sand	Soft	14	148
Brown	Limestone		Med. soft	148	158
Brn.Gry.	Limestone	Shale	Med. hard	158	184

41 WATER RECORD

Water Found at Feet	Kind of Water
168	Fresh, Sulphur
179	
184	Fresh, Sulphur

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth Feet From	Depth Feet To
6	Steel, Open Hole	.188	0	159-1
6	Steel, Open Hole		159-1	184

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Air / Bailer — Pumping rate: 10 L/min for 1 hour 30

Static level: 56 ft

Water levels during: 10 min: 67 ft; 20 min: 63 ft; 30 min: 65 ft; 40 min: 67 ft; 50 min: 67 ft

Pump intake set at: 120 ft — Pump setting: 85 ft — Recommended pumping rate: 10 L/min

Recommended pump type: Shallow / Deep

FINAL STATUS OF WELL

Water Supply / Observation Well / Test Hole / Recharge Well / Abandoned, Insufficient Supply / Abandoned, Poor Quality / Unfinished / Dewatering

WATER USE

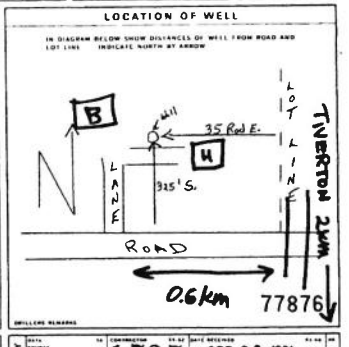
Domestic / Stock / Irrigation / Industrial / Commercial / Municipal / Public Supply / Cooling or Air Conditioning / Other / Not Used

METHOD OF CONSTRUCTION

Cable Tool / Rotary (Conventional) / Rotary (Reverse) / Rotary (Air) / Air Percussion / Boring / Diamond / Jetting / Driving / Digging / Other

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



CONTRACTOR

Davidson Well Drilling Limited — Well Contractor's Licence Number: 1737

Box 486, Wingham, Ontario. N0G 2W0

Name of Well Technician: D. Casemore — Well Technician's Licence Number: T0158

Signature of Technician/Contractor: D.G. Davidson per: J.P. Davidson — Submission Date: 14 Mar. 91

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1737 APR 30 1991

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1408287

[redacted] Kinmount Twp. Con. B 58

[redacted] 119, R.R. 2, Tiverton, ON N0G 2T0 Date completed 29 July 92

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	Topsoil			0	1
Brown	Clay		Hard	1	11
Grey	Clay		Hard	11	26
Grey	Gravel	Clay, stones	Hard	26	45
Grey	Hardpan	Stones	Hard	45	85
Brown	Limestone		Broken	85	89
Brown	Limestone		Hard	89	111
Gry.Brn.	Limestone		Hard	111	138

41 WATER RECORD

Water Found at Feet	Kind of Water
113	Fresh
126	Fresh

51 CASING & OPEN HOLE RECORD

Inside Diameter	Material	Wall Thickness	Depth From	Depth To
6	Steel	.188	0	90-0
6	Open Hole		90-0	138

SCREEN

61 PLUGGING & SEALING RECORD

79 PUMPING TEST

Method: Bailer. Pumping Rate: 15 LPM. Duration of Pump Test: 1 hr 30 min.

Static Level	Water Levels During (Pumping)	10 min	20 min	30 min	40 min	50 min	60 min
62 ft	75 ft	62 ft	69 ft	73 ft	75 ft		

Pump Intake Set at: 110 ft. Clear. Pumping Rate: 95 LPM. Recommended Pump Depth: 110 ft. Recommended Pump Rate: 10 LPM.

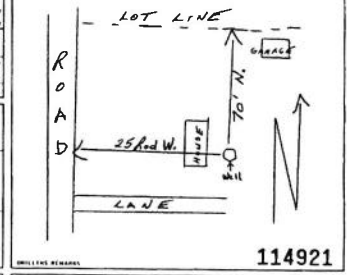
FINAL STATUS OF WELL: Water Supply

WATER USE: Domestic, Stock

METHOD OF CONSTRUCTION: Rotary (Conventional)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



114921

CONTRACTOR

Name of Well Contractor: Davidson Well Drilling Limited — Well Contractor's Licence Number: 1737

Address: Box 486, Wingham, Ontario. N0G 2W0

Name of Well Technician: D. Casemore — Well Technician's Licence Number: T0134

Signature of Technician/Contractor: O.F. Davidson (per Eric Davidson) — Submission Date: 29 July 92

OFFICE USE ONLY

Date Received: 1737 DEC 04 1992

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FORM NO 0506 (11/80) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1408560

[redacted] Con 13 Lot 3

[redacted] Port Elgin Date completed 28 April 94

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
Brown	top soil			0	1
Brown	Clay	silt stones	soft	1	30
Brown	Clay	sand		30	90
Brown, Blue	Clay	small stones		90	120
Grey	limestone		hard	120	140
Brown white	Limestone		hard	140	204

41 WATER RECORD

Water Found at Feet	Kind of Water
204	Fresh

51 CASING & OPEN HOLE RECORD

Inside Diameter	Material	Wall Thickness	Depth From	Depth To
6¼	Steel	3/16	0	121
	Open Hole		121	204

SCREEN

61 PLUGGING & SEALING RECORD

79 PUMPING TEST

Method: Pump. Pumping Rate: 15 LPM. Duration of Pump Test: 1 hr.

Static Level	Water Levels During (Pumping)	10 min	20 min	30 min	40 min	50 min	60 min
60 ft	60 ft	60 ft	60 ft	60 ft	60 ft		

Pump Intake Set at: 100 ft. Clear. Pumping Rate: 15 LPM. Recommended Pump Depth: 100 ft. Recommended Pump Rate: 15 LPM.

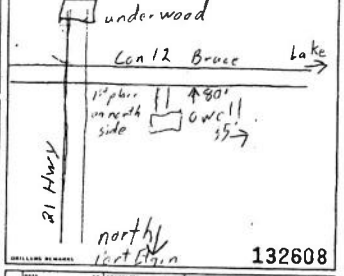
FINAL STATUS OF WELL: Water Supply

WATER USE: Domestic

METHOD OF CONSTRUCTION: Cable Tool

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate North by arrow.



132608

CONTRACTOR

Name of Well Contractor: AQuadic Well Drilling — Well Contractor's Licence Number: 6705

Address: 89 albert St. Paisley Ont

Name of Well Technician: Ivan Mawhinney — Well Technician's Licence Number: T-2351

Signature of Technician/Contractor: [redacted] — Submission Date: 27 May 94

OFFICE USE ONLY

Date Received: 6783 MAY 27 1994

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FORM NO 0506 (11/80) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1408638

[redacted]

KINCARDINE | B | 60

BOX 372 INVERHURON | DATE COMPLETED 06 10 94

LOG OF OVERBURDEN AND BEDROCK MATERIALS

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	TO
		TOPSOIL		0	2
		SANDY CLAY & STONES		2	120
		LIMESTONE SHALE		120	142

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
135	FRESH
TO	
142	

51 CASING & OPEN HOLE RECORD

MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6 STEEL	188	0	122
		122	142

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

PUMPING TEST METHOD: PUMP AIR

PUMPING RATE	DURATION OF PUMPING	STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING: 10 MIN	20 MIN	30 MIN	40 MIN	50 MIN	60 MIN
30	1 HR 30 MIN	72	100	72	72	72	72		

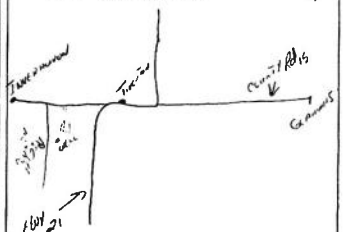
PUMP INTAKE SET AT: AIR 142

RECOMMENDED PUMP SETTING: 120

RECOMMENDED PUMPING RATE: 10

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW



131516

FINAL STATUS OF WELL: WATER SUPPLY

WATER USE: DOMESTIC

METHOD OF CONSTRUCTION: CABLE TOOL

CONTRACTOR

NAME OF WELL CONTRACTOR: KAUFMAN INVESTMENTS LTD. | WELL CONTRACTOR'S LICENCE NUMBER: 6634

ADDRESS: RR#3 ELMWOOD ONTARIO

NAME OF WELL TECHNICIAN: Kaufman & Kaufman | WELL TECHNICIAN'S LICENCE NUMBER: 1922

SIGNATURE OF TECHNICIAN/CONTRACTOR | SUBMISSION DATE: Oct 10 94

OFFICE USE ONLY

DATE RECEIVED: 6634 NOV 01 1994

CSS ES

FORM NO. 0506 (11/86) FORM 7

MINISTRY OF THE ENVIRONMENT COPY

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records).

Go Back to Map

Well ID

Well ID Number: 1408796
Well Audit Number: 15/1878
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	KINCARDINE TOWNSHIP
Lot	004
Concession	CON 12
County/District/Municipality	BRUCE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 457590.10 Northing: 4900589.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	LOAM			0 ft	2 ft
	CLAY	SNDY		2 ft	97 ft
	HPAN	STNS		97 ft	203 ft
	LMSN			203 ft	224 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed

Method of Construction & Well Use

Method of Construction	Well Use
Not Known	
	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		205 ft
	OPEN HOLE		224 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 6634

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	15 GPM
Duration of Pumping	2 h:0 m
Final water level	69 ft
If flowing give rate	
Recommended pump depth	85 ft
Recommended pump rate	10 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	51 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	51 ft
20		20	
25		25	
30		30	51 ft
40		40	
45		45	51 ft
50		50	
60		60	51 ft

Water Details

Water Found at Depth	Kind
224 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: 157828

Date Well Completed: September 21, 1995

Date Well Record Received by MOE: November 14, 1995

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-maps#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/8011344e-e3f2-48d5-88fc-c1dead8d2f7f)

Updated: January 10, 2024
Published: March 20, 2014

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 1408791
Well Audit Number: 157827
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	KINCARDINE TOWNSHIP
Lot	055
Concession	CON B
County/District/Municipality	BRUCE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 454195.20 Northing: 4900526.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	FILL			0 ft	4 ft
	CLAY	STNS		4 ft	82 ft
	LMSN			82 ft	129 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed

Method of Construction & Well Use

Method of Construction	Well Use
Not Known	
	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		84 ft
	OPEN HOLE		129 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 6634

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	12 GPM
Duration of Pumping	2 h:0 m
Final water level	64 ft
If flowing give rate	
Recommended pump depth	80 ft
Recommended pump rate	5 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWI	51 ft		
1		1	

2	2	
3	3	
4	4	
5	5	
10	10	
15	15	51 ft
20	20	
25	25	
30	30	51 ft
40	40	
45	45	51 ft
50	50	
60	60	51 ft

Water Details

Water Found at Depth	Kind
129 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: 157827

Date Well Completed: September 19, 1995

Date Well Record Received by MOE: November 16, 1995

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/30113446-e312-4803-88f6-c1deadfd2171)

Updated: January 10, 2024
Published: March 20, 2014

Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records).

Go Back to Map

Well ID

Well ID Number: 1408907
Well Audit Number: 167824
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	KINCARDINE TOWNSHIP
Lot	002
Concession	CON 10
County/District/Municipality	BRUCE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 456004.00 Northing: 4899639.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	LOAM			0 ft	1 ft
BRWN	SILT			1 ft	13 ft
GRY	CLAY	GRVL		13 ft	52 ft
GRY	SILT	GRVL		52 ft	89 ft
GRY	CLAY	GRVL		89 ft	102 ft
BRWN	LMSN			102 ft	158 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 ft	30 ft		

Method of Construction & Well Use

Method of Construction	Well Use
	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		104 ft
6 inch	OPEN HOLE		158 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7576

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	30 GPM
Duration of Pumping	1 h:0 m
Final water level	
If flowing give rate	
Recommended pump depth	80 ft
Recommended pump rate	25 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	26 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind
120 ft	Not Stated
158 ft	Not Stated

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: 162824

Date Well Completed: August 12, 1996

Date Well Record Received by MOE: September 13, 1996

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#web)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/1011344a-e3f2-48db-888c-c1deadf62f73)

Updated: January 10, 2024
Published: March 20, 2014

Ontario [http://www.ontario.ca/page/government-ontario]

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 1408933
Well Audit Number: 146337
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	BRUCE TOWNSHIP
Lot	003
Concession	CON 01
County/District/Municipality	BRUCE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 457383.00 Northing: 4901364.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	CLAY	HARD		0 ft	63 ft
BRWN	CLAY	SNDY	SOFT	63 ft	127 ft
GREY	LIMN	HARD		127 ft	144 ft
BRWN	CLAY	STNS	HARD	144 ft	189 ft
BRWN	LMSN	MGRD	SOFT	189 ft	207 ft
BRWN	LMSN	MGRD	HARD	207 ft	228 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed

Method of Construction & Well Use

Method of Construction	Well Use
	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STELL		196 ft
6 inch	OPEN HOLE		278 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 1737

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	20 GPM
Duration of Pumping	1 h:30 m
Final water level	81 ft
If flowing give rate	
Recommended pump depth	120 ft
Recommended pump rate	10 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWI	62 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15	69 ft	15	
20		20	
25		25	
30	74 ft	30	
40		40	
45	79 ft	45	
50		50	
60	81 ft	60	

Water Details

Water Found at Depth	Kind
212 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number: 146337

Date Well Completed: July 23, 1996

Date Well Record Received by MOE: November 21, 1996

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/9031344e-e3f2-48d5-888c-c1deadd2f77)

Updated: January 10, 2024
Published: March 20, 2014

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

1409506

Municipality 14012 Con CON 12

County or District: Bruce [redacted]
Township/Borough/City/Town/Village: Kincardine Twp.
Con: Con. 12
Block/Tract/Survey, etc.:
Lot: Pt.1
Address: Tiverton, Ontario N0G 2T0
Date completed: 15 Sept 99

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Clay		Med.	0	12
Brown	Clay	Sand	Med.	12	87
Grey	Clay		Med.	87	121
Grey	Clay	Stones	Hard	121	177
Grey	Limestone		Hard	177	208

WATER RECORD

Water found at - feet	Kind of water
205	Fresh, Sulphur

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6	Steel	.188	+1-6	184
6	Open hole		184	208

SCREEN: Slot No.: Diameter: Length: Material and type: Depth at top of screen:

PLUGGING & SEALING RECORD

Annular space / Abandonment

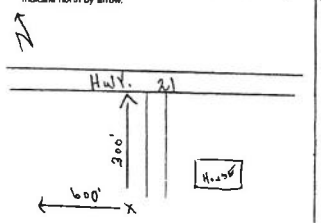
Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)

PUMPING TEST

Pumping test method: Pump
Pumping rate: 10 GPM
Duration of pumping: 2 Hours
Static level: 66 feet
Water level end of pumping: 120 feet
Water levels during: Pumping / Recovery
15 minutes: 81 feet; 30 minutes: 69 feet; 45 minutes: 66 feet; 60 minutes: 66 feet
If flowing give rate: GPM
Pump intake set at: 145 feet
Water at end of test: Clear
Recommended pump type: Shallow
Recommended pump setting: 145 feet
Recommended pump rate: 10 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



209389

FINAL STATUS OF WELL

Water supply / Observation well / Test hole / Recharge well / Abandoned, insufficient supply / Abandoned, poor quality / Abandoned (Other) / Dewatering / Unfinished / Replacement well

WATER USE

Domestic / Stock / Irrigation / Industrial / Commercial / Municipal / Public supply / Cooling & air conditioning / Not used / Other

METHOD OF CONSTRUCTION

Cable tool / Rotary (conventional) / Rotary (reverse) / Rotary (air) / Air percussion / Boring / Diamond / Jetting / Driving / Digging / Other

Name of Well Contractor: Davidson Well Drilling Limited
Well Contractor's Licence No.: 1737
Address: Box 486, Wingham, Ontario N0G 2W0
Name of Well Technician: K. Lang
Well Technician's Licence No.: T0446
Signature of Technician/Contractor: D.F. DAVIDSON
Submission date: 21 Sept, 99

MINISTRY USE ONLY: Date received: OCT 0 8 1999

CSS.ES0

0506 (11/98) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

1409819

Municipality 14005 Con CON 01

County or District: Bruce
Township/Borough/City/Town/Village: Bruce Twp.
Con: Con. 1
Block/Tract/Survey, etc.:
Lot: 5
Address: R.R. 1, Tiverton, Ontario N0G 2T0
Date completed: 19 Aug 00

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Clay			0	14
Grey	Clay			14	135
Grey	Clay	Stones		135	170
Brown	Limestone			170	250

WATER RECORD

Water found at - feet	Kind of water
220	Fresh, Sulphur
248	Fresh, Sulphur

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6	Steel	.188	+1-6	171
6	Open hole		171	250

SCREEN: Slot No.: Diameter: Length: Material and type: Depth at top of screen:

PLUGGING & SEALING RECORD

Annular space / Abandonment

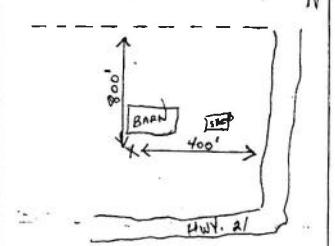
Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)

PUMPING TEST

Pumping test method: Pump
Pumping rate: 15 GPM
Duration of pumping: 2 Hours
Static level: 44 feet
Water level end of pumping: 60 feet
Water levels during: Pumping / Recovery
15 minutes: 52 feet; 30 minutes: 44 feet; 45 minutes: 44 feet; 60 minutes: 44 feet
If flowing give rate: GPM
Pump intake set at: 90 feet
Water at end of test: Clear
Recommended pump type: Deep
Recommended pump setting: 90 feet
Recommended pump rate: 15 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



217905

FINAL STATUS OF WELL

Water supply / Observation well / Test hole / Recharge well / Abandoned, insufficient supply / Abandoned, poor quality / Abandoned (Other) / Dewatering / Unfinished / Replacement well

WATER USE

Domestic / Stock / Irrigation / Industrial / Commercial / Municipal / Public supply / Cooling & air conditioning / Not used / Other

METHOD OF CONSTRUCTION

Cable tool / Rotary (conventional) / Rotary (reverse) / Rotary (air) / Air percussion / Boring / Diamond / Jetting / Driving / Digging / Other

Name of Well Contractor: Davidson Well Drilling Limited
Well Contractor's Licence No.: 1737
Address: Box 486, Wingham, Ontario N0G 2W0
Name of Well Technician: K. Loach
Well Technician's Licence No.: T0927
Signature of Technician/Contractor: D.F. DAVIDSON
Submission date: 18 Sept, 00

MINISTRY USE ONLY: Date received: FEB 0 5 2001

CSS.ES1

0506 (11/98) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Well Tag Number: A 011613

A011613

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

Bruce
RR#/Street Number/Name

Kincardine
City/Town/Village

58
Site/Compartment/Block/Tract etc.

Bruce Rd. #23
GPS Reading

NAD: 83 | Zone: 17 | Easting: 17 453988 | Northing: 49 00724

Unit: Make/Model: Garmin eTREX Venture | Mode of Operation: ☒ Undifferentiated ☐ Differentiated, specify | ☐ Averaged

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
Brown	Clay			0	12
Grey	Clay			12	46
Grey	Clay	Stones		46	85
Brown	Limestone			85	146

Hole Diameter

Depth From	Depth To	Diameter
0'	86'	8"
86'	146'	6"

Water Record

Water found at Metres	Kind of Water	
145'	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
	☐ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
	☐ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify ___

Chlorinated: ☒ Yes ☐ No

Construction Record

Inside diam	Material	Wall thickness	Depth From	Depth To
Casing				
6"	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188"	+2'	86'
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		86'	146'

Test of Well Yield

Pumping test method: Pump

	Draw Down Time (min)	Draw Down Water Level	Recovery Time (min)	Recovery Water Level
Static Level		59'		
1	1	63.68	1	64.68
2	2	64.99	2	63.50
3	3	64.20	3	63.33
4	4	64.42	4	63.29
5	5	64.60	5	63.15
10	10	64.90	10	62.89
15	15	65.15	15	62.70
20	20	65.30	20	62.68
25	25	65.41	25	62.65
30	30	65.50	30	62.29
40	40	65.65	40	61.90
50	50	65.72	50	61.71
60	60	65.78	60	61.77

Pumping rate (litres/min): 10gpm

Recommended pump depth: 90

Recommended pump rate: 10gpm

If pumping discontinued, give reason: H.

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at — From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
86'	0	Bentonite Grout	

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☒ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

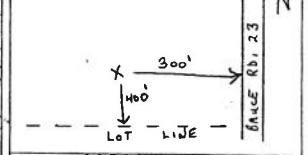
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Well Contractor/Technician Information

Name of Well Contractor: Davidson Well Drilling Limited | Well Contractor's Licence No.: 1737

Business Address (street name, number, city etc.): 147 North St. W. Wingham, Ontario N0G 2W0

Name of Well Technician (last name, first name): Leach, Kim | Well Technician's Licence No.: T0927

Signature of Technician/Contractor: [signature] | Date Submitted: 2004 apl 30

Audit No. Z 11668 | Date Well Completed: 2004 09 24 | Date Delivered: 2004 09 24

Was the well owner's information package delivered? ☒ Yes ☐ No

Ministry Use Only

Data Source | Contractor: 1737

Date Received: JAN 11 2005 | Date of Inspection | Well Record Number | Remarks

0506E (05/03) Contractor's Copy ☐ Ministry's Copy ☒ Well Owner's Copy ☐ Cette formule est disponible en français

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Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Well Tag Number: A 030071

#A030071

page ___ of ___

Instructions for Completing Form

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- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

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MUN | CON | LOT

Well Owner's Information and Location of Well Information

First Name | Last Name: MUNICIPAL ADMIN CENTER OF KINCARDINE

Mailing Address (Street Number/Name, RR,Lot,Concession): RR#5 1475 CON 5

County/District/Municipality | Township/City/Town/Village: KINCARDINE | Province: Ontario | Postal Code: N2Z 2X6 | Telephone Number (Include area code)

Address of Well Location (County/District/Municipality): BRUCE

RR#/Street Number/Name | Township: SAUGEEN SHORES | Lot: RJ | Concession: 1

City/Town/Village | Site/Compartment/Block/Tract etc.

GPS Reading: NAD: 83 | Zone: 17 | Easting: 456783 | Northing: 4902424

Unit Make/Model: MAGELEN | Mode of Operation: UTM | ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	CLAY			0	54ft
BROWN	CLAY & STONES			54ft	60ft
GRAY	CLAY			60ft	102ft
GRAY	CLAY & STONES			102ft	167ft
BROWN	LIMESTONE SOFT			167ft	169ft
BROWN	LIMESTONE MED			169ft	305ft

Hole Diameter

Depth From	Depth To	Diameter
236ft	171ft	12.25in
0	171ft	8in
171ft	305ft	8in

Water Record

Water found at Metres	Kind of Water	
236ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
272ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals
287ft	☒ Fresh ☐ Salty ☐ Gas ☐ Other	☐ Sulphur ☐ Minerals

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify ___

Chlorinated: ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
8.65in	☐ Steel ☐ Fibreglass ☐ Plastic ☒ Concrete ☐ Galvanized	.219	0	171ft
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		171ft	305ft

Test of Well Yield

Pumping test method: pump test to be done later

	Draw Down Time (min)	Draw Down Water Level Metres	Recovery Time (min)	Recovery Water Level Metres
Static Level (metres)				
1	1		1	
2	2		2	
3	3		3	
4	4		4	
5	5		5	
10	10		10	
15	15		15	
20	20		20	
25	25		25	
30	30		30	
40	40		40	
50	50		50	
60	60		60	

Pumping rate (litres/min): ___

Duration of pumping: ___ hrs + ___ min

Final water level end of pumping: ___ metres

Recommended pump type: ☐ Shallow ☐ Deep

Recommended pump depth: ___ metres

Recommended pump rate: ___ (litres/min)

If pumping discontinued, give reason: ___

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at — From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	171ft	BENSEAL BENTONITE SLURRY	

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☒ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

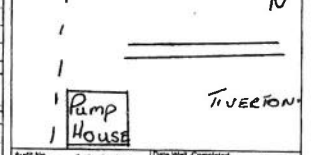
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☒ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Well Contractor/Technician Information

Name of Well Contractor: KEITH LANG WELL DRILLING INC | Well Contractor's Licence No.: 7154

Business Address (street name, number, city etc.): 251 ELDON ST GODERICH ONT

Name of Well Technician (last name, first name): KEITH LANG | Well Technician's Licence No.: T446

Signature of Technician/Contractor: [signature] | Date Submitted

Audit No. Z 48442 | Date Well Completed: 2006 05 2 | Date Delivered

Was the well owner's information package delivered? ☐ Yes ☐ No

Ministry Use Only

Data Source | Contractor: 7154

Date Received: JUN 23 2006 | Date of Inspection | Well Record Number | Remarks

0506E (05/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ Cette formule est disponible en français

Ontario — Ministry of the Environment

Well Tag No: A 045568 (Ont)

A045568

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

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Well Owner's Information and Location of Well Information

[redacted]

RR#/Street Number/Name: Bruce | City/Town/Village: Kincardine, ON | Site/Compartment/Block/Tract etc.: Tiverton | Lot: 12

GPS Reading: NAD 83 | Zone: 17 | Easting: 456603 | Northing: 4901235 | Unit Make/Model: Hogelan | Mode of Operation: X Undifferentiated | Averaged | Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
brown	clay			0	1.8
brown	hardpan			1.8	30.5
brown	gravel	boulders		30.5	36.6
brown	hardpan			36.6	51.2
brown	bedrock			51.2	61.6

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	61.6	24

Water Record

Water found at Metres	Kind of Water			
51.8 m	X Fresh	Sulphur	Gas	Other:
51.8 m	X Fresh	Sulphur	Gas	Other:
m	Fresh	Sulphur	Gas	Other:
m	Fresh	Sulphur	Gas	Other:

After test of well yield, water was: X Clear and sediment free | Other, specify

Chlorinated: X Yes | No

Construction Record

Inside diam (centimetres)	Material	Wall thickness (centimetres)	Depth From	Depth To (Metres)
	Casing			
15.87	X Steel, Fibreglass, Plastic, Concrete, Galvanized	.47	0	51.2
	Screen			
Outside diam	Steel, Fibreglass, Plastic, Concrete, Galvanized	Slot No.		
	No Casing or Screen			
	X Open hole		51.2	61.6

Test of Well Yield

Pumping test method: Pump

	Draw Down Time (min)	Draw Down Water Level (Metres)	Recovery Time (min)	Recovery Water Level (Metres)
Pump intake set at (metres) 30.5	Static Level			
Pumping rate (litres/min) 30.3	1	17.7	1	19.2
Duration of pumping 2 hrs + 0 min	2	17.9	2	19.2
Final water level end of pumping 17.7 metres	3	18	3	19.2
Recommended pump type: Shallow X Deep	4	18.2	4	19.2
Recommended pump depth 45.1 metres	5	18.5	5	19.2
Recommended pump rate 30.3 (litres/min)	10	19	10	19.2
If flowing give rate - (litres/min)	15	19.2	15	19.2
If pumping discontinued, give reason	20	19.2	20	19
	25	19.2	25	18.5
	30	19.2	30	18.2
	40	19.2	40	18
	50	19.2	50	17.9
	60	19.2	60	17.7

Plugging and Sealing Record — X Annular space | Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	51.2	bentonite slurry	1.19

Method of Construction

Cable Tool | Rotary (air) | Diamond | Digging
X Rotary (conventional) | Air percussion | Jetting | Other
Rotary (reverse) | Boring | Driving

Water Use

X Domestic | Industrial | Public Supply | Other
Stock | Commercial | Not used
Irrigation | Municipal | Cooling & air conditioning

Final Status of Well

X Water Supply | Recharge well | Unfinished | Abandoned, (Other)
Observation well | Abandoned, insufficient supply | Dewatering
Test Hole | Abandoned, poor quality | Replacement well

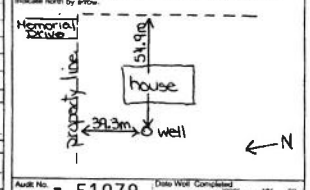
Well Contractor/Technician Information

Name of Well Contractor: AQUATIC Well Drilling | Well Contractor's Licence No.: 7a19
Business Address (street name, number, city etc.): RR#3 #31 Walkerton, ON
Name of Well Technician (last name, first name): Mawhinney, Mike | Well Technician's Licence No.: T3181
Signature of Technician/Contractor: X | Date Submitted: 2006/10/30

0506E (04/06) — Contractor's Copy | Ministry's Copy | X Well Owner's Copy

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 51079 | Date Well Completed: 2006/10/23

Was the well owner's information package delivered? X Yes | No | Date Delivered: 2006/10/23

Ministry Use Only

Data Source | Contractor: 7279
Date Received: NOV 07 2006 | Date of Inspection | Remarks | Well Record Number

Cette formule est disponible en français

Ontario — Ministry of the Environment

A 061744

A061744

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

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- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

First Name: TEESWATER | Last Name: CONCRETE | Mailing Address (Street Number/Name, RR,Lot,Concession): P.O. Box 24

County/District/Municipality: BRUCE | Township/City/Town/Village: TEESWATER | Province: Ontario | Postal Code: N0G 2S0 | Telephone Number (include area code): 519-392-6797

Address of Well Location (County/District/Municipality): BRUCE | Township: KINCARDINE | Lot: 4 | Concession: 12

RR#/Street Number/Name: HWY. 21 | City/Town/Village | Site/Compartment/Block/Tract etc.

GPS Reading: NAD 83 | Zone: 17 | Easting: 457515 | Northing: 4901146 | Unit Make/Model: Garmin eTREX Venture | Mode of Operation: X Undifferentiated | Averaged | Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From (Ft.)	Depth To (Ft.)
	Fill			0'	8'
Brown	Clay	Stones		8'	18'
Grey	Clay			18'	68'
Grey	Clay	Stones		68'	192'
Brown	Limestone			192'	290'

Hole Diameter

Depth From (Ft.)	Depth To	Diameter
0	196'	8 3/4"
196'	290'	6"

Water Record

Water found at (Ft.)	Kind of Water			
210'	X Fresh	Sulphur	Gas	Other:
285'	X Fresh	Sulphur	Gas	Other:
	Fresh	Sulphur	Gas	Other:
	Fresh	Sulphur	Gas	Other:

After test of well yield, water was: X Clear and sediment free | Other, specify

Chlorinated: X Yes | No

Construction Record

Inside diam (inches)	Material	Wall thickness (inches)	Depth From (Ft.)	Depth To (Ft.)
	Casing			
6"	Steel, Fibreglass, X Plastic, Concrete, Galvanized	.188	+2'	196'
	Screen			
Outside diam	Steel, Fibreglass, Plastic, Concrete, Galvanized	Slot No.		
	No Casing or Screen			
	X Open hole		196'	290'

Test of Well Yield

Pumping test method: Draw Down / Recovery

	Draw Down Time (min)	Draw Down Water Level (Metres)	Recovery Time (min)	Recovery Water Level (Ft.)
Pump intake set at (metres) 150'	Static Level	58'		
Pumping rate (litres/min) 30gpm	1	58'2	1	58'4
Duration of pumping 1 hrs + ___ min	2	58'3	2	58'4
Final water level end of pumping 58'6 metres	3	58'4	3	58'2
Recommended pump type: Shallow X Deep	4	58'4	4	58'2
Recommended pump depth 150'	5	58'4	5	58'2
Recommended pump rate 50 gpm (litres/min)	10	58'5	10	58'1
If flowing give rate - (litres/min)	15	58'5	15	58'
If pumping discontinued, give reason	20	58'5	20	58'
	25	↑	25	↓
	30		30	
	40		40	
	50		50	
	60		60	

Ft. Plugging and Sealing Record — X Annular space | Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
196'	0	Bentonite Grout	6 bgs.

Method of Construction

Cable Tool | Rotary (air) | Diamond | Digging
X Rotary (conventional) | Air percussion | Jetting | Other
Rotary (reverse) | Boring | Driving

Water Use

Domestic | X Industrial | Public Supply | Other
Stock | Commercial | Not used
Irrigation | Municipal | Cooling & air conditioning

Final Status of Well

X Water Supply | Recharge well | Unfinished | Abandoned, (Other)
Observation well | Abandoned, insufficient supply | Dewatering
Test Hole | Abandoned, poor quality | Replacement well

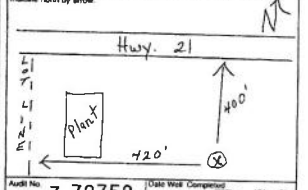
Well Contractor/Technician Information

Name of Well Contractor: DAVIDSON WELL DRILLING LIMITED | Well Contractor's Licence No.: 1737
Business Address (street name, number, city etc.): 147 North st. W. WINGHAM, ON N0G 2W0
Name of Well Technician (last name, first name): LOSCH, KIM | Well Technician's Licence No.: 2003
Signature of Technician/Contractor: X | Date Submitted: 2007/09/30

0506E (04/2006) — Ministry's Copy

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 72759 | Date Well Completed: 2007/09/24

Was the well owner's information package delivered? X Yes | No | Date Delivered: 2007/09/24

Ministry Use Only

Data Source | Contractor
Date Received: DEC 10 2007 | Date of Inspection | Remarks | Well Record Number

Cette formule est disponible en français

Ontario Ministry of the Environment

Measurements recorded in: Metric Imperial

Well Tag No. **A 078121**

Well Record

Regulation 903 Ontario Water Resources Act

Page ___ of ___

Well Owner's Information

[redacted]

RR 3 | Kincardine | 36 | C

Bruce | Tiverton | Ontario | N0G 2T0

UTM: 17 455586 4900335

Overburden and Bedrock Materials/Abandonment Sealing Record

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
brown	clay			0	12
brown	sand	clay		12	20
grey	hardpan		hard	20	30
brown	clay	stones		30	100
brown	gravel		cemented	100	130
brown				130	140

Annular Space

Depth Set at: From	To	Type of Sealant Used	Volume Placed
0	130	bentonite slurry	.93

Method of Construction

X Rotary (conventional)

Well Use

X Domestic

Construction Record - Casing

Inside Diameter	Open Hole OR Material	Wall Thickness	Depth From	Depth To
15.87	steel	.47	0	130

Status of Well

X Water Supply

Construction Record - Screen

Water Details

Water Found at Depth	Kind of Water	Hole Diameter: Depth From	Depth To	Diameter
140	Gas	0	140	24

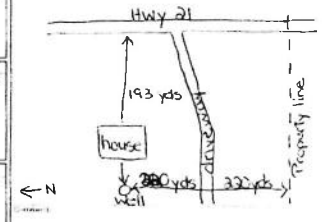
Results of Well Yield Testing

X Clear and sand free

Pumping rate: 100 | Duration of pumping: 15 | Final water level end of pumping: 33

Draw Down: Time (min)	Water Level (ft)	Recovery: Time (min)	Water Level (ft)
1	35	1	39
2	34	2	38
3	35	3	37
4	36	4	36
5	37	5	35
10	38	10	34
15	39	15	33
20	39	20	33
25	39	25	33
30	39	30	33
40	39	40	33
50	39	50	33
60	39	60	33

Map of Well Location



Well Contractor and Well Technician Information

AQUATIC Well Drilling | 7279

RR 3 | Walkerton

ON | N0G 2V0

5193926470 Mawhinney, Mike

3181 | 20090630

Ministry Use Only

Audit No. Z 88056

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Ontario Ministry of the Environment

Measurements recorded in: Metric Imperial

Well Tag No. **A 078131**

Well Record

Regulation 903 Ontario Water Resources Act

Page ___ of ___

Well Owner's Information

[redacted]

119 Main St | Bruce | Lot 65 | Concession 1

Bruce | Tiverton | Ontario | N0G 2T0

UTM: 17 457193 4901466

Overburden and Bedrock Materials/Abandonment Sealing Record

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
brown	topsoil			0	2
brown	clay		soft	2	130
grey	hardpan			130	170
brown	gravel			170	180
brown	shale			180	188
brown	limestone			188	200

Annular Space

Depth Set at: From	To	Type of Sealant Used	Volume Placed
0	188	bentonite slurry	.55

Method of Construction

X Rotary (conventional)

Well Use

X Domestic

Construction Record - Casing

Inside Diameter	Open Hole OR Material	Wall Thickness	Depth From	Depth To
6.57	steel	.47	0	188

Status of Well

X Water Supply

Construction Record - Screen

Water Details

Water Found at Depth	Kind of Water	Hole Diameter: Depth From	Depth To	Diameter
300	Gas	0	200	24

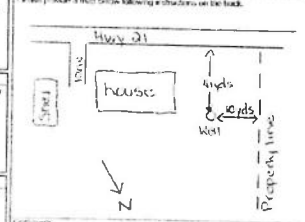
Results of Well Yield Testing

X Clear and sand free

Pumping rate: 100 | Duration of pumping: 15 | Final water level end of pumping: 54

Draw Down: Time (min)	Water Level (ft)	Recovery: Time (min)	Water Level (ft)
1	54	1	60
2	55	2	61
3	56	3	60
4	57	4	59
5	58	5	58
10	59	10	57
15	60	15	56
20	61	20	55
25	62	25	54
30	63	30	54
40	63	40	54
50	63	50	54
60	62	60	54

Map of Well Location



Well Contractor and Well Technician Information

AQUATIC Well Drilling | 7279

RR 3 | Walkerton

ON | N0G 2V0

5193936470 Mawhinney, Mike

3181 | 20091117

Ministry Use Only

Audit No. Z 88060

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Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Place Sticker and/or Print Below): Tag#: A218836

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

[redacted]

Address of Well Location (Street Number/Name): #86 SIDE RD 3/1

Township: BRUCE TWP

Lot: 1

Concession: 2

County/District/Municipality: BRUCE COUNTY

City/Town/Village:

Province: Ontario

Postal Code:

UTM Coordinates: Zone: NAD 8 3 | Easting: 17 457648 | Northing: 4910386

Municipal Plan and Sublot Number:

Other:

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	TOP SOIL			0	1
BROWN	CLAY		HARD	1	45
BROWN	CLAY	STONES		45	83
GREY	CLAY	GRAVEL		83	136
BROWN	SAND	GRAVEL		136	155
BROWN	LIMESTONE			155	180
DK BROWN	LIMESTONE			180	205
GREY	LIMESTONE			205	216

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/yd³)
0	20	GROUT	

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☐ Other, specify: AIR-RK

Well Use

☒ Public ☐ Commercial ☐ Not used ☐ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	STEEL	.188	+2	158
6"	OPEN HOLE		158	216

Status of Well

☒ Water Supply ☒ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

Water found at Depth (m/ft)	Kind of Water: ☒ Fresh ☐ Untested	☐ Gas ☐ Other, specify
180		
210		

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20	8"
20	216	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: HIGHLAND WATER WELLS — Well Contractor's Licence No.: 2157 16

Business Address (Street Number/Name): Box 41 — Municipality: DURHAM

Province: ONT — Postal Code: N0G 1R0 — Business E-mail Address:

Bus. Telephone No. (inc. area code): 5193691636 — Name of Well Technician (Last Name, First Name): POPPLETON, NIGEL

Well Technician's Licence No.: 7211 30 — Signature of Technician and/or Contractor: [signature] — Date Submitted: 2017/05/13

Results of Well Yield Testing

After test of well yield, water was: ☒ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 200

Pumping rate (l/min / GPM): 10

Duration of pumping: 1 hrs + min

Final water level end of pumping (m/ft): 52.158

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 100ft

Recommended pump rate (l/min / GPM): 10

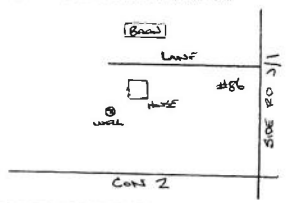
Well production (l/min / GPM): 13-20 AIR

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		34		52.1
1			1	47
2	35		2	43
3	37		3	40.6
4	39		4	38.5
5	41		5	37
10	45		10	35.5
15	47.5		15	34.9
20	49		20	34.6
25	50.5		25	34.3
30	51		30	34.1
40	51.9		40	34
50	52.3		50	34
60	52.1		60	34

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered: ☐ Yes ☐ No

Date Package Delivered:

Date Work Completed: 2017/05/15

Ministry Use Only

Audit No.: Z257223

JUN 1 2 2017

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Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Place Sticker and/or Print Below): Tag#:A258361

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

[redacted]

Address of Well Location (Street Number/Name): 1537 Concession 2 RR # 3

Township: Bruce

Lot: 2

Concession: pt G

County/District/Municipality: Bruce

City/Town/Village: Tiverton

Province: Ontario

Postal Code: N0G 2T0

UTM Coordinates: Zone: NAD 8 3 | Easting: 17 456567 | Northing: 4904102

Municipal Plan and Sublot Number:

Other:

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BLACK	TOPSOIL		LOAM	0	1
BROWN	CLAY	TILL	HARD	1	19
GREY	CLAY	STONES	HARD	19	134
BROWN	SHALE		SOFT	134	162
BROWN	LIMESTONE		MEDIUM	162	224
BROWN	LIMESTONE		MEDIUM, LAYERED	224	257

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/yd³)
0	22	HIGH SOLIDS BENTONITE	7.2
22	164	GEL/SAND SLURRY	45.8

Method of Construction

☐ Cable Tool ☐ Diamond ☒ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☒ Other, specify: AIR ROTARY

Well Use

☐ Public ☒ Domestic ☐ Commercial ☐ Not used ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	STEEL	.219	+26	164
6"	OPEN HOLE		164	257

Status of Well

☒ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☒ Untested	☐ Gas ☐ Other, specify
231		
248		

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	164	9"
164	257	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: HAYDEN WATER WELLS CO.,INC. — Well Contractor's Licence No.: 7090

Business Address (Street Number/Name): 35339 Sanitsbury Line RR # 1 — Municipality: Lucan

Province: Ontario — Postal Code: N0M2J0 — Business E-mail Address: info@haydenwaterwells.com

Bus. Telephone No. (inc. area code): 5192270057 — Name of Well Technician (Last Name, First Name): Hayden, Jay

Well Technician's Licence No.: 1034 — Signature of Technician and/or Contractor: [signature] — Date Submitted: 2019/07/30

Results of Well Yield Testing

Now test of well yield, water was: ☒ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason: CLEAR

Pump intake set at (m/ft): 125

Pumping rate (l/min / GPM): 10 GPM

Duration of pumping: 1 hrs + 45 min

Final water level end of pumping (m/ft): 57 FT.

If flowing give rate (l/min / GPM): NOT

Recommended pump depth (m/ft): 100

Recommended pump rate (l/min / GPM): 15 GPM

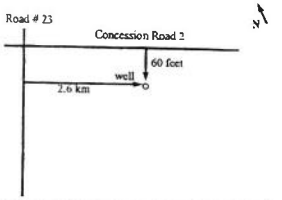
Well production (l/min / GPM): 45 GPM BY AIR

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		57		57.5
1		57.5	1	57
2		57.5	2	57
3		57.5	3	57
4		57.5	4	57
5		57.5	5	57
10		57.5	10	57
15		57.5	15	57
20		57.5	20	57
25		57.5	25	57
30		57.5	30	57
40		57.5	40	57
50		57.5	50	57
60		57.5	60	57

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Well is approx. 60 feet from Concession Road 2

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: 2019/07/08

Date Work Completed: 2019/07/08

Ministry Use Only

Audit No.: Z299307

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Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. Tag#:A260591 — A260591

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

[redacted]

Address of Well Location (Street Number/Name): 1260 CONCESSION 11
Township: KINCARDINE
Lot: 5
Concession: 12
County/District/Municipality: BRUCE
City/Town/Village: TIVERTON
Province: Ontario
Postal Code: N0G 2T0
UTM Coordinates: Zone 17, Easting 457906, Northing 4819921
Municipal Plan and Sublot Number:
Other:

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BRN	CLAY			0	9
GRY	GRAVEL	CLAY		9	32
GRY	CLAY			32	144
BRN	LIMESTONE			144	197

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/yd³)
0	145	BENTONITE - BENSEAL/EZ-MUD	0.7m³

Method of Construction: ☐ Cable Tool ☐ Diamond ☑ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☐ Other, specify

Well Use: ☐ Public ☑ Domestic ☑ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify ☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning ☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6 3/4	STEEL	.188	+2	145
6	OPEN HOLE		145	197

Status of Well: ☑ Water Supply ☑ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

Water found at Depth (m/ft)	Kind of Water: ☑ Fresh ☐ Untested ☐ Gas ☐ Other, specify	Hole Diameter Depth (m/ft) From	To	Diameter (cm/in)
190		0	145	9"
		145	197	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: H. LEDD WATER WELLS LTD.
Well Contractor's Licence No.: 7134
Business Address (Street Number/Name): 3389 EGREMONT DRIVE RR#5
Municipality: STRATHROY
Province: ONTARIO
Postal Code: N7G 3H6
Business E-mail Address: mcleoddriller.wells@gmail.com
Bus. Telephone No. (inc. area code): 5199245935
Name of Well Technician (Last Name, First Name): H. LEDD, JASON
Well Technician's Licence No.: 3021
Signature of Technician and/or Contractor:
Date Submitted: 2019/04/09

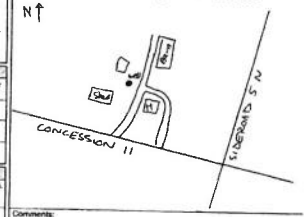
Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free ☐ Other, specify
If pumping discontinued, give reason:
Pump intake set at (m/ft): 140'
Pumping rate (l/min / GPM): 15 GPM
Duration of pumping: 2 hrs + 0 min
Final water level end of pumping (m/ft): 47'
If flowing give rate (l/min / GPM):
Recommended pump depth (m/ft): 60'
Recommended pump rate (l/min / GPM): 15 GPM
Well production (l/min / GPM): 20
Disinfected? ☑ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		34.0		
1	1	38.1	1	38.4
2	2	40.6	2	36.9
3	3	42.3	3	36.2
4	4	42.7	4	35.8
5	5	42.9	5	35.5
10	10	43.8	10	34.9
15	15	44.6	15	34.7
20	20	45.9	20	34.6
25	25	46.1	25	34.4
30	30	46.3	30	34.2
40	40	46.4	40	34.2
50	50	46.4	50	34.0
60	60	46.4	60	34.0

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered: ☑ Yes ☐ No
Date Package Delivered: 2019/04/08
Date Work Completed: 2019/04/08

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Audit No. Z307708
MAY 02 2019
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Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below): A294514

Well Record

Regulation 903 Ontario Water Resources Act

Page ___ of ___

[redacted]

Address of Well Location (Street Number/Name): 199 Conc 2
Township:
Lot:
Concession:
County/District/Municipality: Bruce
City/Town/Village: Tiverton
Province: Ontario
Postal Code:
UTM Coordinates: Zone 18, Easting 457878, Northing 4819034.90
Municipal Plan and Sublot Number:
Other:

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Brown	Clay			0	73
Grey	Clay			73	148
Brown	Clay	Stony		148	207
Brown	Lime) Lm			207	225

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/yd³)
0	20	bentonite	7
20	207	"	19

Method of Construction: ☐ Cable Tool ☐ Diamond ☑ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☐ Other, specify

Well Use: ☐ Public ☑ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify ☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning ☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6	steel	.188	+2	207

Status of Well: ☑ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☑ Untested ☐ Gas ☐ Other, specify	Hole Diameter Depth (m/ft) From	To	Diameter (cm/in)
225		0	20	9 5/8
		20	207	8
		207	225	6

Well Contractor and Well Technician Information

Business Name of Well Contractor: Stetten Well Drilling
Well Contractor's Licence No.: 7516 13
Business Address (Street Number/Name): 3967 Bruce Road 4 RR1
Municipality: Bruce
Province: ON
Postal Code: N0G 1W0
Business E-mail Address: cy9191@gmail.com
Bus. Telephone No. (inc. area code): 5199357196
Name of Well Technician (Last Name, First Name): Stetten, Michael
Well Technician's Licence No.: 13812
Signature of Technician and/or Contractor:
Date Submitted: 2020/09/09

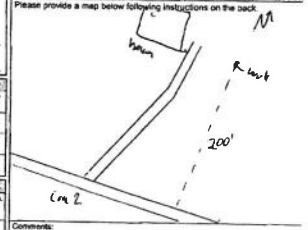
Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free ☐ Other, specify
If pumping discontinued, give reason:
Pump intake set at (m/ft): 90
Pumping rate (l/min / GPM): 8
Duration of pumping: 1 hrs + ___ min
Final water level end of pumping (m/ft): 55
If flowing give rate (l/min / GPM):
Recommended pump depth (m/ft): 90
Recommended pump rate (l/min / GPM): 8
Well production (l/min / GPM): 8
Disinfected? ☑ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		29		55
1	1	29	1	52
2	2	30	2	50
3	3	31	3	48
4	4	32	4	46
5	5	33	5	45
10	10	38	10	40
15	15	41	15	35
20	20	43	20	30
25	25	46	25	29
30	30	48	30	28
40	40	[illegible]	40	
50	50	52	50	
60	60	55	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered: ☑ Yes ☐ No
Date Package Delivered: 2020/09/09
Date Work Completed: 2020/09/09

Ministry Use Only
Audit No. Z336937
Received APR 16 2021

Ministry's Copy

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Ontario — Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number * A303713

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name [redacted] | First Name [redacted]

Organization | Email Address [redacted]

Current Address

Unit Number | Street Number * | Street Name * | City/Town/Village [redacted]

Country | Province: Ont. | Postal Code | Telephone Number [redacted]

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	189	Main St.	Bruce

Lot	Concession	County/District/Municipality
4	1	Bruce

City/Town	Province	Postal Code
	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	457707	4901161	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 230 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From (ft)	Depth To (ft)
Black	Topsoil			0	1
Brown	Clay			1	13
Grey	Clay	Stones		13	130
Grey	Stones	Clay		130	191
Brown	Limestone		Hard	191	210
Brown	Limestone		Fractured	210	230

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	194	bentonite	24

5. Method of Construction *

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☑ Rotary (Air) ☐ Augering ☐ Direct Push
☐ Other (specify)

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☑ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☐ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☑ Water Supply ☑ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
6.25	Steel	0.219	-2	194
6.125	Open Hole		194	230

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)

10. Water Details

Water found at Depth 215 (ft)	☐ Gas	Kind of water	☑ Fresh	☐ Untested	☐ Other
Water found at Depth 220	☐ Gas	Kind of water	☑ Fresh	☐ Untested	☐ Other
Water found at Depth 226	☐ Gas	Kind of water	☑ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	194	9
194	230	6.125

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	33.4	47.8	55	58.5	61.2	64.5	69.8	75.2	80.6	80.5	80.3	83	84.2	85.1

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	75.2	68	62.5	58.2	54.9	46.3	44.7	42.9	41.1	39.5	38.6	38	37.5

After test of well yield, water was

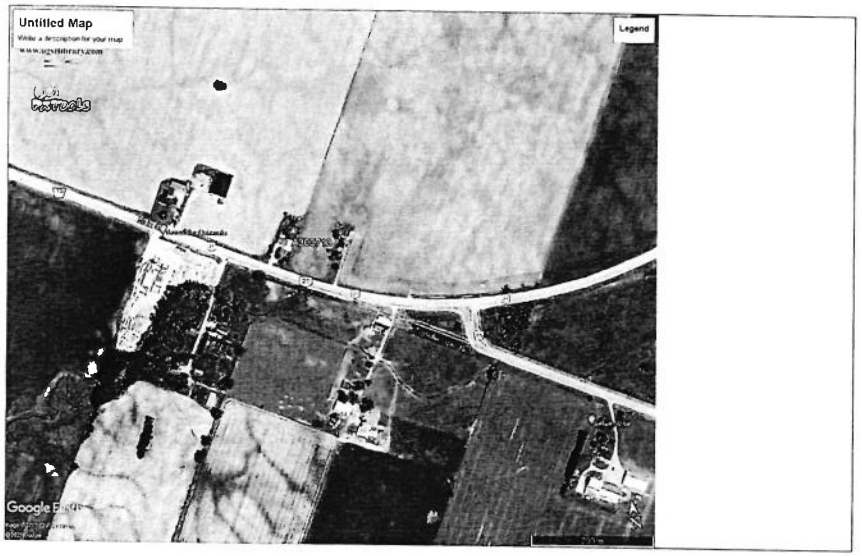
☑ Clear and sand free ☐ Other (specify)

Pump intake set at	Pumping rate	Duration of pumping	Final water level end of pumping	Disinfected? *
110 (ft)	10 (GPM)	1 hrs + min	85.1 (ft)	☑ Yes ☐ No

Recommended pump depth	Recommended pump rate	Well production
110 (ft)	9 (GPM)	14 (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☑ Yes ☐ No	2021/09/16	2021/09/01

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
W.D.Hopper & Sons Ltd.	2604

Business Address

Unit Number	Street Number	Street Name *
	30	Harpurhey Rd.

City/Town/Village *	Province	Postal Code *
Seaforth	Ont	N0K 1W0

Business Telephone Number	Business Email Address
519-522-1737	wdhopper@tcc.on.ca

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
Hopper	Allan	2576

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
Hopper	Ron	wdhopper@tcc.on.ca

Signature

Ron Hopper

Digitally signed by Ron Hopper
DN: cn=Ron Hopper, o=W D Hopper & Sons Ltd., ou, email=wdhopper@tcc.on.ca, c=CA
Date: 2021.09.16 08:52:36 -04'00'

Date Submitted (yyyy/mm/dd) 2021/09/16

17. Ministry Use Only

Audit Number

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Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *: A303718

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
[redacted]	

Organization	Email Address
	[redacted]

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
		[redacted]	

Country	Province	Postal Code	Telephone Number
	Ont.	[redacted]	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	2995	Hwy.21	Bruce

Lot	Concession	County/District/Municipality
5	1	Bruce

City/Town	Province	Postal Code
	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	457808	4901189	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 225 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Black	Topsoil			0	1
Brown	Clay	Stones		1	15
Grey	Clay			15	115
Grey	Stones	Clay		115	185
Brown	Limestone		Fractured	185	225

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	189	bentonite	23

5. Method of Construction *

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☑ Rotary (Air) ☐ Augering ☐ Direct Push
☐ Other (specify)

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☑ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☐ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☑ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
6.25	Steel	0.219	-2	189
6.125	Open Hole		189	225

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)

10. Water Details

Water found at Depth 216 (ft)	☐ Gas	Kind of water	☑ Fresh	☐ Untested	☐ Other	
Water found at Depth 221	☐ Gas	Kind of water	☑ Fresh	☐ Untested	☐ Other	

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	189	8.9
189	225	6.125

12. Results of Well Yield Testing

☐ Pumping Discontinued
Explain
If flowing give rate
☐ Flowing (GPM)
Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	33.4	34.6	36.2	37.6	37.8	38.2	39	39.5	39.9	40.3	40.4	40.8	41.1	41.4

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	38.3	37.7	37.3	37	36.9	36.3	36.1	35.6	35.4	35.2	35.1	34.7	34.6

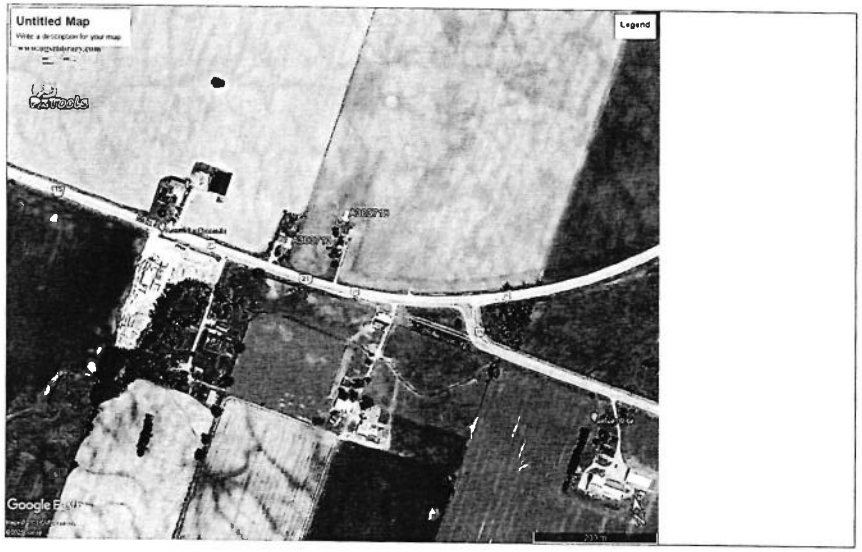
After test of well yield, water was
☑ Clear and sand free ☐ Other (specify)

Pump intake set at	Pumping rate	Duration of pumping	Final water level end of pumping	Disinfected? *
80 (ft)	18 (GPM)	1 hrs + min	41.4 (ft)	☑ Yes ☐ No

Recommended pump depth	Recommended pump rate	Well production
100 (ft)	10 (GPM)	30 (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☑ Yes ☐ No	2021/09/16	2021/09/03

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *			Well Contractor's License Number *
W.D.Hopper & Sons Ltd.			2604

Business Address

Unit Number	Street Number	Street Name *
	30	Harpurhey Rd.

City/Town/Village *	Province	Postal Code *
Seaforth	Ont	N0K 1W0

Business Telephone Number	Business Email Address
519-522-1737	wdhopper@tcc.on.ca

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
Hopper	Scott	3085

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
Hopper	Ron	wdhopper@tcc.on.ca

Signature		Date Submitted (yyyy/mm/dd)
Ron Hopper	Digitally signed by Ron Hopper Date: 2021.09.16 09:04:37 -04'00'	2021/09/16

17. Ministry Use Only

Audit Number

E9U6 LB99

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Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

This document is a Clone of Permit # 7041-AQZRJR

PERMIT TO TAKE WATER
Ground Water

NUMBER 5581-BVHT5L

Reference Number 2326-BUFHN7

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the Municipality of Kincardine
1475 Concession 5 R.R. #5
Kincardine, Ontario, N2Z 2X6
Canada

For the water taking from: Briar Hill Well #1 (WWR 1402748), Briar Hill Well #2 (Tag A030071), Dent Well #2 (WWR 1410577)

Located at:
6 Smith St Tiverton
Kincardine, County of Bruce

36 Conquergood Ave Tiverton
Kincardine, County of Bruce

36 Conquergood formerly Bruce Township Community of Tiverton
Kincardine, County of Bruce

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

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(d) "District Office" means the Owen Sound District Office.

(e) "Permit" means this Permit to Take Water No. 5581-BVHT5L including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means The Corporation of the Municipality of Kincardine.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 15, 2020 and signed by Adam Weishar, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

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2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and the *Environmental Protection Act*, and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **January 22, 2031**. No water shall be taken under authority of this Permit after the

expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Briar Hill Well #1 (WWR 1402748)	Well Drilled	Other - Water Supply	Water Supply	364	24	524,160	365	17 456780 4902400
2	Briar Hill Well #2 (Tag A030071)	Well Drilled	Other - Water Supply	Water Supply	500	24	720,000	365	17 456783 4902424
3	Dent Well #2 (WWR 1410577)	Well Drilled	Other - Water Supply	Water Supply	273	24	250,500	365	17 456361 4901758
						Total Taking:	970,500		

3.3 Notwithstanding Table A, the Permit Holder shall not pump the Briar Hill Wells 1 and 2 concurrently.

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and duration of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The total amounts of water pumped shall be measured using flow measuring devices.

4.2 The Permit Holder shall install automated devices to automatically measure and record the water level in each of the production wells. Measurements shall be obtained and recorded at least once every hour.

4.3 The data shall be retrieved from the automated devices (see Condition 4.2) and reviewed by a qualified person once a year. The Permit Holder shall ensure that all the data is maintained and made available to the Ministry upon request.

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4.4 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.5 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings
If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act*, Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for

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the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1,
Ministry of the Environment, Conservation and Parks
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at
(416) 212-6349
Toll Free 1(866) 448-2248

by Fax at
(416) 326-5370
Toll Free 1(844) 213-3474

by e-mail at
www.ert.gov.on.ca

This Permit cancels and replaces Permit Number 6400-AQZRJQ, issued on 2017/09/15.

Dated at Toronto this 21st day of January, 2021.

CONTENT COPY OF ORIGINAL

Gregory Meek
Director, Section 34.1
Ontario Water Resources Act, R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 5581-BVHT5L, dated January 21, 2021.

- Category 3 Permit to Take Water Renewal Application prepared by Wilson Associates dated October 13th 2020
- Monitoring Data Analysis Report (2017-July 2020), Briar Hills Wells #1 and #2 and Dent Well #2, Community of Tiverton, Municipality of Kincardine, Permit to Take Water 6400-AQZRJQ prepared by Wilson Associates dated October 13th 2020

CONTENT COPY OF ORIGINAL

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

PERMIT TO TAKE WATER
Ground Water

NUMBER 1154-AZELR6

Reference Number 6206-AX9RWD

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

Teeswater Concrete Ltd.
1201 Bruce Rd #6 Teeswater
South Bruce, Ontario, N0G 2S0
Canada

For the water taking from: Wells PW-1 and OW-1

Located at: 180 Main St Lot 3 Concession 12 Tiverton
Kincardine, County of Bruce

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Owen Sound District Office.

(e) "Permit" means this Permit to Take Water No. 1154-AZELR6 including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means Teeswater Concrete Ltd..

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

CONTENT COPY OF ORIGINAL

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated March 22, 2018 and signed by James Armstrong, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable

legal requirements, including the provisions of the *Ontario Water Resources Act*, and the *Environmental Protection Act*, and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **January 31, 2024**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

CONTENT COPY OF ORIGINAL

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Rate 139: Wells PW-1 and OW-1	Well Drilled	Other - Industrial	Industrial	139	24	200,000	365	17 457515 4901195
2	Rate 208: Wells PW-1 and OW-1	Well Drilled	Other - Industrial	Industrial	208	24	300,000	30	17 457515 4901195
3	Rate 347: Wells PW-1 and OW-1	Well Drilled	Other - Industrial	Industrial	347	24	500,000	15	17 457515 4901195
						Total Taking:	1,000,000		

3.3 This permit authorizes a combined maximum taking of up to 500,000 litres/day from one or both sources (Wells PW-1 (A061744) and OW-1 (14-02397)) on a maximum of 15 days in a calendar year, and up to 300,000 litres/day for an additional 30 days per year. On the remaining 320 days of the year, the maximum allowable taking is 200,000 litres/day. The rate of taking shall be recorded.

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The total amounts of water pumped shall be measured using a flow meter at each source.

4.2 The Permit Holder shall monitor water levels in wells PW-1 and OW-1 on any day water is pumped from the wells. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.3 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

CONTENT COPY OF ORIGINAL

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings
If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act*, Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Environmental Commissioner,

CONTENT COPY OF ORIGINAL

***Environmental Bill of Rights**, R.S.O. 1993, Chapter 28, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:*

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
ERTTribunalsecretary@ontario.ca

AND

The Environmental Commissioner
1075 Bay Street
6th Floor, Suite 605
Toronto, Ontario M5S 2W5

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
733 Exeter Rd
London ON N6E 1L3
Fax: (519) 873-5020

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

*This instrument is subject to Section 38 of the **Environmental Bill of Rights** that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

This Permit cancels and replaces Permit Number 1881-975HWR, issued on 2013/05/13.

CONTENT COPY OF ORIGINAL

Dated at London this 27th day of June, 2018.

Jason Lehouillier
Director, Section 34.1
Ontario Water Resources Act, R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 1154-AZELR6, dated June 27, 2018.

Appendix B

Cultural Heritage and Archaeological Checklists, Reports

Ontario

Ministry of Tourism, Culture and Sport

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

Criteria for Evaluating Archaeological Potential

A Checklist for the Non-Specialist

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

- if a property(ies) or project area may contain archaeological resources i.e., have archaeological potential
- 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

Archaeological assessment

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a licensed consultant archaeologist (see page 4 for definitions) to undertake an archaeological assessment.

The assessment will help you:

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

Note: By law, archaeological assessments **must** be done by a licensed consultant archaeologist. Only a licensed archaeologist can assess – or alter – an archaeological site.

What to do if you:

- **find an archaeological resource**

  If you find something you think may be of archaeological value during project work, you must – by law – stop all activities immediately and contact a licensed consultant archaeologist

  The archaeologist will carry out the fieldwork in compliance with the *Ontario Heritage Act* [s.48(1)].

- **unearth a burial site**

  If you find a burial site containing human remains, you must immediately notify the appropriate authorities (i.e., police, coroner's office, and/or Registrar of Cemeteries) and comply with the *Funeral, Burial and Cremation Services Act*.

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 when completing this form.

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Project or Property Name

Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System

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

3194 Bruce Road 15, Municipality of Kincardine

Proponent Name

Municipality of Kincardine

Proponent Contact Information

Adam Weishar - Director of Infrastructure and Development aweishar@kincardine.ca

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.

	Yes	No
2. Has an archaeological assessment been prepared for the property (or project area) and been accepted by MTCS?	☐	☑

If Yes, do **not** complete the rest of the checklist. You are expected to follow the recommendations in the archaeological assessment report(s).

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

- summarize the previous assessment
- add this checklist to the project file, with the appropriate documents that demonstrate an archaeological assessment was undertaken e.g., MTCS letter stating acceptance of archaeological assessment report

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g., environmental assessment document
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Are there known archaeological sites on or within 300 metres of the property (or the project area)?	☑	☐
4. Is there Aboriginal or local knowledge of archaeological sites on or within 300 metres of the property (or project area)?	☑	☐
5. Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 300 metres of the property (or project area)?	☑	☐
6. Is there a known burial site or cemetery on the property or adjacent to the property (or project area)?	☐	☑
7. Has the property (or project area) been recognized for its cultural heritage value?	☐	☑

If Yes to any of the above questions (3 to 7), do **not** complete the checklist. Instead, you need to hire a licensed consultant archaeologist to undertake an archaeological assessment of your property or project area.

If No, continue to question 8.

	Yes	No
8. Has the entire property (or project area) been subjected to recent, extensive and intensive disturbance?	☐	☐

If Yes to the preceding question, do **not** complete the checklist. Instead, please keep and maintain a summary of documentation that provides evidence of the recent disturbance.

An archaeological assessment is not required.

If No, continue to question 9.

	Yes	No
9. Are there present or past water sources within 300 metres of the property (or project area)?	☐	☐

If Yes, an archaeological assessment is required.

If No, continue to question 10.

	Yes	No
10. Is there evidence of two or more of the following on the property (or project area)?	☐	☐

- elevated topography
- pockets of well-drained sandy soil
- distinctive land formations
- resource extraction areas
- early historic settlement
- early historic transportation routes

If Yes, an archaeological assessment is required.

If No, there is low potential for archaeological resources at the property (or project area).

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

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

In this context, the following definitions apply:

- **consultant archaeologist** means, as defined in Ontario regulation as an archaeologist who enters into an agreement with a client to carry out or supervise archaeological fieldwork on behalf of the client, produce reports for or on behalf of the client and provide technical advice to the client. In Ontario, these people also are required to hold a valid professional archaeological licence issued by the Ministry of Tourism, Culture and Sport.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may be already in place for identifying archaeological potential, including:

- one prepared and adopted by the municipality e.g., archaeological management plan
- an environmental assessment process e.g., screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s. B.2.]

2. Has an archaeological assessment been prepared for the property (or project area) and been accepted by MTCS?

Respond 'yes' to this question, if all of the following are true:

- an archaeological assessment report has been prepared and is in compliance with MTCS requirements
  - a letter has been sent by MTCS to the licensed archaeologist confirming that MTCS has added the report to the Ontario Public Register of Archaeological Reports (Register)
- the report states that there are no concerns regarding impacts to archaeological sites

Otherwise, if an assessment has been completed and deemed compliant by the MTCS, and the ministry recommends further archaeological assessment work, this work will need to be completed.

For more information about archaeological assessments, contact:

- approval authority
- proponent
- consultant archaeologist
- Ministry of Tourism, Culture and Sport at archaeology@ontario.ca

3. Are there known archaeological sites on or within 300 metres of the property (or project area)?

MTCS maintains a database of archaeological sites reported to the ministry.

For more information, contact MTCS Archaeological Data Coordinator at archaeology@ontario.ca.

4. Is there Aboriginal or local knowledge of archaeological sites on or within 300 metres of the property?

Check with:

- Aboriginal communities in your area
- local municipal staff

They may have information about archaeological sites that are not included in MTCS' database.

Other sources of local knowledge may include:

- property owner
- local heritage organizations and historical societies
- local museums
- municipal heritage committee
- published local histories

5. Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 300 metres of the property (or property area)?

Check with:

- Aboriginal communities in your area
- local municipal staff

Other sources of local knowledge may include:

- property owner
- local heritage organizations and historical societies
- local museums
- municipal heritage committee
- published local histories

6. Is there a known burial site or cemetery on the property or adjacent to the property (or project area)?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulation Unit, Ontario Ministry of Consumer Services – for database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, 'adjacent' means 'contiguous', or as otherwise defined in a municipal official plan.

7. Has the property (or project area) been recognized for its cultural heritage value?

There is a strong chance there may be archaeological resources on your property (or immediate area) if it has been listed, designated or otherwise identified as being of cultural heritage value by:

- your municipality
- Ontario government
- Canadian government

This includes a property that is:

- designated under *Ontario Heritage Act* (the OHA), including:
  - individual designation (Part IV)
  - part of a heritage conservation district (Part V)
  - an archaeological site (Part VI)
- subject to:
  - an agreement, covenant or easement entered into under the OHA (Parts II or IV)
  - a notice of intention to designate (Part IV)
  - a heritage conservation district study area by-law (Part V) of the OHA
- listed on:
  - a municipal register or inventory of heritage properties
  - Ontario government's list of provincial heritage properties
  - Federal government's list of federal heritage buildings
- part of a:
  - National Historic Site
  - UNESCO World Heritage Site
- designated under:
  - *Heritage Railway Station Protection Act*
  - *Heritage Lighthouse Protection Act*
- subject of a municipal, provincial or federal commemorative or interpretive plaque.

To determine if your property or project area is covered by any of the above, see:

- Part A of the MTCS Criteria for Evaluating Potential for Built Heritage and Cultural Heritage Landscapes

Part VI – Archaeological Sites

Includes five sites designated by the Minister under Regulation 875 of the Revised Regulation of Ontario, 1990 (Archaeological Sites) and 3 marine archaeological sites prescribed under Ontario Regulation 11/06.

For more information, check Regulation 875 and Ontario Regulation 11/06.

8. Has the entire property (or project area) been subjected to recent extensive and intensive ground disturbance?

Recent: after-1960

Extensive: over all or most of the area

Intensive: thorough or complete disturbance

Examples of ground disturbance include:

- quarrying
- major landscaping – involving grading below topsoil
- building footprints and associated construction area
  - where the building has deep foundations or a basement
- infrastructure development such as:
  - sewer lines
  - gas lines
  - underground hydro lines
  - roads
  - any associated trenches, ditches, interchanges. **Note**: this applies only to the excavated part of the right-of-way; the remainder of the right-of-way or corridor may not have been impacted.

A ground disturbance does **not** include:

- agricultural cultivation
- gardening
- landscaping

Site visits

You can typically get this information from a site visit. In that case, please document your visit in the process (e.g., report) with:

- photographs
- maps
- detailed descriptions

If a disturbance isn't clear from a site visit or other research, you need to hire a licensed consultant archaeologist to undertake an archaeological assessment.

9. Are there present or past water bodies within 300 metres of the property (or project area)?

Water bodies are associated with past human occupations and use of the land. About 80-90% of archaeological sites are found within 300 metres of water bodies.

Present

- Water bodies:
  - primary - lakes, rivers, streams, creeks
  - secondary - springs, marshes, swamps and intermittent streams and creeks
- accessible or inaccessible shoreline, for example:
  - high bluffs
  - swamps
  - marsh fields by the edge of a lake
  - sandbars stretching into marsh

Water bodies not included:

- man-made water bodies, for example:
  - temporary channels for surface drainage
  - rock chutes and spillways
  - temporarily ponded areas that are normally farmed
  - dugout ponds
- artificial bodies of water intended for storage, treatment or recirculation of:
  - runoff from farm animal yards
  - manure storage facilities
  - sites and outdoor confinement areas

Past

Features indicating past water bodies:

- raised sand or gravel beach ridges – can indicate glacial lake shorelines
- clear dip in the land – can indicate an old river or stream
- shorelines of drained lakes or marshes
- cobble beaches

You can get information about water bodies through:

- a site visit
- aerial photographs
- 1:10,000 scale Ontario Base Maps - or equally detailed and scaled maps.

10. Is there evidence of two or more of the following on the property (or project area)?

- elevated topography
- pockets of well-drained sandy soil
- distinctive land formations
- resource extraction areas
- early historic settlement
- early historic transportation routes

- **Elevated topography**

  Higher ground and elevated positions - surrounded by low or level topography - often indicate past settlement and land use.

  Features such as eskers, drumlins, sizeable knolls, plateaus next to lowlands, or other such features are a strong indication of archaeological potential.

  Find out if your property or project area has elevated topography, through:

  - site inspection
  - aerial photographs
  - topographical maps

- **Pockets of well-drained sandy soil, especially within areas of heavy soil or rocky ground**

  Sandy, well-drained soil - in areas characterized by heavy soil or rocky ground - may indicate archaeological potential

  Find out if your property or project area has sandy soil through:

  - site inspection
  - soil survey reports

- **Distinctive land formations**

  Distinctive land formations include – but are not limited to:

  - waterfalls
  - rock outcrops
  - rock faces
  - caverns
  - mounds, etc.

  They were often important to past inhabitants as special or sacred places. The following sites may be present – or close to – these formations:

  - burials
  - structures
  - offerings
  - rock paintings or carvings

  Find out if your property or project areas has a distinctive land formation through:

  - a site visit
  - aerial photographs
  - 1:10,000 scale Ontario Base Maps - or equally detailed and scaled maps.

- **Resource extraction areas**

  The following resources were collected in these extraction areas:

  - food or medicinal plants e.g., migratory routes, spawning areas, prairie
  - scarce raw materials e.g., quartz, copper, ochre or outcrops of chert
  - resources associated with early historic industry e.g., fur trade, logging, prospecting, mining

  Aboriginal communities may hold traditional knowledge about their past use or resources in the area.

- **Early historic settlement**

  Early Euro-Canadian settlement include – but are not limited to:

  - early military or pioneer settlement e.g., pioneer homesteads, isolated cabins, farmstead complexes
  - early wharf or dock complexes
  - pioneers churches and early cemeteries

  For more information, see below – under the early historic transportation routes.

- **Early historic transportation routes** - such as trails, passes, roads, railways, portage routes, canals.

  For more information, see:

  - historical maps and/or historical atlases
    - for information on early settlement patterns such as trails (including Aboriginal trails), monuments, structures, fences, mills, historic roads, rail corridors, canals, etc.
    - Archives of Ontario holds a large collection of historical maps and historical atlases
    - digital versions of historic atlases are available on the Canadian County Atlas Digital Project
  - commemorative markers or plaques such as local, provincial or federal agencies
  - municipal heritage committee or other local heritage organizations
    - for information on early historic settlements or landscape features (e.g., fences, mill races, etc.)
    - for information on commemorative markers or plaques

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.

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Project or Property Name

Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System

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

3194 Bruce Road 15, Municipality of Kincardine

Proponent Name

Municipality of Kincardine

Proponent Contact Information

Adam Weishar - Director of Infrastructure and Development

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

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

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

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note**: To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

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ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

---

iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

---

iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act.* **Note**: To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust

---

v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

Stage 1-2 Archaeological Assessment
Tiverton Water Supply EA
3194 Bruce Road 15, Inverhuron
Part of Lot 1, Lake Range Concession
Geographic Township of Bruce
Municipality of Kincardine
Bruce County, Ontario

Original Report

Submitted to:
Ministry of Citizenship and Multiculturalism

Prepared for:
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PIF No:	P450-0132-2024
Project No:	2024-195
Dated:	July 17, 2024

EXECUTIVE SUMMARY

A Stage 1 and 2 archaeological assessment was conducted as part of the Tiverton Water Supply Environmental Assessment (EA), which is being conducted to investigate options to increase the water supply in the community of Tiverton, Municipality of Kincardine, Ontario. The Municipality is assessing the potential for a new groundwater supply well or connection to the Kincardine Drinking Water System from Inverhuron, the latter of which would require a booster pumping station. The parcel being considered for the pumping station is roughly 0.4 ha (0.99 ac) in size and is located within Lot 1, Lake Range Concession, in the former Geographic Township of Bruce, Bruce County. The project area is predominantly grassed with a gravelled laneway and a small paved basketball court in the northwestern corner, a former baseball diamond in the northern half, and a paved playground in the eastern half. In 2024, TMHC Inc. (TMHC) was contracted by B.M. Ross and Associates Ltd. to undertake the assessment, which was conducted in accordance with the provisions of the *Environmental Assessment Act*. The purpose of the assessment was to determine whether there were archaeological resources present within the project area.

The Stage 1 background study included a review of current land use, historic and modern maps, past settlement history for the area and a consideration of topographic and physiographic features, soils and drainage. It also involved a review of previously registered archaeological resources within 1 km of the project area and previous archaeological assessments within 50 m. The background study indicated that the property had potential for the recovery of archaeological resources due the proximity (i.e., within 300 m) of features that signal archaeological potential, namely:

- mapped 19th-century thoroughfares (Bruce Road 15, Albert Road, Victoria Street and John Street);
- registered archaeological sites (BbHj-4 and BbHj-44); and,
- a primary water source (Lake Huron).

The project area consists of non-ploughable lands; these were subject to Stage 2 assessment via standard test pit survey at a 5 m transect interval (77.5%; 0.31 ha), in keeping with provincial standards. The remainder of the project area consists of built features, paved areas, and gravel laneways that were previously disturbed, deemed of low archaeological potential and were photo-documented (22.5%; 0.09 ha).

All work met provincial standards and no archaeological material was documented during the assessment. As such, no further archaeological assessment is recommended.

Should proposed impacts extend beyond the lands assessed for this project, then additional assessment may be required.

These recommendations are subject to the conditions laid out in Section 5.0, and to the Ministry of Citizenship and Multiculturalism's (MCM's) review and acceptance of this report into the provincial register of archaeological reports.

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PROJECT PERSONNEL

Project Manager	Amanda Parks, MA (P450)
Project Administrators	Kellie Theaker, CHRP
	Victoria Scott, MA, MLis
	Sara Harvey
Health and Safety Coordinator	Wendi Jakob, C.Tech, CAPM
Fieldwork Coordinators	Katherine Bishop, PhD (R407)
	Johnathan Freeman, MA (P274)
	Patryk Weglorz, MSc (R1170)
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	Jake Mills, BA
	Ethan Fisher
	Matthew Graham
	Myah Henderson
	Keiara Jones Tyrell
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GIS Technicians	John Moody, PhD
	Andrew Turner, BA (R1042)
Report Writer	Casey Lun, MSc
Senior Reviewer	Matthew Beaudoin, PhD (P324)

ACKNOWLEDGEMENTS

Lisa J. Courtney	B.M. Ross and Associates Limited

TERRITORIAL ACKNOWLEDGEMENT

The project area is located within the traditional territory of Chippewas of Nawash Unceded First Nation and Saugeen First Nation, collectively Saugeen Ojibway Nation (SON). SON's Traditional Territory is bounded on the south by the Maitland River system from Goderich to past Arthur, on the west by the Canada/USA border in the middle of Lake Huron, on the north by a line along the midpoint of the channel between the Saugeen (Bruce) Peninsula and Manitoulin Island, and on the east by a line down the middle of Georgian Bay. The SON also asserts Aboriginal title over that portion of Lake Huron and Georgian Bay within their Territory.

The people of the Chippewas of Nawash and Saugeen First Nations have lived, fished, hunted, and traded throughout these lands for generations and continue to do so today. They have a deep connection to the lands within their traditional territory. This includes cultural heritage: spiritual and sacred sites, artifacts and archaeological sites, built heritage, and cultural heritage landscapes. It also includes care and protection for the Ancestors and their resting places.

The project area is also within the settlement, resource gathering, and historic trading areas of the Historic Saugeen Métis. The Historic Saugeen Métis are descended from unions between European traders and First Nations women. The Historic Saugeen Métis hunt, fish, trap, and harvest the lands and waters of the Bruce Peninsula and Lake Huron. Today, they trace their roots through Grey, Bruce, the western part of Huron, the northern part of Lambton, and parts of Wellington, Dufferin, and Waterloo Counties.

This land continues to be home to diverse Indigenous peoples (e.g., First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

INDIGENOUS PARTICIPANTS

Saugeen Ojibway Nation

Coordinator	Kove Sartor
Field Monitor	Robert Martin

ABOUT TMHC

Established in 2003 with a head office in London, Ontario, TMHC Inc. (TMHC) provides a broad range of archaeological assessment, heritage planning and interpretation, cemetery, and community consultation services throughout the Province of Ontario. We specialize in providing heritage solutions that suit the past and present for a range of clients and intended audiences, while meeting the demands of the regulatory environment. Over the past two decades, TMHC has grown to become one of the largest privately-owned heritage consulting firms in Ontario and is today the largest predominately woman-owned CRM business in Canada.

Since 2004, TMHC has held retainers with Infrastructure Ontario, Hydro One, the Ministry of Transportation, Metrolinx, the City of Hamilton, and Niagara Parks Commission. In 2013, TMHC earned the Ontario Archaeological Society's award for Excellence in Cultural Resource Management. Our seasoned expertise and practical approach have allowed us to manage a wide variety of large, complex, and highly sensitive projects to successful completion. Through this work, we have gained corporate experience in helping our clients work through difficult issues to achieve resolution.

TMHC is skilled at meeting established deadlines and budgets, maintaining a healthy and safe work environment, and carrying out quality heritage activities to ensure that all projects are completed diligently and safely. Additionally, we have developed long-standing relationships of trust with Indigenous and descendent communities across Ontario and a good understanding of community interests and concerns in heritage matters, which assists in successful project completion.

TMHC is a Living Wage certified employer with the Ontario Living Wage Network and a member of the Canadian Federation for Independent Business.

KEY STAFF BIOS

Matthew Beaudoin, PhD, Principal

Matthew received a PhD in Anthropology from Western University in 2013 and has a professional archaeological license with the Province of Ontario (P324). During his archaeological career, Matthew has conducted extensive field research and artifact analysis in Labrador and Ontario, and has taught the Field Methods Course and Principals of archaeology courses as a part-time faculty member at Western University. Matthew has also conducted ethnographic projects in Labrador, and has volunteered with the OAS to provide archaeological training to several Indigenous communities throughout the province.

Over the course of his career, Matthew has supervised over 900 archaeological assessments in Ontario, including Stages 1-4, under a variety of regulatory triggers including provincial and municipal Environmental Assessments, Green Energy projects, development projects under the *Planning Act*, and as due diligence process. Matthew has extensive experience managing large and complex archaeological projects in conjunction with other disciplines, specialists, and Indigenous communities including Enbridge Line 10 Westover Segment, Imperial Oil from Waterdown to Finch, and Highway 3 Widening in Kingsville. Since joining TMHC in 2008, Matthew has also been involved with several notable projects, such as the archaeological assessment of Stoney Point/Camp Ipperwash. For these and other projects, Matthew works closely with heritage staff at TMHC and with heritage staff employed by clients and stakeholder communities.

Matthew is an active member of the Canadian Archaeological Association, the Ontario Archaeological Association, the Society for American Archaeology, and the Society for Historical Archaeology.

Amanda Parks, MA, Manager – Environmental Assessments Project Division

Amanda began her career in archaeology in 2004 and has dedicated her work to the conservation of cultural heritage resources in Ontario. Amanda has worked on numerous Stage 1-4 archaeological assessments in a multitude of roles: project manager, field director, report writer, artifact analyst, and engagement specialist. Regarding the latter, Amanda has worked regularly with Indigenous communities throughout Ontario, engaging communities for archaeological projects, environmental assessments, and property management plans. She has established good working relationships with communities by focusing on a collaborative approach to the protection and documentation of archaeological sites.

Amanda earned a BA in Archaeological Science from the University of Toronto in 2012 and completed her MA in Applied Archaeology at Western in 2018. Her masters research focused on the sweat baths at the Redeemer site, a Middle Ontario Iroquoian site located in the City of Hamilton.

STATEMENT OF QUALIFICATIONS AND LIMITATIONS

The attached Report (the "Report") has been prepared by TMHC Inc. (TMHC) for the benefit of the Client (the "Client") in accordance with the agreement between TMHC and the Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

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1 PROJECT CONTEXT

1.1 Development Context

1.1.1 Introduction

A Stage 1 and 2 archaeological assessment was conducted as part of the Tiverton Water Supply Environmental Assessment (EA), which is being conducted to investigate options to increase the water supply in the community of Tiverton, Municipality of Kincardine, Ontario. The Municipality is assessing the potential for a new groundwater supply well or connection to the Kincardine Drinking Water System from Inverhuron, the latter of which would require a booster pumping station. The parcel being considered for the pumping station is roughly 0.4 ha (0.99 ac) in size and is located within Lot 1, Lake Range Concession, in the former Geographic Township of Bruce, Bruce County. The project area is predominantly grassed with a gravelled laneway and a small paved basketball court in the northwestern corner, a former baseball diamond in the northern half, and a paved playground in the eastern half. In 2024, TMHC Inc. (TMHC) was contracted by B.M. Ross and Associates Ltd. to undertake the assessment, which was conducted in accordance with the provisions of the *Environmental Assessment Act*. The purpose of the assessment was to determine whether there were archaeological resources present within the project area.

All archaeological assessment activities were performed under the professional archaeological license of Amanda Parks, MA (P450) and in accordance with the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011, "Standards and Guidelines"). Permission to enter the property and carry out all required archaeological activities, including collecting artifacts when found, was given by the Municipality of Kincardine.

1.1.2 Purpose and Legislative Context

The *Ontario Heritage Act* (R.S.O. 1990) (OHA) provides legislative oversight for the conservation, protection, and preservation of heritage resources in the Province of Ontario, including archaeological resources. The *OHA* assigns responsibility for doing so to a provincial ministry, now the Ministry of Citizenship and Multiculturalism (MCM). The MCM regulates how archaeological sites are dealt with by:

- Establishing a system to license individuals permitted to identify and investigate archaeological sites;
- Creating technical standards and guidelines for archaeological fieldwork and reporting;
- Maintaining a list of registered archaeological sites; and
- Overseeing transfers of archaeological collections.

The *OHA* does not speak to the need for undertaking archaeological assessments prior to land development. Instead, it regulates how such work must be undertaken and how archaeological sites are dealt with when the need for an archaeological assessment is prompted by other pieces of legislation.

The *Environmental Assessment Act* (R.S.O. 1990)(EAA) was developed to provide for the protection, conservation and wise management of the environment in Ontario. It applies to projects carried out by a provincial ministry, municipality or designated public body, and which can be made to apply to private sector proponents through a designation regulation. Section 1 of the *EAA* has broadly defined "environment" to cover "cultural heritage" resources. As per policy guidelines, the *EAA* provides for two types of environmental assessment planning and approval processes for undertakings subject to the act: environmental assessments (EAs) and class environmental assessments (Class EAs).

The current project follows an approved Class Environmental Assessment (EA) developed by the Municipal Engineers Association on behalf of Ontario municipalities, as documented in *Municipal Class Environmental Assessments* (Municipal Engineers Association 2023). The document enables the planning and implementation of municipal infrastructure (including the road, water, wastewater, and transit undertakings set out in Appendix 1 of the document) to be undertaken in accordance with an approved procedure designed to protect the environment (Municipal Engineers Association 2023). Since the undertakings carried out by municipalities can vary in their potential environmental impact, undertakings have been classified as exempt, eligible for screening, B, and C with each classification having different requirements. Projects that are eligible for exemption must still be subject to an archaeological screening process to determine whether the project is exempt from the requirements of the EAA.

2 STAGE 1 BACKGROUND REVIEW

2.1 Research Methods and Sources

A Stage 1 overview and background study was conducted to gather information about known and potential cultural heritage resources within the project area. According to the *Standards and Guidelines*, a Stage 1 background study must include a review of:

- an up-to-date listing of sites from the MCM's PastPortal for 1 km around the property;
- reports of previous archaeological fieldwork within a radius of 50 m around the property;
- topographic maps at 1:10,000 (recent and historical) or the most detailed scale available;
- historical settlement maps (e.g., historical atlas, survey);
- archaeological management plans or other archaeological potential mapping when available; and,
- commemorative plaques or monuments on or near the property.

For this project, the following activities were carried out to satisfy or exceed the above requirements:

- a database search was completed through MCM's PastPortal system that compiled a list of registered archaeological sites within 1 km of the project area (completed May 29, 2024);
- a review of known prior archaeological reports for the property and adjacent lands;
- Ontario Base Mapping (1:10,000) was reviewed through ArcGIS and mapping layers under the Open Government Licence – Canada and the Open Government Licence- Ontario;
- detailed mapping provided by the client was reviewed; and,
- a series of historic maps and photographs was reviewed related to the post-1800 land settlement.

Additional sources of information were also consulted, including modern aerial photographs, local history accounts, soils data provided by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), physiographic data provided by the Ontario Ministry of Northern Development and Mines, and detailed topographic data provided by Land Information Ontario.

When compiled, background information was used to create a summary of the characteristics of the project area, in an effort to evaluate its archaeological potential. The Province of Ontario (MTC 2011; Section 1.3.1) has defined the criteria that identify archaeological potential as:

- previously identified archaeological sites;
- water sources;
    - primary water sources (e.g., lakes, rivers, streams, creeks);
    - secondary water sources (e.g., intermittent streams and creeks, springs, marshes, swamps);
    - features indicating past water sources (e.g., glacial lake shorelines, relic river or stream channels, shorelines of drained lakes or marshes, cobble beaches);
    - accessible or inaccessible shorelines (e.g., high bluffs, sandbars stretching into a marsh);
- elevated topography (e.g., eskers, drumlins, large knolls, plateau);
- pockets of well-drained sandy soils;
- distinctive land formations that might have been special or spiritual places (e.g., waterfalls, rock outcrops, caverns, mounds, promontories and their bases);
- resource areas, including:

  - food or medicinal plants (e.g., migratory routes, spawning areas, prairies);
  - scarce raw materials (e.g., quartz, copper, ochre, or chert outcrops);
  - early industry (e.g., fur trade, logging, prospecting, mining);
- areas of early 19th-century settlement, including:
  - early military locations;
  - pioneer settlement (e.g., homesteads, isolated cabins, farmstead complexes);
  - wharf or dock complexes;
  - pioneer churches;
  - early cemeteries;
- early transportation routes (e.g., trails, passes, roads, railways, portage routes);
- a property listed on a municipal register, designated under the *Ontario Heritage Act*, or that is a federal, provincial, or municipal historic landmark or site; and,
- a property that local histories or informants have identified with possible archaeological sites, historical event, activities, or occupations.

In Southern Ontario (south of the Canadian Shield), any lands within 300 m of any of the features listed above are considered to have potential for the discovery of archaeological resources.

Typically, a Stage 1 assessment will determine potential for Indigenous and 19th-century period sites independently. This is due to the fact that lifeways varied considerably during these eras, so the criteria used to evaluate potential for each type of site also varies.

It should be noted that some factors can also negate the potential for discovery of intact archaeological deposits. The *Standards and Guidelines* (MTC 2011; Section 1.3.2) indicates that archaeological potential can be removed in instances where land has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. Major disturbances indicating removal of archaeological potential include, but are not limited to:

- quarrying;
- major landscaping involving grading below topsoil;
- building footprints; and,
- sewage and infrastructure development.

Some activities (agricultural cultivation, surface landscaping, installation of gravel trails, etc.) may result in minor alterations to the surface topsoil but do not necessarily affect or remove archaeological potential. It is not uncommon for archaeological sites, including structural foundations, subsurface features and burials, to be found intact beneath major surface features like roadways and parking lots. Archaeological potential is, therefore, not removed in cases where there is a chance of deeply buried deposits, as in a developed or urban context or floodplain where modern features or alluvial soils can effectively cap and preserve archaeological resources.

2.2 Project Context: Archaeological Context

2.2.1 Project Area: Overview and Physical Setting

The project area is located at 3194 Bruce Road 15, north of the intersection of Bruce Road 15 and Albert Road in the community of Inverhuron, Municipality of Kincardine, Ontario. It is roughly 0.4 ha (0.99 ac) in size and is located within Lot 1, Lake Range Concession, in the Geographic Township of Bruce, Bruce County (Maps 1 and 2). The project area is predominantly grassed with a gravelled laneway and a small paved basketball court in the northwestern corner, a former baseball diamond in the northern section, and a paved playground in the eastern half. The project area is bound to the north, east, west by woodlot/forest, and to the south by Bruce Road 15.

The project area falls within the Huron Fringe physiographic region, a narrow stretch of land oriented northeast to southwest covering an area of 1,100 square kilometres extending along the eastern shore of Lake Huron from Sarnia to Tobermory (Chapman and Putnam 1984:161; Map 3). It is comprised of the wave-cut terraces of glacial Lakes Algonquin and Nipissing and is characterized by the presence of boulders, gravel bars and sand dunes (Chapman and Putnam 1984:161). The Huron Fringe is the result of the glacial scouring of limestone located just above the current lake level and is backed by either beaches or sand dunes and the occasional swamp (Chapman and Putnam 1984:161). This physiographic region lies over the Norfolk formation which consists of fine-grained limestone, magnesium limestone and dolomite bedrock (Hoffman and Richards 1954:14). The project area falls within an area mapped as sand plain, and a remnant glacial Lake Algonquin beach is located roughly 370 m to the northeast.

Formal soil surveys for Bruce County map the soils in this area as Elderslie Silt Loam (Map 4). Elderslie Silt Loam exhibits the characteristics of both the Brown Forest and Grey-Brown Podzolic soils, and is considered to have imperfect drainage (Hoffman and Richards 1954). It develops on stonefree, calcareous clay.

Lake Huron lies approximately 260 m to the east, with Little Sauble River running approximately 600 m north of the project area (Map 1). The historic glacial Lake Algonquin is roughly 1.1 km to the north, and a remnant beach can be found roughly 370 m to the north. Abandoned meltwater or river channels can also be found further out to the north, east, and south.

2.2.2 *Summary of Registered or Known Archaeological Sites*

According to PastPortal (accessed May 29, 2024) there are 11 registered archaeological sites within 1 km of the project area (Table 1). All the sites are to the northwest, towards Inverhuron Provincial Park. BbHj-4 and BbHj-44 are the closest registered sites to the project area, both being roughly 300 m to the northwest.

- BbHj-4 was documented by Knechtel and later by Lee (1952) and Wright (1952/53). Over 600 artifacts were discovered in an area spanning five loci, often in deeply buried deposits (TMHC 2015, 2017). The assemblage consisted of ceramic, lithic, faunal, and metal artifacts related to both Indigenous and 19th-century materials (TMHC 2017). It was determined to be a large Middle Woodland period site.
- BbHj-44 was discovered during a 2014 Stage 2 archaeological assessment. Approximately 175 artifacts were discovered in a distinct buried layer 120 – 140 cm in depth and spanning 7 m by 6 m (TMHC 2015). The site contained cut nails, wire nails, wrought spikes, white clay pipes, shell, bone and prosser buttons, ironstone, faunal remains, brick fragments, miscellaneous metals, and container glass. A second assessment in 2021 determined the site to be a ca. 1860 – 20th-century site. Given that less than 80% of the assemblage pre-dated 1870, the site did not meet provincial standards for further Stage 3 assessment (TMHC 2021).

Table 1: Registered Archaeological Sites within 1 km of the Project Area

Borden Number	Site Name	Time Period	Affinity	Site Type	Status
BbHj-1	Fritz	Archaic, Archaic, Late	Aboriginal	Othercamp/campsite	
BbHj-4	Evans	Woodland	Aboriginal	Unknown	Further CHVI
BbHj-8	Hillcrest	Other		Unknown	No Further CHVI
BbHj-22	Inverhuron	Archaic, Woodland, Late, Woodland, Middle	Aboriginal	burial, fishing	
BbHj-23	Chester	Archaic	Aboriginal	Othercamp/campsite, scatter	
BbHj-25	Old School	Pre-Contact	Aboriginal	burial, camp / campsite, scatter	Further CHVI
BbHj-41	TMHC LOC 5/6	Post-Contact	Euro-Canadian	homestead	No Further CHVI
BbHj-42	IH Loc 8	Woodland, Middle	Aboriginal	camp / campsite	Further CHVI
BbHj-43	Ogg Site	Woodland, Late	Lalonde	beach, fishing	Further CHVI
BbHj-44	Location 13	Post-Contact	Euro-Canadian	Unknown	No Further CHVI
BbHj-48	School House	Post-Contact	Euro-Canadian	school	Further CHVI

2.2.3 Summary of Past Archaeological Investigations within 50 m

During the course of this study, records were found for two archaeological investigations within 50 m of the project area (Map 5). However, it should be noted that the MCM currently does not provide an inventory of archaeological assessments to assist in this determination.

2.2.3.1 Stage 1 & 2 Archaeological Assessment – Water and Sanitary Sewer Improvements (Maps 6 and 7)

In 2010, TMHC conducted a Stage 1 archaeological assessment for a Class EA for water and sanitary sewer improvements in the community of Inverhuron. The Stage 1 background research and property inspection determined that the property retained archaeological potential and Stage 2 assessment was recommended. The Stage 2 survey consisted of a test pit survey at 5 m intervals, deep test pitting, field inspection, and photo documentation of previously disturbed areas, along main water and sewer lines. Ten archaeological locations were documented during the Stage 2 archaeological assessment. This includes BbHj-4, BbHj-8, BbHj-25, BbHj-41, BbHj-42, BbHj-43, and BbHj-44 (sites within 1 km of current project area), of which only BbHj-4 and BbHj-44 are located within 300 m of the project area. The section of Bruce Road 15 that bordered the current project area underwent a judgemental test pit survey to confirm disturbance and yielded no materials. Test pit survey at 5 m intervals was completed along the northern boundary of the property parcel, with no archaeological resources encountered. The results of this assessment are presented in two reports entitled *Stage 1 Archaeological Assessment Class EA for Water and Sanitary Sewer Improvements Community of Inverhuron, Municipality of Kincardine Bruce County, Ontario* (TMHC 2011; Licensee Arthur Figura, PIF P083-032-2010) and *Stage 2 Archaeological Assessment, Municipal Class Environmental Assessment for Water and Sanitary Sewage Servicing, Community of Inverhuron, Municipality of Kincardine, Bruce County, Ontario* (TMHC 2015; Licensee John Sweeney, PIF P349-057-2012).

2.2.3.2 Stage 1 & 2 Archaeological Assessment – Southern Bruce Natural Gas Pipeline (Map 8)

In 2019 and 2020, Stantec was retained by EPCOR Natural Gas Limited Partnership (ENGLP) to conduct a Stage 1 and 2 archaeological assessment for the construction of a natural gas pipeline, in accordance with the Ontario Energy Board's *Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines and Facilities in Ontario*. The Stage 1 background research determined that portions of the study area retained archaeological potential and Stage 2 assessment was recommended. The lands located within the vicinity of the current project area were determined to be previously disturbed and were not recommended for further assessment. The results of this assessment are presented in a report entitled *Stage 1-2 Archaeological Assessment: Proposed Southern Bruce Natural Gas Pipeline, Inverhuron Section, Parts of Various Lots and Concessions, Municipality of Kincardine, Bruce County, Ontario* (Stantec 2020; Licensee Arthur Figura, PIF P083-0340-2019).

2.2.4 Dates of Archaeological Fieldwork

The Stage 2 fieldwork was conducted on June 19, 2024, and June 20, 2024, under the direction of Sean Graziano, BA (R1354). The weather conditions on each date of fieldwork are summarized below in Table 2.

Table 2: Dates of Fieldwork, Weather Conditions and Field Director

Dates of Fieldwork	Weather Conditions	Field Director
June 19, 2024	Sunny and clear	S. Graziano, BA (R1354)
June 20, 2024	Sunny with sporadic rain	S. Graziano, BA (R1354)

2.3 Project Context: Historical Context

2.3.1 Indigenous Settlement in Bruce County

Our archaeological knowledge of past Indigenous occupation and land use in this portion of Bruce County is limited, largely due to a paucity of cultural resource management and research based archaeological assessments. Using existing data and regional syntheses, it is possible to propose a generalized model of Indigenous settlement in Bruce County. The general themes, time periods and cultural traditions of Indigenous settlement, based on archaeological evidence, are provided below and in Table 3.

Table 3: Chronology of Indigenous Settlement in Bruce County

Period	Time Range	Diagnostic Features	Archaeological Complexes
Early Paleo	9000-8400 BCE	fluted projectile points	Gainey, Barnes, Crowfield
Late Paleo	8400-8000 BCE	non-fluted and lanceolate points	Holcombe, Hi-Lo, Lanceolate
Early Archaic	8000-6000 BCE	serrated, notched, bifurcate base points	Nettling, Bifurcate Base Horizon
Middle Archaic	6000-2500 BCE	stemmed, side & corner notched points	Brewerton, Otter Creek, Stanly/Neville
Late Archaic	2000-1800 BCE	narrow points	Lamoka
Late Archaic	1800-1500 BCE	broad points	Genesee, Adder Orchard, Perkiomen
Late Archaic	1500-1100 BCE	small points	Crawford Knoll
Terminal Archaic	1100-950 BCE	first true cemeteries	Hind
Early Woodland	950-400 BCE	expanding stemmed points, Vinette pottery	Meadowood
Middle Woodland	400 BCE-500 CE	dentate, pseudo-scallop pottery	Saugeen
Transitional Woodland	500-900 CE	first corn, cord-wrapped stick pottery	Princess Point
Late Woodland	900-1300 CE	first villages, corn horticulture, longhouses	Glen Meyer
Late Woodland	1300-1400 CE	large villages and houses	Uren, Middleport
Late Woodland	1400-1650 CE	tribal emergence, territoriality	
Contact Period - Indigenous	1700 CE-present	treaties, mixture of Indigenous & European items	
Contact Period - Settler	1796 CE-present	industrial goods, homesteads	pioneer life, municipal settlement

2.3.2 Paleo Period

The first inhabitants of Bruce County lived in small, mobile bands that moved across the landscape in pursuit of the large migratory game, particularly caribou that were the staple of their subsistence. Ontario at the time still experienced a cold and harsh climate, with open spruce woodland dominating between 10,500 and

8,000 BCE and tundra conditions between 9,200 – 8,300 BCE. Between 9,000-8,400 BCE, with the exception of the Niagara Escarpment, all of the Bruce Peninsula was submerged beneath pro-glacial Lake Algonquin (Cowan and Sharpe 2007:20).

The Paleo period is divided into two basic timeframes, distinguished by styles of chipped stone arrowheads or projectile points. The Early Paleo period (9,000 – 8,400 BCE) is associated archaeologically with carefully crafted leaf-shaped points or spear heads, donned with long narrow channels or flutes along the central axis of the point perpendicular to the base. These large points are better known further south in Ontario, although finds have also been made in neighbouring Grey County and many occur on Fossil Hill chert which outcrops on the Escarpment near Blue Mountain. The archaeological hallmark of the Late Paleo period (8,400 – 7,500 BCE) are smaller lanceolate spear points that, while still finely made, do not exhibit the characteristic flutes of earlier times and often occur on different raw materials, including quartzite from Sheguiandah on Manitoulin Island.

In general, documented Paleo sites in Ontario are rare, small and ephemeral. Given their considerable age, organic materials rarely survive and hence, archaeologically, they are known primarily from stone tools, including the spear tips identified above, alongside scraping, cutting, splitting and crushing tools used to manipulate plant and animal raw materials used for food, clothing, shelter and other necessities of life. Quite often they are associated with former glacial shorelines, which were the focus of caribou migratory routes.

To date, no Paleo period sites have been identified in Bruce County. This is partly due to the fact that some areas were submerged beneath glacial lakes for part of the period, although many of the locales where Paleo sites are likely to exist have not been subject to a significant amount of archaeological study. Two Early Paleo sites, AlHj-57 and AlHj-50, were discovered to the southeast of the Alpena-Amberley Ridge further south in Huron County during an archaeological assessment for the K2 wind energy project (TMHC 2012a, 2012b). BbHi-32, discovered during the assessment of SP Ontario Armow Wind energy project (Golder 2012a, 2016), is a potential Paleo site based on the presence of Fossil Hill chert tool manufacturing waste although further testing was not undertaken to confirm this.

2.3.3 Archaic Period

The Archaic period is a long, broadly defined period that encompasses long trajectories of subsistence and technological changes, in part as a continuing adaptation to climate and vegetation changes. The period essentially spans a long period of time between the post-glacial Paleo Period characterized primarily by big game hunters and the Woodland Period, associated with emergent horticulture, the introduction of longer-term settlements and pottery technology. Archaeologists generally recognize three major temporal divisions within the Archaic Period – Early (ca. 8,000 – 6,000 BCE), Middle (6,000 – 2,500 BCE) and Late (2,800 to 800 BCE) – generally defined by distinctive projectile point styles and other unique stone tool categories.

The Early Archaic period witnessed warming temperatures and fluctuating lake levels. By about 7,500 BCE there was a shift from the primarily coniferous forests of early times to mixed forest conditions that were favourable for deer, elk and moose. Early Archaic populations continued the mobile lifestyle of their predecessors and had a more varied diet exploiting a larger range of plant, bird, mammal and fish species. A seasonal pattern of warm-season riverine or lakeshore settlements and interior cold-weather occupations has been documented in the archaeological record. Early Archaic sites are also quite rare on the landscape, with many potentially submerged as water levels rose to those of modern-day Lake Huron. As groups continued to live a mobile lifestyle, Early Archaic sites are often small and consist largely of stone tools and stone

manufacturing waste. Three distinctive projectile point styles are associated with the Early Archaic: Side-Notched (8,000-7,700 BCE), Kirk/Nettling Corner-Notched (7,800-6,900 BCE), and LeCroy Bifurcate-Based (6,900-6000 BCE). These can be associated with heavy, roughly-flaked woodworking chopper/scrapers, ground axe-like celts and ground and polished slate tubes that may have served as atlatl (dart/spear-thrower) weights.

Three confirmed or suspected Early Archaic sites have been reported in Bruce County. BbHi-31 is a corner-notched projectile point identified near the Glammis Bog on Willow Creek and was discovered during the archaeological assessment for the SP Ontario Armow Wind project (Golder 2012a); however, the attribution of this discovery has been put into question (Fitzgerald 2016). The West Site (BfHh-2), discovered by William Fox as part of a long-term survey project undertaken by what is now the MCM, is a scatter of stone tool manufacturing debris made on Bar River Formation quartzite from Sheguiandah; it is described as a camp site related to butchering activities (Fox 1998). A side-notched projectile point made from quartzite was also recovered from Jones bluff at Cape Croker (Fitzgerald 2016).

Throughout Ontario, sites generally dating to the Middle Archaic are more commonly encountered, partially a reflection of great population density during this time as well as patterns of more regular and intensive utilization and occupation of resource-rich zones, albeit still on a seasonal basis. In Bruce County, Middle Archaic sites are still relatively rare, partially due to the limited archaeological investigation that has occurred within its bounds, but also due to the fact that continued fluctuating lake levels contributed to many sites being inundated.

By 5000-4000 BCE mixed coniferous-deciduous forests were prevalent and bore significant nut-producing species (oak, walnut, butternut, hickory and beech) that attracted wapiti (elk) and white-tailed deer populations. Archaeological evidence also suggests that Middle Archaic populations were both hunters and fishers, indicated by the recovery of fishing apparatus, such as cobble netsinkers, and the regular occurrence of sites along waterways, especially adjacent to rapids, many of which are still popular fishing spots today.

The artifacts relating to or diagnostic of the Middle Archaic are more diverse than those from earlier times, with significant variability over the period's lengthy duration. Many of the earliest Middle Archaic projectile points are side-notched pieces or stemmed variations of earlier bifurcate base points with serrated edges from extensive resharpening. Corner- and side-notched spear points continued in use through the Middle Archaic period. Formal ground and polished stone tools are more common by this time, including axes, "bannerstones" (possibly weights for atlatls or spear-throwers, or for use as ornamental or ceremonial objects). In general, the diversity of artifacts reflects a wider range of activities, subsistence and otherwise, including hunting, fishing, wood and bone working, hide processing and so on. While it is not immediately evident archaeologically that watercraft were made and used during this time, it is none the less possible.

In the western Great Lakes, some Middle Archaic sites have produced items of local source copper or "native copper," as described by archaeologists to distinguish Canadian Shield derived material from that brought to North America by European explorers thousands of years later. Indigenous populations modified naturally occurring or mined copper nuggets through cold hammering and annealing into a variety of tools – projectile points, hooks, adzes and ornamental items. These, alongside copper raw materials, were traded throughout the Upper Great Lakes. Occasionally native copper artifacts are found at significant distances from sources around Lake Superior, suggesting an extensive and wide-reaching trading network existed by this time that encompassed lands within what is now Bruce County. A tanged projectile point was recovered from the east side of the Bruce Peninsula in Eastnor Township to the south of Barrow Bay and a 5.5kg (12 pound) native copper nugget was found along the Lake Huron shore near the mouth of the Saugeen River (Fitzgerald 2016).

While most intensively practiced during the Middle Archaic period, native copper working continued into the Late Archaic and Woodland periods, although the objects from more recent times were generally ornamental or ritual in nature and often occur in mortuary contexts.

Only three sites in the PastPortal inventory for Bruce County are clearly identified as dating to the Middle Archaic period. These are the Gingrich Site (BcHh-3), a camp site four miles southeast of the mouth of Saugeen River, dating to ca. 3,000- 2,500 BCE based on the presence of a corner/side notched projectile point type known as "Brewerton." It was identified by researchers from the National Museum in the 1950s. BaHg-5 is an isolated find of the same type of point, discovered during a recent archaeological assessment for a land development project north of Poplar Beach (Detritus Consulting 2019). The third site is BbHi-35, Armow Location 37, comprised of a ca. 3,500 – 2,000 BCE Otter Creek style projectile point recovered near Greenock Swamp and the headwaters of the North Penetangore River (Golder 2012b). Nonetheless, numerous other registered and known sites have generated confirmed or likely Middle Archaic artifacts:

- the Inverhuron-Lucas site (BbHj-3);
- Rocky Ridge (BbHj-16);
- Knetchel (BbHj-2); and
- BbHi-31.

These sites occur largely in lakeshore contexts, although BbHi-31 is on Willow Creek near the Glammis Bog.

Late Archaic period sites are far more plentiful in Bruce County, partially a reflection of the fact that these sites were never inundated as essentially modern lake levels were achieved by that time. In addition, climate and environmental conditions mimicked those of modern day. The Late Archaic period is once again defined based on the occurrence of distinctive projectile point styles that are divided into three overarching time periods or complexes: Narrow Point (ca. 2,500-1,800 BCE); Broad Point (ca. 2,000-1,400 BCE); and Small Point or Terminal Archaic (ca. 1,500-800 BCE). Two notable developments occur during this period. The first is the invention of the bow and arrow, thought to be reflected in the manufacture of much smaller projectile points for arrow tips. The second is the elaboration of mortuary traditions, as reflected in the documentation of Indigenous burials with highly elaborate grave goods that include ritual, ornamental and utilitarian items of local and non-local origin (e.g., native copper items, marine shell, unworked galena cubes and powdered red ochre). While archaeologists interpret these highly elaborate burials (referred to as "Glacial Kame" for their occurrence in glacial landforms of the same name) as the first formal Indigenous cemeteries, it should be noted that evidence from earlier burials is absent largely due to environmental conditions that inhibited preservation over longer time periods.

PastPortal identifies 11 Late Archaic Period sites or multiple occupation sites that include Late Archaic artifacts. Several of these sites, most interpreted as small, seasonal camps, were identified by annual research surveys completed by what is now the MCM during the late 1970s and 1980s and were not subject to extensive study. One of these is the Mason site (BeHh-6), a multiple occupation site located on the Wiarton-Oliphant portage route. Late Archaic artifacts have also been documented on the Project R/Rocky Ridge (BbHj-16) and Knechtel I (BbHj-2) sites in the Kincardine area along Lake Huron and the IF9 site along the North Penetangore River (Fisher 1994:43).

Numerous other sites within Bruce County, particularly within the Bruce Peninsula National Park, are possible Archaic habitation/lithic workshop sites although these cannot be assigned as such since investigations have not yet produced diagnostic artifacts that would confirm this. Burial sites at Sauble Beach (MHC 1999),

Southampton (Fitzgerald 2002), and Inverhuron (Fitzgerald 2001; Lee 1960) contain native copper awls, marine shell beads and pendants, as well as red ochre and could be attributable to the Late Archaic Glacial Kame mortuary complex, as described above, although they may also be associated with similar mortuary traditions known for the Early Woodland period.

2.3.4 Early, Middle and Transitional Woodland Periods

Three hallmarks characterize the Woodland period: the appearance of earthenware pottery in the Great Lakes area around 800 BCE, the development of the practice of agriculture and the emergence of populations subsiding primarily on crop staples corn, beans and squash, and the appearance of major longer-term settlements. Whereas earlier populations practiced a settlement system comprised of seasonal movements to camps, activity areas and resource zones on a seasonal and semi-seasonal basis (a cycle that continued into modern times for some Indigenous groups), some Woodland period peoples lived in larger villages that were moved only when local resources were depleted. Archaeologists recognize three very wide-sweeping time divisions in the Woodland period reflecting considerable change in tools, technology and settlement-subsistence practices: Early (ca. 800-400 BCE), Middle (ca. 400 BCE – 700 CE), and Late (ca. 900-1650+ CE).

The Early Woodland is defined in Bruce County by sites attributed to what archaeologists call the Meadowood cultural complex (800-400 CE), associated with the oldest style of pottery known in Ontario - Vinette 1, thick- and straight-sided pots with tapering bottoms and cord- or fabric-roughened surfaces and lacking formal decoration. This pottery is similar to that manufactured around the same time by populations in Michigan and Ohio. Triangular preforms or tool blanks are also characteristic of Meadowood and exhibit considerable technical skill and craftsmanship. That these are found in large caches in proximity to primary chert outcrops suggests they were potentially mass produced, utilized in systems of widespread exchange throughout the Great Lakes and transformed into various tool forms like projectile points, hide scrapers and drills. Other Early Woodland projectile point types, like Turkey-tail and Adena Stemmed, show equal technical prowess in their execution and tie into widespread trade networks extending into Ohio. The Early Woodland archaeological cultures of Ontario continue the mortuary traditions of Late Archaic times and show connections to the elaborate ceremonial traditions of the Adena mortuary complex of the central Ohio Valley that included geometric and animal-form earthworks and burial mounds. The first evidence of domesticated plants (gourds, pumpkins, squash and sunflowers) also occurs in the Early Woodland.

Early Woodland sites in the greater Bruce Peninsula area are sporadic but generally widespread in the lower Saugeen River watershed (Donaldson – BdHi-1and Location 8 sites), along earlier incarnations of the Lake Huron shore (Project R/Rocky Ridge - BbHj-16 and Ferris – BbHj-21 sites), along the Penetangore and North Penetangore rivers (Penetangore – BaHj-4, IF16, and IF18 sites) and adjacent Silver Lake/ Greenock Swamp (Fighting Pigeon site – BaHi-4)(Fitzgerald 2016). Not all of these are clearly defined in PastPortal as Early Woodland sites, with the inventory also including occupations at the Inverhuron-Lucas (BbHj-3) and Hunter (BdHh-5) sites.

The Middle Woodland period is associated with pottery vessels with more outflaring rims and exterior surfaces decorated with bands of stamped motifs made by impressing the edge of a scallop shell (or similar looking tool) (i.e., pseudo-scallop shell) or toothed comb (dentate stamp), with the former more common in the later part of the period. Regional differences are notable across Ontario during the Middle Woodland, with the manifestation between the Bruce Peninsula and the Niagara Peninsula identified as “Saugeen,” named for signature sites identified in Bruce County along the Saugeen River, some of which are burials. The latter

suggest an association with the ca. 200 BCE to 500 CE Hopewell culture in southern and central Ohio associated with impressive burial mounds and earthworks, highly elaborate stone tool technologies and extensive, almost pan-American exchange networks indicated by the occurrence of non-local objects from thousands of miles distant. At the Donaldson site (BdHi-1) along the lower Saugeen River, exotic trade goods diagnostic of Hopewell traditions was identified in burial contexts - two sheet copper panpipe covers, three cut mica sheets, a copper-patched stone earspool, and a matched pair of cut and ground wolf maxillae.

Middle Woodland sites are larger and more frequent than Early Woodland sites in Ontario, likely due to population growth resulting from more intensive exploitation of fish. The distribution of Middle Woodland sites across Ontario suggests a shift from the Late Archaic-Early Woodland settlement pattern of larger band sizes in winter combined with summer dispersal into smaller groups to one of summer aggregations of large groups of people in highly accessible riverine areas with resource abundance (e.g., river rapids, river/stream mouths where spear fishing produced a rich subsistence base) and winter dispersal to smaller nuclear and extending family or small band camps. During the late summer and fall, extended families dispersed to shallow bays to net fall-spawning fish (i.e., whitefish, lake herring/cisco, and lake trout) and into the interior to harvest wild rice. Dispersal into small, mobile extended-family groups during periods of reduced food availability continued during the late fall and winter with the trapping and hunting of fur-bearing mammals being pursued from small, sheltered camps scattered throughout the interior.

In the greater Bruce Peninsula area, Saugeen "complex" Middle Woodland archaeological sites have been located near river mouths adjacent to the Lake Huron shore (Knechtel 2 – BbHj-2, Inverhuron- Lucas -BbHj-3, and Evans sites), alongside rapids of the lower Saugeen River (Donaldson – BdHi-1 and Thede- BcHi-7 sites), and around the shore of the inland Arran Lake (Krug site – BcHh-5), likely representing various components of the seasonal subsistence rounds and that individual watersheds (e.g., Saugeen, Sauble, and Penetangore) or other landscapes with clustered, reliable food and non-food resources may represent separate band territories (Fitzgerald 2016). In total 15 sites in the PastPortal inventory are recorded as consisting entirely of or incorporating a Middle Woodland occupation, including the more recently investigated Ne'bwaakah giizwed ziibi (BdHi-2) at the mouth of the Saugeen River and the Nochemowenaing (BfHg-4) site.

By the end of the late Middle Woodland period and into the early part of the Late Woodland pottery vessels emerged with more globular forms with rounded bases and heavily cord- or fabric-roughened exteriors with decoration created through impressing the ends of small circular tools (punctates) along the neck and twisted cords, cord-wrapped sticks and other cord-wrapped implements along the rim. Projectile points fashioned from pentagonal blanks as well as triangular forms also define this transition between Middle and Late Woodland. These transitional points and ceramics have been recovered in Bruce County at river mouth, sandy bay, and riverine locations – the Chief's Point – BeHh-2, multiple occupation Hunter - BdHh-5 and Donaldson – BdHi-1 sites as well as the IF10 site along the North Penetangore River (Fitzgerald 2016).

2.3.5 Late Woodland Period

During the Late Woodland period a warming trend between ca. 900 to 1250 CE, allowed for a more intensive pursuit of corn agriculture and its expansion to even marginal locales. Although intensive agricultural was not possible in the upper Bruce Peninsula which is characterized by poor soil development, conditions were conducive to it in the narrow Huron Fringe, the Lake Huron shore between Red Bay and Point Clark, and at the mouths of the Beaver and Bighead valleys at the head of Georgian Bay. At the tip of the Bruce Peninsula an anomalous pocket of sandy loam and loam soils surrounded by water on three sides could have supported the

cultivation of domesticated plants if the growing season was suitable (Fitzgerald 2016). By providing a plentiful and storable, year-round food source, corn agriculture permitted the long-term settlement of locales, resulting in the creation of large village sites comprised of multiple extended families. While certain Great Lakes Indigenous populations practiced an agricultural lifestyle from this point on, Bruce Peninsula Algonquin groups practiced agriculture more intermittently and continued their diverse hunter-fisher-gatherer subsistence strategy. In fact, a cooling trend between ca. 1430 and 1850 encouraged a shorter growing season and full-scale adoption of agriculture by Bruce County Indigenous populations during this period.

The Late Woodland period is Bruce County is still poorly understood, primarily because the archaeological record has been traditionally interpreted using biases from other parts of Ontario where it is both better known from a larger sample of archaeological sites and associated with historically documented Iroquoian groups like the Tionnontate (or Petun) near Blue Mountain, Huron-Wendat in primarily Simcoe County and Attawandaron or Neutral in southwestern Ontario, and their ancestral populations. The Late Woodland 14th century Nodwell site is one of the only of its kind to be identified in Bruce County and its interpretation is subsequently the subject of much disagreement. Traditionally, many archaeologists have interpreted Nodwell as an Iroquoian village, due to the fact that it bears hallmarks of the typical "Iroquoian" pattern identified elsewhere in Ontario – large multi-family dwellings referred to as longhouses, a palisade around the perimeter, and complex ceramic traditions for pottery manufacture and pipe making. However, a more recent interpretation of the site is that it was occupied by local Bruce Peninsula Algonquian-speaking groups who practiced an agricultural lifestyle until the cooling period of the Little Ice Age prohibited the successful cultivation of corn over the long term (Fitzgerald 2016). Accounts in the 17th century by European explorers and missionaries speak to corn cultivation by local Algonquian-speaking groups.

Although there is regional diversity and significant variability in settlement patterns and both tool and pottery technologies throughout the Late Woodland period that are too numerous to describe here, Late Woodland archaeological sites are identified by the presence of high quality, thin-walled pottery with intricate impressed and incised decoration, small triangular or side-notched triangular projectile points, animal bone tools and ornaments, clay and stone smoking pipes, polished and ground stone implements, extensive assemblages of animal and fish bone and occasionally preserved botanical remains such as seeds or kernels of corn, beans, squash, tobacco and medicinal plants. Late Woodland site types include palisaded villages (which grow from early settlements of one or two houses to assemblies of twenty or more), cabin and special-purpose sites, camps, burials and ossuaries (i.e., large multiple burial pits), although the latter have not yet been documented in Bruce County.

Late Woodland period habitation, resource-procurement, ritual, and burial sites are noticeably more frequent and widespread across the Bruce Peninsula and adjacent areas. As they can often reflect larger and longer-occupied sites, they tend to be more visible archaeologically. In addition to Nodwell, one other 14th century palisaded longhouse village is known in Port Elgin and is a recent discovery (Fitzgerald 2016). Known Late Woodland sites occur most frequently in close proximity to the Lake Huron and Georgian Bay shorelines, especially near mouths of watercourses and in sandy bays [e.g., Potawatomi and Sydenham rivers, Eddy's/Little Port Elgin Creek (Sandy Beach Bay), Dunks Bay, Black Creek (Myles Bay), Red Bay, Sauble River, French Bay, Stoney Creek, Saugeen River, Little Sauble River (Inverhuron Bay), Andrews Creek]. Other nearshore site localities on the Georgian Bay side of the peninsula – many that would appear less inviting, include relict cobble strandlines, exposed bedrock, and in or under shallow escarpment caves and overhangs [eg., Flowerpot Island, Little Cove, Cave Point, Hunter's Point, White Cloud Island, Colpoys Bay]. Instances of interior sites, while few, occur in a variety of settings that each would have served a specific purpose – along portage routes

[eg., Boat Lake], adjacent to rivers and lakes/swamps [eg., Saugeen River, Otter Lake/Greenock Swamp], and in areas of sandy and sandy loam soils associated with pro-glacial Main Lake Algonquin features – i.e., lake beds and barrier bars [eg., Port Elgin and the valley mouths of the Bighead and Beaver rivers] (Fitzgerald 2016).

Twenty sites in the Bruce County inventory in PastPortal are attributed to the Late Woodland period. Notable examples include the Hunter's Point site (BfHg-3), which dates between 1300 and 1500 CE, the Cripps site (BhHj-17) located in the Dunk's Bay area and Hunter site (BdHh-5), situated on the Saugeen Reserve. A notable recent discovery is the Ne'bwaakaah giizwed ziibi site (BdHi-2) at the mouth of the Saugeen River in Southampton that yielded Late Woodland cultural features containing pottery, dog, bird and beaver burials along with potential ceremonial fish features (Fisher 2013).

Beginning in the late-16th century, Late Woodland sites are also characterized by the occurrence of items of European manufacture or fashioned from them. These include various varieties of glass beads, whole copper/brass kettles and fragments thereof, glass and ceramic containers and iron tools, namely axes, awls, knives and other implements. While the earliest items were likely brought into the Bruce by individuals who had encountered or were accompanied by European explorers and missionaries, later items are a product of a systematic trade network that developed in response to French, English and Dutch interests in beaver pelts. Extensive written documents exist for the arrival of Europeans to North America, including some that speak specifically about Indigenous populations who inhabited Bruce County in the Late Woodland. However, these records were made by explorers and missionaries with a purpose of reporting back to their superiors in Europe and are both incomplete and culturally biased. Nonetheless they provide useful baseline information for understanding Indigenous life in the late-16th through mid-to-late 17th centuries that can be combined with archaeological evidence and oral histories to generate a much rich and more fulsome picture of the period.

2.3.6 Treaty History

The project area is encompassed by Saugeen Tract Purchase, or Treaty 45 ½ that was signed between the Crown and Anishinaabe peoples on August 9, 1836, in Manitowaning (Ministry of Indigenous Affairs 2022). The treaty was negotiated between the SON and the Crown to open 1.5 million acres for settlement, in return for assistance and the protection of the Indigenous Peoples who continued to live on the Saugeen Peninsula (Duern 2017; SON 2021). These lands became known as the "Queens Bush".

The conditions of Treaty 45 ½ were not upheld by the British Crown, who claimed that the Saugeen (Bruce) Peninsula could not be protected without the negotiation of a second treaty. Settlers were moving farther north into the Peninsula, and it was the aim of the Canadian Government to settle the opposing side of Lake Huron to match the settlement of those in the United States (Surtees 1984:101-102). The terms of the new treaty were negotiated with each sitting Chief separately, and pressure was exerted on all signatories to cede more territory under the promise of protection of territory, and financial benefits (Surtees 1984:104-105). This became Treaty 72, which was signed on October 13, 1854, and ceded approximately 500,000 acres of the Saugeen (Bruce) Peninsula to the British Crown (Duern 2017; Ministry of Indigenous Affairs 2022).

In 2019, the SON filed claims with the Canadian and Ontario government regarding the waters in Lake Huron and Georgian Bay, and a claim seeking redress from Treaty 72 in which the SON was forced to cede lands to the British Crown, after being assured under Treaty 45 ½ that their lands on the Saugeen (Bruce) Peninsula would be protected from settler encroachment (OKT 2021). Phase 1 of the claim has concluded, with the Ontario Superior Court denying Aboriginal Title to the claimed waters in Lake Huron and Georgian Bay but did agree that the Crown broke its treaty promise as outlined in Treaty 45 ½. Phase II of the trial is still ongoing (OKT 2021).

2.3.7 Nineteenth-Century and Municipal Settlement

Historically the project area falls within Lot 1, Lake Range Concession, in the Geographic Township of Bruce, Bruce County, Ontario. A brief discussion of 19th-century settlement and land use in the township is provided below in an effort to identify features signaling archaeological potential.

2.3.7.1 Bruce County

Municipal settlement in Bruce County was facilitated by the signing of various treaties between the Crown and local Indigenous communities. The lands within Bruce County were acquired under two major treaties. Treaty No. 45 ½, also referred to as the Saugeen Tract Purchase, was signed by representatives of the Saugeen Nation and Lieutenant-Governor Francis Bond Head on August 9, 1836 (Department of Indian Affairs 1891). The treaty established a line between the villages of Saugeen and Nawash near the base of the Saugeen Peninsula at Owen Sound. South of that line, Brant, Carrick, Elderslie, Greenock, Huron, Kincardine, Kinloss, and Saugeen Townships were considered ceded territory. The townships to the north of the line–Amabel, Albemarle, Eastnor, Lindsay, and St. Edmonds–became the Saugeen and Owen Sound Reserve. Treaty 72, signed on October 13, 1854 by the Crown and Saugeen and Chippewa peoples living in the Saugeen and Owen Sound Reserve, released the majority of the reserve lands on the Peninsula but established formal reservations - Saugeen First Nation Reserve #29 north of the Saugeen River, Chief's Point Reserve No. 28, the Nawash - Owen Sound First Nation Reserve (subsequently surrendered in 1857 under Treaty No. 82), the Cape Crocker or Neyaashiinigmiing Reserve No. 27 and a reserve around the Colpoy's Bay (subsequently surrendered in 1861 under Treaty No. 82) (Department of Indian Affairs 1891). Additional and smaller Bruce County parcels were surrendered in 1885 and 1899.

In 1849 when the lands north of Huron District known as the "Queen's Bush" were surveyed, the new area was named after the Governor General of Canada at the time, James Bruce (Robertson 1906). This new county was created by an Act of Parliament in 1849, dividing the district of Huron into three counties: Huron, Perth and Bruce (Robertson 1906). Bruce County included 12 townships, and the Peninsula (which was still under control of the Saugeen at the time). It is reported that the first European settlers to establish homes in Bruce County were William Withers and Allan Cameron who settled at the mouth of Penetangore River in present day Kincardine during the spring of 1848 (H. Belden & Co 1880). Withers is credited with building the community's first saw mill. Penetangore is believed to be a corruption of the Algonquin word "Na-Benem-tan-gaugh," meaning "the river with sand on one side," which reflected the fact that the river mouth was marked by a clay bluff on one side and a sand dune on the other (Robertson 1906).

The earliest surveys in Bruce County (e.g., the first concession in Huron and Kinloss) were those created to provide access to the Queen's Bush (Robertson 1906). These were followed by those to establish colonization roads, lots adjacent to these, and along the shore in the Lake Huron townships of Huron, Kincardine, Bruce and Saugeen. One of the earliest "Free Grant" or colonization roads was the Durham Road, cut through the southern Bruce townships in 1848-49, the majority of which were surveyed ca. 1851-1852 (Bruce County Historical Society 2024). The northern townships were surveyed only after the signing of Treaty 72 in 1854.

The earliest European settlers arrived via river routes and from the lake, or along the colonization roads (Robertson 1906). Prior to the cutting of substantial thoroughfares, access to the Bruce was otherwise via Indigenous land trails or waterways. The latter were dotted with small taverns and inns, strategic stopping points for families heading north and westward from earlier settled counties to the south. The earliest foci for settlement were the Lake Huron shores, settlement roads, river mouths and riverside locales that made

effective mill sites and strategic cross roads (Robertson 1906). Saw and grist mills were the focal points for some of the earliest communities in Bruce County that by the mid-19th century also included taverns, churches, schools, stores and post offices.

The census of 1851 (Library and Archives Canada 2018) reported that there were no more than 499 recent settler families living in Bruce County, many of whom lived in shanties, small, rough built early pioneer dwellings that were erected to create temporary shelter and meet the Crown requirements for a land grant. The County's population grew quickly into the 1860s, hastened by the construction of a series of stone roads that provided access between the County's various settlements and much improved land travel.

While settlement progressed relatively steadily across Bruce County from the south and lakeward to the north into the interior lands, it was very much prohibited in some locales by significant swampy zones, including Greenock Swamp (Robertson 1906), as well as a lack of access. Settlements emerged later within the Bruce Peninsula proper, following the release of reserve lands. Whereby many of the townships in southern Bruce County witnessed community development by the mid-1850s, many of the original municipal settlements in Amabel, Albermarle, Eastnor, Lindsay and St. Edmunds were founded in the 1870s and 1880s. Apart from the Indigenous and Métis populations, the earliest settlers of Bruce County were primarily of German, Scottish, Irish and French heritage (Robertson 1906).

Several of the earliest communities in Bruce County townships were unsuccessful, some for a lack of resources and many others for the fact that railroads established in the 1870s bypassed them entirely (e.g., Balaclava) (Robertson 1906:339). Early railways in the Bruce included those built by the Toronto, Grey and Bruce Company in the 1870s (later purchased and upgraded by the Canadian Pacific Railway), the Stratford & Lake Huron Railway, and the Wellington, Grey and Bruce Railway which open in 1876 (Robertson 1906). Many new centres emerged along the rail routes as station sites, while existing communities that were serviced by the rail thrived with the establishment of new business and industries and arrival of a wave of new settlers.

The early settlement of Bruce County followed several themes: the clearing of fertile agricultural lands in areas where suitable soils were present, a shoreline focus that encouraged the development of harbours, ports and shipping locales as well as recreational areas and a focus on plentiful local resources, including fish, timber and minerals (Robertson 1906). Thriving agricultural communities developed, for example in Huron and Culross townships. Active shipping ports emerged in both southern Bruce, at the mouth of the Penatangore River and Inverhuron Bay, and in the north, the latter at Lion's Head. Bruce's earliest major settlement – Penatangore, now Kincardine – at the mouth of the Penetangore River grew around its water access, with the construction of a significant complex of wharves and warehouses. Bruce County waterfront ports became a strategic connection point between trading and manufacturing centres in the Upper Great Lakes and markets in the central interior of Upper Canada and Canada West. Commercial fisheries were established on the Fishing Islands; today, the presence of stone ruins on Main Station Island is a reminder of this early industry to Bruce County's development (Robertson 1906).

2.3.7.2 Bruce Township

The eastern shore of Lake Huron was first surveyed in the early 1820s. Bruce Township was surveyed by Alexander Wilkinson in 1847 (Robertson 1906:314). As early as 1849, pioneers were already clearing areas for settlement. By 1852, William Gunn, after whom Gunn Point is named, built a house on Lake Street, and by 1854 he owned and operated a store and post office (Kummer 1975). Gunn was one of two individuals who helped Crown agent Alexander McNabb during what is referred to as the "Big Land Sale" in the fall of 1854. This sale of land was instrumental in helping squatters become legal landowners (Kearns 1998:8).

During the 1847 survey of Bruce County, the decision was made to designate a new town on the Sauble Town Plot, a set of ten lots along the eastern shore of Inverhuron Bay (Judd 1997:129). A full survey of what would become the Town of Inverhuron was not completed until 1856. An article in the July 3, 1856, issue of the Sarnia Lambton Observer & Western Adviser reported that only a very few structures had been built by that time, including two stores, two taverns, and three nearby mills (Kearns 1998:12). The directory of Canada for 1857-1858 records the Town of Inverhuron as having a population of 50 individuals (Kummer 1975).

Early on, the focal point for both residence and industry was the Lake Huron shoreline. In 1858, civil engineer Sandford Fleming was commissioned to carry out a survey of Inverhuron Bay for the purpose of constructing a harbour. He found that with some modification, the natural bay could become serviceable as a commercial port (Fleming 1869:23). In particular, Fleming's recommendation of building a second pier or breakwater on the north shore of Inverhuron Bay, was essential to making the area a hub of maritime trade (Fleming 1869:24). The town ultimately decided to lengthen the existing pier to enable its use as a commercial dock by schooners and steamers, which directly contributed to the town's short-term prosperity (Kummer 1975).

Fleming's survey map shows the proposed location of the pier/breakwater and indicates the presence of a post office just north of the town line between Kincardine and Bruce Townships, at what is now the intersection of Lake Street and Bruce County Road. Once the original pier was extended, commercial activity increased enough to keep a total of three saw mills and one grist mill busy throughout the 1860s. This development resulted in the construction of three warehouses for storing shipments of grain at the west end of Cayley Street, directly south of the original pier on the bay's eastern shore (Kearns 1998:13-14).

After the United Townships dissolved in 1854, Bruce remained conjoined with Kincardine and Kinloss Townships before separating in 1856 (Robertson 1906:321). In 1999, the Townships of Bruce and Kincardine, and the Town of Kincardine combined to form the Municipality of Kincardine.

2.3.7.3 Inverhuron

During the 1847 survey of Bruce County the decision was made to designate a new town on a set of ten lots along the eastern shore of Inverhuron Bay called the Sauble Town Plot (Judd 1984:129). A full survey of what would become the community of Inverhuron was not completed until 1856. However, as early as 1849, pioneers had already cleared areas for settlement in the area. As previously mentioned, William Gunn had built a house on Lake Street in 1852 and by 1854 he owned and operated a store and post office (Kummer 1975).

An article in the July 3rd, 1856 issue of the Sarnia Lambton Observer & Western Adviser reported the existence of a small number of structures including two stores, two taverns and three nearby mills (Kearns 1998:12). The mill sites are shown on an 1855 plan of Inverhuron (Miller 1855). The directory of Canada for 1857-1858 records the Town of Inverhuron as having a population of 50 individuals (Kummer 1975).

Early on, the focal point for both residence and industry was the Lake Huron shoreline. At its peak, Inverhuron had a population of 200 and shipped as many as 100,000 bushels of grain from its port during a single season (Robertson 1906:323). Its size and organization at this point can be seen on an 1880 historic map of Bruce County. While the 1880 map shows that several streets were laid out, it does not show many individual structures. The town's success continued until a large fire on April 13, 1882, destroyed three warehouses that contained as many as 9,000 bushels of grain (Kummer 1975; Kearns 1998:19). Inverhuron, as a major exporter of grain, never recovered from this fire. A second fire in 1887 reduced most of the original town to rubble (Danyleyko 2007). The current community of Inverhuron, which began to take shape in the early 1900s, is located southeast of the original plot of some fifty years earlier.

An investigation of historic settlements in Inverhuron Provincial Park was conducted by Robert Gordon in 1971, and twenty cement cairns were erected to mark the locations of specific sites. The Old School site, for example, represents the location of the former Inverhuron Union School, Section No.1, that operated from 1854 to 1953 in the northeast corner of Victoria and Cayley Streets (Emerson and Swayze 1972; Wright 1952/53:28 in Fitzgerald 2001:32).

2.3.8 Review of Historic Maps

The project area falls within Lot 1, Lake Range Concession, Bruce Township, Bruce County, Ontario. No names or structures are depicted within or near the project area on the 1855 town plot of Inverhuron, though Lot 1 has been separated into smaller parcels (Map 9). Bruce Road 15, Albert Road, Victoria Street and John Street are depicted as open at this time. Similarly, no structures are shown within the project area on the 1880 supplement map of Bruce County, although the project area is shown within the community of Inverhuron (Map 10). Bruce Road 15, Albert Road, Victoria Street and John Street remain open.

Topographic mapping from 1946 depicts a post office near the project area, to the west (Map 11; upper left). Buildings line the lakeshore and Victoria Street; several front Bruce Road 15. A review of a 1954 aerial photograph shows that the project area, and the general area surrounding it, is characterized as woodlot or forested as of this date, with very few clear structures but visible roads (Map 11; upper right). By 2006, the area has seen some urban development though wooded areas continue to border the project area to the north (Map 11; lower left); the project area now has the playground structure, a small baseball diamond to the north, and gravel laneway. A paved and fenced utility box was placed in the western corner by 2015 (Map 11; lower right).

2.3.9 Review of Heritage Properties

There are no designated heritage properties or plaques within 50 m of the project area.

2.4 Analysis and Conclusions

As noted in Section 2.1, the Province of Ontario has identified numerous factors that signal the potential of a property to contain archaeological resources. Based on the archaeological and historical context reviewed above, the project area is in proximity (i.e., within 300 m) to features that signal archaeological potential, namely:

- mapped 19th-century thoroughfares (Bruce Road 15, Albert Road, Victoria Street and John Street);
- registered archaeological sites (BbHj-4 and BbHj-44); and,
- a primary water source (Lake Huron).

2.5 Recommendations

Given that the project area demonstrated potential for the discovery of archaeological resources, a Stage 2 archaeological assessment was recommended. In keeping with provincial standards, the areas within the project area that consist of grassed or treed areas are recommended for assessment by a test pit survey at a 5 m transect interval to achieve the provincial standard. As the project area is considered to have archaeological potential pending Stage 2 field inspection, a separate map detailing zones of archaeological potential is not provided herein (MTC 2011; Section 7.7.4, Standard 1 and Section 7.7.6, Standards 1 and 2).

3 STAGE 2 ARCHAEOLOGICAL ASSESSMENT

3.1 Field Methods

All fieldwork was undertaken in good weather and lighting conditions. No conditions were encountered that would hinder the identification or recovery of artifacts. The project area boundaries were determined in the field based on proponent mapping and landscape features.

The project area is comprised of non-ploughable lands (manicured grass), a gravelled laneway leading to a paved basketball court, a former baseball diamond, and a paved playground. As such, the project area was subject to a standard test pit assessment, employing a 5 m transect interval (77.5%; 0.31 ha; Images 1 and 2). Test pits measuring at least 30 cm (shovel-width) were excavated through the first 5 cm of subsoil with all fill screened through 6 mm hardware cloth. Once screening was finished, the stratigraphy in the test pits was examined and then the pits were backfilled as best as possible, tamped down by foot and shovel and re-capped with sod. Test pitting extended up to 1 m from all standing features, including trees and buildings, when present.

It was anticipated that when cultural material was found, the test pit survey would be intensified (reduced to 2.5 m) to determine the size of the site. If not enough archaeological materials were recovered from the intensification test pits, a 1 m^2 test unit would be excavated atop of one of the positive test pits to gather additional information.

Test pits throughout the project area exhibited noticeable variation in depth and stratigraphy that required a deep test survey throughout. This was especially important given the known presence of deeply buried sites within the general vicinity of the project area. The soil layers encountered here are likely a reflection of past shorelines, with the uppers layers representing more recent soil deposition overtop the former cobble beach, which lays on top of the C horizon, represented by bedrock. Impacts from potential grading and landscaping events were occasionally visible in the upper soils layers.

Within the western corner, Stratigraphic Profile #1 was encountered. Test pits contained four layers: Layer 1 (0 – 10 cm) was brown sandy loam; Layer 2 (15 – 50 cm) was light brown sand with limestone and cobble intrusions; Layer 3 (50 – 85 cm) was gray coarse sand with large cobble/shell intrusions; and Layer 4 (85 cm) was gray-white bedrock (Image 3). Buried utilities lined this area, running roughly parallel to Bruce Road, and two solar panels are present in a small paved and fenced area at the northwestern-most corner.

Across the centre of the project area, Stratigraphic Profile # 2 was encountered. The four layers consisted of: Layer 1 (0 – 15 cm), brown sandy loam; Layer 2 (15 – 35 cm), dark brown sand with small cobble intrusions and gray sand mottling; Layer 3 (35 – 50 cm), gray coarse sand with large cobble intrusions; and Layer 4 (50 cm), gray-white bedrock (Image 4). This section appears slightly gravelled in the 2006 aerial photo (Map 11; lower left).

The north and south portions of the project area likewise contained four layers, and was identified as Stratigraphic Profile #3: Layer 1 (0 – 10 cm), brown sandy loam; Layer 2 (10 – 40 cm), gray/light brown sand with compact pea pebbles/large cobble intrusions; Layer 3 (40 – 65 cm), dark brown coarse sand with compact small and large cobble intrusions with pockets of yellow silt pocket; and Layer 4 (65 cm), gray-white bedrock (Image 5). A baseball diamond was once placed at the northern corner (Map 11; lower left) but has since grown over with grass, leaving only the backstop fence.

As per Section 2.1, Standard 2 of the *Standards and Guidelines* (MTC 2011:28-29), certain physical features and deep land alterations are considered as having low archaeological potential and are thus exempt from the standard test pit survey. Approximately 22.5% (0.09 ha) of the project area was disturbed, consisting of the existing gravel laneway, paved basketball court, and paved playground which was situated atop a sandy berm (Images 6 - 8). These areas were photo-documented.

Map 12 illustrates the Stage 2 field conditions and assessment methods; the location and orientation of all photographs appearing in this report are also shown on this map. No attempt was made to present the Stage 2 results on the proponent mapping. The proponent mapping was supplied as a KMZ file and it was confirmed that the survey should be limited to the open lands, as the treed area would not be impacted by the undertaking. An unaltered proponent map showing the municipal parcel is provided as Map 13. Map 14 presents the summary of archaeological potential for the entirety of the municipal parcel.

3.2 Record of Finds

No archaeological materials or sites were identified during the Stage 2 archaeological assessment of the project area. Table 4 provides an inventory of the documentary records generated during this project.

All files are currently being stored at the TMHC corporate office located at 1108 Dundas Street, Unit 105, London, ON, N5W 3A7.

Table 4: Documentary Records

Date	Field Notes	Field Maps	Digital Images
June 19, 2024	Digital and hard copies	Digital and hard copies	34 images
June 20, 2024	Digital and hard copies	Digital and hard copies	26 images

3.3 Analysis and Conclusions

A Stage 2 field assessment was conducted in keeping with the MCM's *Standards and Guidelines* (MTC 2011). The test pit survey did not result in the documentation of archaeological resources.

3.4 Recommendations

All work met provincial standards and no archaeological material was documented during the assessment. As such, no further archaeological assessment is recommended (Map 12).

Should proposed impacts extend beyond the lands assessed for this project, then additional assessment may be required (Map 14). It is also noted that portion of the property parcel along its northern edge was also previously assessed and was not recommended for further assessment (PIF P349-057-2012).

These recommendations are subject to the conditions laid out in Section 5.0 of this report and to the MCM's review and acceptance of this report into the provincial register.

4 SUMMARY

A Stage 1 and 2 archaeological assessment was conducted as part of the Tiverton Water Supply Environmental Assessment to investigate options for increasing the water supply in the community of Tiverton, Municipality of Kincardine, Ontario. The project area is roughly 0.4 ha (0.99 ac) in size and is located within Lot 1, Lake Range Concession, in the Geographic Township of Bruce, Bruce County. The Stage 1 assessment revealed that the project area had potential for the discovery of archaeological resources and a Stage 2 survey was recommended and carried out. The Stage 2 assessment (test pit assessment at a 5 m interval) did not result in the documentation of archaeological resources. As such, no further archaeological assessment is recommended.

5 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the MCM as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the MCM, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented (i.e., unknown or deeply buried) archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act.*

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and Ian Hember, Registrar of Burial Sites, Ontario Ministry of Public and Business Service Delivery. His telephone number is 416-212-7499 and e-mail address is Ian.Hember@ontario.ca.

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7 IMAGES

Image 1: Test Pit Survey at 5 m Interval

Looking North; Note Utility Markers, Gravel Driveway



Image 2: Test Pit Survey at 5 m Interval

Looking Northeast



Image 3: Typical Test Pit in Western Corner



Image 4: Typical Test Pit at Centre, Northeast of Playground



Image 5: Typical Test Pit, South of Former Baseball Diamond



Image 6: Gravel Laneway

Looking Southwest



Image 7: Paved Basketball Court

Looking Northwest

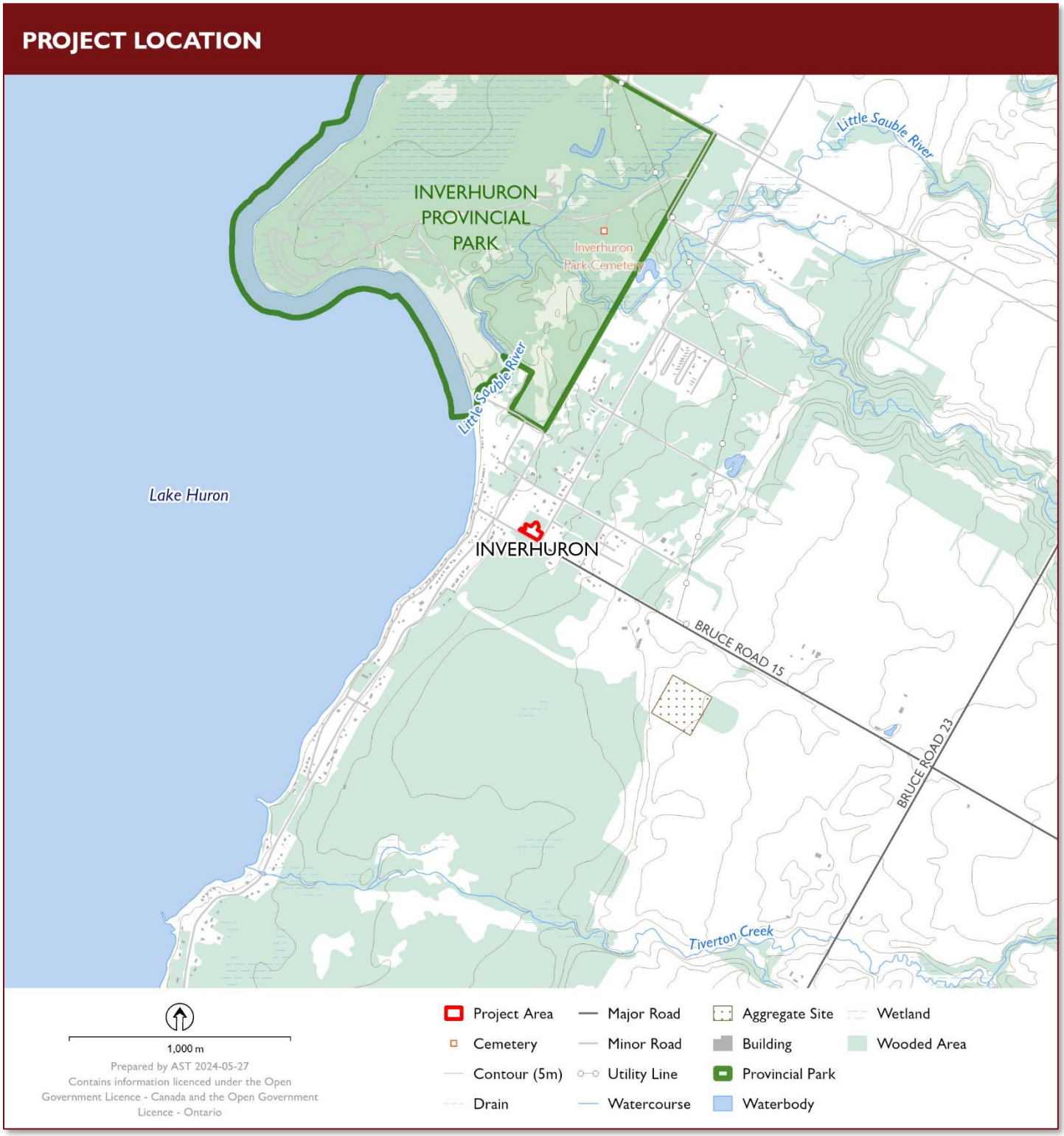


Image 8: Berm Around Playground

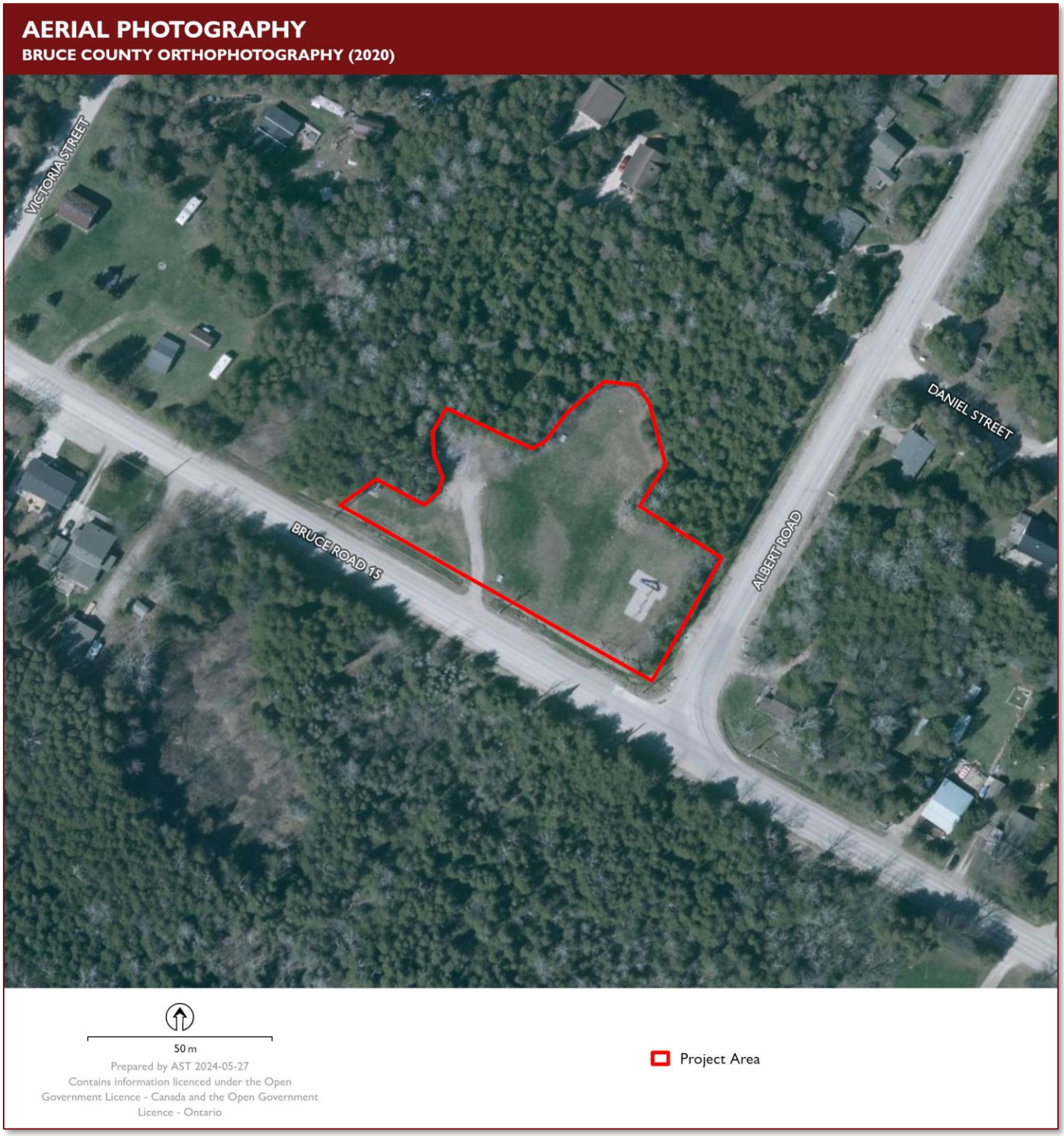
Looking Northeast



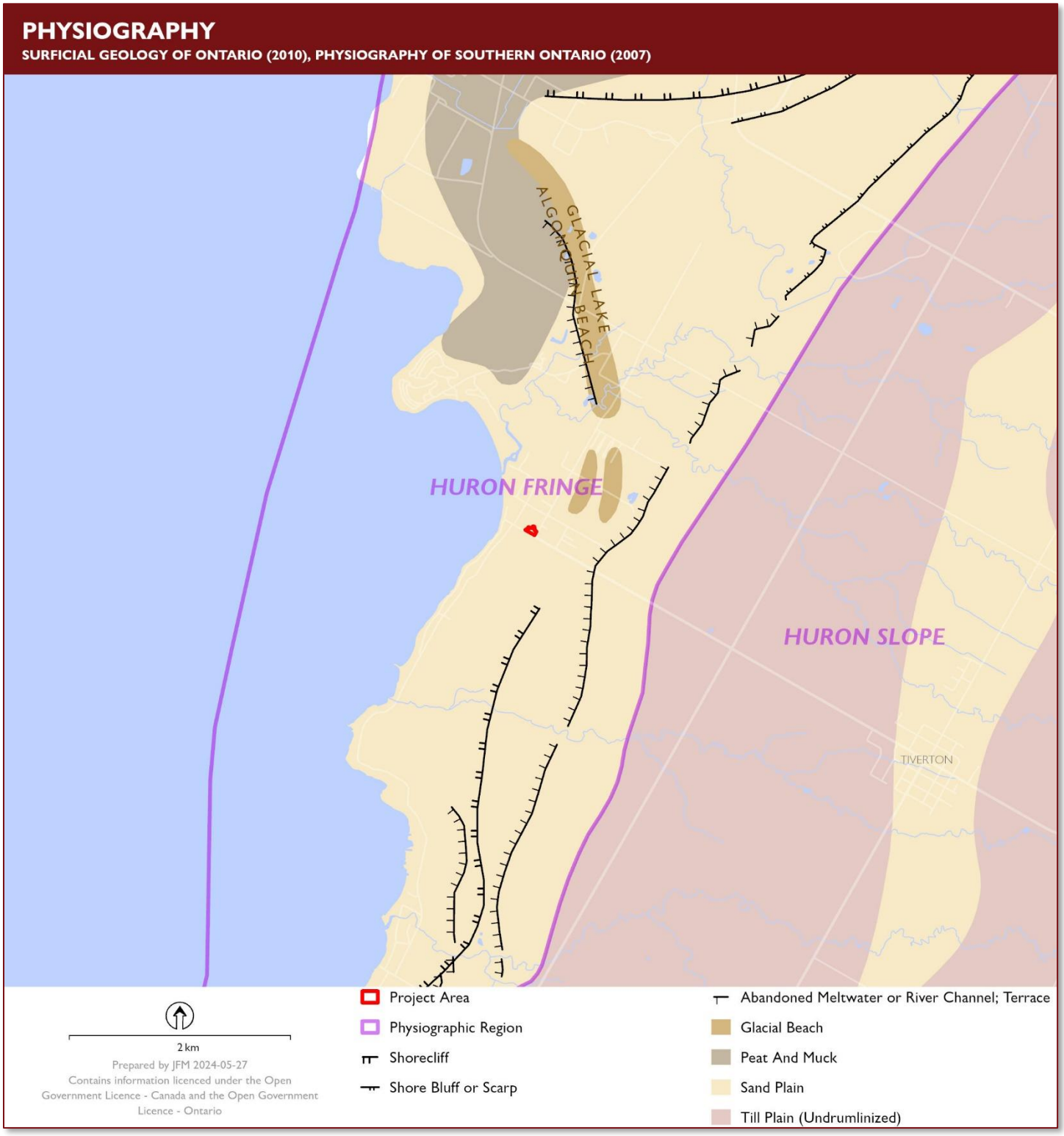
8 MAPS



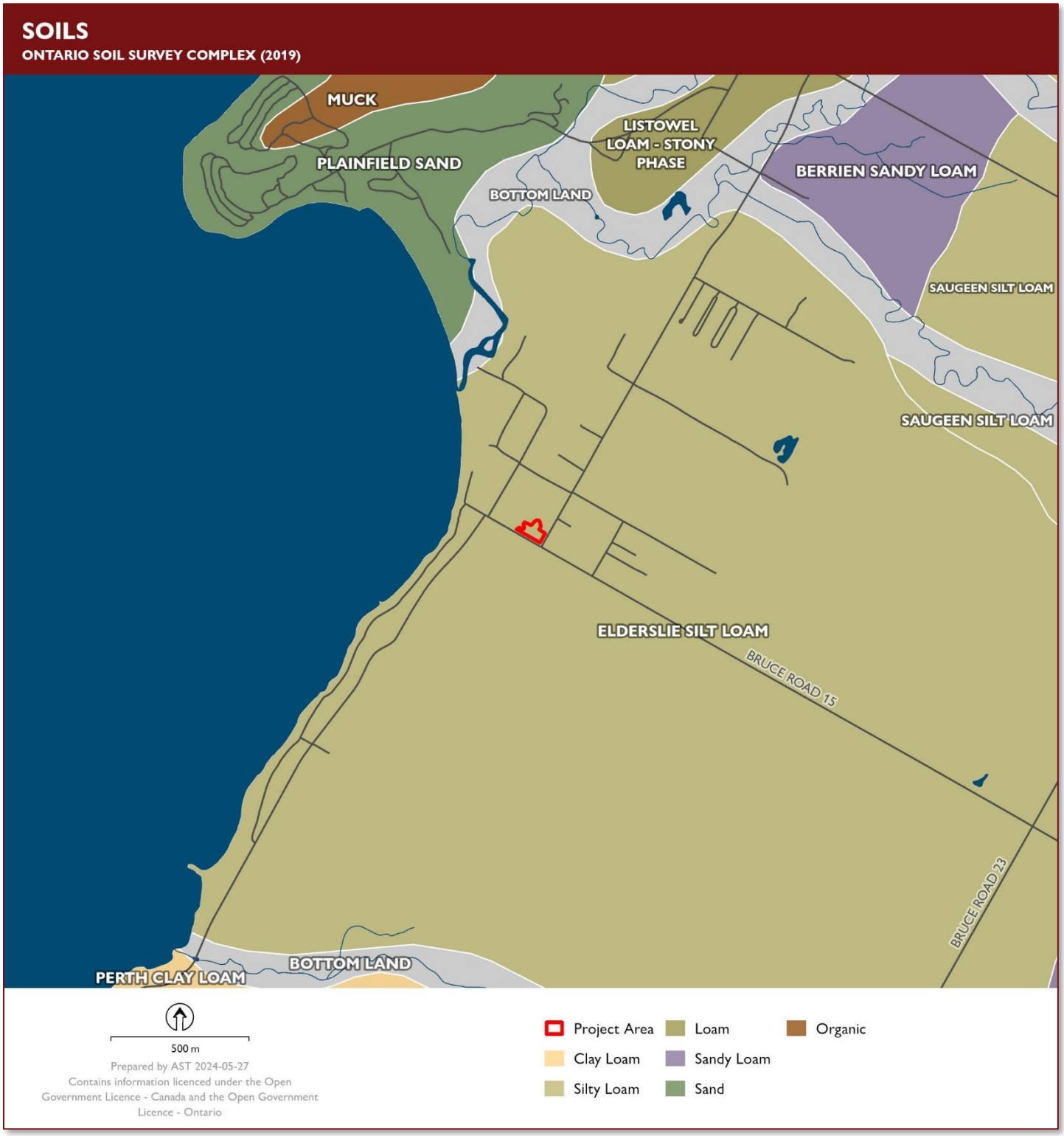
Map 1: Location of the Project Area in Bruce County, ON



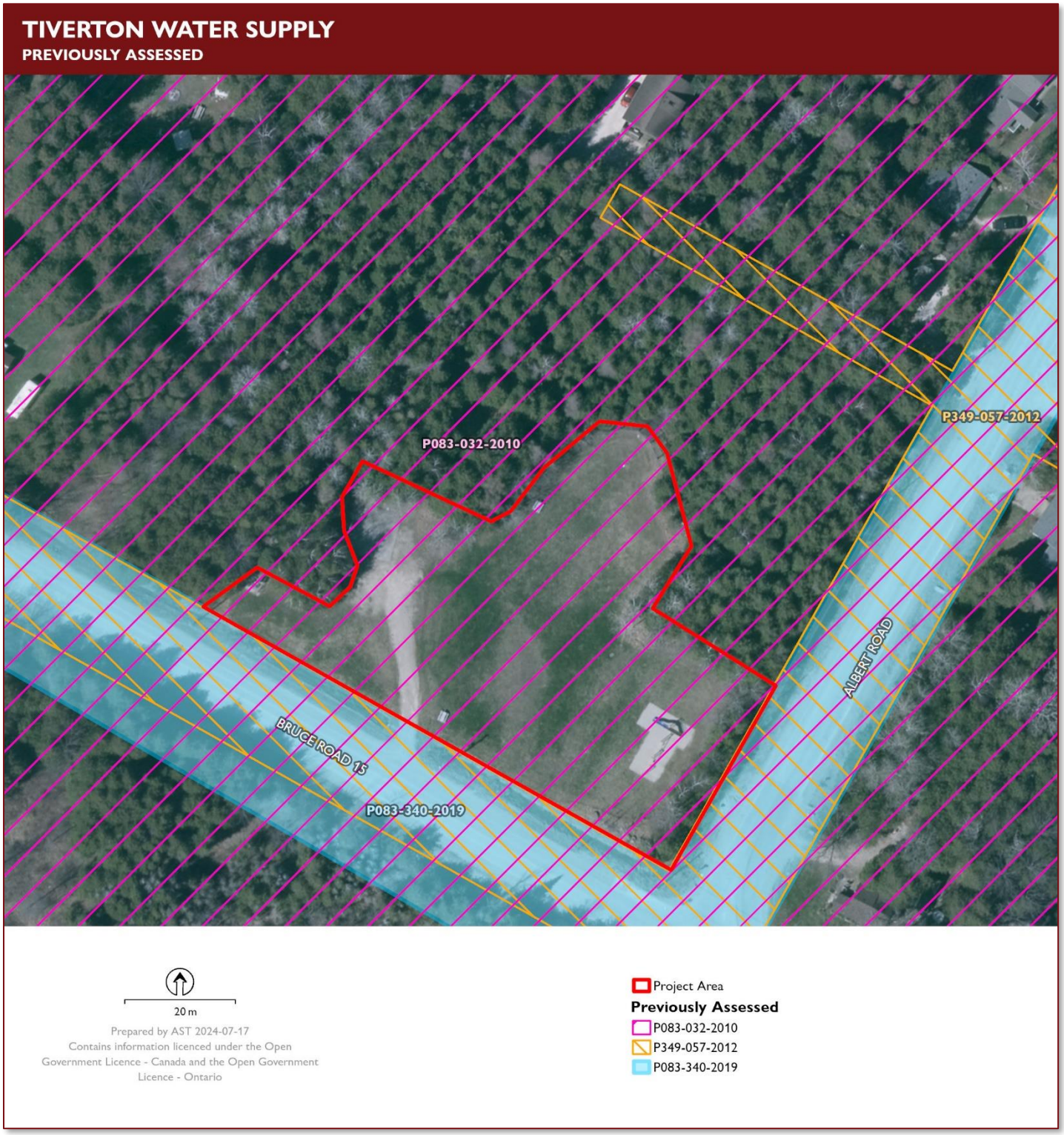
Map 2: Aerial Photograph Showing the Location of the Project Area



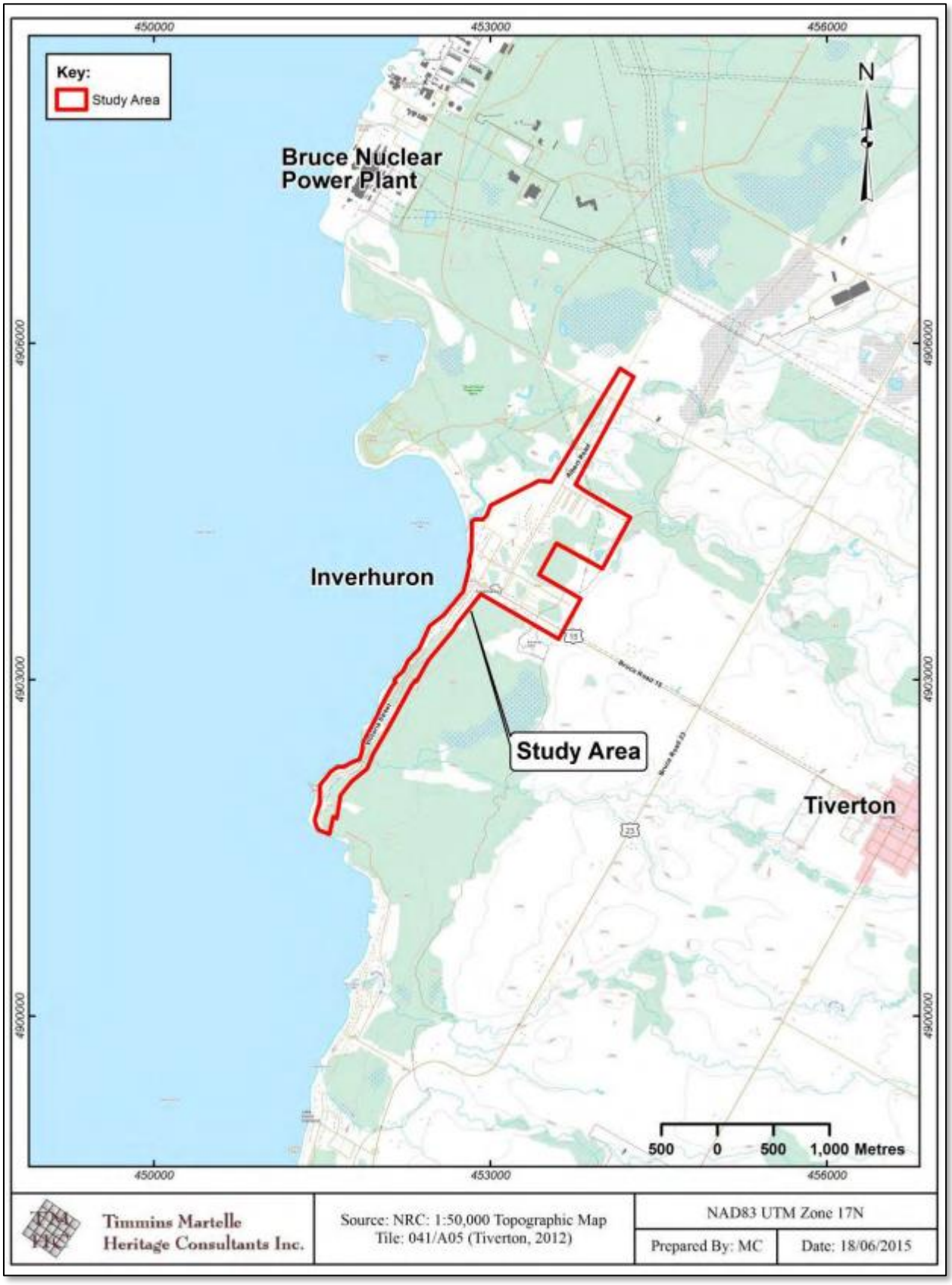
Map 3: Physiography Within the Vicinity of the Project Area



Map 4: Soils Within the Vicinity of the Project Area



Map 5: Overview of Previous Assessments within 50 m



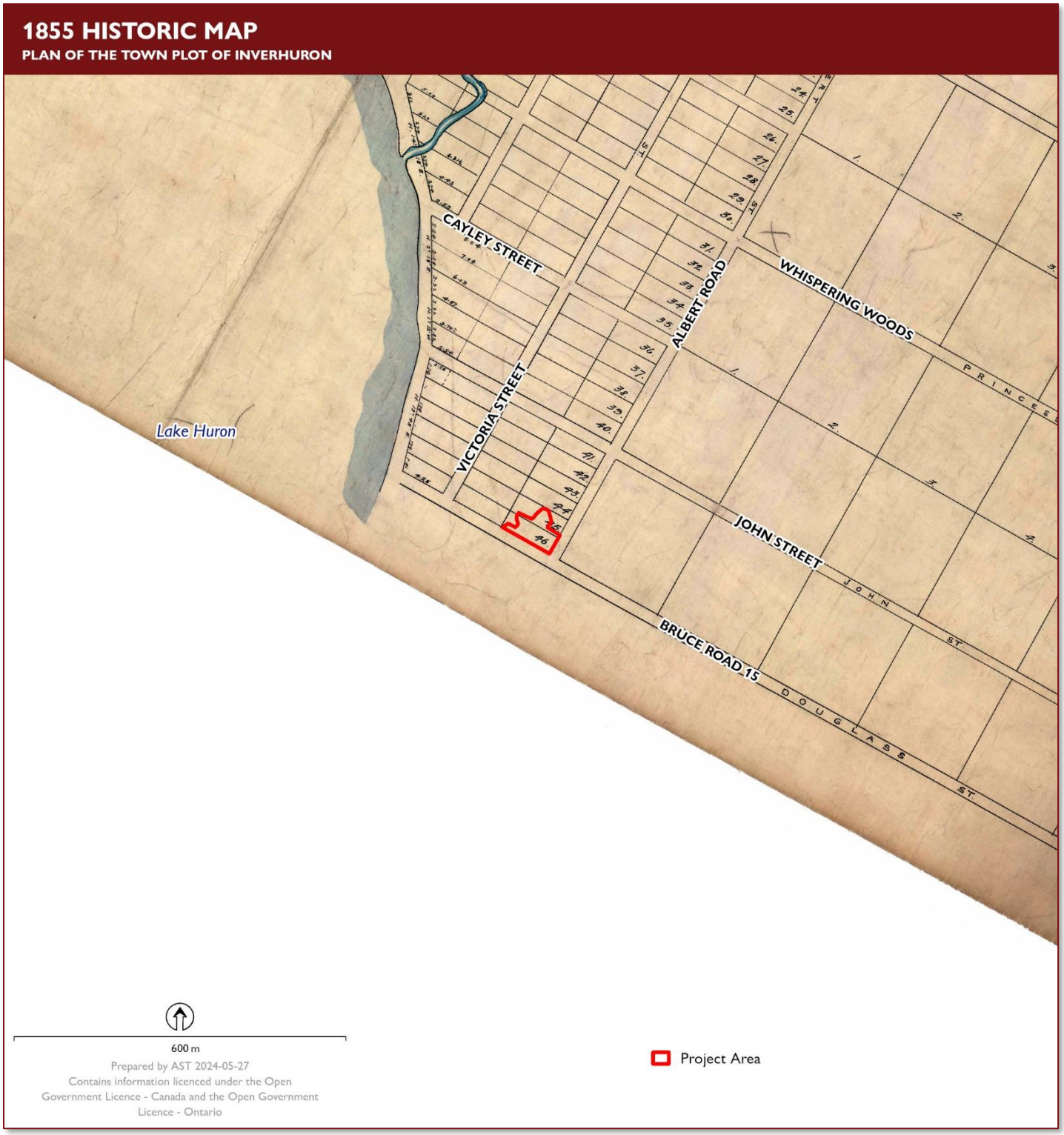
Map 6: Water and Sanitary Sewer Improvements, Previous Stage 1 Archaeological Assessment (TMHC 2011)



Map 7: Water and Sanitary Sewage Servicing, Previous Stage 2 Archaeological Assessment (TMHC 2015)



Map 8: Southern Bruce Natural Gas Pipeline (Stantec 2020)



Map 9: Location of the Project Area Shown on the 1855 Plan of the Town Plot of Inverhuron



Map 10: Location of the Project Area Shown on the 1880 Map of Bruce County

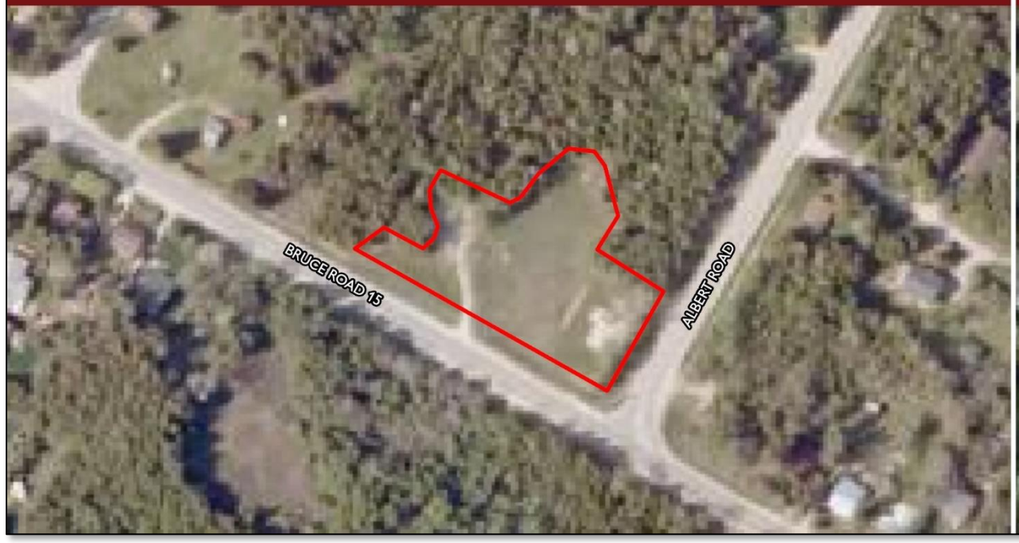
1946 TOPOGRAPHIC MAP
DEPARTMENT OF NATIONAL DEFENCE



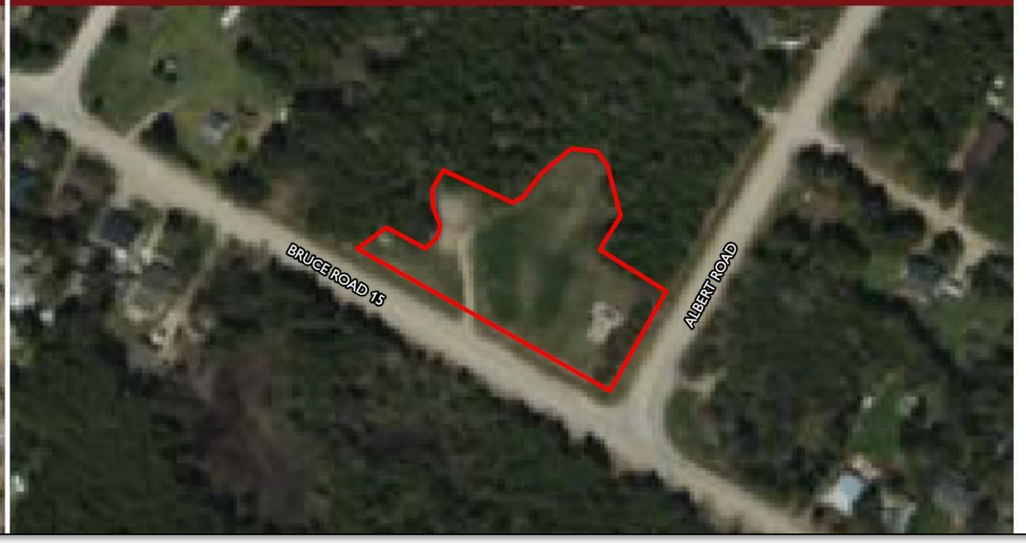
1954 ORTHOPHOTOGRAPHY
DEPARTMENT OF LANDS AND FORESTS



2006 ORTHOPHOTOGRAPHY
BRUCE COUNTY ORTHOPHOTOGRAPHY



2015 ORTHOPHOTOGRAPHY
BRUCE COUNTY ORTHOPHOTOGRAPHY



HISTORIC MAPS

Project Area

400 m

Prepared by AST 2024-06-25

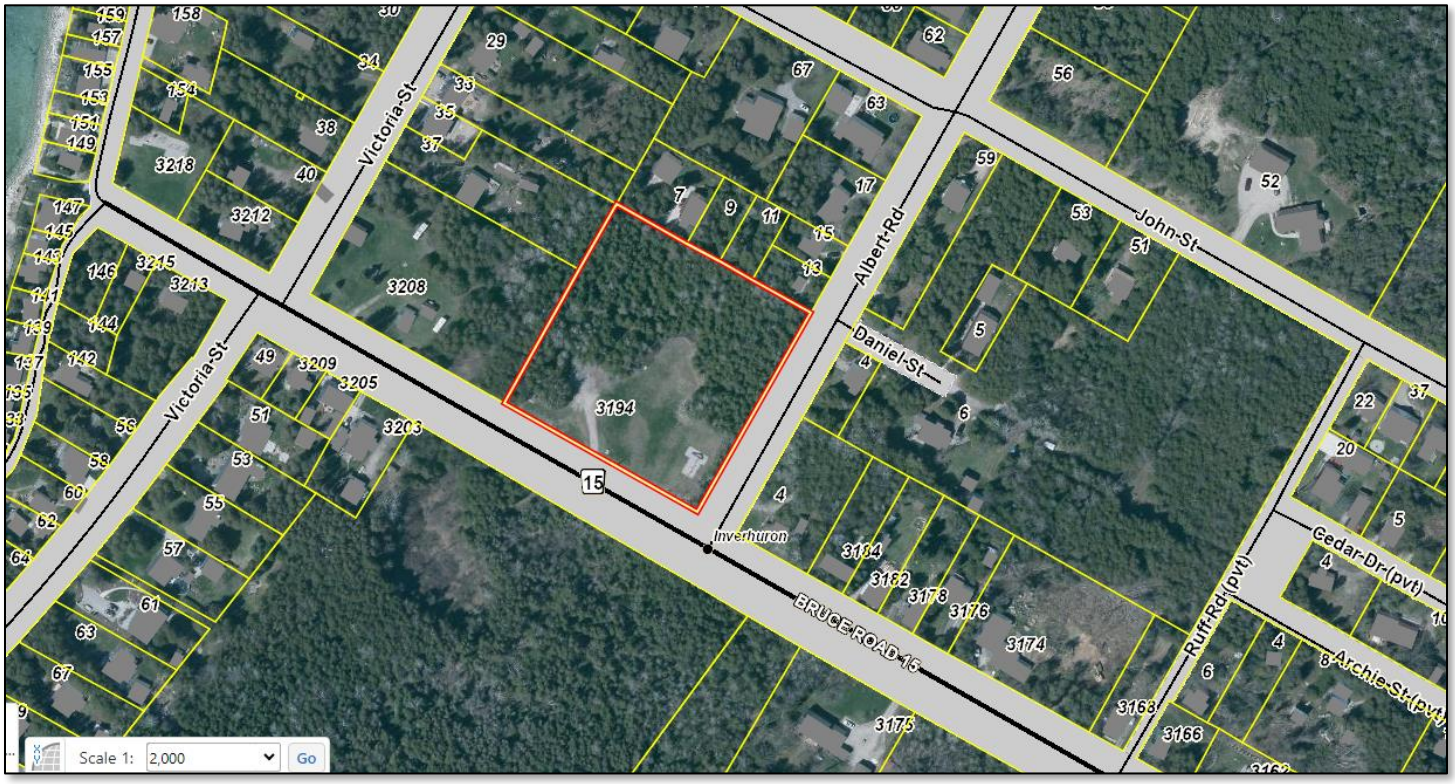
Contains information licenced under the Open Government Licence - Canada and the Open Government Licence - Ontario



Map 11: Location of the Project Area on a 1946 Topographic Map, and 1954, 2006, and 2015 Aerial Imagery



Map 12: Stage 2 Field Conditions and Assessment Methods



Map 13: Unaltered Proponent Mapping Depicting Property Parcel
Note: Directions Provided by Proponent to Restrict Project Area to Open (Un-treed) Lands



Map 14: Summary of Archaeological Potential

Stage 1-2 Archaeological Assessment
Tiverton Water Supply EA
3194 Bruce Road 15, Inverhuron
Part of Lot 1, Lake Range Concession
Geographic Township of Bruce
Municipality of Kincardine
Bruce County, Ontario

SUPPLEMENTARY DOCUMENTATION

NOT FOR PUBLIC CIRCULATION

Licensee: Amanda Parks, MA (P450)

PIF No: P450-0132-2024

Project No: 2024-195

Dated: July 17, 2024

Summary of Indigenous Engagement

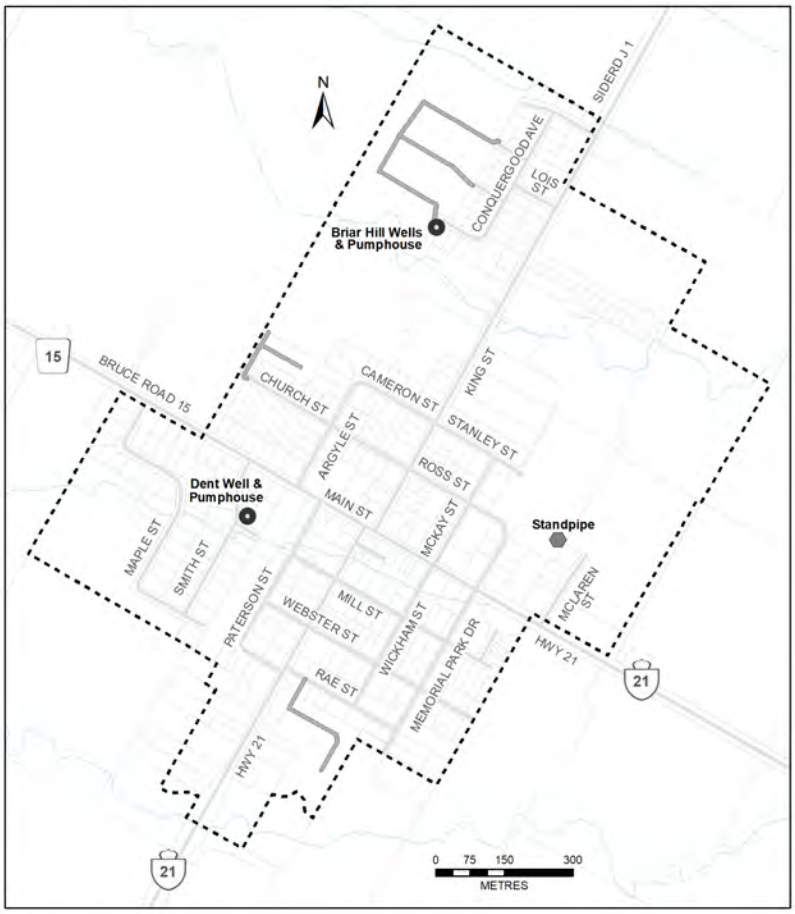
Saugeen Ojibway Nation (SON) was engaged as part of this project. Initial engagement and communications regarding fieldwork were directed through email by BM Ross, on behalf of the Municipality of Kincardine. Amanda Parks of TMHC circulated deployment information. A representative from SON was present during the Stage 2 fieldwork for fulsome participation, including discussions around test pitting strategies and results. A copy of the report will be provided to SON for review and comment prior to the submission of this report to the MCM.

Appendix C

Consultation Materials

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

NOTICE OF COMMENCEMENT



THE PROJECT:

The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The current system services 372 connections from groundwater wells. The 2022 Water and Wastewater Servicing Master Plan Update identified the need for additional water supply capacity to accommodate future development within the community. The MCEA will investigate options to increase water supply, such as additional groundwater wells and connecting to the Kincardine Drinking Water System.

THE ENVIRONMENTAL SCREENING PROCESS:

The planning for this project follows the environmental screening process set out for Schedule B activities under the MCEA process. The purpose of the MCEA process is to inform the public of the scope and commencement of the project. The process includes consultation with the public, stakeholders, Aboriginal communities, and review agencies.

PUBLIC INVOLVEMENT:

Public input and comments are invited for incorporation into the planning and design of this project. Initial comments are welcomed and will be received by **May 24, 2024**. Comments may be provided to the study team at B. M. Ross and Associates (contact information below). Any comments collected in conjunction with the study will be maintained on file for use during the project and may be included in the project documentation. With the exception of personal information, all comments will become part of the public record. A public meeting will be held at a future date.

For further information on this project, or to review the Municipal Class EA process, please contact the consulting engineers: B.M. Ross and Associates: 62 North Street, Goderich, Ontario, N7A 2T4. Telephone (519) 524-2641. Lisa Courtney, Environmental Planner (e-mail: lcourtney@bmross.net). Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team member listed above.

Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

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

File No. 24014

VIA EMAIL ONLY

May 2, 2024

Review Agency
(See attached list)

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System.

The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The current system services 372 connections from groundwater wells. The 2022 Water and Wastewater Servicing Master Plan Update identified the need for additional water supply capacity to accommodate future development within the community. The MCEA will investigate options to increase water supply, such as additional groundwater wells and connecting to the Kincardine Drinking Water System.

The planning for this project follows the environmental screening process established for Schedule 'B' activities under the MCEA document. Schedule 'B' projects are approved but subject to a screening process that incorporates phases 1 and 2 of the class EA process. The purpose of the Environmental Assessment process is to inform the public of the scope and commencement of the project. The process includes consultation with the public, stakeholders, Aboriginal communities, and review agencies.

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 May 30, 2024. If you have any questions or require further information, please contact the undersigned at lcourtney@bmross.net or by phone at 1-888-524-2641.

Yours very truly

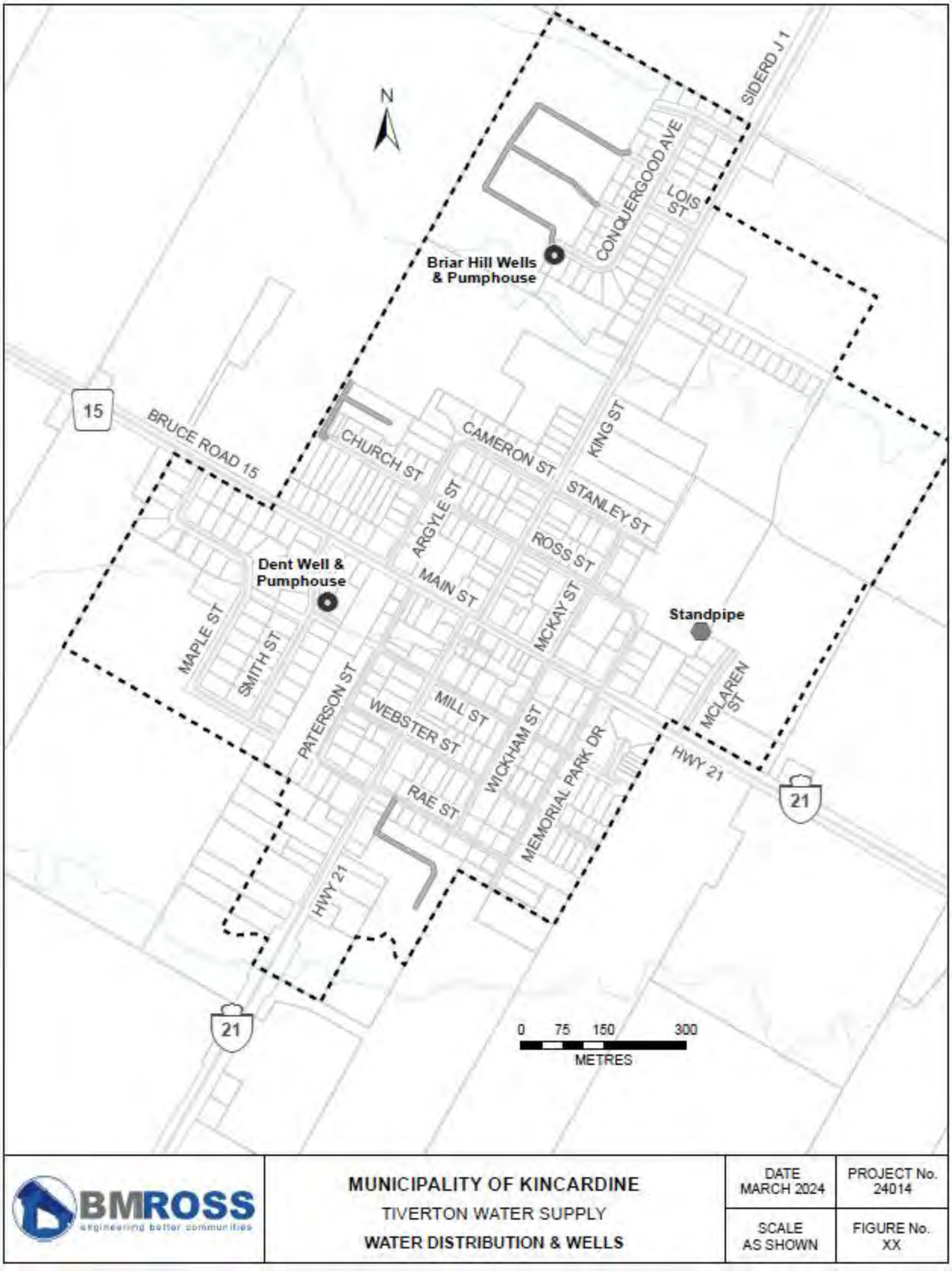
B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

LJC:hv
cc. Adam Weishar, Municipality of Kincardine

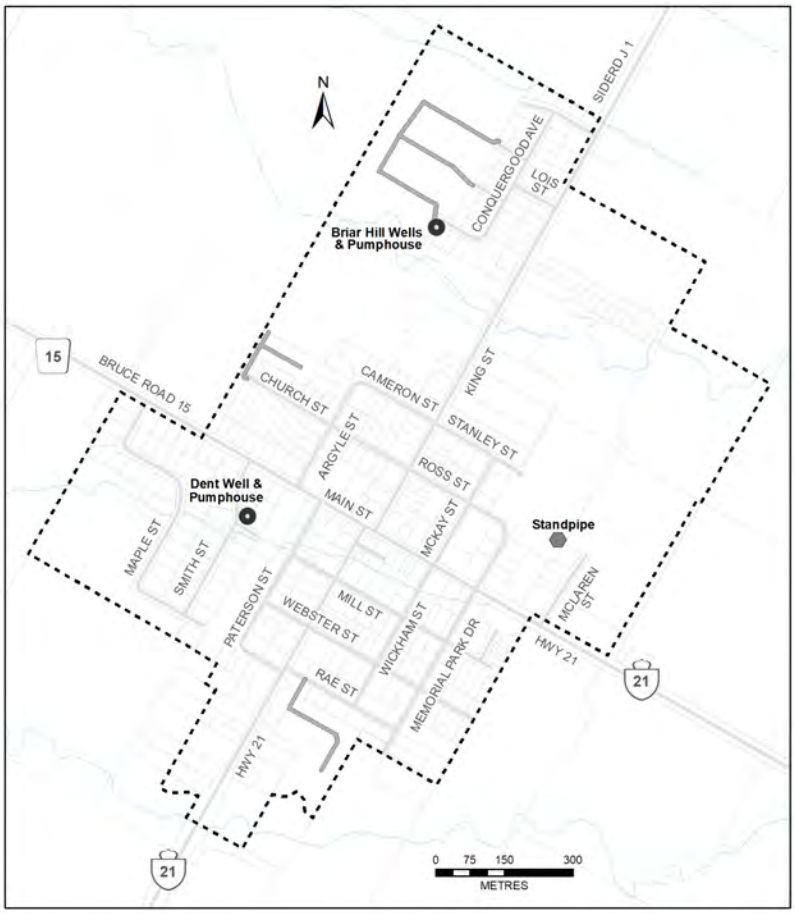
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Figure 1: Key Plan Showing Current Extent of The Community Of Tiverton And Existing Water Supply System



MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

NOTICE OF COMMENCEMENT



THE PROJECT:

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Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

MUNICIPALITY OF KINCARDINE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM - February 2024

Agency	Contact Method	Address	Involvement
Ministry of Environment, Conservation and Parks (London)	Email Notice, Letter and Project Information Form	Monika Macki Regional Environmental Planner (REP) – Southwest Region Email: monika.macki@ontario.ca Southwest Region Ministry Regional Office Email: eanotification.swregion@ontario.ca	Mandatory Contact
Ministry of Citizenship and Multiculturalism	Email Notice and letter	Karla Barboza, Team Lead (A), Heritage Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7 Email: karla.barboza@ontario.ca	Potential impacts on cultural and archaeological resources
County of Bruce Planning & Development Department	Email Notice and letter	Planning Department Email: bcplwa@brucecounty.on.ca Christine MacDonald – Chief Administrative Officer Cmacdonald@brucecounty.on.ca	General Information and Implications for Long-Term Development
Saugeen Valley Conservation Authority	Email Notice and letter	Jason Dodds – Environmental Planning Technician Email: jdodds@svca.on.ca	Potential Impact on Natural Features
Saugeen Valley Source Protection	Email Notice and letter	Carl Seider – Project Manager Email: c.seider@waterprotection.ca	Impacts related to Source Water Protection.
Municipality of Kincardine	Email Notice and letter	Adam Weishar, C.E.T- Director of Infrastructure and Development Email: aweishar@kincardine.ca	Proponent (copy)

MUNICIPALITY OF KINCARDINE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM - February 2024

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Ministry of Environment, Conservation and Parks (London)	Email Notice, Letter and Project Information Form	Monika Macki Regional Environmental Planner (REP) – Southwest Region Email: monika.macki@ontario.ca Southwest Region Ministry Regional Office Email: eanotification.swregion@ontario.ca	Mandatory Contact
Ministry of Citizenship and Multiculturalism	Email Notice and letter	Karla Barboza, Team Lead (A), Heritage Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7 Email: karla.barboza@ontario.ca	Potential impacts on cultural and archaeological resources
County of Bruce Planning & Development Department	Email Notice and letter	Planning Department Email: bcplwa@brucecounty.on.ca Christine MacDonald – Chief Administrative Officer Cmacdonald@brucecounty.on.ca	General Information and Implications for Long-Term Development
Saugeen Valley Conservation Authority	Email Notice and letter	Jason Dodds – Environmental Planning Technician Email: jdodds@svca.on.ca	Potential Impact on Natural Features
Saugeen Valley Source Protection	Email Notice and letter	Carl Seider – Project Manager Email: c.seider@waterprotection.ca	Impacts related to Source Water Protection.
Municipality of Kincardine	Email Notice and letter	Adam Weishar, C.E.T- Director of Infrastructure and Development Email: aweishar@kincardine.ca	Proponent (copy)

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p. (519) 524-2641 **www.bmross.net**

File No. 24014

VIA EMAIL ONLY

May 2, 2024

Indigenous Community
(See Attached List)

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

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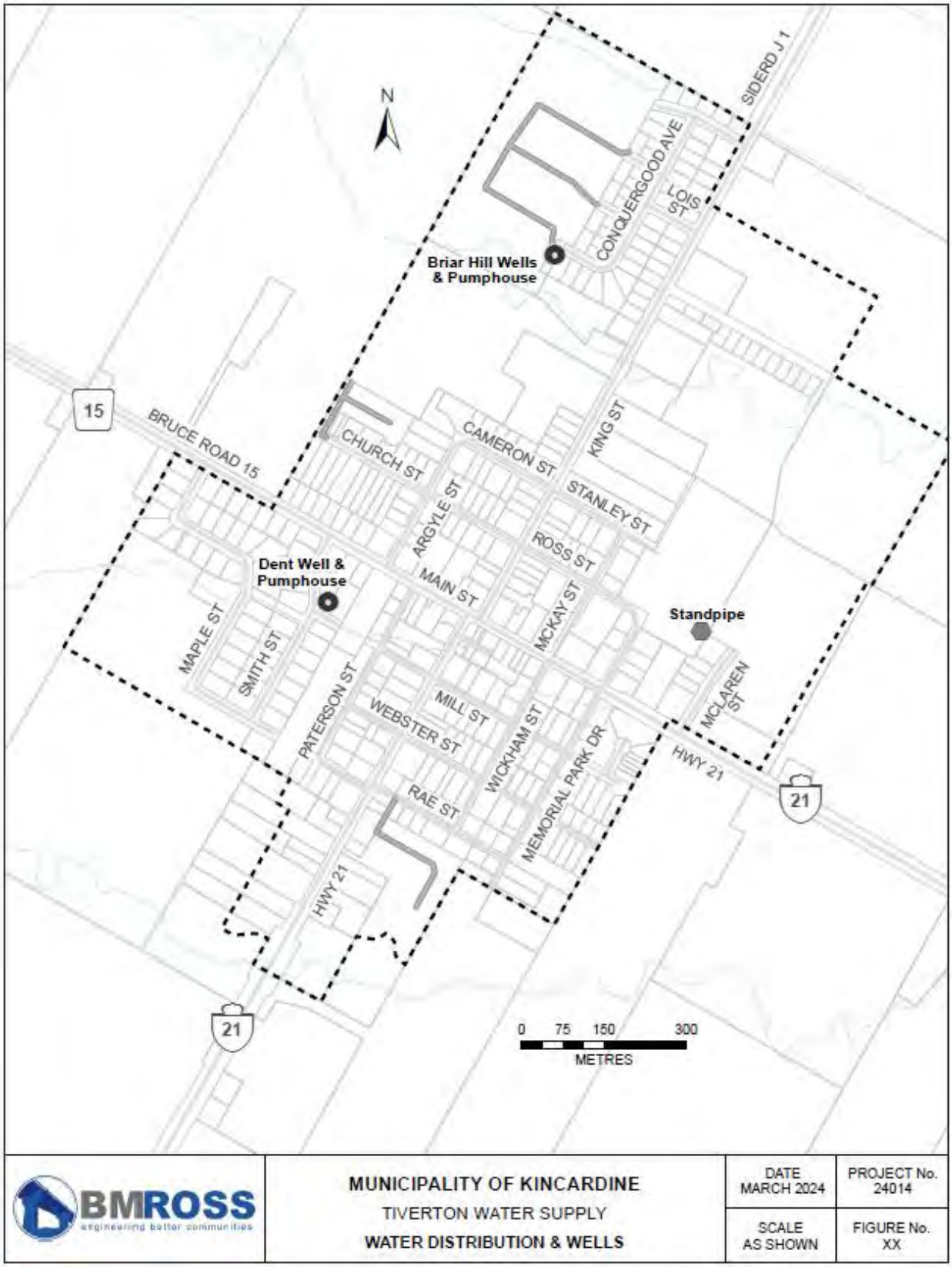
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Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

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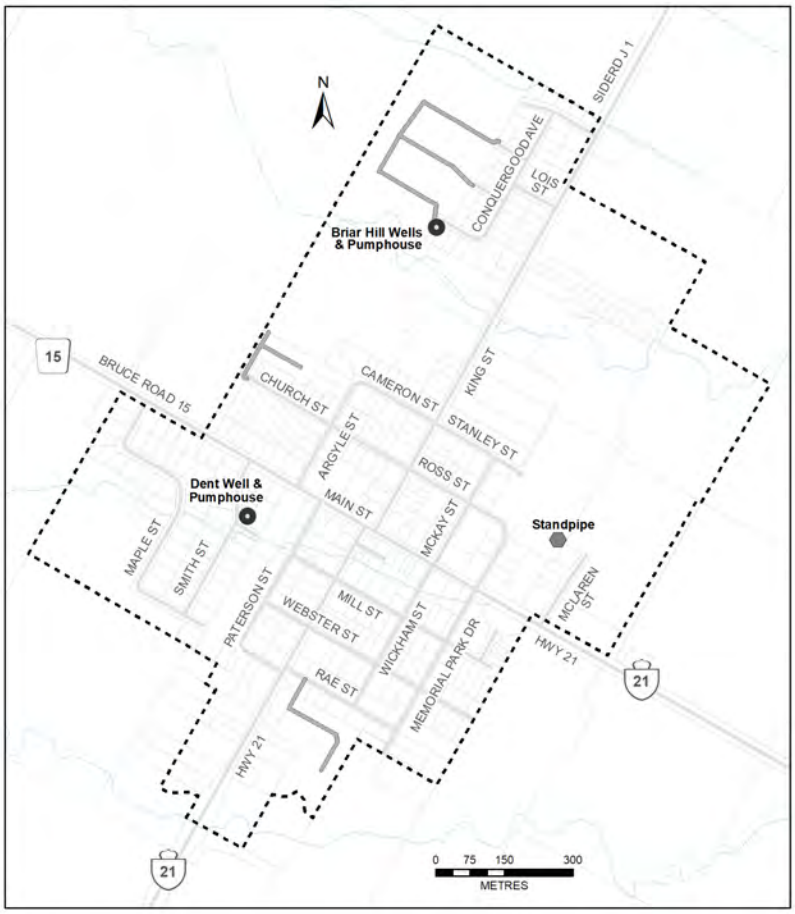
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MUNICIPALITY OF KINCARDINE
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Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

MUNICIPALITY OF KINCARDINE

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM (Job No. 24014)

COMMUNITY	CONTACT METHOD	ADDRESS & EMAIL
Chippewas of Nawash Unceded First Nation	Email Notice and Letter	Chief Gregory Nadjiwon Email: Chief@nawash.ca Cc: chiefsdesk@nawash.ca Address: 135 Lakeshore Blvd. Neyaashiinigmiing, ON N0H 2T0
Chippewas of Saugeen First Nation	Email Notice and Letter	Chief Lester Anoquot Email: lanoquot@saugeenfirstnation.ca cc: sfn@saugeen.org Address: 6493 Highway 21, R.R. #1 Southampton, ON N0H 2L0
Saugeen Ojibway Nation (SON) – Chippewas of Saugeen & Chippewas of Nawash	Email Notice and Letter	Charlene Leonard- Resources & Infrastructure Manager Email: manager.ri@saugeenojibwaynation.ca, cc: execassist.ri@saugeenojibwaynation.ca Address: 25 Maadookii Subdivision Neyaashiinigmiing, ON N0H 2T0
Historic Saugeen Métis	Email Notice and Letter	Georgia McLay, Coordinator, Lands, Waters & Consultation hsmlrcc@bmts.com
Métis Nation of Ontario	Email Notice and Letter	consultations@metisnation.org
Great Lakes Métis Council	Email Notice and Letter	GLMC@metisnation.org

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62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 **www.bmross.net**

File No. 24014

VIA EMAIL ONLY
Chief@nawash.ca
cc: chiefsdesk@nawash.ca

May 2, 2024

Chief Gregory Nadjiwon
Chippewas of Nawash Unceded First Nation

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

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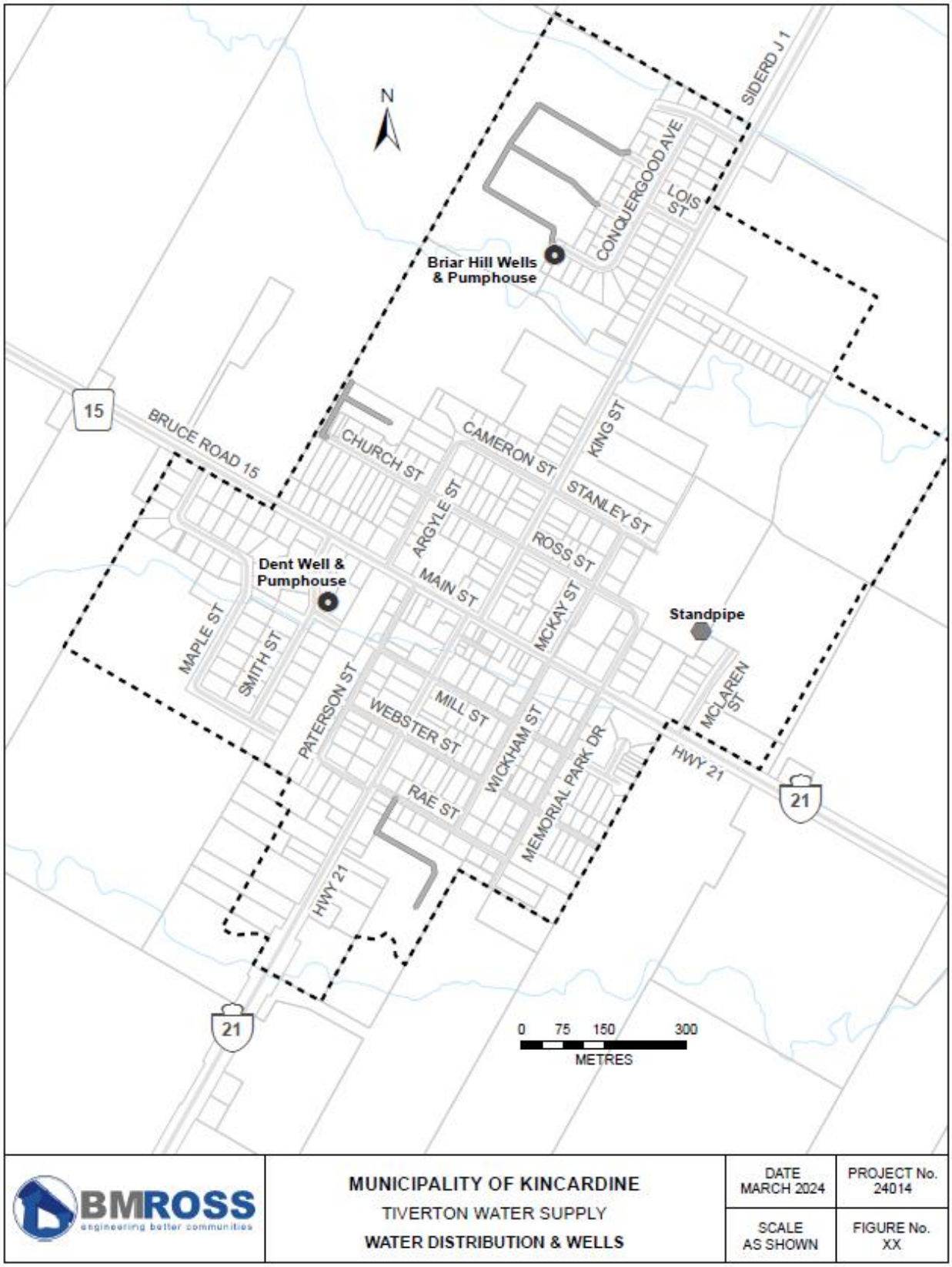
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Per _____
Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

LJC:hv
cc. Adam Weishar, Municipality of Kincardine

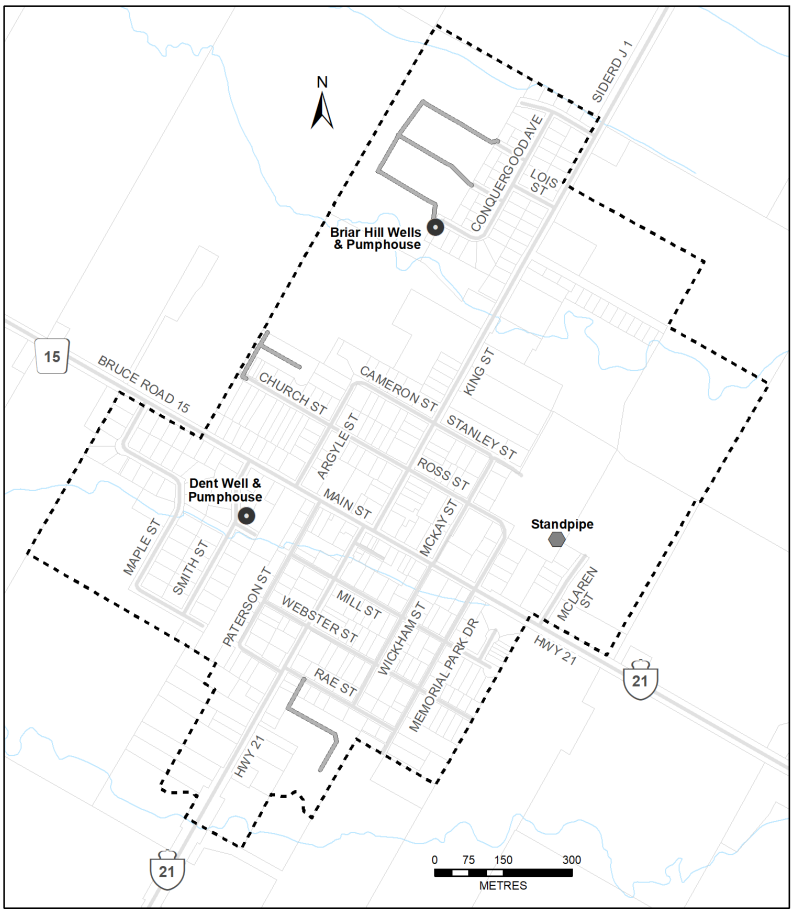
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Municipality of Kincardine

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

File No. 24014

VIA EMAIL ONLY
lanoquot@saugeenfirstnation.ca
cc. sfn@saugeen.org

May 2, 2024

Chief Lester Anoquot
Chippewas of Saugeen First Nation

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

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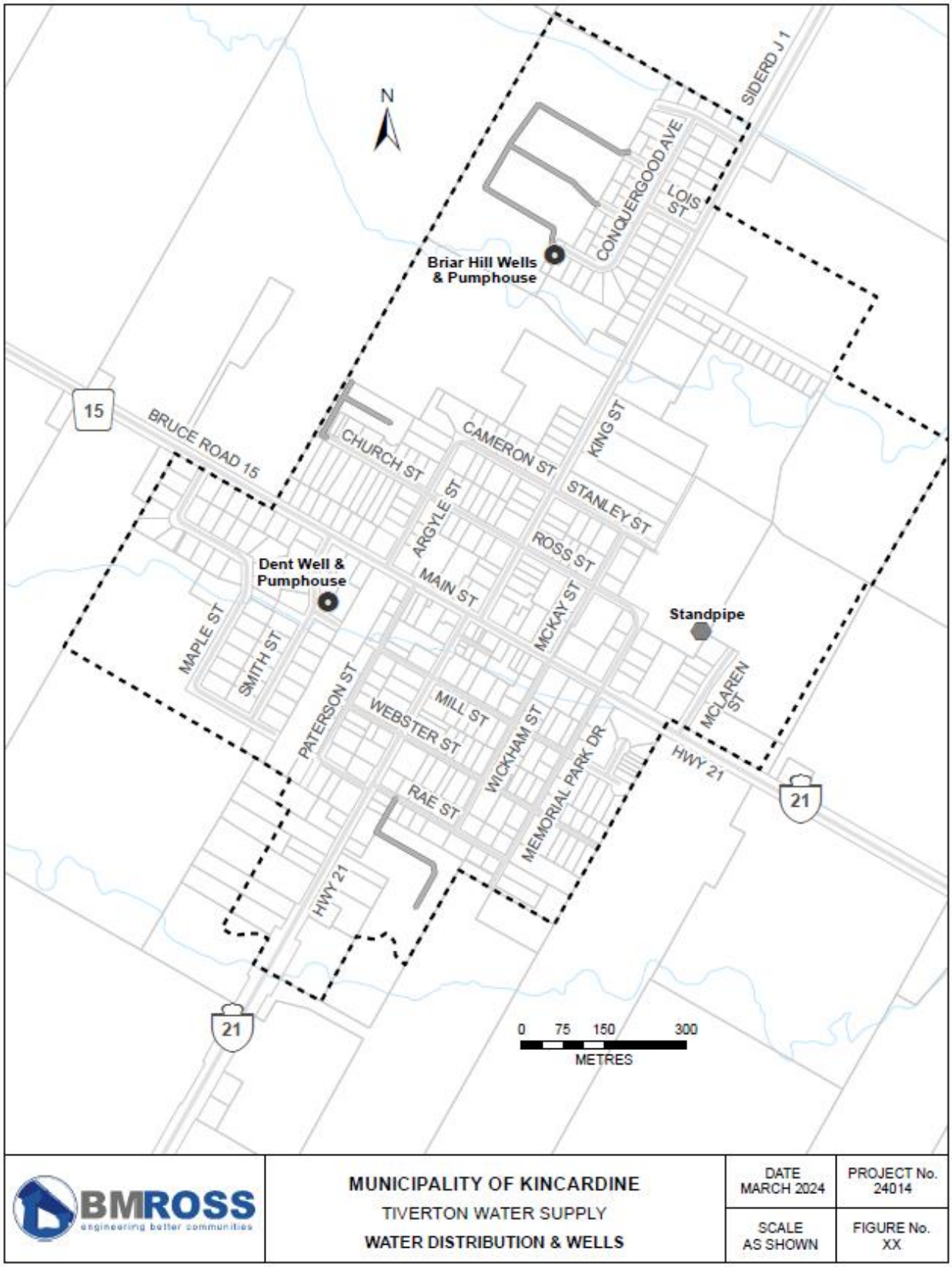
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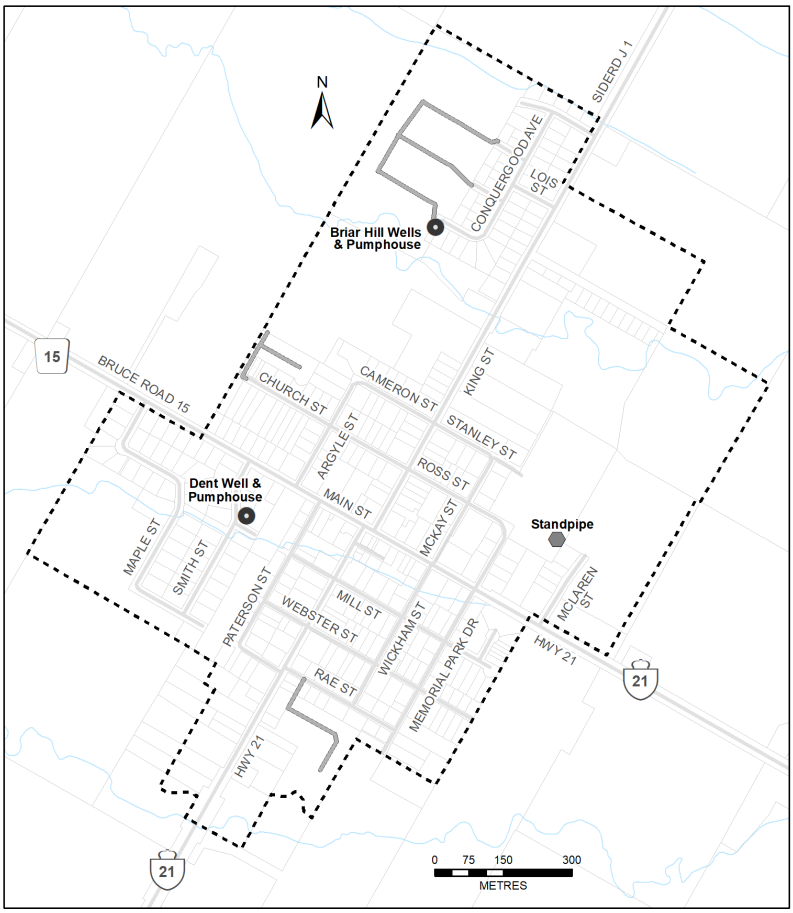
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File No. 24014

VIA EMAIL ONLY
manager.ri@saugeenojibwaynation.ca
cc. execassist.ri@saugeenojibwaynation.ca

May 2, 2024

Saugeen Ojibway Nation (SON) –
Chippewas of Saugeen & Chippewas of Nawash
Charlene Leonard
Resources & Infrastructure Manager

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

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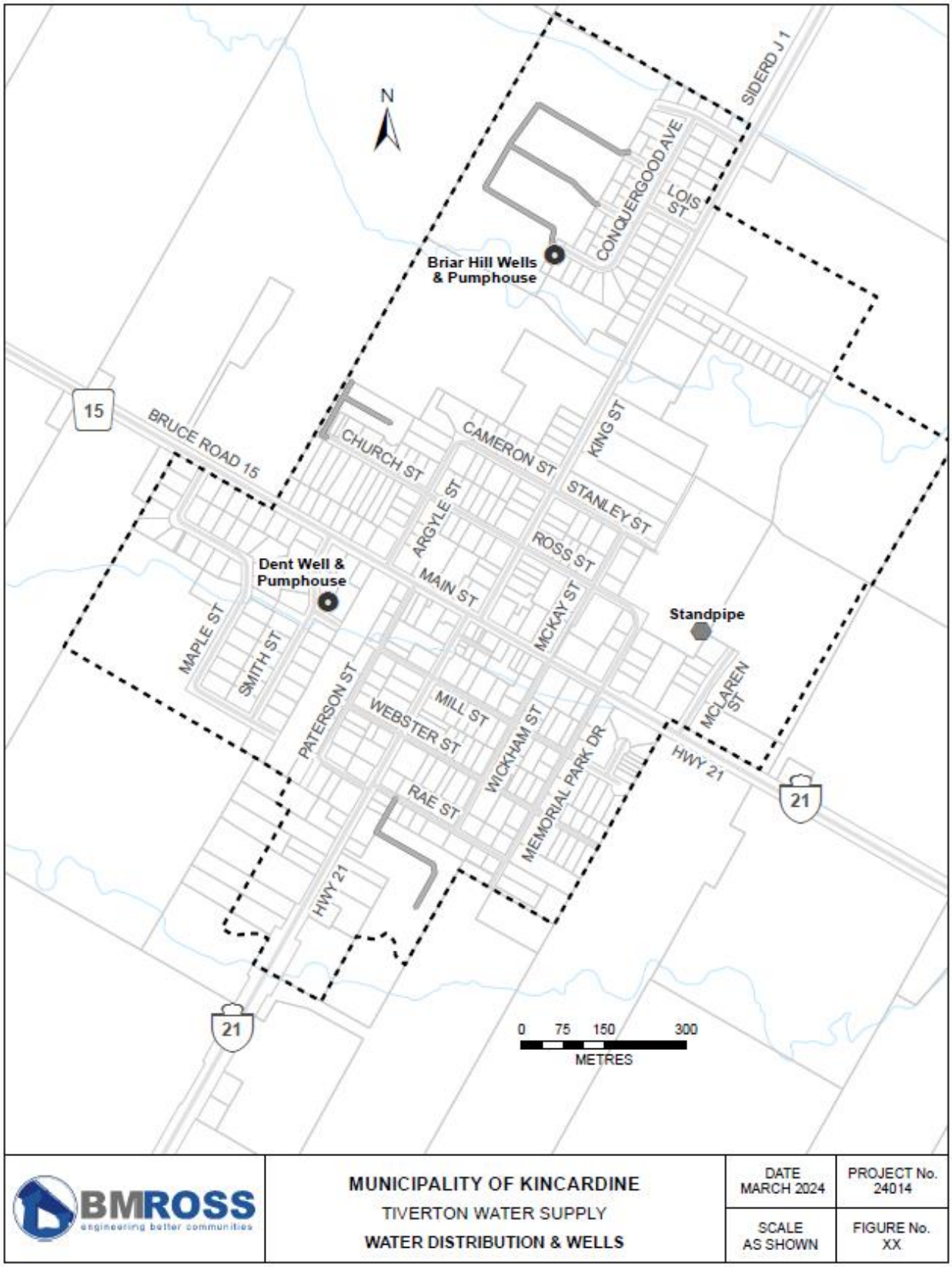
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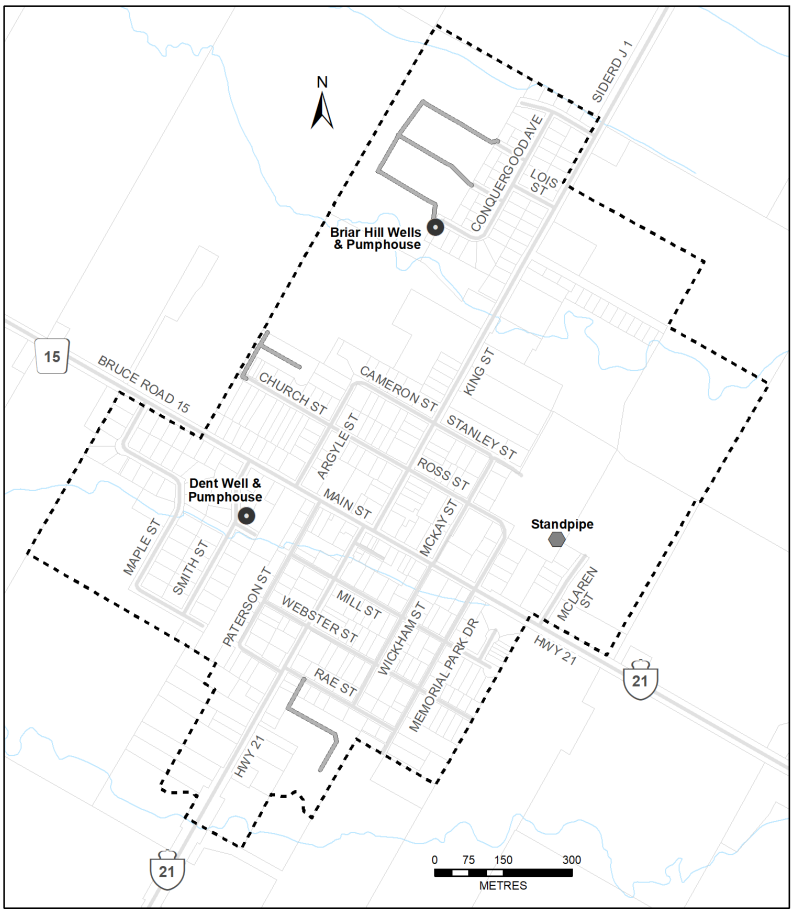
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File No. 24014

VIA EMAIL ONLY
GLMC@metisnation.org

May 2, 2024

Great Lakes Métis Council

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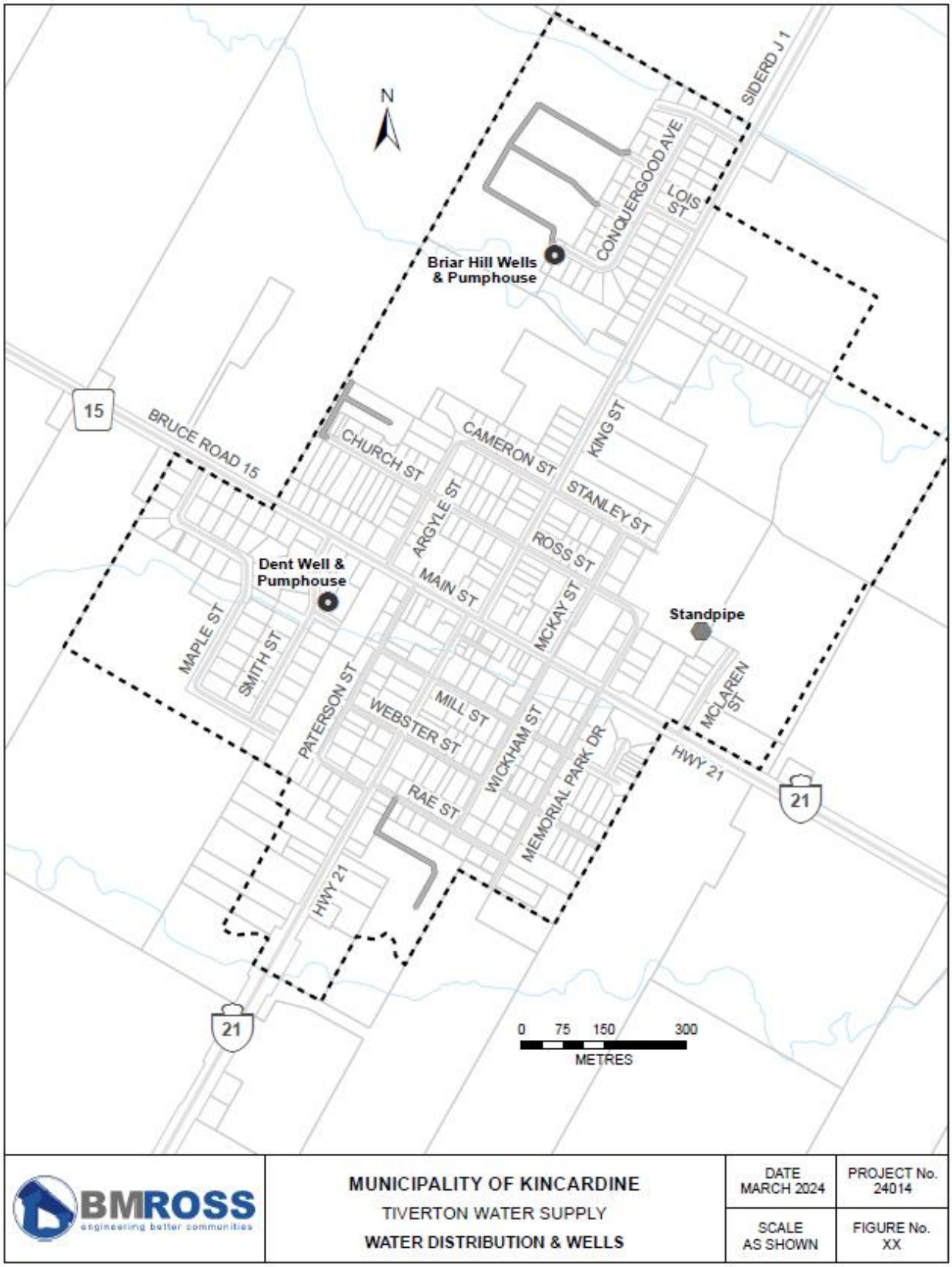
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LJC:hv
cc. Adam Weishar, Municipality of Kincardine

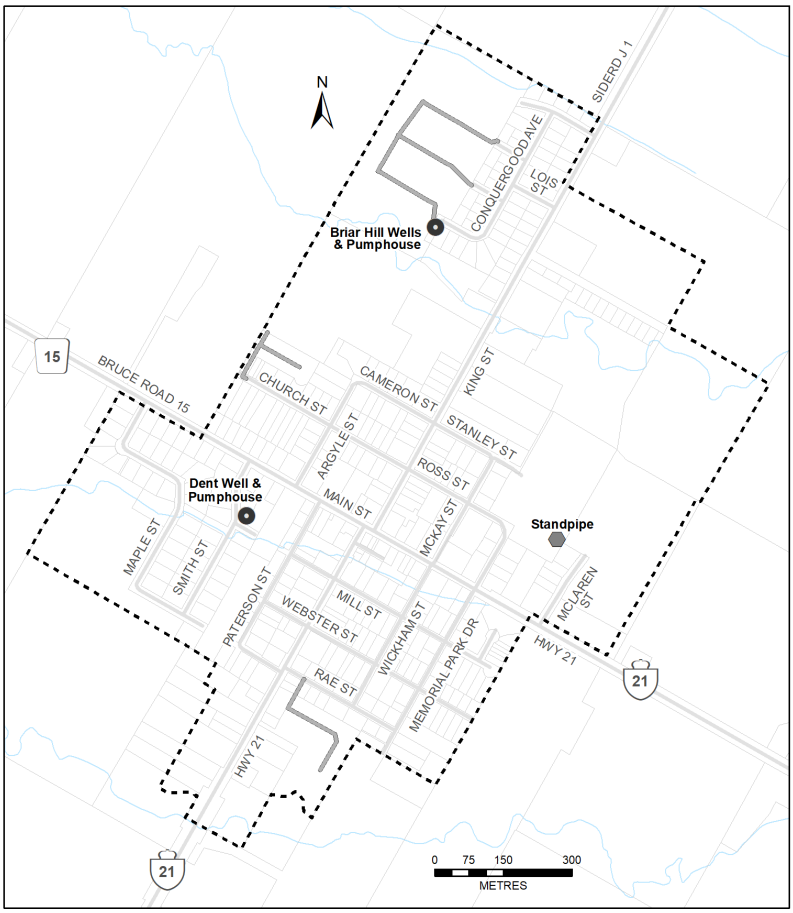
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Figure 1: Key Plan Showing Current Extent of The Community of Tiverton And Existing Water Supply System



MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

NOTICE OF COMMENCEMENT



THE PROJECT:

The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The current system services 372 connections from groundwater wells. The 2022 Water and Wastewater Servicing Master Plan Update identified the need for additional water supply capacity to accommodate future development within the community. The MCEA will investigate options to increase water supply, such as additional groundwater wells and connecting to the Kincardine Drinking Water System.

THE ENVIRONMENTAL SCREENING PROCESS:

The planning for this project follows the environmental screening process set out for Schedule B activities under the MCEA process. The purpose of the MCEA process is to inform the public of the scope and commencement of the project. The process includes consultation with the public, stakeholders, Aboriginal communities, and review agencies.

PUBLIC INVOLVEMENT:

Public input and comments are invited for incorporation into the planning and design of this project. Initial comments are welcomed and will be received by **May 24, 2024**. Comments may be provided to the study team at B. M. Ross and Associates (contact information below). Any comments collected in conjunction with the study will be maintained on file for use during the project and may be included in the project documentation. With the exception of personal information, all comments will become part of the public record. A public meeting will be held at a future date.

For further information on this project, or to review the Municipal Class EA process, please contact the consulting engineers: B.M. Ross and Associates: 62 North Street, Goderich, Ontario, N7A 2T4. Telephone (519) 524-2641. Lisa Courtney, Environmental Planner (e-mail: lcourtney@bmross.net). Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team member listed above.

Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

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

File No. 24014

VIA EMAIL ONLY
hsmlrcc@bmts.com

May 2, 2024

Georgia McLay
Coordinator, Lands, Waters & Consultation
Historic Saugeen Métis

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The current system services 372 connections from groundwater wells. The 2022 Water and Wastewater Servicing Master Plan Update identified the need for additional water supply capacity to accommodate future development within the community. The MCEA will investigate options to increase water supply, such as additional groundwater wells and connecting to the Kincardine Drinking Water System

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Your community has been identified as possibly having an interest in this project and we are seeking your input. Please forward your response to our office by June 17, 2024. If you have any questions or require further information, please contact the undersigned at lcourtney@bmross.net or by phone at 1-888-524-2641.

Yours very truly

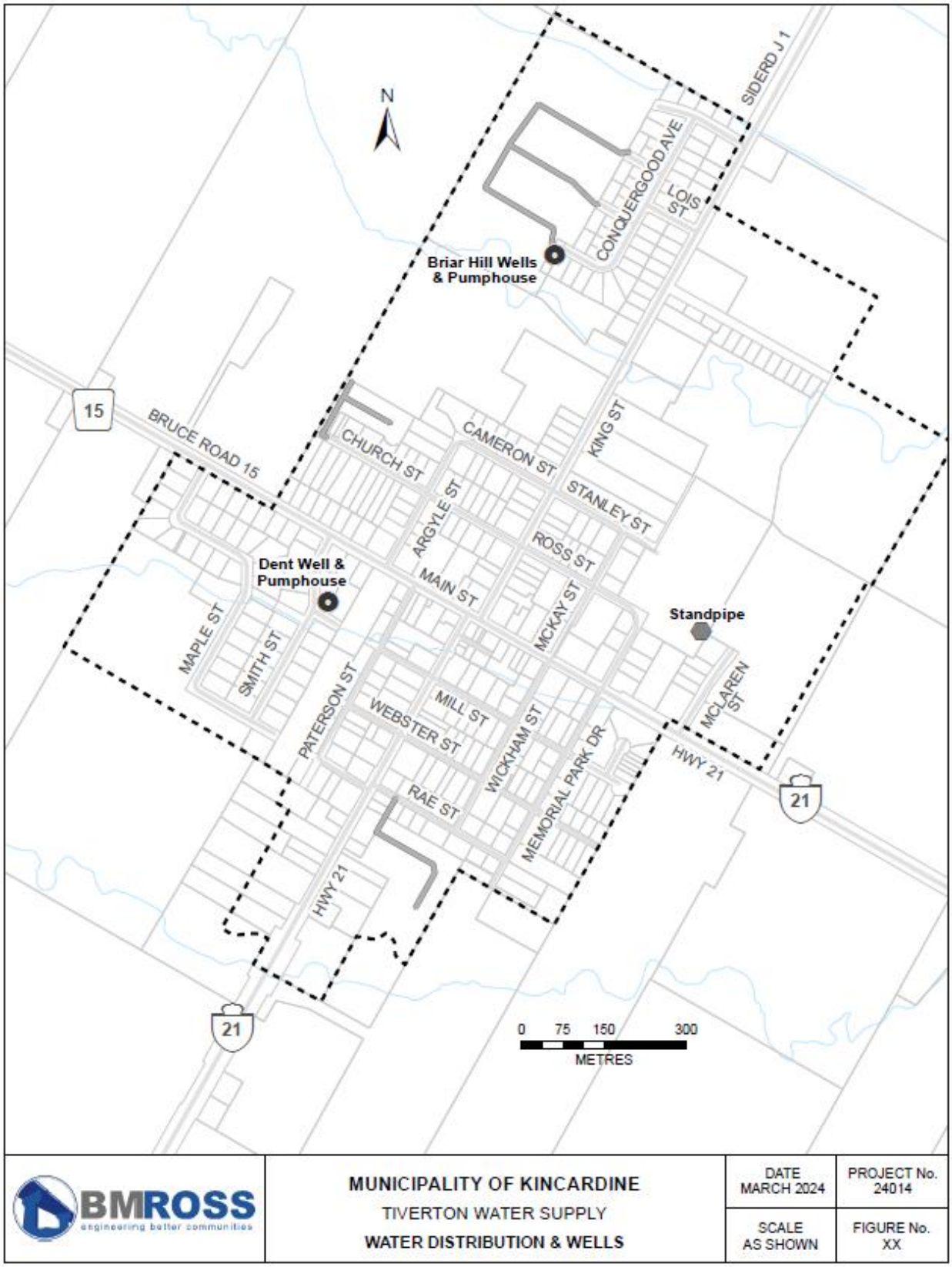
B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

LJC:hv
cc. Adam Weishar, Municipality of Kincardine

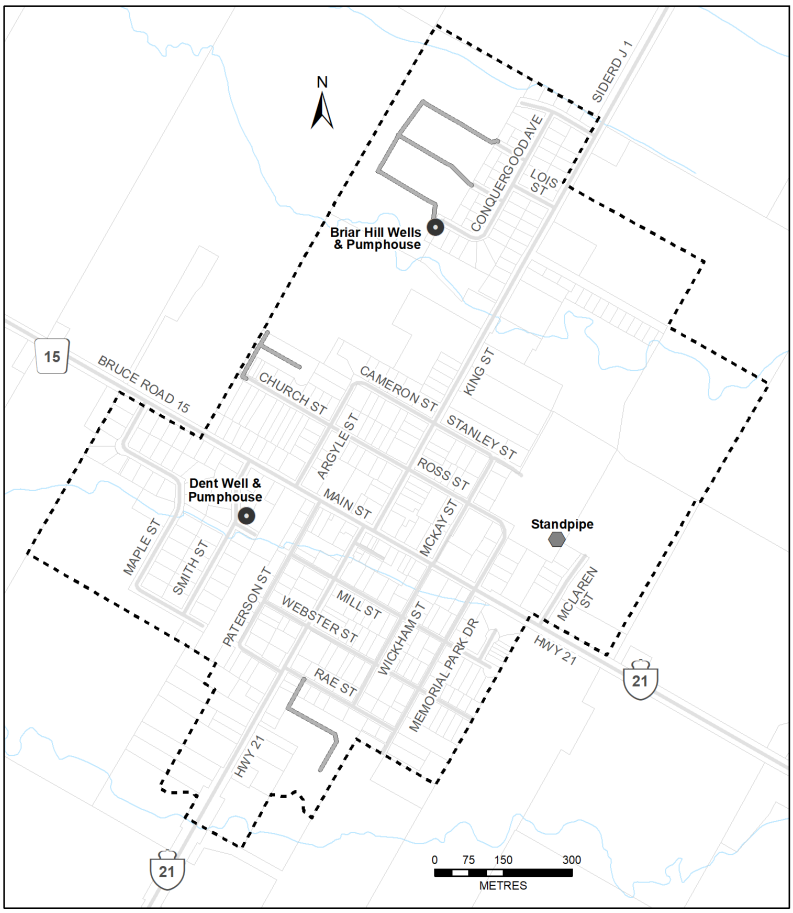
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Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

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

File No. 24014

VIA EMAIL ONLY
consultations@metisnation.org

May 2, 2024

Métis Nation of Ontario

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The current system services 372 connections from groundwater wells. The 2022 Water and Wastewater Servicing Master Plan Update identified the need for additional water supply capacity to accommodate future development within the community. The MCEA will investigate options to increase water supply, such as additional groundwater wells and connecting to the Kincardine Drinking Water System

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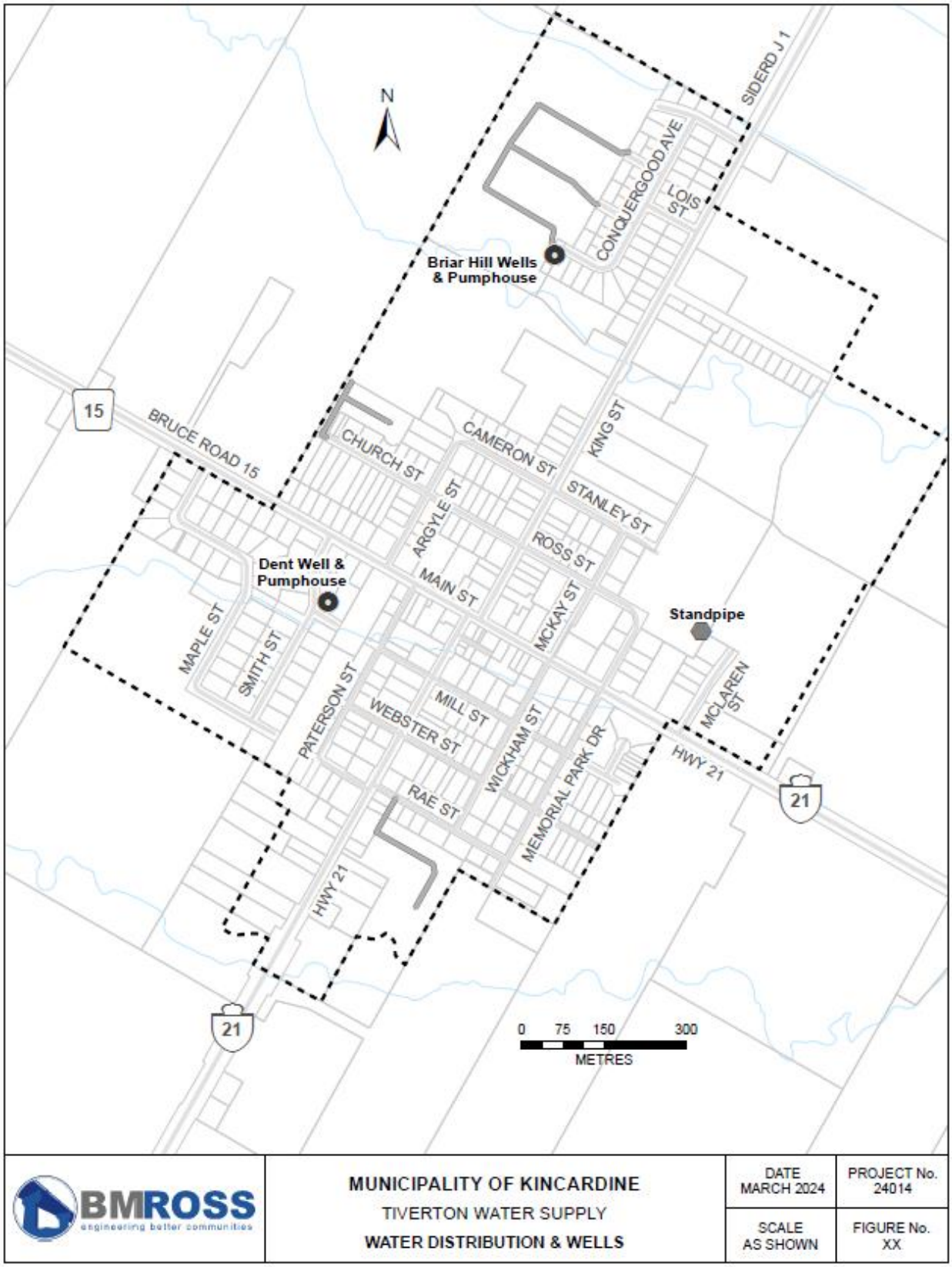
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Per _____
Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

LJC:hv
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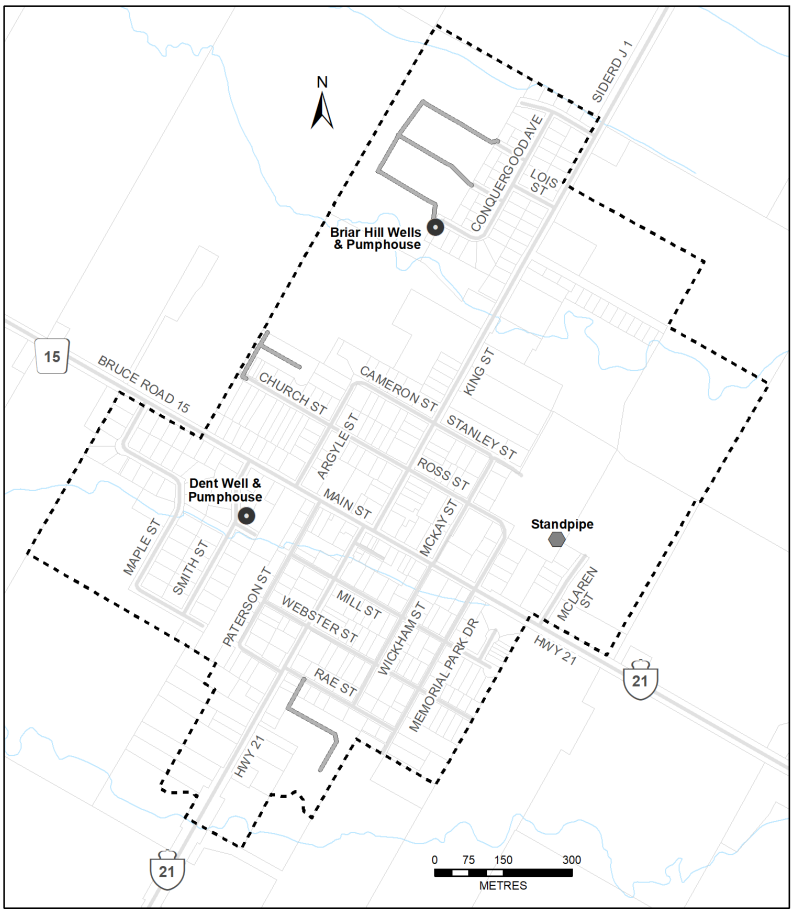
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Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued May 3, 2024

From:	Michael Oberle
To:	lcourtney@bmross.net
Subject:	SVCA comments - Municipality of Kincardine Municipal Class EA for Expansion of the Tiverton Water Supply System
Date:	May 6, 2024 10:17:58 AM
Attachments:	image001.png 24014-2024-05-02-SVCA Let.pdf

Good morning Lisa Courtney,

This email is further to the email of below regarding the above refenced proposal.
Thank you for including the Saugeen Valley Conservation Authority (SVCA) in your circulation.
The SVCA does not have any specific comment to provide at this time, and the SVCA looks forward to working together with our municipal partners, where required, as this proposal progresses.
I trust that the above is helpful at this time. Any questions, please do not hesitate to ask.
Kind regards,
Mike

Michael Oberle
Environmental Planning Coordinator
Cell: 519-373-4175
1078 Bruce Road 12, PO Box 150, Formosa, ON N0G 1W0
m.oberle@svca.on.ca
https://link.edgepilot.com/s/d737569d/B7A4_UmRwUWmwHAABGpt5A?u=http://www.saugeenconservation.ca/

From: Jason Dodds <j.dodds@svca.on.ca>
Sent: Friday, May 3, 2024 11:13 AM
To: Michael Oberle <m.oberle@SVCA.ON.CA>
Subject: FW: Municipality of Kincardine Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System

Sincerely,

Jason Dodds
Environmental Planning Technician
Saugeen Valley Conservation Authority
1078 Bruce Road 12, PO Box 150, Formosa, ON N0G 1W0
Office:519-364-1255 ext: 275
Cell: 519-377-3406
Email: j.dodds@svca.on.ca

https://link.edgepilot.com/s/d737569d/B7A4_UmRwUWmwHAABGpt5A?u=http://www.saugeenconservation.ca/



From: Alex Jackman <ajackman@bmross.net>
Sent: Friday, May 3, 2024 11:11 AM
To: Jason Dodds <j.dodds@svca.on.ca>
Subject: Municipality of Kincardine Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System

[CAUTION]: This email originated from outside of the organization. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Good morning/afternoon.
Please find attached, a letter and Notice of Commencement for the Municipality of Kincardine, Municipal Class Environmental Assessment for expansion of the Tiverton water supply system.

Please submit any initial questions and comments prior to **May 30th, 2024,** to Lisa Courtney (lcourtney@bmross.net) at B.M. Ross and Associates Limited, 62 North Street, Goderich ON N7A 2T4, (519)-524-2641.

Thanks, and cheers,

Alex Jackman, H.BEDP
B. M. Ross and Associates Limited
Engineers and Planners

62 North Street
Goderich, ON N7A 2T4

Phone: (519) 524-2641
ajackman@bmross.net
https://link.edgepilot.com/s/81f5675e/N1wwCiMZEkGjAFq6hiBPAQ?u=http://www.bmross.net/

PRIVACY DISCLAIMER: This e-mail (including any attachments) may contain confidential, proprietary, and privileged information and unauthorized disclosure or use is prohibited. If you received this e-mail in error, please notify the sender and delete this e-mail from your system. SAUGEEN VALLEY CONSERVATION AUTHORITY. Thank You!

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

7th Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

7ème étage
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

May 13, 2024

Lisa Courtney
BM Ross
lcourtney@bmross.net

BY EMAIL ONLY

Re: **Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System**
Municipality of Kincardine
Municipal Class Environmental Assessment, Schedule B
Acknowledgement of Notice of Commencement

Dear Lisa,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Municipality of Kincardine (proponent) has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Class Environmental Assessment (Class EA).

The **updated (August 2022)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. Information is provided at the end of the Areas of Interest document relating to the Notice of Completion**.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and

contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Saugeen First Nation and the Chippewas of Nawash Unceded First Nation - these communities work together on consultation issues and are known collectively as the Saugeen Ojibway Nation. They have requested notices be sent to the Saugeen Ojibway Nation Environment Office with a copy to the Chief and Council of Saugeen First Nation and Chippewas of Nawash Unceded First Nation.

- Métis Nation of Ontario- Lands and Resources Dept, Region 7
    - MNO Georgian Bay Métis Council (please cc Métis Nation of Ontario (MNO) Lands, Resources and Consultations Branch)

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances after initial discussions with the communities identified by the MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities;
- You have reason to believe that your proposed project may adversely affect an

Aboriginal or treaty right;
- Consultation with Indigenous communities or other stakeholders has reached an impasse; or
- A Section 16 Order request is expected based on impacts to Aboriginal or treaty rights

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

Please also ensure a copy of the Notice of Completion is sent to the ministry's Southwest Region EA notification email account (eanotification.swregion@ontario.ca) after the report and Notice of Completion is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at monika.macki@ontario.ca.

Sincerely,

Monika Macki

Monika Macki
Regional Environmental Planner –Southwest Region
Project Review Unit, Environmental Assessment Branch

Enclosed: Areas of Interest

Attached: Client's Guide to Preliminary Screening for Species at Risk

A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. August 2022)

It is suggested that you check off each section after you have considered / addressed it.

Planning and Policy

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
    - Projects located in MECP Central, Eastern or West Central Region may be subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)**.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan (2017)** or the **Lake Simcoe Protection Plan (2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan (2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan (2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario (2011).**

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

Source Water Protection

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include

activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- In October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

    - If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use Source Protection Information Atlas, which is an online mapping tool available to the public. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the “Map Legend” bar on the left. The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

More Information

For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

Climate Change

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

    1. Consider during the assessment of alternative solutions and alternative designs, the following:
        a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
        b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
    2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
    - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
    - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
    - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, for projects located in Central Region you may consider the provisions of the Rouge Park Management Plan if applicable.

Species at Risk

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

Surface Water

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the *Ontario Water Resources Act* (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If a proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an

Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by

this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

- All waste generated during construction must be disposed of in accordance with ministry requirements.

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
  - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout

the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Section 16 Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the report.

Notice of Completion
Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address.

The public can request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister of the Environment, Conservation and Parks

777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Ministry of Citizenship and Multiculturalism

Heritage Planning Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Flr, 400 University Ave
Tel.: 613.242.3743

Ministère des Affaires civiques et du Multiculturalisme

Unité de la planification relative au patrimoine
Direction du patrimoine
Division des affaires civiques, de l'inclusion et du patrimoine
Tél.: 613.242.3743

May 27, 2024 EMAIL ONLY

Lisa Courtney
B.M. Ross and Associates Limited
62 North Street,
Goderich ON N7A 2T4
lcourtney@bmross.net

MCM File	**:**	**0021630**
Proponent	**:**	**Municipality of Kincardine**
Subject	**:**	**Municipal Class Environmental Assessment – Schedule B – Notice of Commencement**
Project	**:**	**Environmental Assessment for Expansion of the Tiverton Water Supply System**
Location	**:**	**Municipality of Kincardine**

Dear Lisa Courtney:

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Notice of Commencement for the above-referenced project.

MCM's interest in this project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- archaeological resources, including land and marine;
- built heritage resources, including bridges and monuments; and
- cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on known (previously recognized) and potential cultural heritage resources.

Project Summary
The Municipality of Kincardine is initiating a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The planning for this project follows the environmental screening process set out for Schedule B activities under the MCEA process.

Identifying Cultural Heritage Resources
While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation.

Archaeological Resources
This EA project may impact archaeological resources and should be screened using the Ministry's *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MCM archaeological sites data are available at *archaeology@ontario.ca*.

If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) shall be undertaken by an archaeologist licenced under the *Ontario Heritage Act (OHA)*, who is responsible for submitting the report directly to MCM for review.

Built Heritage Resources and Cultural Heritage Landscapes
The Ministry's *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* should be completed to help determine whether this EA project may impact known or potential built heritage resources and/or cultural heritage landscapes.

If there is potential for built heritage resources and/or cultural heritage landscapes within the project area, then a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment should be undertaken for the entire study area during the planning phase and will be summarized in the EA Report. This study will:

1. Describe the existing baseline cultural heritage conditions within the study area by identifying all known or potential built heritage resources and cultural heritage landscapes, including a historical summary of the study area. The Ministry has developed a screening checklist that may assist with this exercise: *Criteria for Evaluating for Potential Built Heritage Resources and Cultural Heritage Landscapes*.

2. Identify preliminary potential project-specific impacts on the known and potential built heritage resources and cultural heritage landscapes that have been identified. The report should include a description of the anticipated impact to each known or potential built heritage resource or cultural heritage landscape that has been identified.

3. Recommend measures to avoid or mitigate potential negative impacts to known or potential built heritage resources and cultural heritage landscapes. The proposed mitigation measures are to inform the next steps of project planning and design.

Given that this project covers a large study area, MCM recommends that the Cultural Heritage Report is carried out so that step 1 described above is undertaken early in the planning process. Then, steps 2 and 3 can be undertaken once the preferred alternatives have been selected.

Cultural Heritage Reports will be undertaken by a qualified person who has expertise, recent experience, and knowledge relevant to the type of cultural heritage resources being considered and the nature of the activity being proposed.

Community input should be sought to identify locally recognized and potential cultural heritage resources. Sources include, but are not limited to, municipal heritage committees, historical societies and other local heritage organizations.

Cultural heritage resources are often of critical importance to Indigenous communities. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to them.

Environmental Assessment Reporting

All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MCM whether any technical cultural heritage studies will be completed for this EA project, and provide them to MCM before issuing a Notice of Completion or commencing any work on the site. If screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank you for consulting MCM on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, please do not hesitate to contact me.

Sincerely,

Joseph Harvey
Heritage Planner
joseph.harvey@Ontario.ca

Copied to: Alex Jackman, B. M. Ross and Associates Limited

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. The Ministry of Citizenship and Multiculturalism (MCM) makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MCM be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with *Ontario Regulation 30/11* the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

From:	Amber Debassige
To:	Lisa Courtney
Cc:	manager.ri@saugeenojibwaynation.ca; Natalie Kuipers; Kove Sartor
Subject:	Re: 24014 Tiverton Water Supply - Archaeology
Date:	May 29, 2024 2:02:07 PM
Attachments:	Category 3+4+5+Aggregate SON Consultation Application Form (1) (1).pdf

Good afternoon Lisa,

Please see attached Consultation Application Form for 24014 Tiverton Water Supply - Archaeology.
If you have any questions please feel free to contact me.

Thank you,

On Wed, May 29, 2024 at 1:36 PM Lisa Courtney <lcourtney@bmross.net> wrote:

> Hello Charlene and Amber,
>
> We are working on a Municipal Class Environmental Assessment for the Municipality of Kincardine looking at options for expanding the capacity of the drinking water system for Tiverton. One of the options is connecting Tiverton to the lakeshore system, via a watermain connection from Inverhuron to Tiverton. This would involve the construction of a water booster pumping station at Inverhuron. From our preliminary work, a likely site for this water pumping station is the municipally-owned land at the corner of Bruce Road 15 and Albert Road (please see the attached map).
>
> The Municipality has hired Timmins-Martelle Heritage Consultants to undertake the advanced Stage 1-2 Archaeological Assessment The area of the property by the road is clear of trees and that's where we would be looking to put the station and avoid disturbing the densely wooded area to the north. Timmins-Martelle is looking to do the on-site field work hopefully on June 17 and 18th (weather permitting). If SON would like to participate in the on-site field work, I can coordinate getting that arranged between the Timmins-Martelle and the Municipality, and similarly, if SON wishes to establish an agreement for peer reviews, similar to what we had for the Scott Point Well project, I can coordinate getting that to the Municipality as well.
>
> If there are any questions or if you need anything from us, please let me know.
>
> Thanks and cheers,
>
> ***Lisa J. Courtney, M.Sc. RPP, MCIP***
>
> ***B. M. Ross and Associates Limited***

Engineers and Planners

62 North Street

Goderich, ON N7A 2T4

Office: (519) 524-2641

lcourtney@bmross.net

https://link.edgepilot.com/s/1b759c9b/RCR7hOnDEkGaJsXzFpwQEQ?u=http://www.bmross.net/

--

Amber Debassige

Executive Assistant to Resources and Infrastructure

519-534-5507 (Office)

10129 Hwy 6 Georgian Bluffs

Ontario, N0H 2T0

saugeenojibwaynation.ca

From:	Amanda Parks
To:	SON Archaeology
Cc:	Lisa Courtney
Subject:	RE: 24014 Tiverton Water Supply - Archaeology 24014
Date:	September 4, 2024 2:56:40 PM
Attachments:	image002.png image004.png image005.jpg image006.jpg image007.png image008.png image009.jpg

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Hi Kove,

Thank you so much for taking the time to review and provide comment on the report!

Amanda

TMHC logo

Amanda Parks, MA, P450
(she/her)
Manager - Environmental Assessments
aparks@tmhc.ca
(519) 671-8698

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1108 Dundas Street, Unit 105
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From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: September 4, 2024 2:55 PM
To: Amanda Parks <aparks@tmhc.ca>
Subject: Re: 24014 Tiverton Water Supply - Archaeology 24014

Good afternoon Amanda,

SON Archaeology has reviewed the report and has found no concerns.

Miigwech,

Kove Sartor
SON Archaeology Department
Resource & Infrastructure Department

10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Wed, Sep 4, 2024 at 9:17 AM Amanda Parks <aparks@tmhc.ca> wrote:

> Hi Kove and Rob,

I was just wondering if you have had an opportunity to review the Stage 1-2 archaeological report for this project? If you have any questions about the content please let me know.

Thanks,
Amanda

TMHC logo

Amanda Parks, MA, P450
(she/her)
Manager - Environmental Assessments
aparks@tmhc.ca
(519) 671-8698

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From: Amanda Parks
Sent: July 24, 2024 12:02 PM
To: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Cc: Lisa Courtney <lcourtney@bmross.net>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Hello Kove and Rob,

We have finished drafting the Stage 1-2 report for this project and have attached a copy of it here for your review. If you have any questions, comments, or concerns, please let me know. We ask that you please provide comment by August 23, 2024.

Thank you!
Amanda

TMHC logo

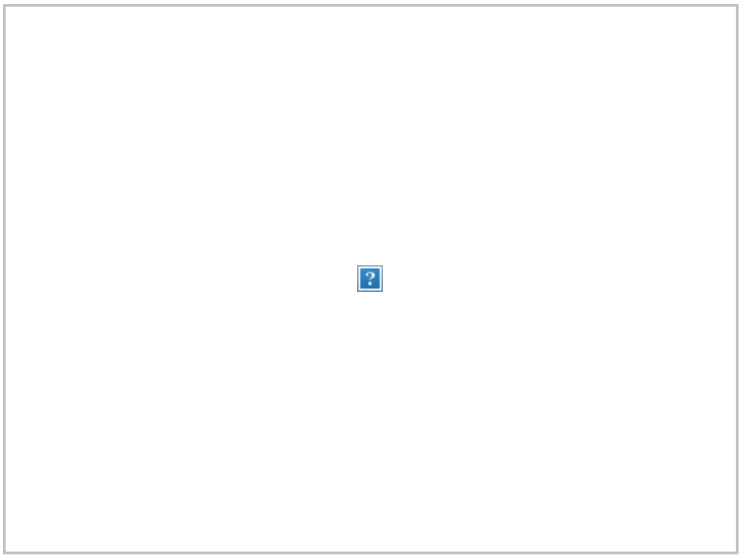
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From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 19, 2024 10:31 AM
To: Amanda Parks <aparks@tmhc.ca>; SON Archaeology <archaeology@saugeenojibwaynation.ca>
Cc: Natalie Kuipers <gis@saugeenojibwaynation.ca>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Hi all,
At this time, I don't have anything more formal as we are just getting started with the EA for this project. The EA is going to evaluate the option to put a water booster pumping station at the study area site in order to extend water supply to Tiverton from the Kincardine Drinking Water System (which also services Inverhuron). The booster pumping station, if identified as the preferred solution, would be sited close to the road and existing watermain and probably will end up looking something like this:



Please let me know if there are any follow-up questions.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
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From: Amanda Parks <aparks@tmhc.ca>
Sent: Wednesday, June 19, 2024 9:59 AM
To: SON Archaeology <archaeology@saugeenojibwaynation.ca>; Lisa Courtney <lcourtney@bmross.net>
Cc: Natalie Kuipers <gis@saugeenojibwaynation.ca>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Hi Kove,

Do you mean a development plan? Currently we just have a study area outline (attached).

@Lisa Courtney, do you have anything more formal you could pass along to SON at this point in time?

Thanks,
Amanda

TMHC logo

Amanda Parks, MA, P450
(she/her)
Manager - Environmental Assessments
aparks@tmhc.ca
(519) 671-8698

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From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: June 19, 2024 9:48 AM
To: Amanda Parks <aparks@tmhc.ca>
Cc: Lisa Courtney <lcourtney@bmross.net>; Natalie Kuipers <gis@saugeenojibwaynation.ca>
Subject: Re: 24014 Tiverton Water Supply - Archaeology 24014

Good morning Amanda,

Could you provide me with the work plan TMHC has for this project?

Miigwech,

Kove Sartor
SON Archaeology Department
Resource & Infrastructure Department

10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Mon, Jun 17, 2024 at 12:35 PM Amanda Parks <aparks@tmhc.ca> wrote:

> Great news, thanks Natalie!
>
> Just one small adjustment – **the crew is now planning on arriving at 9am on Wednesday**. Looks like it is still going to be hot out so we'd like to try and get there earlier in the day than initially planned.
>
> Thanks!
> Amanda
>
> TMHC logo
>
> Amanda Parks, MA, P450
> (she/her)
> Manager - Environmental Assessments
> aparks@tmhc.ca
> (519) 671-8698
>
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>
> ---
>
> **From:** SON Archaeology <archaeology@saugeenojibwaynation.ca>
> **Sent:** June 17, 2024 10:49 AM
> **To:** Amanda Parks <aparks@tmhc.ca>
> **Cc:** Lisa Courtney <lcourtney@bmross.net>; Natalie Kuipers <gis@saugeenojibwaynation.ca>
> **Subject:** Re: 24014 Tiverton Water Supply - Archaeology 24014

Amazing, thanks so much!

Rob will be there and I will forward the details to him now.

Miigwetch,

Natalie

SON Archaeology Department
Resource & Infrastructure Department

10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Mon, Jun 17, 2024 at 10:39 AM Amanda Parks <aparks@tmhc.ca> wrote:

> Hi Natalie,
>
> Yes, so sorry for any confusion! I just confirmed that we can move forward with the assessment this Wednesday June 19 and Thursday June 20th. I've updated the project details below.
>
> Start Date: Wednesday June 19
> # of days anticipated for fieldwork: 2 days
> Start time: 10:00am on Wednesday, 8:00am on Thursday
> Consultant Company: TMHC
> Field Director(s) and Cell Phone(s): Sean Graziano (519-282-0541 (w)
> Fieldwork Coordinator: Jonathan Freeman (519-282-9025)
> Stage of Fieldwork: Stage 1-2
> Required PPE: Work boots, gloves, and high vis gear. Please also bring eye protection; Also note there are reports of poison ivy on the property, I can see if we have extra gear for protection if that is of interest. We will also have a washing kit available
> Meeting Location Address: 3194 Bruce Road 15, Kincardine; Parking PIN: https://link.edgepilot.com/s/632ef817/f94cjVfjmE_6OUTZhux3YA?u=https://maps.app.goo.gl/Lyrc6DdK6nEHykXp6 (see attached map)
> Size of Field Crew: 8
>
> Thanks again!
> Amanda
>
> TMHC logo
>
> Amanda Parks, MA, P450 (she/her)
> Manager - Environmental Assessments
> aparks@tmhc.ca
> (519) 671-8698
>
> **TMHC Inc.**
> 1108 Dundas Street, Unit 105
> London, ON | N5W 3A7
> https://link.edgepilot.com/s/50560068/NLKcMa5mrUCiUO1de-VmFQ?u=http://www.tmhc.ca/
> 519-641-7222

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From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: June 17, 2024 10:32 AM
To: Amanda Parks <aparks@tmhc.ca>
Cc: Lisa Courtney <lcourtney@bmross.net>; Natalie Kuipers <gis@saugeenojibwaynation.ca>
Subject: Re: 24014 Tiverton Water Supply - Archaeology 24014

Good morning Amanda,

Our apologies for missing the response to you last week - very unfortunate.

From my conversation with Rob, it sounds like fieldwork will be moved to next week, is that correct? We do have availability Tuesday, Wednesday and Thursday of this week (18th, 19th, and 20th). or later next week (26th and 27th).

Please let me know if any of those dates would work for your schedule.

Miigwetch,

Natalie Kuipers

SON Archaeology Department
Resource & Infrastructure Department



10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Fri, Jun 14, 2024 at 9:46 AM Amanda Parks <aparks@tmhc.ca> wrote:

> Hi Kove,
>
> I was just hoping to follow up on this email - do you have a monitor available to participate in this assessment on Monday and Tuesday next week or shall we postpone the fieldwork to a later date?
>
> Thank you and please let me know if you have any questions.
> Amanda
>
> TMHC logo
>
>
>
> Amanda Parks, MA, P450
> (she/her)
> Manager - Environmental Assessments
> aparks@tmhc.ca
> (519) 671-8698
>
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From: Amanda Parks
Sent: June 13, 2024 10:15 AM
To: Lisa Courtney <lcourtney@bmross.net>; SON Archaeology <archaeology@saugeenojibwaynation.ca>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Hi again Kove,

Apologies, I hit send prematurely! I had intended to include some additional information. Currently the work is scheduled for June 17th and 18th, however we can certainly push back the start date to later in the week if that is of interest to you.

Project details are as follows:

Start Date: Monday June 17
# of days anticipated for fieldwork: 2 days
Start time: 10:00am on Monday, 8:00am on Tuesday
Consultant Company: TMHC
Field Director(s) and Cell Phone(s): Sean Graziano (519-282-0541 (w)
Fieldwork Coordinator: Jonathan Freeman (519-282-9025)
Stage of Fieldwork: Stage 1-2
Required PPE: Work boots, gloves, and high vis gear. Please also bring eye protection; Also note there are reports of poison ivy on the property, I can see if we have extra gear for protection if that is of interest. We will also have a washing kit available
Meeting Location Address: 3194 Bruce Road 15, Kincardine; Parking PIN: https://link.edgepilot.com/s/632ef817/f94cjVfjmE_6OUTZhux3YA?u=https://maps.app.goo.gl/Lyrc6DdK6nEHykXp6 (see attached map)
Size of Field Crew: 8

As always, if you have any questions just let me know. Just let me know if you prefer we push back the start date.

Thanks!
Amanda

TMHC logo

Amanda Parks, MA, P450
(she/her)
Manager - Environmental Assessments
aparks@tmhc.ca
(519) 671-8698

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1108 Dundas Street, Unit 105
London, ON | N5W 3A7
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From: Amanda Parks
Sent: June 13, 2024 9:53 AM
To: Lisa Courtney <lcourtney@bmross.net>; SON Archaeology <archaeology@saugeenojibwaynation.ca>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Hi Kove,

I hope you are doing well!

The work is planned for two field days. It is currently in the schedule for June 17th and June 18th

TMHC logo

Amanda Parks, MA, P450
(she/her)
Manager - Environmental Assessments
aparks@tmhc.ca
(519) 671-8698

TMHC Inc.
1108 Dundas Street, Unit 105
London, ON | N5W 3A7
https://link.edgepilot.com/s/50560068/NLKcMa5mrUCiUO1de-VmFQ?u=http://www.tmhc.ca/
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From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 13, 2024 9:50 AM
To: SON Archaeology <archaeology@saugeenojibwaynation.ca>; Amanda Parks <aparks@tmhc.ca>
Subject: RE: 24014 Tiverton Water Supply - Archaeology 24014

Morning Kove,
I've added Amanda at Timmins-Martelle to this email. Amanda, could you let Kove know how many days of fieldwork is expected?
Thanks all,

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

Office: (519) 524-2641
lcourtney@bmross.net
https://link.edgepilot.com/s/4910cdd5/iNkvNHTc00GEkN7jdvGXYA?u=http://www.bmross.net/

From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: Thursday, June 13, 2024 9:47 AM
To: Lisa Courtney <lcourtney@bmross.net>
Subject: Re: 24014 Tiverton Water Supply - Archaeology 24014

Good morning Lisa,

Do you know how many days this fieldwork will take?

Miigwech,

Kove Sartor
SON Archaeology Department
Resource & Infrastructure Department



10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Thu, Jun 13, 2024 at 9:43 AM Lisa Courtney <lcourtney@bmross.net> wrote:

> Good morning Amber,
> Hope all is well. Our archaeological consultants (Timmins-Martelle) were hoping to do the field work for this project the week of June 17th. We can push this back if more time to coordinate is needed. Please let me know and I'll pass that along to Timmins-Martelle and Kincardine staff.
>
> Thanks and cheers,
>
> ***Lisa J. Courtney, M.Sc. RPP, MCIP***
> ***B. M. Ross and Associates Limited***
> ***Engineers and Planners***
> *62 North Street*
> *Goderich, ON N7A 2T4*
>
> **Office: (519) 524-2641**
> **lcourtney@bmross.net**
> **https://link.edgepilot.com/s/ffc3a6b2/OqGp51WtGEaeHSdTSyOvbg?u=http://www.bmross.net/**
>
> **From:** Amber Debassige <execassist.ri@saugeenojibwaynation.ca>
> **Sent:** Wednesday, May 29, 2024 2:01 PM
> **To:** Lisa Courtney <lcourtney@bmross.net>
> **Cc:** manager.ri@saugeenojibwaynation.ca; Natalie Kuipers <gis@saugeenojibwaynation.ca>; Kove Sartor <archaeology@saugeenojibwaynation.ca>
> **Subject:** Re: 24014 Tiverton Water Supply - Archaeology
>
> Good afternoon Lisa,
>
> Please see attached Consultation Application Form for 24014 Tiverton Water Supply - Archaeology.
> If you have any questions please feel free to contact me.
>
> Thank you,
>
> On Wed, May 29, 2024 at 1:36 PM Lisa Courtney <lcourtney@bmross.net> wrote:
>
> > Hello Charlene and Amber,
> > We are working on a Municipal Class Environmental Assessment for the Municipality of Kincardine looking at options for expanding the capacity of the drinking water system for Tiverton. One of the options is connecting Tiverton to the lakeshore system, via a watermain connection from Inverhuron to Tiverton. This would involve the construction of a water booster pumping station at Inverhuron. From our preliminary work, a likely site for this water pumping station is the municipally-owned land at the corner of Bruce Road 15 and Albert Road (please see the attached map).

The Municipality has hired Timmins-Martelle Heritage Consultants to undertake the advanced Stage 1-2 Archaeological Assessment The area of the property by the road is clear of trees and that's where we would be looking to put the station and avoid disturbing the densely wooded area to the north. Timmins-Martelle is looking to do the on-site field work hopefully on June 17 and 18th (weather permitting). If SON would like to participate in the on-site field work, I can coordinate getting that arranged between the Timmins-Martelle and the Municipality, and similarly, if SON wishes to establish an agreement for peer reviews, similar to what we had for the Scott Point Well project, I can coordinate getting that to the Municipality as well.

If there are any questions or if you need anything from us, please let me know.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
https://link.edgepilot.com/s/1b759c9b/RCR7hOnDEkGaJsXzFpwQEQ?u=http://www.bmross.net/

--
Amber Debassige
Executive Assistant to Resources and Infrastructure
519-534-5507 (Office)

10129 Hwy 6 Georgian Bluffs
Ontario, N0H 2T0
saugeenojibwaynation.ca

From: Coordinator LRC HSM
To: lcourtney@bmross.net
Subject: Notice of Commencement - Municipal Class EA for Tiverton Water Supply
Date: July 25, 2024 1:07:06 PM
Attachments: PastedGraphic-5.png

Good Afternoon Lisa,

My apologies for the incredibly late reply to the Notice of EA circulated on May 5th, 2024 for the Tiverton Water Supply. I just wanted to follow up and confirm that HSM has no comments or concerns regarding this project. HSM wishes to be kept informed of any future updates on the project.

Thank you for the opportunity to engage and consult on this project.

Regards,

Georgia Lumley

Coordinator, Lands, Waters & Consultation
Historic Saugeen Métis
204 High Street
Southampton, ON
saugeenmetis.com
519.483.4000



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From: Coordinator LRC HSM
To: Lisa Courtney
Subject: Re: Notice of Commencement - Municipal Class EA for Tiverton Water Supply
Date: August 12, 2024 11:34:56 AM
Attachments: PastedGraphic-5.png

Thanks for sending that along, Lisa!

Regards,

Georgia Lumley

Coordinator, Lands, Waters & Consultation
Historic Saugeen Métis
204 High Street
Southampton, ON
saugeenmetis.com
519.483.4000

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> On Aug 6, 2024, at 1:07 PM, Lisa Courtney <lcourtney@bmross.net> wrote:
>
> Hi Georgina,
> Hope you had a nice long weekend. Please find attached the draft Stage 1-2 Archaeological Assessment completed by Timmins-Martelle for our potential site for a water booster pumping station in Inverhuron. If you have any questions or comments, please let me know.
> Thanks and cheers,
>
> ***Lisa J. Courtney, M.Sc. RPP, MCIP***
> ***B. M. Ross and Associates Limited***
> ***Engineers and Planners***
> *62 North Street*
> *Goderich, ON N7A 2T4*
>
> **Office: (519) 524-2641**
> **lcourtney@bmross.net**
> **https://link.edgepilot.com/s/245f16bc/vQ02eNRtL0yn0QE46eEdOg?u=http://www.bmross.net/**
>
> ---
>
> **From:** Coordinator LRC HSM <hsmlrcc@bmts.com>
> **Sent:** Thursday, July 25, 2024 1:07 PM
> **To:** lcourtney@bmross.net

Subject: Notice of Commencement - Municipal Class EA for Tiverton Water Supply

Good Afternoon Lisa,

My apologies for the incredibly late reply to the Notice of EA circulated on May 5th, 2024 for the Tiverton Water Supply. I just wanted to follow up and confirm that HSM has no comments or concerns regarding this project. HSM wishes to be kept informed of any future updates on the project.

Thank you for the opportunity to engage and consult on this project.

Regards,

Georgia Lumley

Coordinator, Lands, Waters & Consultation
Historic Saugeen Métis
204 High Street
Southampton, ON
saugeenmetis.com
519.483.4000

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<2024-195 Tiverton Water Supply Stage 1-2 Report_Draft.pdf>

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

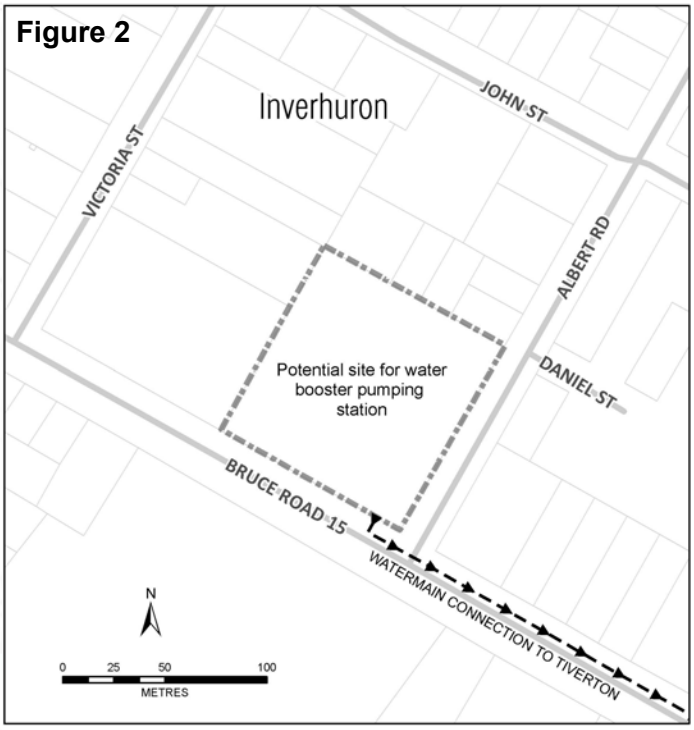
NOTICE OF PUBLIC INFORMATION CENTRE

THE PROJECT: The Municipality of Kincardine has initiated a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the drinking water system within the community of Tiverton. The options being evaluated include additional groundwater wells in Tiverton (Figure 1) or connecting to the Kincardine Drinking Water System via a booster pumping station located at 3194 Bruce Road 15 in Inverhuron and watermain connection along Bruce Road 15 (see Figure 2).

Figure 1



Figure 2



THE ENVIRONMENTAL SCREENING PROCESS: This project is being investigated following the MCEA process set out for Schedule 'B' activities. The purpose of the MCEA is to evaluate solutions related to infrastructure needs and follow a logical and defined decision-making process. The process incorporates the evaluation of alternative solutions, potential environmental impacts, consultation and identifies how impacts may be mitigated.

PUBLIC INVOLVEMENT: Public consultation is a key component of this study, and an in-person Public Information Centre is scheduled. This meeting will provide details on the alternative solutions investigated and preliminary evaluations regarding additional water supply for Tiverton. This meeting will also provide an opportunity for members of the public to ask questions and provide comments on the project. Details of the meeting are as follows:

Date & Time: Wednesday, Oct. 30, 2024. 3 PM - 5 PM and 6 - 8 PM with presentations at 4 PM & 7 PM.
Place: Underwood Community Centre (1240 Concession 6, Underwood)

For further information regarding the MCEA process or this project, please contact Lisa Courtney, Environmental Planner at B. M. Ross and Associates (email: lcourtney@bmross.net or 1-888-524-2541). Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and may be released, if requested, to any person.

Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

This Notice issued October 2, 2024

1

Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply System

PUBLIC INFORMATION CENTRE

OCTOBER 30TH , 2024

1

2

Agenda

1. Review of Tiverton Drinking Water System
2. Identified Issues
3. Municipal Class Environmental Assessment (MCEA) Process
4. Phase 1 – Identification of the Problem/Opportunity
5. Phase 2 – Identify Alternative Solutions
6. Phase 2 – Evaluate Alternative Solutions
7. Preliminary Preferred Solution
8. Evaluate Impacts
9. Questions and Comments

2

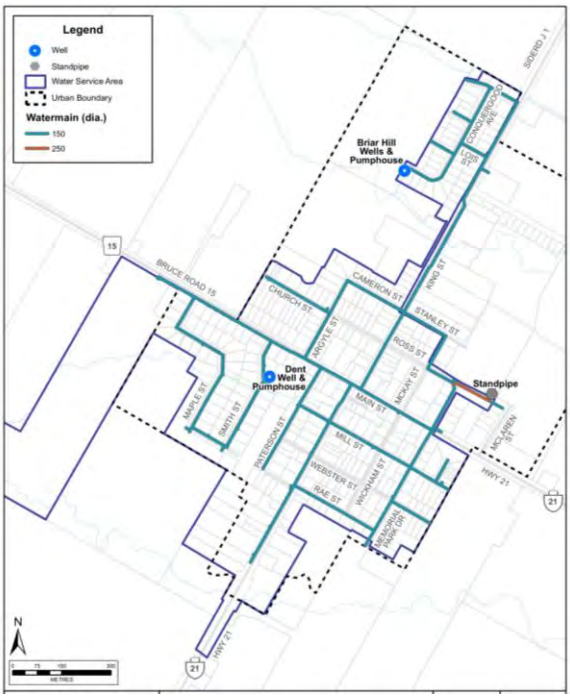


Tiverton Drinking Water System

3

- System operates under Drinking Water Works Permit (DWWP) No. 088-204, Municipal Drinking Water License (MDWL) No. 088-104, and Permit to Take Water (PTTW) No. 4486-D4KJLT.
- System supplied by three (3) groundwater wells, drilled in 1971, 2003 and 2006. The Briar Hill well site (36 Conquergood Ave.) has two wells and the Dent well site (6 Smith St.) has one well.
  - At each well site there is a pumphouse containing flow metering, iron and manganese sequestering system, sodium hypochlorite system for primary and secondary disinfection, and a standby generator.
- Approximately 7.9 km of watermain and approximately 372 connections servicing approximately 717 persons as of 2021.
- PTTW limits takings to 775 m^3/day.

3



Tiverton Drinking Water System

4

4

2023 Water & Wastewater Master Plan Findings (Tiverton Water System)

5

- Current maximum demand = 616 m^3/day or 1.66 m^3/day per customer.
- Commitments for future development = 424 m^3/day for 256 Equivalent Residential Units (ERU).
- Uncommitted Reserve Capacity = Total Capacity – Current Demands – Commitments.
- Uncommitted Reserve Capacity = 775 m^3/day – 616 m^3/day – 424 m^3/day

  = - 265 m^3/day or -160 ERU

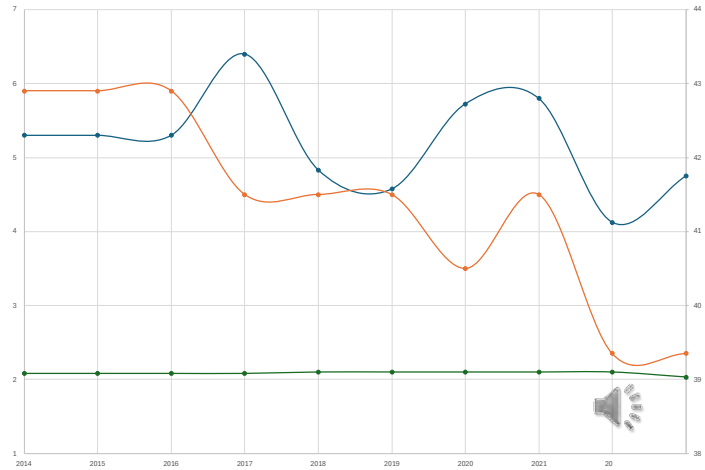
  The system is therefore, overcommitted in terms of water supply.
- Master Plan recommended an EA to look at options to increase water supply capacity.

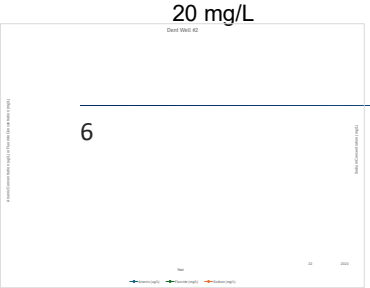
5

Other Issues

6

- Condition of the Briar Hill well
  - Casing of the well is deteriorating and could fail.
  - Mechanical and electrical equipment at the site is reaching end of useful life.
- Concerns regarding water quality
  - Ontario Drinking Water Standards
    - Arsenic – 10 ug/L (values above half this require increased sampling frequency)
    - Fluoride – 1.5 mg/L
  - Safe Drinking Water Act requires notice to Medical Officer of Health for sodium above 20 mg/L





6

Current Issues

7

The system lacks adequate reserve capacity in terms of supply of raw water.

Population growth will increase water needs.

Condition of well casing, electrical and mechanical equipment at end of life, potential to improve water quality & mitigate risks.

To address these issues, the Municipality of Kincardine has initiated a Municipal Class Environmental Assessment.

7

Municipal Class Environmental Assessments (MCEA)

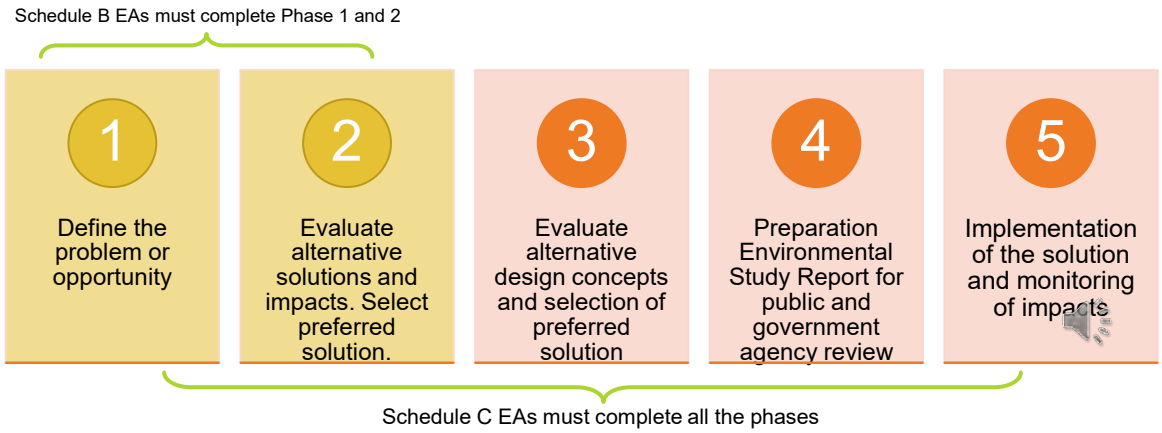
8

- The MCEA is the planning and approval process for municipal road, **water,** wastewater and stormwater projects.
- Municipalities must follow the MCEA process to meet the requirements of the Environmental Assessment Act.
- The MCEA process includes:
  - Consultation
  - Consideration of alternative solutions
  - Identifying impacts of the alternative solutions
  - Documenting the decision-making process.

8

MCEA Process

9



9

MCEA Phase 1 – Define the Problem or Opportunity

10

The 2023 Water and Wastewater Master Plan identified the Tiverton Drinking Water System (DWS) is overcommitted and additional supply capacity is required to support future growth.

10

Phase 2 – Identify Alternative Solutions

11

1. Expand existing or construct new groundwater supply.
2. Construct a connection to the Kincardine DWS at Inverhuron.
3. Reduce demands/limit community growth.
4. Do nothing.



11

Alternative 1: Expand Existing or Construct New Groundwater Supply

12

- Ability to use/expand existing wells limited
  - Review of existing wells found little potential to re-rate existing wells.
  - Concerns with condition of Briar Hill well casing, condition of wellhouse equipment.
- New Well(s)
  - Expect similar water quality – mineralized with potential for elevated total dissolved solids, sulphate, iron and sodium. Arsenic and fluoride may be present.
  - Information from other wells indicates a 54% chance of a meaningful yield for municipal use (i.e. rate above 200 L/min). Multiple test sites can be expected.
  - Previous testing data indicates it is probable that two additional, properly-spaced well fields (i.e. spaced >700 m apart) could be required, and should be more than 350 m away from the existing wells.
  - Need to set back from existing domestic and commercial wells within the area.
- Need to maintain/rehabilitate existing well sites in conjunction with new sites.



12

Siting new wells

- Recommended at least 350 m distance between existing wells to avoid well inference



13

Alternative 1 - Costs

14

- Maintaining a groundwater based supply will require reconstruction of the Briar Hill treatment/electrical building and replacement of the 1971 well - $3,600,000
- Construction of new additional well site – assume equal to Briar Hill reconstruction at $3,600,000 but:
  - Likely need two additional well sites
  - Costs will vary if additional treatment equipment needed, additional watermain to connect to system, land acquisition.



14

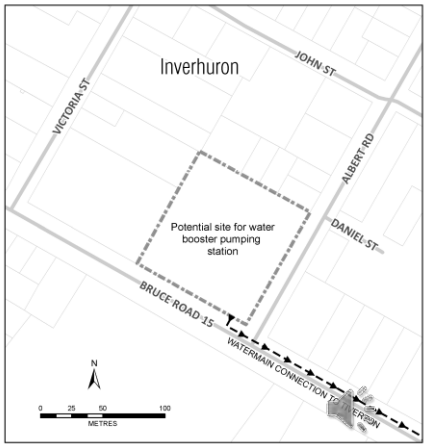
Alternative 2: Construct a connection to the Kincardine DWS at Inverhuron

15

This alternative involves:

- Constructing a Water Booster Pumping Station (BPS)
- Constructing a watermain extension on Bruce Road 15

Site identified for new BPS at 3194 Bruce Rd 15



15

Alternative 2: Pressure Requirements

16

- MECP Design Guidelines for Drinking-Water Systems – 2008
  - Minimum 140 kPa under maximum day demand + fire flow
  - Normal pressure target of 350 to 480 kPa, and not less than 275 kPa
  - Maximum pressure should not exceed 700 kPa; where it does, provide pressure reducing devices on services
- Approximately 2 km of main with pressures above 700 kPa

16

Alternatives 3 and 4

17

- 3. Reduce demands/ limit community growth
  - Does not address need due to development commitments.
  - Not considered practical or feasible.
- 4. Do Nothing
  - Does not address the need for additional supply capacity. However, this alternative is always considered through the EA process for comparison and in case the other alternatives cannot be implemented.



17

Evaluation of Alternatives

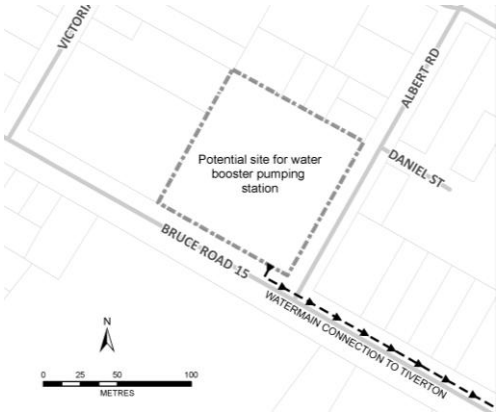
18

Alternative	Advantages	Disadvantages	Preferred?
Alternative 1 – Expand Wells or New Wells	• Make use of some existing infrastructure. • Opportunity to defer some costs associated with expansion (i.e. initially construct 1 additional well site, wait to construct another).	• Little potential to re-rate existing wells. • Probable need acquire 2 new well sites. • Potential for mineralized water & ongoing treatment needs. • May require arsenic treatment process for existing & future wells. • Will need to upgrade/replace infrastructure at existing well sites. • Expanded/new source water protection areas. • Overall cost (initial + long term).	• No
Alternative 2 – Connect to Kincardine DWS	• Sufficient supply to support growth. • Connection available at Inverhuron. • Eliminates need for arsenic treatment, upgrading/replacing existing well equipment.	• Loss of portion of park site. • Utilizes some capacity from Kincardine DWS, making it unavailable for other potential future customers. • Initial cost.	• Yes
Alternative 4 – Do Nothing	• Low cost	• Does not address problem. • Will still need to address equipment needs (well casing, electrical, mechanical).	• No

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Potential Site for Booster Pump Station

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Site Layout Option 1

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Site Layout Option 2

21

Preliminary Evaluation of Potential Impacts

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Criteria	Potential Impact	Potential Mitigation Measures
Natural	• Vegetation and tree removal for construct BPS at some locations within Park. • Limited wildlife habitat present. • No adjacent water features at the site. • Allows for decommissioning of groundwater wells (eliminates transport pathways).	• Locate the BPS in the cleared area of Park.
Social	• Adjacent properties may experience noise and traffic impacts during the construction period. • Access to site may be limited during construction. • Will support future growth in Tiverton. • Change in water taste and chemistry compared to groundwater. • Loss of a portion of the Park land. • Eliminate Source Water Protection areas around existing wells & avoid areas for new wells. • Generator will have noise impacts when operating during emergency situations.	• Localized construction-related impacts will be limited to the construction period. • Limited noise or traffic impacts when in operation.
Cultural	• Archeological Screening Stage 1 and 2 completed.	• No archeological resources were discovered.
Economic	• Capital costs associated with construction. • Probable that long-term operating & maintenance costs are lower than multiple well sites.	• Grant funding could reduce costs. • Future growth could contribute through Development Charges.
Technical	• Will provide reserve capacity in the Tiverton DWS. • Sufficient capacity for long-term growth. • Will increase system resiliency for increased water use associated with climate change related drought conditions. • Addresses issues with well casing, other equipment, and eliminates potential need for arsenic treatment process. • Less mineralized water is less corrosive to distribution equipment, household plumbing.	

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Probable Project Costs

- Probable costs:
  - Booster Pumping Station: $2,200,000
  - Trunk Watermain: $2,600,000
  - Design and Approvals: $275,000
  - Contract Administration: $335,000
- Estimated total cost: $5,410,000
- Portion of project costs attributable to future growth could be recovered through Development Charges.

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Next Steps

- Review feedback and incorporate feedback received at PIC.
- Prepare Screening Report.
- Present draft Screening Report with preferred solution to Council.
- Finalize Screening Report and issue Notice of Completion.
- Design Phase:
  - Finalize location at site.
- Apply for Approvals.
- Construction (estimated start mid to late 2025).

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Questions and Comments

Further questions or comments can be submitted to:
Lisa Courtney, B. M. Ross and Associates
lcourtney@bmross.net or 519-524-2641



25

From: [redacted]
To: lcourtney@bmross.net
Subject: INVERHURON PUMP STATION SITE PLANNING
Date: October 30, 2024 10:42:26 PM

Good evening or AM Lisa

Once again I want to than you and your collegues for the evident hard work you did in preparing such a comprehensive presentation of the issues and options.

As I indicated, our interest is in ensuring we have input into the placement of the pump station as our park site map will need to incorporate this item.

We've previously held very positive discussions with Adam Weishar and look forward to working with your team and Adam.

I need to mention and do so in order to avoid any confusion, that our nonprofit corporation received on Aug 14th 2024 consent to enter into discussions re structuring a partnership agreement with the municipality in order to develop and manage the Inverhuron Upper Park. We expect to have a signed copy of the arrangement by year end and a letter to that effect to your office.

We will of course claim domain over any and all develpments in the park which includes negotiations with your team as to the best placement of the pump house for all concerned. As I stated, we've previously had this discussion with Mr. Weishar.

We understand other parties may have opinions re the placement of the pump house and prefer to have those opinions expressed to our committee for obvious reasons. I hope this keeps your team out of our politics.

Should you require further information Lisa, I am sure Jayne Jagelewski, Director of Community Services would be happy to assist you.

Thank you again Lisa and look forward to working with you and your team.

As promised, my contact info is below.

Sincerely

[redacted]
Director
Inverhuron Non-Profit Park Development Corporation
cc. Directors
[redacted]

[redacted]



Calgary T2S 1Z3

IMPORTANT NOTICE: This message is intended only for the use of the individual or entity to which it is addressed. The message may contain information that is privileged or confidential. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify me immediately by email at [redacted] Thank you.

PROJECT UPDATE LETTER AND OPEN HOUSE INVITATION

Dear Resident

Re: Tiverton Water Supply System and Expansion Environmental Assessment Update

The community of Tiverton is serviced by a municipal water system. The water for the system is supplied from three groundwater wells, one at the Dent well site and two at the Brair Hill well site. A 2023 Water and Wastewater Master Plan looked at the capacity of the Tiverton water system to supply water for the current population as well as growth over the next 25 years. The Master Plan found that the water system in Tiverton does not have enough capacity for the proposed growth in the community. Additional water supply is needed.

The condition of the Tiverton wells was also reviewed. At the Briar Hill well site, one of the wells needs to be replaced due to the poor condition of the casing. The electrical and mechanical equipment also needs replacement. There are concerns regarding the quality of the water from the Dent Well. The water is safe to drink but does contain low levels of arsenic and higher levels of fluoride and sodium. These are naturally occurring in the groundwater.

The Municipality of Kincardine has started an Environmental Assessment (EA) to look at options to increase the water supply and address the existing concerns with the Tiverton wells. The purpose of the EA is to identify solutions, review the pros and cons, and then determine which solution should be implemented.

The first task in the EA process is to identify practical and feasible solutions to the problem. The following solutions were identified:

1. Expand the existing wells and/or construct new groundwater wells in Tiverton.
2. Construct a booster pumping station and watermain to connect Tiverton to the Kincardine Drinking Water System in Inverhuron.
3. Reduce water demands and limit growth in Tiverton.
4. Do nothing

Solutions 3 (reduce water demands) and 4 (do nothing) are not considered practical solutions. They do not address the concerns around the condition of the existing wells in Tiverton or provide the additional water supply needed.

To evaluate solution 1 (expand or construct new wells in Tiverton), a hydrogeologist looked at if the existing wells could be expanded or if new wells would be required. From that review, it was found that the ability to expand the existing wells is limited and that new wells, in addition to the existing wells, will be needed to get enough water for the community needs. The hydrogeologist also reported that any new

wells are likely to have similar water quality to the existing wells and only a 54% chance of supplying the amount of water needed for a municipal well. This solution is expected to require drilling two new wells and rebuild the Briar Hill wellhouse and well. The two new wells would also need to be drilled more than 700 m away from the existing wells and each other to avoid interference. The estimated cost to replace one of the Briar Hill wells and rebuild the well house is $3,600,000. A new well and wellhouse, to increase the water supply is expected to have a similar cost of $3,600,000. A second well and well house could be added later but is likely to cost a similar amount to the other wells ($3,600,000). The total cost for two additional wells and replacement of the Briar Hill well is $10,800,000.

The second solution is to connect Tiverton to the Kincardine Drinking Water System via a watermain along Bruce Road 15 from Inverhuron. This solution would require construction of the watermain and a Booster Pumping Station (BPS) in Inverhuron to pump the water uphill to Tiverton. The BPS would be an approximately 9.8 m x 9.8 m (32 ft x 32 ft) structure housing the pumps to push the water to Tiverton. The pumps would run off electricity, with a diesel backup generator for emergency use. The southwest corner of Inverhuron Park (3194 Bruce Road 15) has been identified as a potential site for the BPS, as there is a connection point to the Kincardine Drinking Water System, access to three-phase electrical power and the land is municipally-owned. The estimated cost of the BPS and watermain is $5,410,000. At this time, constructing the BPS and watermain is the preferred solution. It will provide the water supply needed and address the conditions around the conditions of the Tiverton groundwater wells.

Residents and those interested are invited to attend a drop-in community open house to learn more about the project, review the identified solutions and potential impacts, and provide feedback.

Community Open House – Tiverton Water Supply System and Expansion Environmental Assessment

Date: Friday May 23, 2025

Time: 4 PM – 6 PM

Location: Whitney Crawford Community Centre, 6 McKay Street, Tiverton ON.

More information on the project can be found at https://www.kincardine.ca/our-services/water-and-environmental/water-services/. This includes past notices and information from the last public meeting (in October 2024). Scroll down to find 'Expansion of the Tiverton Water Supply System'. Questions or comments about this project can be directed to Lisa Courtney at B. M. Ross and Associates lcourtney@bmross.net or 519-524-2641.

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

NOTICE OF COMMUNITY OPEN HOUSE

THE PROJECT: The Municipality of Kincardine has initiated a Municipal Class Environmental Assessment (MCEA) process to investigate increasing the supply capacity of the Tiverton drinking water system and addressing concerns related to the condition of some of the existing groundwater wells. The options being evaluated include reconstructing the Briar Hill well and drilling more groundwater wells in Tiverton (Figure 1) or connecting to the Kincardine Drinking Water System via a booster pumping station located at 3194 Bruce Road 15 in Inverhuron and a watermain connection along Bruce Road 15 (see Figure 2).

Figure 1

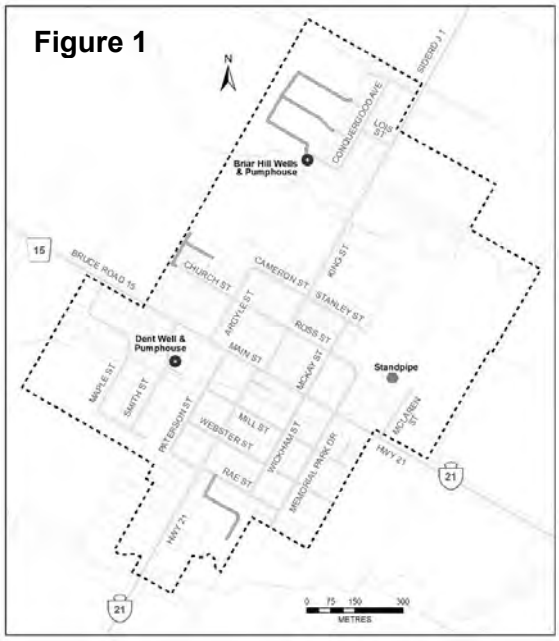
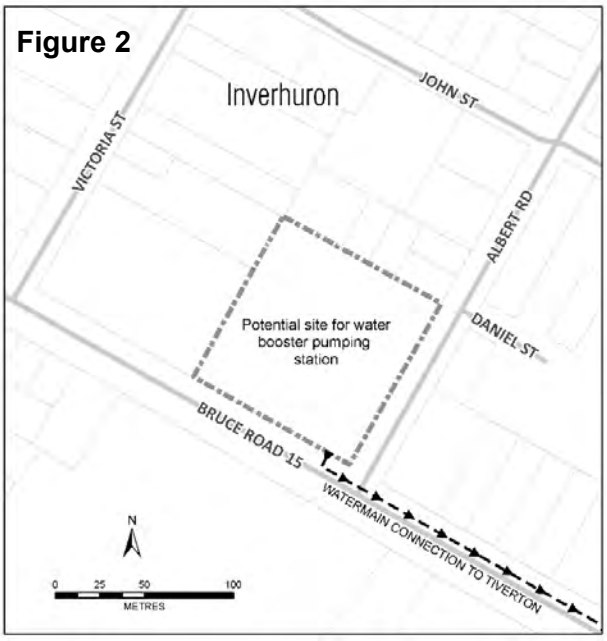


Figure 2



THE ENVIRONMENTAL SCREENING PROCESS: This project is being investigated following the MCEA process set out for Schedule 'B' activities. The purpose of the MCEA is to evaluate solutions related to infrastructure needs and follow a logical and defined decision-making process. The process incorporates the evaluation of alternative solutions, potential environmental impacts, consultation and identifies how impacts may be mitigated.

PUBLIC INVOLVEMENT: Public consultation is a key component of this study, and a Community Open House is scheduled. This meeting will provide details on the alternative solutions investigated and evaluations to address the need for additional water supply and condition of the existing wells. This meeting will also provide an opportunity for members of the public to ask questions and provide comments on the project. Details of the meeting are as follows:

Date & Time: Friday, May 23rd, 2025, 4 PM – 6 PM.
Place: Whitney Crawford Community Centre (6 McKay Street, Tiverton)

For further information regarding the MCEA process or this project, please contact Lisa Courtney, Environmental Planner at B. M. Ross and Associates (email: lcourtney@bmross.net or 1-888-524-2541). Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and may be released, if requested, to any person.

Adam Weishar, Director of Infrastructure and Development
Municipality of Kincardine

Notice issued: May 7th, 2025

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR TIVERTON SUPPLY SYSTEM AND EXPANSION

OPEN HOUSE

WELCOME

MAY 23, 2025
4 PM – 6 PM
Whitney Crawford Community Centre

Please sign in and take a comment sheet



THE MUNICIPALITY OF KINCARDINE

BMROSS engineering better communities

Current Tiverton Drinking Water System



- System is supplied by three (3) groundwater wells, drilled in 1971, 2003 and 2006. The Briar Hill well site has two wells and the Dent well site has one well.
  - At each well site there is a pumphouse containing flow metering, iron and manganese sequestering system, sodium hypochlorite system for primary and secondary disinfection, and a standby generator.
- 7.9 km of watermain and 372 connections, servicing approximately 720 persons as of 2021.

Capacity	775 m^3/day
Current maximum demand	616 m^3/day or 1.66 m^3/day per customer
Committed Capacity	424 m^3/day (256 Equivalent Residential Units)
Uncommitted Reserve Capacity	**-265 m^3/day (or – 160 ERUs)**

System is overcommitted in terms of water supply

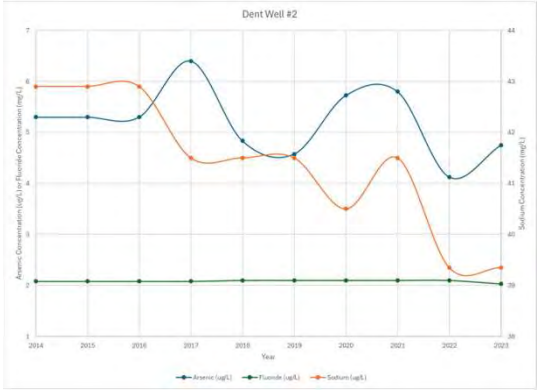
Other Issues/Concerns with Current Groundwater System

- **Condition of the Briar Hill well**
  - Casing of the well is deteriorating and could fail.
  - Mechanical and electrical equipment at the site is reaching the end of useful life.
  - Well and wellhouse likely needs to be replaced in the near future.
- **Concerns regarding water quality**
  - Water meets the Ontario Drinking Water Standards and is safe but has low levels of arsenic and higher levels of fluoride and sodium.
  - Ontario Drinking Water Standards for: Arsenic – 10 ug/L (values above have this require increased sampling frequency), Fluoride – 1.5 mg/L
  - Safe Drinking Water Act requires notice to Medical Officer of Health for sodium above 20 mg/L





Corrosion pitting on the well casing at Briar Hill Well, mineral staining, cracks in wellhouse building



Municipal Class Environmental Assessment Process (MCEA)

- The MCEA is the planning and approval process for municipal road, **water,** wastewater and stormwater projects.
- Municipalities must follow the MCEA process to meet the requirements of the Environmental Assessment Act.
- Considers the impact to the natural, social-economic, cultural and technical environments
- The MCEA process includes:
  - Consultation
  - Consideration of alternative solutions
  - Identifying impacts of the alternative solutions
  - Documenting the decision-making process.

The MCEA Process



The system lacks adequate reserve capacity in terms of supply of raw water.

Population growth will increase water needs.

Condition of well casing, electrical and mechanical equipment at end of life, potential to improve water quality & mitigate risks.

To address these issues, the Municipality of Kincardine has initiated a Municipal Class Environmental Assessment.

Phase 1 – Define the Problem or Opportunity:

The 2023 Water and Wastewater Master Plan identified the Tiverton Drinking Water System (DWS) is overcommitted and additional supply capacity is required to support future growth.

Phase 2 – Identify Alternative Solutions

1. Expand the existing wells and/or construct new groundwater supply wells.
2. Construct a booster pumping station and watermain to connect Tiverton to the Kincardine DWS at Inverhuron
3. Limit water demands and limit community growth.
4. Do nothing.

Initial Review of Alternative Solutions

Alternative	Initial Evaluation	Carried Forward for Further Evaluation (Yes or No)
1 – Expand existing or construct new groundwater wells	• May need to consider multiple well sites to achieve needed yields. • Potential to secure sufficient water supply for current and future needs. • Can connect new wells to existing water distribution system. • Will require drilling of a test well(s). • Potential for significant capital costs if multiple wells are required. • New wells will add new Source Water Protection areas. • Potential for highly mineralized raw water quality.	Yes – carry forward for further evaluation.
2 – Construct a BPS to connect to the Kincardine Drinking Water System at Inverhuron	• Sufficient supply capacity available in the KDWS to accommodate existing and future growth in Tiverton. • Would have significant capital costs. • Would require a BPS in Inverhuron and watermain to extend east on Bruce Road 15.	Yes – carry forward for further evaluation.
3 – Reduce demands/ limit community growth	• Would require a significant decrease in current water usage to provide enough capacity for committed development. • Would limit future growth opportunities in Tiverton. • Does not address the need for additional supply.	No – not considered practical or feasible given the current demand commitments and does not address existing concerns
4 - Do Nothing	• Considered if the impacts of other alternatives are too great or cannot be mitigated. • Does not address the need for additional supply. • Limits future growth opportunities. • Will be used as the benchmark for comparison of other alternatives.	Yes – must always be considered but does not address supply needs or existing concerns.

Next Step

Evaluate the impacts of Alternatives 1, 2 and 4 in greater detail.

Alternative 1: Expand Existing or Construct New Groundwater Supply

- Ian Wilson and Associates (hydrogeologists) reviewed existing well and pumping records to evaluate ability to expand existing wells and water supply from new wells.
- Ability to use/expand existing wells limited
  - Review of existing wells found little potential to re-rate existing wells.
  - Concerns with condition of Briar Hill well casing, condition of wellhouse equipment.
- New Well(s)
  - Expect similar water quality – mineralized with potential for elevated total dissolved solids, sulphate, iron and sodium. Arsenic and fluoride may be present.
  - Information from other wells indicates a 54% chance of a meaningful yield for municipal use (i.e. rate above 200 L/min). Multiple test sites can be expected.
  - Previous testing data indicates it is probable that two additional, properly-spaced well fields (i.e. spaced >700 m apart) could be required, and should be more than 350 m away from the existing wells.
  - Need to set back from existing domestic and commercial wells within the area.
- Need to maintain/rehabilitate existing well sites in conjunction with new sites.

Implementing Alternative 1 will require:

- Maintaining the existing wells, including replacing the Briar Hill well and wellhouse.
- Construction of at least one additional well site, and construction of a second new well in the future.
- May require additional treatment equipment depending on water quality of new wells.



Minimum of 350 m setback required from existing wells in and around Tiverton to avoid interference. New wells will likely need to be located outside of the community.

Potential Costs

Project Component	Cost
Replacement of Briar Hill Well and Wellhouse	$3,600,000
Additional Well 1	$3,600,000
Additional Well 2	$3,600,000
Total	$10,800,000
Unknown costs: additional water treatment equipment, additional watermain to connect new wells to system, land acquisition.	

Alternative 2: Construct a BPS to connect to the Kincardine Drinking Water System at Inverhuron

- This alternatives requires:
  - Construction of a Water Booster Pumping Station (BPS) at Inverhuron
    - Includes standby diesel generator for emergency power outages.
  - Construction of watermain connecting the BPS to Tiverton.
- Site considerations for BPS
  - Proximity to existing Kincardine Drinking Water System
  - Distance to Tiverton
  - Proximity to 3-phase electrical services
  - Minimum site size 20 m x 30 m
  - Potential for Species at Risk
  - Impacts to adjacent properties during construction and operation
  - Archaeological potential

Evaluation of Potential BPS sites

From evaluation of 11 municipally-owned sites in Inverhuron, Inverhuron Park site identified as preferred potential site for a BPS.



Criteria	Site 1 Shoreline Area South of Pine Street	Site 2 – Shoreline Area north of Pine Street	Site 3 – Shoreline area on Lake Street	Site 4 – North of Lake Street	Site 5 – McIntyre Park	Site 6 – Inverhuron Park	Site 7 – Large Wooded area on Richards Drive	Site 8 – Small Wooded Area near Inverhuron Provincial Park	Site 9 – Small wooded area on Concession 2	Site 10 – Wooded Area on Albert Road	Site 11 - Lagoons
Size of property	0.2 ha (96m by 19.5m)	0.17 hectares (33m by 47m)	0.07 hectares (15m by 47m)	0.05 ha (30m by 16m)	0.17 ha (41m by 50m)	1.99 ha (100m by 102m)	1.83 ha (212m by 415m)	0.81 ha (80m by 100m)	1.29 ha (385m by 73m)	1.26 ha (103m by 123)	14.26 ha (365m by 386m)
Archaeological Potential	Yes – stage 1&2 archaeological assessment required	Yes – stage 1&2 archaeological assessment required	Yes – stage 1&2 archaeological assessment required	Yes – a stage 1 & 2 archaeological assessment required	Yes – a stage 1 & 2 archaeological assessment required	No – archaeological assessment already completed at the site	Yes – a stage 1 & 2 archaeological assessment required	Yes – stage 1 & 2 archaeological assessment required	Yes – stage 1 & 2 archaeological assessment required	Yes – stage 1 & 2 archaeological assessment required	Yes – stage 1 & 2 archaeological assessment required
Potential Species at Risk	Wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	Wood thrush, eastern wood-pewee, Canada warbler, eastern Whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	Wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, pitcher's thistle, eastern meadowlark	Wood thrush, grasshopper sparrow, midland painted turtle, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor will, eastern milksnake, yellow-banded bumble bee, red-headed woodpecker, dwarf lake iris, golden-winged warbler, pitcher's thistle, loggerhead strike, eastern meadowlark, bobolink, least bittern	Wood thrush, grasshopper sparrow, midland painted turtle, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor will, eastern milksnake, yellow-banded bumble bee, red-headed woodpecker, dwarf lake iris, golden-winged warbler, pitcher's thistle, loggerhead strike, eastern meadowlark, bobolink, least bittern	Midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, Eastern whip-poor-will, Eastern meadowlark	Wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake and eastern meadowlark	Brewer's blackbird, pringle's coralroot, grasshopper sparrow, midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, Great Lakes sand cherry, eastern whip-poor-will, yellow-banded bumble bee, red-headed woodpecker, Great Lakes sandreed, spotted beebalm, sanddune wildrye, dwarf lake iris, golden-winged warbler, pitcher's thistle, loggerhead shrike, eastern meadowlark and bobolink	Grasshopper sparrow, midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, eastern whip-poor-will, eastern milksnake, red-headed woodpecker, eastern meadowlark and bobolink	midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor-will, yellow-headed bumble bee, red-headed woodpecker, dwarf lake iris, eastern meadowlark, RESTRICTED SPECIES, bobolink, grasshopper sparrow and eastern milksnake	Midland painted turtle, wood thrush, eastern wood-pewee, Canada warbler, snapping turtle, eastern whip-poor-will, yellow-banded bumble bee, red-headed woodpecker, dwarf lake iris, eastern meadowlark, RESTRICTED SPECIES, bobolink, grasshopper sparrow and eastern milksnake
Proximity to Existing Watermain	48m – nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site.	46m from nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site.	31m from nearest connection point to the Shoreline Distribution is on Victoria St. No watermain within the Lake St. right of way. Would require watermain extension from Victoria St. to service site. Approximately 40 m from connection point if an easement could be established between Lake Street and Victoria (note – ability to establish easement may be limited due to existing dwellings).	Watermain within unopened Lake St. road allowance	Adjacent to existing watermain	Adjacent to existing watermain	78m from nearest connection point to existing distribution system.	110m to connection point at Albert Rd.	861m - based on current extent of distribution system. If water extended to Bruce Power, distance to watermain could decrease to 175 m	204m based on current extent of distribution system. If water extended to Bruce Power, site would be adjacent to watermain.	630m based on current extent of distribution system. If water extended to Bruce Power, site would be adjacent to watermain.
Distance to Tiverton connection	6.8 km	6.6km	6.95km	3.7 km	3.76km	3.49km	5.17km	4.46km	5.69km	5.12km	5.43km
Natural Environment	Sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	Sea rocket sand beach type, colonial waterbird nesting area, sand dune wildrye. Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	Sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. Located within SVCA's regulated area along the shoreline. -Vegetation removal would be required	Little bluestem – long-leaved sand grass – Great Lakes Wheat Grass Dune Grassland type, slender wheat-grass sand barren type, sea rocket sand beach type, fringed candleflame lichen, prairie sandreed, Great Lakes sand cherry, Great Lakes sandreed, sanddune wildrye, colonial waterbird nesting area. Located within SVCA's regulated area along the shoreline. -Greater potential to disturb sensitive dunes and beach environment	Sea rocket sand beach type, colonial waterbird nesting area, sanddune wildrye. Located within SVCA's regulated area along the shoreline. -Potential to avoid tree removals through use of existing open space area	Colonial waterbird nesting area, sanddune wildrye. -Potential to avoid tree removals through use of existing open space area.	Colonial waterbird nesting area -Majority of property is identified as significant woodland	Colonial Waterbird Nesting Area. Located within SVCA's regulated area along watercourses. -Little Sauble River flows through the site (sensitive coldwater fish species present). -Area sparsely wooded.	Colonial waterbird nesting area. Located within SVCA's regulated area along watercourses. -Entire lot zoned for natural hazard relating to watercourse running through the middle of the property -Potential for impacts to watercourse during construction	Colonial waterbird nesting area, autumn coralroot, sanddune wildrye, ram's-head lady's-slipper -Property is classified as significant woodland	Colonial waterbird nesting area autumn coralroot, sanddune wildrye, ram's-head lady's-slipper
Proximity to Sensitive Receptors	Directly adjacent to Lake Huron and cottages along shoreline (between 20 and 23 m from nearest receptors). -3 dwellings adjacent to site	Directly adjacent to Lake Huron and cottages along shoreline. Four dwellings within 31 to 42 m of centre of the site.	Directly adjacent to Lake Huron and cottages along shoreline. 5 dwellings between 17 and 35 m from centre of the site.	Directly adjacent to Lake Huron and cottages along shoreline. 6 dwellings within 30 from centre of the site	7 dwellings immediately adjacent to park. Nearest dwelling is 20 m from centre of park.	Dwellings to west, east and north of park. Nearest dwelling is 70 m from centre of cleared area of park. Existing trees provide a natural buffer to west, east and north.	Majority of property is dense wooded area. One dwelling in proximity to property, located to the south	Four dwellings in proximity to site. Closest house is located 50 m from site.	No dwellings adjacent to site. Little Sauble River flows through the site (sensitive coldwater fish species present). Site is wooded.	Site is wooded. Closest house is 90m away.	No dwellings adjacent to site. Site is wooded.
Proximity to Hydro Services	2 phase power on Victoria Street (60m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2 phase power on Victoria Street (60m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2 phase power on Victoria Street (231 away). Three phase power is required and would need to be extended to this site, which could have significant cost.	12m from Lake Street that has 3 phase power line. Three phase power is required and would need to be extended to this site, which could have significant cost.	Adjacent to 3 phase power line	Adjacent to 3 phase power line - close connection	Adjacent to 2 phase power. -10 m from 3 phase power. -three phase power is required and would need to be extended to this site, which could have significant cost.	Currently no hydro services to site. 3 phase power located on Albert Street, 105m from site. Three phase power is required and would need to be extended to this site, which could have significant cost.	2 phase power at the intersection of Albert Street and Concession 2 (220 from site) and three phase power at the lagoons (415m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2 phase power is located at the intersection of Albert Street and Concession 2 (83m away). 3 phase power is located at the lagoons (280m away). Three phase power is required and would need to be extended to this site, which could have significant cost.	2 phase power is located at the intersection of Albert Street and Concession 2 (83m away). 3 phase power is located at the lagoons (280m away). Three phase power is required and would need to be extended to this site, which could have significant cost.
Construction Related Impacts	-Removal of most of the trees on the property would be required. -Would impact SAR birds and reduce natural buffer between adjacent properties. -Construction activities within close proximity to existing dwellings -Potential impacts to SAR plants and sensitive beach environment -Potential for high groundwater at site due to proximity to lake	-Tree removal would be required – impacts to SAR birds and reduces natural sound buffer for adjacent dwellings. -Potential impacts to SAR plants and sensitive beach environment- -Construction activities within close proximity to existing dwellings. -Potential for high groundwater due to proximity to lake	-Tree removal – impacts to SAR birds and reduction to natural buffer between adjacent dwellings. -Potential impacts to SAR plants and sensitive beach environment. -Construction activities within close proximity to existing dwellings -Potential for high groundwater due to proximity to lake	-Potential to impact SAR plants and sensitive beach environment. -Likely less vegetation to remove but greater potential to disturb sensitive beach areas. -Access site with large equipment may be difficult -Given size and location of site, materials and equipment will likely need to stored offsite -Construction activities within close proximity to existing dwellings -Potential for high groundwater at site due to proximity to lake	-Access to park will be limited during construction -Access to the parking area to the south of the property may also be limited -Limited impacts to vegetation (majority of site is grass lawn that is regularly mowed) -Construction activities within close proximity to existing dwellings	-Access to a portion of the park will be limited during construction. Potential to keep access to existing play equipment. -Limited impacts to vegetation if cleared area of site is utilized -Southern portion of site is grass lawn that is regularly mowed) -Existing trees will buffer construction noise and activities for adjacent properties. -Sufficient laydown and material storage space on site.	-Tree removal will be required -potential impact to SAR birds. Site identified as Significant Woodland. -Natural heritage study required. -Additional tree removal/trimming may be required for watermain extension	-Tree removal – impacts to SAR birds -Construction activities within close proximity to existing dwellings. -Additional tree removal/trimming may be required for watermain extension	-Tree removal – impacts to SAR birds -Potential impacts to Little Sauble River running through middle of the site.	-Tree removal – impacts to SAR birds Site identified as Significant Woodland. Natural heritage study required.	-Potential for tree removal – impacts to SAR birds, depending on where BPS located on site. -Additional tree trimming/removal may be required for watermain extension.
Operation Related Impacts	-Noise from generator impacting neighbouring cottages during power outages. -Floodproofing may be required during proximity to lake	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake	-Noise from generator impacting neighbouring cottages during power outages -Floodproofing may be required due to proximity to lake -Loss of recreational beach area for BPS site.	-Noise from generator impacting neighbouring cottages during power outages -Will result in permanent loss of parkland for BPS site. Due to small size of park, proportion of site utilized by BPS is larger.	-Will result in permanent loss of parkland for BPS site. -Majority of park will remain available for recreational use. -Noise from generator during power outages may be mitigated by woodlands to east, north and west.	-Noise from generator may impact dwelling to the south during power outages	-Noise from generator impacting neighbouring dwellings during power outages.	-Not expected to have any impacts to adjacent properties	-Not expected to have any impacts to adjacent properties	-Not expected to have any impacts to adjacent properties.

Alternative 2: Construct a BPS to connect to the Kincardine Drinking Water System at Inverhuron

- Probable costs:
  - Booster Pumping Station: $2,200,000
  - Trunk Watermain: $2,600,000
  - Design and Approvals: $275,000
  - Contract Administration: $335,000
- Estimated total cost: $5,410,000 + HST
- Decommissioning existing wells/wellhouses are additional future costs.

Site Layout Option 1



Site Layout Option 2



Photo rendering of potential BPS and generator to show approximate size and scale.

The building size will be approximately 9.8 m (32 ft) x 9.8 m (32 ft)

Façade of the building shown is only for illustrative purposes. Decision on the exterior materials for the building will be made during the design phase.



Examples of other BPS buildings


Gary St. BPS - Kincardine


Walker West BPS - Walkerton


St. George Street BPS – St. Marys


Anne St. BPS - Barrie


Stanley BPS - Bluewater

Evaluation of Alternatives

- Summary of advantages and disadvantages

Alternative	Advantages	Disadvantages	Preferred?
Alternative 1 – Expand Wells or New Wells	• Make use of some existing infrastructure. • Opportunity to defer some costs associated with expansion (i.e. initially construct 1 additional well site, wait to construct another).	• Little potential to re-rate existing wells. • Probable need for two new well sites. • Potential for mineralized water & ongoing treatment needs. • May require arsenic treatment process for existing & future wells. • Will need to upgrade/replace infrastructure at existing well sites. • Expanded/new source water protection areas. • Overall cost (initial + long term).	• No
Alternative 2 – Connect to Kincardine DWS	• Sufficient supply to support growth. • Connection available at Inverhuron. • Eliminates potential need for arsenic treatment, upgrading/replacing existing well equipment. • Lower operation and maintenance costs over the long term.	• Loss of portion of park site. • Utilizes some capacity from Kincardine DWS, making it unavailable for other potential future customers. • Initial cost.	• Yes
Alternative 4 – Do Nothing/ Status Quo	• Lower cost	• Does not address problem. • Will still need to address equipment needs (well casing, electrical, mechanical).	• No

Preferred solution is Alternative 2: Construct a BPS and watermain to connect to the Kincardine Drinking Water System

Evaluation of Alternatives

Component	Alternative 1 – Expand the Existing or Construct a New Groundwater Supply	Alternative 2 – Construct a Connection to the Kincardine DWS	Alternative 4 – Do Nothing
Natural – Significant Natural features	○ No significant natural features within the vicinity of or adjacent to the existing wells ◔ New well sites may have the potential to impact a significant natural feature as they will likely be located outside of the community of Tiverton. ◔ Low level of impact.	○No significant natural features within the vicinity of or adjacent to the proposed BPS site and road allowance. ○ Minimal level of impact.	○ No significant natural features within the vicinity of or adjacent to the existing wells. ○ Minimal level of impact.
Natural – Species at risk	◔ New well sites may have the potential to impact species at risk. ◔ Low level of impact.	◔ The BPS has a small footprint and could be placed in previously disturbed areas (cleared for parkland). No species at risk are present at the site. ◔ Operation of BPS and watermain extension is not expected to impact any species at risk or their habitat. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.
Natural – Wildlife	◔ New well sites may have the potential to impact wildlife and their habitat. ○ Operation of the well is not expected to impact any wildlife or their habitat. ○ Low level of impact.	◔ The BPS has a small footprint within a previously disturbed area (cleared for parkland). ○ Operation of BPS is not expected to impact any wildlife or their habitat. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.
Natural – Vegetation	◔ New well sites may require clearing of vegetation for wellhouses ◔ Low level of impact.	◔ BPS can be sited to avoid treed areas of site. ◔ Vegetation removal will occur during construction of BPS. Grass is the primary type of vegetation that will be removed ○ Operation or construction of the BPS is not expected to impact trees or vegetation adjacent to the well site. ◔ Low level of impact.	○ No change in impacts. ○ Minimal level of impact.
Natural – Surface water quantity and quality	◑ Test wells will be drilled to conduct pumping test. Water from pumping tests will be directed to local stormwater infrastructure, if available, or discharged to ditch or overland. ◑ Potential for impacts to local surface water quantity and quality from pumping tests. ◑ Moderate level of impact.	○ The only surface water area feature in the immediate vicinity is the existing ditches along Bruce Road 15. ◔ Potential for impacts to surface water during construction, related to construction activities. ○ Sediment and erosion impacts on surface water are expected to be minor and can be minimized with standard construction mitigation measures. ◔ Low level of impact.	◑ Replacement of Briar Hill Well 1 still required under this alternative. Drilling and testing of new well may impact local surface water quantity and quality. ◑ Moderate level of impact.
Natural – Groundwater quantity and quality	◑ Drilling of wells has the potential to impact water levels in local wells utilizing the same aquifer. ◑ Construction of additional wells creates additional transport pathways to groundwater aquifers. ◔ Long-term operation of the well is not expected to impact local aquifer quantity as the pumping test and assessment indicated acceptable water level recovery and a 10-year water level above the upper water-bearing zone. ◑ Moderate level of impact.	○ Would allow for all or some of the existing municipal wells to be decommissioned, reducing the number of transport pathways to the aquifer. ○ Reduces dependence on groundwater aquifers. ○ Minimal level of impact.	◑ Replacement of Briar Hill Well #1 still required under this alternative. Drilling and testing of new well may impact local groundwater levels. ◑ Moderate level of impact.
Natural – Air quality, dust and noise	◔ Drilling of wells will increase noise locally during drilling activities. ◔ Normal operation of well is not expected to create additional noise, dust, or air quality impacts. ◔ A diesel generator will be installed at the site for emergency power outages. ◔ Low level of impact.	◔ Construction of the Watermain connection will increase noise locally during construction activities. ◔ Normal operation of the BPS and watermain is not expected to create additional noise, dust, or air quality impacts. ◔ A diesel generator will be installed at the site for use in emergency power outages. Adjacent residents will experienced elevated noise levels during operation of the generator. Noises will be mitigated by acoustical enclosure of generator and existing tree buffer to north, west and east of the site. ◔ Low level of impact.	◔ Replacement of Briar Hill Well #1 will increase noise locally during drilling activities. ◔ Low level of impact.
Natural – Climate change	◔ Construction will require heavy equipment that will release Greenhouse Gases (GHG) as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ A backup diesel generator will be utilized during emergency power outages. ◔ Low level of impact.	◔ Construction will require heavy equipment that will release GHG as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ Operation of BPS will require electricity. Design of the BPS will consider energy efficiency. ◔ A backup diesel generator will be utilized during emergency power outages. ◔ Low level of impact	◔ Construction of replacement of Briar Hill well will require heavy equipment that will release GHGs as emissions. Impacts related to construction may be reduced through equipment and materials selection. ◔ Low level of impact
Social – Adjacent Land Uses	◔ Drilling of test wells and construction of wellhouses may impact adjacent properties. ◔ Impacts will vary depending on potential sites identified. ◔ Low level of impact.	◔ Adjacent land uses may be impacted temporarily during construction activities. ◔ Operation of the BPS and watermain extension is not expected to impact adjacent land uses. ◔ Low level of impact.	○ No change from current conditions. ○ Minimal level of impact.
Social – Source Water Protection	◑ Any new wells will create new WHPA areas. ◑ Residents within WHPA A or WHPA B with a vulnerability score of 10 will be required to have their septic systems inspected on a 5-year basis. ◑ No new lots serviced by septic systems will be permitted within the highly vulnerable area around the well. ◑ Residents will be impacted by Source Protection policies in WHPAs around new well. ◑ Moderate level of impact.	○ Potential to reduce WHPAs within Tiverton if wells are decommissioned. ○ Minimal level of impact	○ No change from current conditions. ○ Minimal level of impact.
Social – local disruptions	◑ Construction of well housing and drilling will result in temporary noise and construction disruptions for adjacent property owners. ◑ If extension of water distribution is required to connect to new wells, there is a potential for local road closures. ◑ Moderate level of impact.	◑ Construction of BPS and watermain extension will result in temporary noise and construction disruptions for adjacent property owners. ◑ Public access to the park will be restricted during the construction of the BPS. ◑ Will result in a loss of a portion of the existing parkland. ◑ Traffic along Bruce Road 15 can expect delays during the construction of the watermain extension. ◑ Moderate level of impact.	◑ May have service interruptions during replacement of Briar Hill Well #1. ◑ Moderate level of impact.
Social – health and safety	◑ Water supply from new wells is expected to be mineralized with elevated levels of total suspended solids, iron, fluoride and sulphates. ◑ May have service interruptions during replacement of Briar Hill Well #1. ● May need future arsenic treatment at Dent Well. ● High level of impact.	◔ Water supplied by KDWS has lower iron, fluoride and sulphate levels. ◑ Residents will notice difference in the taste of water supplied from KDWS as it is less mineralized. ◑ Moderate level of impact.	◑ Water quality will continue to have elevated levels of total suspended solids, iron, fluoride and sulphates. ◑ May have service interruptions during replacement of Briar Hill Well #1. ● May need future arsenic treatment at Dent Well. ● High level of impact.
Social – construction Impacts	◔ New wells likely to be sited outside of the current community which may minimize construction impacts to adjacent properties. ◑ Replacement of Briar Hill Well would result in localized noise and traffic increases which may impact adjacent properties. ◑ Moderate level of impact.	◑ Construction of BPS at the proposed site will limit public access to a portion of the park. ◑ Adjacent properties will experience an increase in localized noise and traffic during construction. ◑ Construction of the watermain extension has the potential to interrupt traffic along Bruce Road 15. ◑ Moderate level of impact.	◑ Replacement of Briar Hill Well would result in localized noise and traffic increases which may impact adjacent properties. ◑ Moderate level of impact.
Social – future development	◑ Potential to secure sufficient capacity to support future growth. May require multiple new well sites. ◑ Water quality similar to the existing well. ◑ Moderate level of impact.	○ Sufficient supply capacity from the KDWS. ○ Sufficient capacity within distribution watermain from KDWS. ○ Minimal level of impact.	● Opportunity for future development will be restricted under this scenario due to limited capacity in existing wells. ● High level of impact.
Cultural – Archaeological and cultural heritage resources	◑ Potential for impacts to built heritage resources, cultural heritage landscape and archaeological resources depending on the location of new well sites. ◑ Archaeological and cultural heritage studies could be required. ◑ Moderate level of impact.	◔ Stage 1-2 Archeological Assessment completed for BPS site and found low potential for archaeological resources. ◔ Checklist for built heritage resources and cultural heritage landscapes identified low potential for impacts. ◔ Low level of impact.	○ No change from current conditions. ○ Minimal level of impact.
Economic – capital cost and operating costs (costs shown are 2024$ and exclusive of HST)	◑ Will likely require acquiring additional land for new well sites. ● The preliminary probable cost for reconstruction of the existing well and pumphouse is: $3,600,000. ● The preliminary probable cost for a new additional well and pumphouse is $3,600,000. There will be additional costs associated with land acquisition and additional watermain needed to connect to the system from new well sites. ● The preliminary probable cost for a second new well and pumphouse is $3,600,000. There will be additional costs associated with land acquisition and additional watermain needed to connect to the system from new well sites. ◑ May require additional treatment processes for arsenic in the future. ◑ Opportunity to defer costs associated with expansion (i.e. initially constructing one additional well site, waiting to construct a second) ◑ Expected to be paid through existing rates, reserves, and development charges. ● Additional operating costs will be incurred with additional wells. ● High level of impact.	○ No additional land acquisition required. ● Preliminary probable cost for the new BPS and watermain extension: $5,410,000. ◑ Expected to be paid through existing rates, reserves, and development charges. ◑ Will have operating expenses associated with new BPS and trunk watermain. ● No ability to phase or defer costs. ● High level of impact.	◑ Cost for reconstruction of the existing well and pumphouse is: $3,600,00 to maintain existing water commitments. ◑ May require additional treatment processes for arsenic in the future. ◑ Moderate level of impact.
Economic – Property Acquisition	◑ Will likely require acquiring additional land for new well sites. ◑ Property costs are in addition to those noted above. ◑ Moderate level of impact.	○ No additional land acquisition required. ○ Minimal level of impact.	○ No additional land acquisition required. ○ Minimal level of impact.
Economic – life cycle costs	◑ Additional lifecycle costs will be associated with new wells and associated treatment facilities. ◑ Mineralized raw water quality shortens the expected life of well equipment. ◑ Moderate level of impact.	◑ The addition of the BPS and watermain extension are additional assets that will require eventual replacement. ○ Will allow the Municipality to decommission some or all of the groundwater wells and associated aged assets. ◑ Moderate level of impact.	◑ Requires the replacement of Briar Hill Well #1. ◑ No additional lifecycle costs, but mineralized water will continue to shorten the expected life of well equipment in Tiverton. ◑ Minimal level of impact.
Technical – water quality and quantity	● Water quality from new wells is expected to be mineralized, with elevated total suspended solids, fluoride, sodium, iron and sulphates. ● Multiple wells will be likely be required to achieve required quantity. ◑ May require arsenic treatment at Dent Well site in the future. ● High level of impact.	◔ Water supplied from KDWS is not mineralized. Will have less impact on equipment/ distribution system. ◔ Sufficient supply and distribution capacity within KDWS. ◔ Low level of impacts.	● Water will continue to have elevated total suspended solids, fluoride, sodium, iron and sulphate. ◑ May require arsenic treatment at Dent Well site in the future. ● Insufficient supply to support committed future development. ● High level of impact.
Technical – impacts to existing infrastructure	◑ Requires replacement of Briar Hill Well #1 and replacement of end of life mechanical and electrical equipment. ◑ Limited potential to expand existing wells. ◑ Requires maintenance of Dent well and building ◑ Limited potential for a new well site within existing municipal lands and urban boundary – likely to require extension of distribution watermain. ◑ Moderate level of impact.	◔ An existing well could be maintained for backup supply if additional redundancy beyond existing storage is required. ◑ Design will have to consider pressure impacts to service connections near the BPS. May require pressure reducers. ◑ Moderate level of impact.	◔ Existing infrastructure will require ongoing maintenance to ensure continued operation. ◑ Requires replacement of Briar Hill 1 Well and replacement of end of life mechanical and electrical equipment. ◑ Moderate level of impact.

Next Steps

- Review feedback and incorporate feedback received at PIC.
- Prepare Project File Report.
- Present Project File Report with preferred solution to Council.
- Finalize Project File Report and issue Notice of Completion.
- Design Phase — Finalize location at site.
- Apply for Approvals.
- Construction

After EA is complete, the Municipality can proceed with project anytime within a 10-year window

Thank you for attending.

Please submit any questions or comments by June 6, 2025 to:

Lisa Courtney, B. M. Ross and Associates Limited
lcourtney@bmross.net or 519-524-2641

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 16, 2025 11:49 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Tiverton/Inverhuron Water 24014

Categories: Archived

Hi[redacted],
Thank you for reaching out. I have forwarded your request for consideration of the Municipality assuming the road and the provision of municipal water service to Adam Weishar, the Director of Infrastructure and Development, and Mark O'Leary, Manager of Environmental Services, so that they are aware of it.

Thank you very much and if you have any further questions or comments, please let me know.
Have a nice long weekend,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 16, 2025 10:09 AM
To: lcourtney@bmross.net
Cc: [redacted]
Subject: Tiverton/Inverhuron Water

Lisa Courtney, B.M. Ross and Associates (519) 524-2641

The Municipality of Kincardine

RE: Community Open House - Tiverton Water Supply System & Expansion - May 23

When a final decision is made, if it is Option 2... to construct a booster pumping station & watermain to connect Tiverton to the Kincardine Drinking Water System in **Inverhuron**... please consider the following.

Ruff Road, Archie Street and Cedar Street in Inverhuron are **NOT maintained by the Municipality** for some reason. The Roads have recently been bought by [redacted] whom are turning their cottage into a permanent residence at 18 Archie Street, Inverhuron. They paid $5,000 for the roads. It is a lot of work and stress. It may be better for the Municipality to take over responsibilty to properly maintain the roads.

When Option 2 happens, we would like to have Muncipal water over to the [redacted] family cottage located at 17 Archie Street, Inverhuton. [redacted] expressed her desire to have water 20 years ago.

We do NOT have running water or indoor plumbing to this day. We bring our jugs of water up from London when we go. It is getting harder now that [redacted] is now age 80.

[redacted] took over the [redacted] family cottage 13 years ago, after his [redacted] passing. It would make "common sense" to do this construction work at the same time.

People have been paying $30,000 to have a well dug and septic systems installed. As we know from the Walkerton water disaster... wells may get ecoli bacteria and are NOT always safe & reliable.

The [redacted] pay a high amount for taxes, but do NOT have any services - except Hydro One and it is ONLY used a few weeks during the summer months.

Regards,

[redacted] on behalf of my husband - [redacted], 17 Archie Street, Inverhuron

London, ON [redacted] is our London land line telephone

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 20, 2025 8:55 AM
To: [redacted]
Subject: RE: Meeting fri may 23 24014
Attachments: image001.jpg

Categories: Archived

Good morning [redacted]
Thanks for reaching out. I do plan on bringing a map showing an option for placing the building that includes the location of the generator, as well as a mockup of the building and generator on a photo of the site. Thanks for the suggestion and I will see you on Friday.
Thanks again and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 19, 2025 6:56 PM
To: lcourtney@bmross.net
Subject: Meeting fri may 23

Hi Lisa. I was at and meeting on Sunday may 18th that bill Stewart had. First let me tell you that I'm a yay. Billy showed us where the building would be but he didn't mention this large generator. He said building would be 32x32. Attached pic is the water pump behind No Frills in kincardine which he encouraged is to visit. I hope you bring a mockup that places the generator too, that would be helpful. Thank you. I'll be at this fri meeting too. Good luck!
Peace. [redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 21, 2025 4:25 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Tiverton booster pump 24014

Categories: Archived

Good afternoon [redacted]

Thanks for reaching out. I will include your comments in our summary of the meeting back to the Municipality.

I appreciate you taking the time to let me know your thoughts.

Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

-----Original Message-----
From: [redacted]
Sent: May 21, 2025 4:01 PM
To: lcourtney@bmross.net
Cc: [redacted]
Subject: Tiverton booster pump

Ms. Courtney:
My husband and I do not feel that we need to attend the meeting on Friday.
We are fairly neutral on the project with no strong opinion either way.
However, you may hear from other residents our only caveat is “that the Municipality of Kincardine needs to support our community in a more positive fashion and not ask us to give constantly and pay constantly (ie. taxes, garbage, schools, water, streets etc.). “ Many residents are seasonal.

[redacted]

Sent from my iPhone

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 22, 2025 8:29 AM
To: [redacted]
Subject: RE: Inverhuron pumping station meeting 24014

Categories: Archived

Good morning [redacted]
We tried striking a balance in picking the time for a meeting that might work for folks in Inverhuron and Tiverton as well. Unfortunately, it is difficult to organize a meeting at a time that suits everyone. If we find tomorrow afternoon that we still have folks coming in towards the end of the meeting, I am quite happy and willing to stay longer. We will also post digital versions of the display boards on the Municipality's website following the meeting, so those who cannot attend can view the material, with links to my contact information for further questions or comments.

Here is where you can find more information about the project, including a recording of the previous public meeting: https://www.kincardine.ca/our-services/water-and-environmental/water-services/ - scroll down to 'Expansion of the Tiverton Water Supply System'.

Thanks for reaching out and feel free to let me know if you have any further questions or comments.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 21, 2025 6:18 PM
To: lcourtney@bmross.net
Subject: Inverhuron pumping station meeting

Good afternoon

This topic is extremely important to the residence of Inverhuron, this proposed pumping station is in my backyard. Please explain why such an important meeting is held during the day when patrons work, and cottager's usually travel to be at there cottage for the weekend?

Is this so our voices arnt heard?

[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 22, 2025 4:14 PM
To: [redacted]
Subject: RE: Inverhuron proposed pump station project to move water to Tiverton 24014

Categories: Archived

Good afternoon [redacted],
Thanks for reaching out with your comments. I appreciate you taking the time to do so.

Through the EA process, we have been looking at other potential sites for the water booster pumping station, including the municipally-owned land at Concession 2. Every site has pros and cons. One of the drawbacks of that area (Concession 2), is the additional distance from Tiverton (roughly 1.5 km further) results a longer high-pressure watermain which is significantly more costly. The additional cost could be in the range of $750,000 to $1,000,000 extra, so that is one of the drawbacks of having the booster pumping station in that area.

I will certainly include your comments in our report back to the Municipality. After the meeting, copies of the display boards from the meeting will be posted on the Municipality's website and once they are up, I will send you a link so you can view them.

Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 22, 2025 2:03 PM
To: lcourtney@bmross.net; [redacted]
Subject: Inverhuron proposed pump station project to move water to Tiverton

Good afternoon Liisa, Bill and Amberly,

My wife [redacted] and I own 249 Victoria Street, in Inverhuron.

We enjoy the quaint and quiet area in the winter season, and thoroughly enjoy the busy summer season, with so many events held by the IDRA in the parks and beaches. Our kids, and one day our grandkids, will also enjoy the beautiful area as well.

[redacted] and I believe that a water pump station over on Conc Rd 2 closer to Bruce Power, on town owned land, is a much more feasible plan to look at, and action. We do NOT wish for any further action to be taken towards a pump station at the park in Inverhuron.

We are unable to make the meeting tomorrow at 4pm, as we are both working.

Thank you.

--

[redacted]



[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 26, 2025 2:46 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Proposed Pumping Station - Inverhuron Upper Park 24014

Categories: Archived

Hi [redacted],
Thank you for taking the time to send in your comments. It is appreciated. The comments we receive are incorporated into the EA report, as well as help us evaluate the alternatives being considered. We will also provide all the comments received following the meeting in a summary to the Municipality.

Thanks again and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 25, 2025 1:50 PM
To: lcourtney@bmross.net
Cc: [redacted]
Subject: Proposed Pumping Station - Inverhuron Upper Park

Hi Lisa,

My wife and I were unable to attend your presentation in Tiverton last Friday but did get to Bill Stewart's community discussion the previous weekend. It is unfortunate that so many things which impact the cottage community are held at times inconvenient or impossible for the property owners.

The little park space Inverhuron has is quite important to the community. This would scarcely be apparent to anyone driving by or casually visiting because the two small open areas (of which this is one) are often deserted. Most activity takes place on the beach, but occasionally we get strong winds and rough water, which change this. The two parks become the only substantial outdoor open areas for local children to gather and play when the beach is not an option.

We think a better location for a pumping station to serve Tiverton with water would be the other end of Albert Road near the Hydro property. There is adequate land there and a straight run up Concession 2 to Tiverton. Construction for a waterline would interfere far less with access to Inverhuron than would

running the line up the 15th of Bruce, and access to Bruce Nuclear would still be available via Concession 4.

We realise the upper park at Inverhuron is Municipal property and therefore a cheap and easy option, but we do not expect it to be popular with the Inverhuron community, or the least disruptive, or the best long term solution considering the value and importance the parks represent, and especially so if Inverhuron grows.



Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: May 27, 2025 10:41 AM
To: [redacted]
Subject: RE: Tiverton water 24014
Attachments: image003.jpg; image002.jpg; image001.jpg

Categories: Archived

Hi [redacted]
Thanks for sending in your comments and the photos of that well. Appreciate you taking the time to do so.

I have been able to find some more information about that particular well. It is currently being used as a groundwater monitoring well for the Provincial Groundwater Monitoring Network by the Saugeen Conservation Authority. Our hydrogeologist did have a look at the records for that well and what the wells in the Tiverton area might be able to produce under the higher pumping rates needed for a municipal well (compared to a domestic well). For a municipal well, we would want to see, at minimum, the well able to produce 200 L/min or 44 gallons a minute. The theoretical yield likely from this well is 31.8 gallons a minute, so it is not likely to be able to produce the quantity of water we need for even a single additional municipal well.

Please let me know if you have more questions or comments. Thanks and cheers,

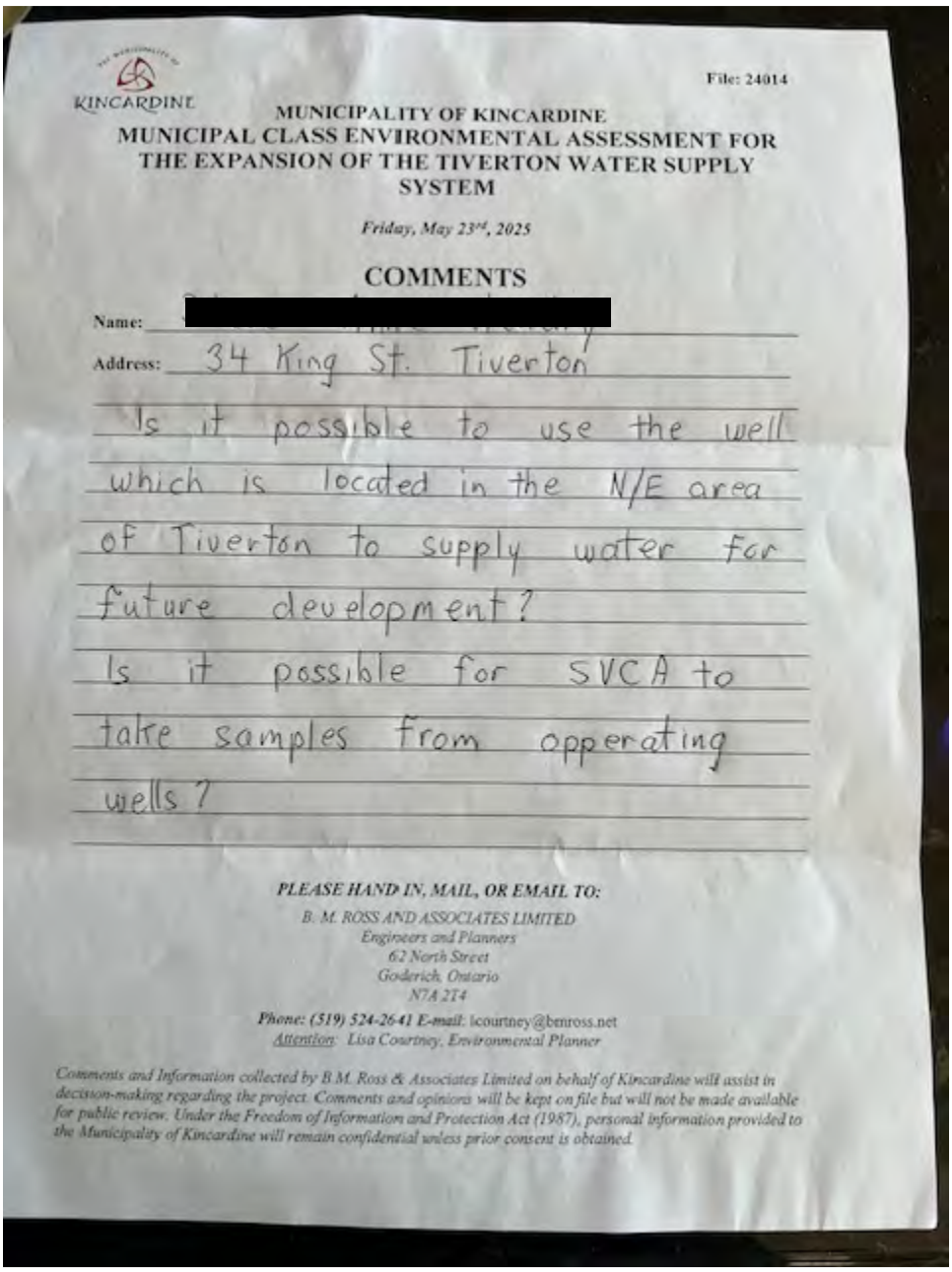
Lisa J. Courtney, M.Sc. RPP, MCIP
B. M. Ross and Associates Limited
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: May 26, 2025 8:34 AM
To: lcourtney@bmross.net
Subject: Tiverton water




PGMN Well Casing ID



KINCARDINE

File: 24014

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR THE EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

Friday, May 23rd, 2025

COMMENTS

Name: [redacted]

Address: 34 King St. Tiverton

Is it possible to use the well which is located in the N/E area of Tiverton to supply water for future development?

Is it possible for SVCA to take samples from opperating wells?

PLEASE HAND IN, MAIL, OR EMAIL TO:

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, Ontario
N7A 2T4

Phone: (519) 524-2641 E-mail: lcourtney@bmross.net
Attention: Lisa Courtney, Environmental Planner

Comments and Information collected by B.M. Ross & Associates Limited on behalf of Kincardine will assist in decision-making regarding the project. Comments and opinions will be kept on file but will not be made available for public review. Under the Freedom of Information and Protection Act (1987), personal information provided to the Municipality of Kincardine will remain confidential unless prior consent is obtained.

Sent from [redacted] iPhone

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 3, 2025 1:47 PM
To: [redacted]
Cc:
Subject: RE: Pumping station 24014

Categories: Archived

Hello [redacted],
Thank you for taking the time to provide your comments regarding the water booster pumping station. Your comments will be incorporated into the EA report for the project as well as shared with staff and Council, with the other comments received.

Again, thank you for reaching out. Cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 3, 2025 11:52 AM
To: lcourtney@bmross.net
Cc: [redacted]
Subject: Pumping station

Hello,

As a longtime cottager and taxpayer at Inverhuron, I am writing to object to the location of a pumping station at the park there.

My children and grandchild have used (and still use) the park over the years and it seems to me that this station which services Tiverton should be located there or at a site not used by the public, rather than intruding into the space of a small park in our community.

Sincerely,
[redacted]
95 Lake Street
Inverhuron

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 3, 2025 4:44 PM
To: [redacted]
Subject: RE: Our opposition to Proposed Booster Pumping Station- Inverhuron Upper Park 24014

Categories: Archived

Hello [redacted]
Thank you for taking the time to provide your comments. They will be incorporated and included in the EA report, as well as provided to staff and Council. I will also add your email address to our circulation list so you will receive updates on the next steps of the process.

If I may offer some clarity on why a pumping station located in Inverhuron is identified as a way to supply water to Tiverton: the Kincardine Drinking Water System currently supplies areas of Inverhuron and Inverhuron Provincial Park. The nearest connection point to the Kincardine Drinking Water System from Tiverton is at Inverhuron and in order for water to get from the connection point at Inverhuron to Tiverton, a booster pumping station is required. The booster pumping station is required to pump the water up to Tiverton, because the difference in elevation from Inverhuron to Tiverton is approximately 200 ft. We cannot use gravity to get the water from Inverhuron to Tiverton, so it must be pumped from the connection point.

Once again, thank you for your comments. Have a nice evening,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: Leslie Barrett-Sanderson <lesliebarrettsanderson@gmail.com>
Sent: June 3, 2025 3:29 PM
To: Bill Stewart <bstewart@kincardine.ca>; lcourtney@bmross.net; Adam Weishar <aweishar@kincardine.ca>
Cc: [redacted]
Subject: Our opposition to Proposed Booster Pumping Station- Inverhuron Upper Park

[redacted] and I oppose the construction of a water pumping station or any other municipal infrastructure at Inverhuron Upper Park. It offers no benefits to the residents of Inverhuron especially to those of us who do not have access to the municipal water supply.

This park is an essential recreation/community area and green space.

The Municipality has not provided Inverhuron with any investments that would encourage sports, outdoor and family gatherings. In the past we have had delegations request the installation of bathrooms at this park. They would represent a far more appropriate investment of our tax dollars.

Furthermore, it is not clear to us why this pumping station needs to be located in our community if the supply is for Tiverton.

We request that you explore more appropriate locations. Thank you for the offer to keep us advised of next steps.

[redacted]

139 Lake Street

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 3, 2025 4:49 PM
To: [redacted]
Subject: RE: Proposed Booster Pumping Station 24014

Categories: Archived

Hello [redacted],

Thank you for taking the time to submit your comments. They will be incorporated into and included in the EA report, as well provided to staff and Council.

Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

-----Original Message-----
From: [redacted]
Sent: June 3, 2025 3:20 PM
To: Bill Stewart <bstewart@kincardine.ca>; lcourtney@bmross.net
Cc: [redacted]

Subject: Proposed Booster Pumping Station

Dear Bill,

Thank you for your efforts to keep us informed of Kincardine municipal plans as they relate to Inverhuron.

For the record, I oppose construction of a booster pumping station or any other municipal infrastructure at Inverhuron Upper Park which is a recreational and community facility and a green space.

[redacted]

87 Lake Street South
Inverhuron, ON
[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 3, 2025 4:56 PM
To: [redacted]
Subject: RE: Documenting Community Concerns and Ensuring True Transparency in the Inverhuron BPS Proposal 24014

Categories: Archived

Hello [redacted],
Thank you for taking the time to send in your comments and concerns. It is appreciated. Your comments, and all the other comments received will be incorporated and included into the EA report for this project. We will also provide all the comments received to staff and Council. I have also added your email to our circulation list, so you will be notified of subsequent updates relating to this project.

I have put some clarifications in green text below, please feel free to reach out if you have any questions. Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 2, 2025 9:02 AM
To: lcourtney@bmross.net
Cc: [redacted]
Subject: Documenting Community Concerns and Ensuring True Transparency in the Inverhuron BPS Proposal

Dear Lisa,

I'm writing to ensure that my concerns — and those of many residents — are officially noted as part of your team's process for the proposed Booster Pumping Station (BPS) in Inverhuron.

Although I moved here full-time in 2017, my roots in this community run deep. My great-grandparents built a cottage here in the early 1900s, and Inverhuron has been part of my life for as long as I can remember. Now, I'm raising my two children in the same parks and lakeshore spaces that have connected generations of our families to this land.

This project, as proposed, threatens to permanently alter that connection. The upper park may not be "ours" on paper, but it has always felt like it — a place of community gatherings, of laughter echoing through summer

evenings, of memories built across decades. To consider replacing that with an industrial utility is not just about changing land use; it's about erasing the shared heritage and quiet strength of this community.

Here are my core concerns and points I want documented clearly:

1. Process Integrity & Public Trust
Your letter to residents on May 9, 2025, announced a "preferred solution" — a BPS at 3194 Bruce Road 15 — before the Class EA process was complete. This is deeply troubling. The 2022 Master Plan states explicitly that a Class EA must be finalized, evaluating all options and engaging the public, before any site is selected. Yet this decision was presented to us as final — undermining the transparency that this process is meant to ensure.

It is a common practice to identify a preferred solution prior to completing the Class EA process. The intent of this approach is to provide the public with the opportunity to comment on the preferred solution and then take the feedback and comments received and incorporate it into the evaluation of the impacts. The EA is not complete nor final at this point in time.

2. False Reference to a 2023 Master Plan
The letter references a 2023 Water and Wastewater Master Plan, which does not exist in the public record. In an email dated May 9, 2025, Lisa Ambeau from Kincardine confirmed that the most recent available plan is the 2022 Master Plan. This discrepancy has sown confusion and undermines trust in this process.

My mistake – I was referring to the date the Master Plan was presented to Council rather than the date in the title. I apologise for the confusion.

3. No Urgency Justified
The 2022 Master Plan (Section ES 2.3.1) states that Tiverton's water system, though overcommitted on paper, does not need new water supply until 2039 — even under high growth. This directly contradicts the urgency conveyed in your letter and raises questions about the actual need driving this project.

Please refer to Table ES 3.1 of the Master Plan, which identifies the timing for starting a Class EA to evaluate additional wells versus connection to the Kincardine system as 2024. Section 2.3.1 also notes "It is recommended that potential approaches to supply capacity increase be evaluated at this time".

4. Incomplete Cost Picture & Financial Accountability
The $5.41 million estimate in the mailed letter lacks any line-item detail for essential elements like generator installation, fuel storage compliance, electrical upgrades, or restoration of disturbed land. Meanwhile, documented costs for upgrading Tiverton's existing wells and watermains are significantly lower ($125K–$175K for well testing and planning, ~$660K for watermain improvements). These incomplete cost disclosures leave us unable to make truly informed decisions.

The costs noted in the Master Plan (page 107), the $125K to $175K, are the costs associated with completing the Class EA to determine how to provide additional supply capacity to Tiverton. The costs presented at the May meeting and October meeting are reflective of the components of constructing new well(s) and wellhouses, without knowing what, if any, additional treatment processes may be required, and the cost of constructing a booster pumping station and its associated components (e.g. a generator). Cost estimates will be refined as we continue through the EA process.

5. Green Space & Generational Legacy
The upper park is one of just two public green spaces in Inverhuron. It's not only a recreational area — it's part of what defines this community's identity. Stripping it away for a project that offers no direct benefit to local residents is a blow to our children, to our visitors, and to the fragile tourism economy that sustains this region.

I hear and have noted the concerns related to the importance of the park to the community.

6. Lack of Alternative Site Analysis
Your letter identifies 3194 Bruce Road 15 as the preferred site without citing any public analysis of other viable locations — an essential step under the Class EA process. This suggests decisions were made behind closed doors, not in collaboration with those who will be most impacted.

An evaluation of alternative sites has been undertaken as was presented at the May public meeting. Following the public meeting we are reviewing the comments received regarding the potential site.

7. Environmental Justice & Equity
Inverhuron is not the community in need of more water. Most of us rely on well water and will see no benefit from this project — only the loss of a cherished community space. Burdening us to meet another community's needs contradicts principles of environmental justice.

8. Conflicting Planning Frameworks
The project conflicts directly with the spirit of both local and provincial planning principles:

- **Bruce County Official Plan, Section 4.4.2**: "The County supports the protection, enhancement and acquisition of open space to meet the present and future needs of the community."
- **Kincardine Official Plan (2021), Section C3.4.2**: "Parks and open spaces contribute significantly to community health and quality of life and should be protected from development."
- **PPS 2020, Section 1.6.1**: "Infrastructure and public service facilities shall be provided in an efficient manner… avoiding unnecessary public expenditures."

These aren't just lines on paper — they're commitments to protect what matters most to communities like ours.

The same planning documents have policies relating to infrastructure servicing and growth that also must be considered in conjunction with all the other policies. For example, the 2024 PPS directs that services (referring to water and sewer services) are provided in a manner that can be sustained by the water resources and are feasible and financially viable over their life cycle.

9. Lack of Clear Communication
Public engagement has been minimal — no direct mailings beyond the May 9 letter, no signage at the park, no real effort to involve the people most directly impacted. The result is confusion, frustration, and a growing sense that this process is meant to push a decision forward, not genuinely consult.

It is noted that the Notice of Study Commencement was placed in the Kincardine Independent and Kincardine News newspapers, as well as on the Municipal website. A subsequent notice for the public meeting in October was also put in the local papers and the Municipality's website. Following that meeting, the letter was sent to properties in Tiverton and Inverhuron notifying them of the meeting in May

2025, and a notice for the May 2025 meeting was also placed in the local papers and on the Municipality's website. That being said, it is understood there has been frustration expressed.

10. Tourism & Economic Impacts
This isn't just a local issue. Inverhuron, Tiverton, and the broader Kincardine area rely on tourism and seasonal visitors who come for the natural beauty and small-town charm. Turning a cherished park into an industrial site weakens the very appeal that sustains local businesses and livelihoods.

In Closing
I am not anti-growth, nor are my neighbours. But I am firmly opposed to a process that places predetermined solutions above real engagement. Transparency is not a box to be checked after decisions are made — it's the foundation of trust between planners and the people they serve.

Lisa, you and your team at BM Ross have an important role: to provide unbiased, factual information that supports honest and fully informed decisions. I hope you'll see this email not as a challenge, but as an invitation to honor that role — to share accurate data, to consider our community's lived experience, and to restore faith in a process that has, so far, done little to earn it.

Please ensure this letter, and these concerns, are documented as part of the official record for this project.

Thank you for your attention and for the opportunity to share my voice in this process.

Sincerely,

[redacted]
Inverhuron Resident and Community Advocate

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 4, 2025 8:23 AM
To:
Cc: [redacted]
Subject: RE: Our opposition to Proposed Booster Pumping Station- Inverhuron Upper Park 24014

Categories: Archived

Hi [redacted]

We did look at alternative, municipally-owned sites for the booster pumping station in and around Inverhuron. Below is a link to the display boards that were at the last meeting, and on board 6 is a map showing the other sites looked at, a summary of the evaluation of the different sites, as well as some of the factors we need to consider for the site.
https://www.kincardine.ca/media/lnmeyskn/openhouse_boards.pdf

Please let me know if you have any trouble with that link or any questions.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: Leslie Barrett-Sanderson <lesliebarrettsanderson@gmail.com>
Sent: June 3, 2025 5:22 PM
To: Lisa Courtney <lcourtney@bmross.net>
Cc: [redacted]
Subject: Re: Our opposition to Proposed Booster Pumping Station- Inverhuron Upper Park 24014

Thanks for your prompt note back to us.

Were any other locations explored in order to preserve the park?

Regards,
[redacted]

On Tue, Jun 3, 2025 at 4:44 PM Lisa Courtney <lcourtney@bmross.net> wrote:

Hello [redacted]

Thank you for taking the time to provide your comments. They will be incorporated and included in the EA report, as well as provided to staff and Council. I will also add your email address to our circulation list so you will receive updates on the next steps of the process.

If I may offer some clarity on why a pumping station located in Inverhuron is identified as a way to supply water to Tiverton: the Kincardine Drinking Water System currently supplies areas of Inverhuron and Inverhuron Provincial Park. The nearest connection point to the Kincardine Drinking Water System from Tiverton is at Inverhuron and in order for water to get from the connection point at Inverhuron to Tiverton, a booster pumping station is required. The booster pumping station is required to pump the water up to Tiverton, because the difference in elevation from Inverhuron to Tiverton is approximately 200 ft. We cannot use gravity to get the water from Inverhuron to Tiverton, so it must be pumped from the connection point.

Once again, thank you for your comments. Have a nice evening,

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

B. M. Ross and Associates Limited

Engineers and Planners

62 North Street

Goderich, ON N7A 2T4

Office: (519) 524-2641

lcourtney@bmross.net

https://link.edgepilot.com/s/119d78a2/eHqs9TlfJECbAwrrpK8wTQ?u=http://www.bmross.net/

From: [redacted]
Sent: June 3, 2025 3:29 PM
To: Bill Stewart <bstewart@kincardine.ca>; lcourtney@bmross.net; Adam Weishar <aweishar@kincardine.ca>
Cc: [redacted]
Subject: Our opposition to Proposed Booster Pumping Station- Inverhuron Upper Park

[redacted] and I oppose the construction of a water pumping station or any other municipal infrastructure at Inverhuron Upper Park. It offers no benefits to the residents of Inverhuron especially to those of us who do not have access to the municipal water supply.

This park is an essential recreation/community area and green space.

The Municipality has not provided Inverhuron with any investments that would encourage sports, outdoor and family gatherings. In the past we have had delegations request the installation of bathrooms at this park. They would represent a far more appropriate investment of our tax dollars.

Furthermore, it is not clear to us why this pumping station needs to be located in our community if the supply is for Tiverton.

We request that you explore more appropriate locations. Thank you for the offer to keep us advised of next steps.

[redacted]

[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 4, 2025 2:06 PM
To: [redacted]
Subject: RE: Proposed Booster Pumping Station 24014

Categories: Archived

Hello [redacted],
Thank you for taking the time to provide your comments. Your comments, and the other comments received, will be incorporated into and included with the EA report for this project. We will also be providing a summary of the comments received to Council and staff. I will also add you to our contact list, so when we have an update for the project, you will be notified.

Thanks again and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 4, 2025 1:25 PM
To: Bill Stewart <bstewart@kincardine.ca>; lcourtney@bmross.net
Cc [redacted]
Subject: Proposed Booster Pumping Station

I oppose the construction of a water pumping station or any other municipal infrastructure at Inverhuron Upper Park.
This park is an essential recreation/community area and green space. It offers no benefits to the residents of Inverhuron especially to those of us who do not have access to the municipal water supply.

I chose option 1 - “Expand the existing wells and/or construct new groundwater wells in Tiverton.”
This option protects the people of Tiverton if ever there is a problem with water in Kincardine - a lesson we learnt from Walkerton. It allows them more options and more control.

By supplying Tiverton with Kincardine water there are a lot more things that can go wrong during the transportation of water via Inverhuron. By building and improving the Tiverton wells, Tiverton is not reliant on other sources.

Locating the Booster Pumping station at one of the two Inverhuron community parks robs our community of space that we use for community dinners, baseball games, fundraising events, children's playground, evening concerts, community meetings.

Over the years our community has asked for support and improvements to this park but there has never been money available. Now suddenly there is a proposal to take away a prime spot in the park. Driving down to the lake, the pumping station will be one of the first things we see - instead of focusing on the flag and the sparkling water. We need to preserve this special place called Inverhuron, that has been so special to us for generations.

I repeat, the wells in Tiverton need to be expanded or new wells constructed in Tiverton.

Thank you for the offer to keep us advised of next steps.

[redacted]

87 Lake St.
Inverhuron

[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 6, 2025 9:14 AM
To: [redacted]
Subject: RE: pumping station Inverhuron 24014

Categories: Archived

Hi Donna,
Thank you for taking the time to send in your comments about the pumphouse. It is appreciated. I will incorporate your comments, and the others we have received, into the EA report. I will also be sending all the comments received to staff and Council. I will also add your email address to our contact list for this project so you will receive future updates.

Thanks again and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 6, 2025 9:09 AM
To: lcourtney@bmross.net
Subject: pumping station Inverhuron

Dear Lisa,
My name is [redacted]. I live at [redacted]. I'm a permanent resident. My daughter, her husband, and two children, live across the street at [redacted], also permanently.
I do not want the pumping station in our park. We need the park!
In all this conversation I don't think anyone has mentioned the HUGE inconvenience this will be for us. For two summers the park will be a construction site. No bake sale, no corn roast, no play etc. Inverhuron residents will face detours and limited access to our community all year round while the road is torn up. WE GAIN NOTHING! Please find another site for the pumping station that makes more sense for

everyone. [redacted] mentioned two sites on the second concession that the municipality owns. They should be considered for the station.

Sincerely,

[redacted]

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 6, 2025 1:02 PM
To: [redacted]
Subject: RE: Opposition to Proposed Booster Pumping Station- Inverhuron Upper Park 24014

Categories: Archived

Hi [redacted],
A quick note to say I've received your comments and understand the wish for the two comments received to be reported as separate comments. I will include both comments in the EA report and in our summary to staff and Council.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 6, 2025 12:57 PM
To: Bill Stewart <bstewart@kincardine.ca>; lcourtney@bmross.net
Cc: [redacted]
Subject: Opposition to Proposed Booster Pumping Station- Inverhuron Upper Park

> [redacted] and I oppose the construction of a water pumping station or any other municipal infrastructure related to water supply at Inverhuron Upper Park.
>
> It offers no benefits to the residents of Inverhuron especially to those of us who do not have access to any municipal water supply. We are owners of two residences (139 and 142 Lake Street) and would like our input to the process recorded for each one.
>
> This park is an essential recreation/community area and green space.
>
> The Municipality has not provided Inverhuron with any investments that would enhance the park space as well as support sports, outdoor concerts and events and family gatherings in this location. In the past, we have had delegations request the installation of bathrooms and a pavilion at this park. They would represent a far more appropriate investment of our tax dollars. Building a pumping station at this location would further compromise any potential changes for this green space which needs to be

preserved. We also oppose the addition of bathrooms to the pumping station due to the footprint outside of appropriate recreational planning.

Furthermore, it is not clear to us why this pumping station needs to be located in our community if the supply is for Tiverton.

My family has strong roots in Inverhuron that date back to the early 1900s. We want to continue to preserve this special place for future generations.

We request that you explore more appropriate locations. Thank you for the offer to keep us advised of next steps.

[redacted]

143 and 139 Lake Street

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 6, 2025 1:09 PM
To: [redacted]
Subject: RE: Proposed water pumping station 24014

Categories: Archived

Hello Lisa,
Thank you for taking the time to provide your comments. It is appreciated. The feedback received from you and others following the open house will be incorporated into and include in the EA report. We are also going to be providing staff and Council with a summary of the comments received. I will also add your email to our contact list so that you receive future updates on the project.

Once again, thank you and have a nice weekend,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 6, 2025 11:48 AM
To: lcourtney@bmross.net
Subject: Proposed water pumping station

I am writing on behalf of my husband and myself regarding the proposed water pumping station at the upper park in Inverhuron. We are both deeply disappointed with how this process has unfolded.

It is concerning that the local community surrounding the park was not consulted before a location was selected. Engaging residents in the early stages of planning—especially for a project of this nature—would have been both respectful and prudent. Proceeding with the expense of an archaeological assessment prior to seeking public input only adds to our frustration.

We believe that the community should have been presented with a few potential locations for consideration, allowing for a more inclusive and transparent decision-making process.

Given the above, we are firmly opposed to the current proposal and urge the Municipality of Kincardine to reconsider both the location and the approach taken with community engagement.

[redacted]
7 Albert Road

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 9, 2025 9:35 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Proposed Booster Pumping Station at Inverhuron 24014

Categories: Archived

Hi [redacted]

Thank you for taking the time to submit your comments. It is appreciated. We will incorporate your comments and the other received into the EA Report and will also be providing everything received to staff and Council.

Once again, thank you and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

-----Original Message-----
From: Jimmy Sanderson <jim_sanderson@icloud.com>
Sent: June 6, 2025 4:24 PM
To: [redacted]

Cc: [redacted]
Subject: Proposed Booster Pumping Station at Inverhuron

>
> After attending the open house and careful consideration of the current Tiverton water supply system proposals, I wish to register my opposition to the construction of a water pumping station or any other municipal infrastructure at the Inverhuron Upper Park.

>
> This little park is an essential green space, serving many different purposes including a children's playground, baseball games, family picnics, special event and community dinners, evening concerts and

outdoor community meetings. The only thing lacking is a public washroom and/or a covered shelter/community pavilion. Over the years our community has asked for support for these improvements but there has never been any funding.

>
> The last thing needed in this little park is a Municipal Water Pumping Station. Nor is there room to attach washrooms to this Pumping Station as some have suggested as a compromise to its placement.

> The space required for this building, laneway, parking and back up generator, plus additional clearing of trees etc basically robs us of essential recreational green space.

>
> In this day and age it is so important for our community to have this recreational park space — and for future generations to come.

>
> I hope that Tiverton residents will be given the opportunity to choose the best water solution for their community. I understand there is a lot of support for expanding the existing wells and/or constructing new ground water wells in Tiverton.

>
> If however the second option of constructing a Pumping Station to connect Tiverton to the Kincardine drinking water system is selected, an alternative other than Inverhuron needs to be developed. It seems an extension of the waterline along the BLine with a Pumping Station at the junction of the BLine and County Road 15 makes a lot of sense.

>
> Thank you for your offer to keep us involved and updated on the development of this project.
>
> The Inverhuron community cares deeply about the preservation of the Inverhuron Upper Park.
>
> Thank you,
> [redacted]
>
> 123 Lake Street & 76 Victoria Street,
> Inverhuron
>
>

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 9, 2025 2:04 PM
To: [redacted]
Subject: RE: Updated submission

Categories: Archived

Hi [redacted],
A quick note to say I have received the updated submission and I will include this version in our documentation.
Thanks and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 9, 2025 1:15 PM
To: Lisa Courtney <lcourtney@bmross.net>
Subject: Updated submission

We oppose the construction of a water pumping station or any other municipal infrastructure related to water supply at Inverhuron Upper Park.

It offers no benefits to the residents of Inverhuron especially to those of us who do not have access to any municipal water supply. We have been advised there is no room for separation between water and sewer on Lake st S .

The Upper park is an essential recreation/community area and green space.

The Municipality has not provided Inverhuron with any investments that would enhance the park space as well as support sports, outdoor concerts and events and family gatherings in this location. In the past, we have had delegations request the installation of bathrooms and a pavilion at this park. They would represent a far more appropriate investment of our tax dollars. Building a pumping station at this location would further compromise any potential changes for this green space which needs to be preserved. We also oppose the addition of bathrooms to the pumping station due to the footprint outside of appropriate recreational planning.

Furthermore, it is not clear to us why this pumping station needs to be located in our community if the supply is for Tiverton. We suggest the Municipality investigate acquiring some of the land across from the upper park or in another location .

Inverhuron is a very special place that we wish to preserve for our future generations . They deserve safe play spaces and we place our trust in the municipality to value Inverhuron residents as well as Tiverton residents .
We request that you explore more appropriate locations and options . Thank you for the offer to keep us advised of next steps.

[redacted]
127 Lake st S

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: June 9, 2025 9:43 AM
To: [redacted]
Subject: RE: Tiverton Water Supply System Environmental Assessment Comments : Attention Lisa Courtney, Environmental Planner 24014

Categories: Archived

Hello [redacted],
Thank you for taking the time to provide your comments. It is appreciated. Your comments and the others received will be incorporated into and included with the EA report. We will also be providing all the comments received to staff and Council.

Thanks again and cheers,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: June 6, 2025 2:01 PM
To: lcourtney@bmross.net
Subject: Tiverton Water Supply System Environmental Assessment Comments : Attention Lisa Courtney, Environmental Planner

Attention Lisa Courtney, Environmental Planner

Hi Lisa, please see my attached comments.

Regards,
[redacted]

THE MUNICIPALITY OF KINCARDINE

File: 24014

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR THE EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

Friday, May 23rd, 2025

COMMENTS

Name: [redacted]

Address: 245 VICTORIA ST. TIVERTON ONT. N0G 2T0

I DO NOT SUPPORT A BPS TO BE CONSTRUCTED IN INVERHURON PARK.

I DO SUPPORT A BPS TO BE CONSTRUCTED AT POTENTIAL SITES 9, 10 OR 11 AS PER YOUR EVALUATION MAP/REPORT THAT WAS PRENTED AT THE MEETING IN TIVERTON ON FRIDAY MAY 23/2025

I DON'T UNDERSTAND WHY IT COULD NOT BE CONSTRUCTED AT ANY OF THESE SITES AS THERE IS ALREADY INFRASTRUCTURE THERE.

[redacted]

5-JUNE-2025

PLEASE HAND IN, MAIL, OR EMAIL TO:

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, Ontario
N7A 2T4

Phone: (519) 524-2641 E-mail: lcourtney@bmross.net
Attention: Lisa Courtney, Environmental Planner

Comments and Information collected by B.M. Ross & Associates Limited on behalf of Kincardine will assist in decision-making regarding the project. Comments and opinions will be kept on file but will not be made available for public review. Under the Freedom of Information and Protection Act (1987), personal information provided to the Municipality of Kincardine will remain confidential unless prior consent is obtained.

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: August 18, 2025 5:05 PM
To: [redacted]
Subject: RE: Tiverton Pipeline Comments 24014

Categories: Archived

Good afternoon [redacted],
Thanks for reaching out with your comments. I have been collecting the comments received after that meeting and will be incorporating them into the environmental assessment document, so I appreciate you taking the time to write out your thoughts and send them in.

I have put our answers to your questions directed at BMROSS below. Please feel free to reach out with any further questions or comments.

1. The cost projections for replacing the Briar Hill well and wellhouse are based on our recent experiences with costs to replace wells in other municipalities. The costs include not only a drilling a new well, but also the total replacement of the wellhouse as the building itself and much of the equipment in it has reached the end of its life. The Briar Hill wells are 93 m deep.

   The pipeline cost includes costs for constructing and equipping a Booster Pumping Station (BPS) and the high-pressure watermain from the BPS to Tiverton. The costs are based on recent costs per meter for high pressure watermain and recent construction costs for a BPS. These cost estimates also included a contingency factor.
   The costs associated with Inverhuron pipeline were not evaluated as part of this project, as more than 20 years has passed since that project was constructed.

2. If a groundwater supply is chosen as the preferred solution for Tiverton, in order to have enough supply capacity for the existing and future residents, it will require replacing the existing Briar Hill Well and potentially up to two additional new wells. The hydrogeological work done has indicated that is unlikely that just one additional new well will be able to supply enough water and that is more likely that two new wells (plus replacing the Briar Hill well) will be required. The cost of each new well and associated wellhouse is $3.6 million.

Thanks again and have a nice night,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

From: [redacted]
Sent: August 14, 2025 6:00 PM
To: lcourtney@bmross.net
Subject: Tiverton Pipeline Comments

Hi Lisa. I wrote the attached shortly after BM Ross & Associates' May 23rd "town hall meeting" in Tiverton on the Tiverton Water Expansion.
I set this aside after thinking "what is the use?" but decided when seeing Ken Craig today that I would send along as your company (and Council) did ask for feedback. And, I did spend some time writing it.
Thank you.
[redacted]

File: 24014

MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR THE EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

Friday, May 23rd, 2025

COMMENTS

Name: _____

Address: _____

Please see attached emailed August 14, 2025

PLEASE HAND IN, MAIL, OR EMAIL TO:

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, Ontario
N7A 2T4

Phone: (519) 524-2641 E-mail: lcourtney@bmross.net
Attention: Lisa Courtney, Environmental Planner

Comments and Information collected by B.M. Ross & Associates Limited on behalf of Kincardine will assist in decision-making regarding the project. Comments and opinions will be kept on file but will not be made available for public review. Under the Freedom of Information and Protection Act (1987), personal information provided to the Municipality of Kincardine will remain confidential unless prior consent is obtained.

To: BM Ross & Associates: I left your May 23rd Tiverton Water Expansion Meeting with a feeling of being marginalized. Yet again. The meeting organizers were not sufficiently prepared to provide meaningful information much less keep the subject on track. Because it was not possible to fully ask questions or provide feedback, I was pleased to see your form. **This is what we are talking about within the Community:**

Section #1 of 2: Comments to B.M Ross & Associates:

1/ re: realistic cost projections: It is difficult to believe that one well and wellhouse would cost $3.6M vrs an entire pipeline running from Inverhuron at $5.4M. Just how deep is the Briar Hill well? It is clear these projections are padded to further push for the pipeline.

As part of your number crunching, has a Lessons Learned Review been undertaken on the pipeline to Inverhuron? Did that project run over and if so, by what percentage? Was this "baked into" your $5.4M estimate? Are your numbers reflective of today's increases in materials?

Your recommendations need to be as close to reality as possible so that Council can make the best decision possible.

2/ The Municipalities' (undated) Invitation to the May 23rd Open House is confusing in that it states you are looking at 3 wells for Briar Hill. That is, repair the existing and ADD 2 new Wells, all at $3.6M each?? Please advise.

Section #2 of 2: Comments to Council:

Many of your constituents left the May 23rd open house feeling unrepresented. Comments followed out the door that Council has already made its decision and is simply not being transparent in its chosen direction for the pipeline. I really hope this is not the case but between your (undated) May 23rd Open House Invitation and the meeting, it makes one wonder if a pipeline is the "foregone conclusion". Yes, a pipeline based on the numbers provided makes the most financial sense but **What If these projections are not yet close to the real numbers?** That is, the well numbers are over-estimated, and the pipeline numbers are under-represented.

Our thoughts are:

1/ re: water quality: there is mention in your (undated) Project Update Letter that water quality is in question. O. Reg 169/03 Ontario Water Quality Standards Act means ALL water is treated based on those Standards … whether it comes from the ground or the lake. Please confirm the argument mentioned in your (undated) Open House Invitation.

2/ re: Tiverton's growth expectations: How realistic is it to expect multiple projects in Tiverton in the foreseeable future? There have been some developments announced in our Village in the past; now all dead. We were surprised to hear that Briar Hill may happen – after how many years? IF it happens then yes, something needs done for supply but let's focus on reality growth expectations.

History has proven time and again that living in Kincardine makes far more sense for families. And yet, there is very little development in Kincardine, even with ample existing services. Kincardine, much less Tiverton, is simply not top of mind for a Bruce "C" growth surge. You may want to change this, but it is not what is happening. Most Bruce Power families gravitate to Saugeen Shores. Based on this history – and reality, Council has time to think this through based on hard facts.

3/ re: financial diligence: without an explanation at the meeting, we heard that two Grant Applications were not accepted. **A successful application for Federal/Provincial Grant money is imperative and puts the entire Project at risk. Is Council prepared to move forward without Grant funding? Is Bruce Power/OPG willing to make up that shortfall? I would suggest Council would not want to put the shortfall on the backs of any/all Residents.**

4/ re: financial burden on a few: will the hookup costs if a pipeline and/or the increase to our taxes for any upgrades be assessed and taken into consideration prior to Council's decision? You know that the household median in Tiverton is not on par with the Municipality. We do not have a thriving downtown or several million-dollar houses dotting our streets. One is simply at a disadvantage in this Village without a car to "get to town" or work. "*If you build it, they will come*" is likely not to happen in Tiverton. Perhaps in Kincardine but even with services, people aren't rushing to our Municipality. Perhaps ideas should be brainstormed in how to make that happen first before spending millions.

As for the Project costs, in fairness to the residents, let's not forget that the Village of Tiverton diligently built up a large reserve fund specifically for water expansion. A reserve fund absorbed in amalgamation. Unless, of course, Council expects every taxpayer in the Municipality to fully cover the burden of a few.

5/ re: timing of Council's decision: what is the timeline for a decision re: pipeline vrs new wells? It was indicated that Council makes the decision. Based on what? And when? What is the rush?

There is much to consider and yet, very little transparency with this Council so we have no idea whether you've discussed these (and many other) questions at large – or not.

Council needs to Do Better – and slow this down. We voted this Council in to best represent us; not to make rushed decisions without a full and complete understanding of precise details, the economy and realistic needs (and financial abilities) of the residents. **Is this the time to "swing for the fences" when people are struggling?** For projected growth that may never happen?

Viable businesses consider all aspects and do not make decisions based on padded numbers, poor projections and judgement. Why should we expect anything less from Council? Consultants and staff alike share in the burden of properly informing Council so that you are in the best position to know that your decisions will make you proud of your time in office.

So, what did I come away this following your May 23rd meeting**? That Council and Consultants alike need to be doing a far better job on this Project. Perhaps thinking about this as if it is your own money may help to get your projections on track for the sake of sound, unrushed decision-making.**

Thank you.

[redacted]
Tiverton

cc: Amanda Steinoff, Mayor Craig, Deputy Mayor Andrea Clarke

Lisa Courtney

From: Lisa Courtney <lcourtney@bmross.net>
Sent: September 5, 2025 9:24 AM
To: undisclosed recipients:
Subject: Tiverton Water Supply Environmental Assessment Update 24014
Attachments: BPS-RenderingParkSite.JPG

Categories: Archived

Hello,

Thank you again for providing your feedback and comments as part of the environmental assessment looking at options for expanding the supply capacity of the Tiverton Drinking Water System. Following the open house in May, BMROSS reviewed the feedback received and incorporated into the draft project file report. A copy of the draft project file report and our upcoming presentation to Council is available here https://pub-kincardine.escribemeetings.com/Meeting.aspx?Id=62262129-13ef-428b-88a3-086ebf50dfb8&Agenda=Agenda&lang=English. We will be presenting the draft project file report to Council on September 10. Members of the public are always welcome to attend Council meetings.

We have also assessed the technical and cost impacts of a booster pumping station located in the vicinity of Concession 2 and Albert Road to convey water from Inverhuron to Tiverton. Our technical analysis found:

- Construction of a booster pumping station at Concession 2 and Albert Road will require construction of an additional 2 km of high pressure watermain.
- With the possible extension of the Kincardine Drinking Water System to Bruce Power, there are technical advantages for having the booster pumping station located further north. With greater demand at the north end of the system, the greater the pressure loss along the watermain route will be, which may require additional infrastructure upgrades upstream (i.e. further south) in the lakeshore watermain.
- A potential advantage to the connection between Tiverton and Inverhuron is the water stored in the standpipe in Tiverton would be available to the Lakeshore area if needed. The further north this connection is made, the benefit is reduced due to pressure loss over a longer connecting watermain.
- A site at Concession 2 and Albert Road is at a higher elevation than the Upper Inverhuron Park location. This is considered an advantage.
- The additional cost for the longer watermain is estimated to be an additional 1.4 to 1.5 million dollars. The cost of a booster pumping station at Albert Road and Concession 2 would is estimated to be $6,810,000 compared to $5,410,000 at the Upper Inverhuron Park site.

Given these technical and cost considerations, the preferred site remains the Upper Inverhuron Park location. Impacts to the area of the park utilized for the booster pumping station could be mitigated by siting the booster pumping station in the southwest corner, leaving the majority of the existing cleared area (including the ball diamond and playground) undisturbed and available for public use. Landscaping and façade considerations can also be considered as part of the design of the BPS to further blend it into scenery. We have produced a photo-rendering to show the relative scale of the booster pumping station

building within the park and it is attached to this email. There may also be an opportunity to include public washrooms in the project, but that decision would ultimately rest with Council.

Thanks again for your contributions. Please let me know if you have any questions.
Thanks and have a nice day,

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

Office: (519) 524-2641
lcourtney@bmross.net
www.bmross.net

Lisa Courtney

From: [redacted]
Sent: September 6, 2025 10:38 AM
To: Lisa Courtney
Cc: [redacted]
Subject: RE: Request for Transparency and Clarification - Inverhuron BPS Site Recommendation

Dear Lisa and Members of Council,

Thank you for your response. At this point, I'm not writing to debate engineering jargon or weigh in on projected scenarios. I'm writing as a resident of Inverhuron, and I know I speak for many in this community when I say: we are tired of the spin.

It's clear from the May 23rd presentation and your revent email that a decision has essentially already been made, and the current effort is now focused on justifying that choice, not evaluating alternatives transparently. Your email highlights projected costs, potential benefits, and high-level technical assumptions, but these are not concrete facts. The public is still being asked to trust vague marketing language like "may", "could", and "potential advantage" in place of actual side-by-side comparisons or data-supported conclusions.

If this process is truly about responsible planning, then:

Where is the complete cost breakdown for each site, including long-term operations, maintenance, and efficiency?

Where is the hydraulic modeling to support the decision to pump water down to Inverhuron only to push it back uphill to Tiverton?

Where is the proof that the Tiverton well system is failing now, or even soon?

Where is the planning report showing that the 400 new homes mentioned are a real, shovel-ready development, not just a theoretical projection?

None of these questions have been answered. What we've been given instead is a set of assumptions dressed as conclusions.

You continue to position Upper Inverhuron Park as unused. Just last weekend, over 150 people gathered there for a concert in the park. These events aren't rare. They are a regular and meaningful part of our community life. Families use that park year-round. There has been no usage data, no public use survey, no needs assessment - nothing to support your belief that this is an underused space. To push this project forward without those basic checks is more than a technical oversight. It's a failure to engage with the community you are impacting most.

Let's also be honest about who benefits. This project does not serve Inverhuron. We are already serviced. The water will be pulled from Kincardine, pushed downhill into Inverhuron, and then back uphill to Tiverton - an inefficient system that doesn't serve us and isn't being built for us. This is clearly about future growth that may or may not happen, and potentially to meet the needs of Bruce Power. Again, where is the proof that Tiverton is actually growing? Where are the developers waiting to break ground? We can't even get lots already held to be built on, let alone justify the need for expanded infrastructure.

Meanwhile, we are being told that maybe the pump station can be landscaped, that maybe a washroom could be added, and that maybe this won't impact the rest of the park. We are supposed to accept these vague possibilities in exchange for the permanent loss of public parkland and community trust. While you may not require rezoning, make no mistake, this impacts our lives. And once again, Inverhuron is left to fend for itself while being told it's for the greater good.

I also ask Council, does this money even need to be spent right now? We are talking about five to seven million dollars - not including future overruns or operational costs - and no real return on investment. Could this not be spent on arenas, pools, or other local infrastructure that is used daily and in desperate need of attention? This is a large financial decision being pushed forward without certainty, without clarity, and without respect for the people being asked to absorb the burden.

We are not uninformed. We are not unengaged. We are asking for basic transparency, accountability, and human respect in a process that seems to be moving forward regardless of logic or local support.

I urge Council to stop this project until a full alternatives review is done, community engagement is properly conducted, and the case for need - not just speculation - is clearly presented.

Please ensure this email is included in the public record.

Thank you.

Sincerely,
[redacted]
Resident of Inverhuron

On Sep 5, 2025 4:29 p.m., Lisa Courtney <lcourtney@bmross.net> wrote:

> Good afternoon [redacted],
>
> Thanks for your questions. For clarity, I have put my responses to your questions in your email below in green.
>
> Please let me know if you have any further questions.
> Thanks and have a nice weekend,
>
> ***Lisa J. Courtney, M.Sc. RPP, MCIP***
>
> ***B. M. Ross and Associates Limited***

Engineers and Planners

62 North Street

Goderich, ON N7A 2T4

Office: (519) 524-2641

lcourtney@bmross.net

https://link.edgepilot.com/s/5307a6e0/HNwYLFXxWEyyA2mwL-0W5w?u=http://www.bmross.net/

From: [redacted]
Sent: September 5, 2025 10:23 AM
To: Lisa Courtney <lcourtney@bmross.net>
Cc: [redacted]
Subject: Request for Transparency and Clarification - Inverhuron BPS Site Recommendation

Dear Lisa,

Thank you for your response and for sharing the link to the Council presentation materials.

After reviewing the available documents, several concerns remain regarding the transparency and completeness of the assessment process. As a resident of Inverhuron who has been in contact with you previously, I am writing to request clarity on a number of items that appear to lack adequate public disclosure or documentation.

I am also copying all members of Council on this message so that they are aware of these concerns in advance of Monday's meeting.

1. Environmental Considerations

Nowhere in the posted agenda materials or accompanying documents is there a formal environmental assessment or ecological impact report specific to the Upper Inverhuron Park site. If one exists, I would appreciate a direct link to that report. Residents deserve to know whether any third-party assessments were conducted to evaluate impacts on green space, tree removal, wildlife disruption, stormwater management, or soil displacement within the park.

The Project File Report (what used to be called the environmental screening report) is included in the posted agenda. It is the third item linked under item 7.1.c – Tiverton Water EA and Costs. Here is the link https://link.edgepilot.com/s/40eeb642/t7VsEED_dEKYuJc-EQS1EQ?u=https://pub-kincardine.escribemeetings.com/filestream.ashx?DocumentId=37619

2. Cost Estimate Transparency

The cost figures provided - $5.41M for Upper Inverhuron and $6.81M for Albert Road- are labeled as "estimates." However, there is no publicly available breakdown of how these numbers were reached. Could you please confirm:

- Who prepared the cost estimates? B. M. Ross and Associates Limited.
- What assumptions were used in the costing model? B. M. Ross maintains a record of pricing from municipal infrastructure projects within our service area. We use this record when preparing estimates for studies such as this Class EA, as well as asset management planning, municipal budgeting, etc. for projects that have been identified in terms of general scale and requirements, but no detailed design has yet been completed. Because of the preliminary nature of the design in such projects at the study stage, the goal is always to refer to tender pricing for projects that are similar in nature, are as recent as possible, and we recommend carrying contingency allowances as has been done in generating these estimates.

  We also believe it is important to note that two of the key uses of cost estimates for a project such as this are:

  1. Establishing, when there are multiple alternatives in a Class EA, which alternative is relatively more or less costly than competing options.
  2. Establishing the general order of magnitude cost for each alternative.

  It should be understood that a final, detailed design and pre-tender estimate will generally provide more accurate cost details than can be achieved at the Class EA level of a project.

- Whether contingencies, long-term maintenance, or lifecycle costs were included? The costs for all options include capital costs, costs related to design and obtaining approvals, and contract administration during construction. Contingencies are also included given the preliminary stage of the project relative to a final design that is complete and ready for tender. Long-term maintenance and life-cycle costs are not included in the costs.

A line-by-line cost breakdown is critical for public accountability.

3. Lack of Alternatives Analysis

While the presentation mentions that the Albert Road and Concession 2 site was considered, no detailed site plan, topographic map, hydraulic modeling, or engineering drawing is included for that location. There is no way for the public to compare the two sites using consistent, objective information. Language like "may require upgrades," "potential advantage," and "could be mitigated" appears throughout the summary, which suggests these decisions are based on projections rather than firm findings. Further information on the evaluation of alternative sites is provided in the Project File Report, the information presented in the Council presentation is a summary.

4. Topography and System Efficiency

From a planning standpoint, routing water downhill from Tiverton to Inverhuron and then pumping it back uphill again raises efficiency concerns. Was this scenario modeled in a hydraulic study? If so, could you please share it? If not, why was the energy and emissions impact of this chosen approach not evaluated? Under

normal operational conditions, water will flow from the booster pumping station in Inverhuron to Tiverton (i.e., lower elevation to higher elevation). In an emergency situation in Inverhuron or along the lakeshore, water could be routed from the Tiverton standpipe if needed.

5. Use of Public Parkland

Upper Inverhuron Park is publicly owned and actively used year-round by both residents and visitors. The recent "Concert in the Park" held over the Labour Day weekend brought together more than 150 people - all gathered in the same space currently under consideration for industrial infrastructure. This is not an isolated event but part of a broader pattern of seasonal and year-round use for recreation, gatherings, and family activities.

Despite this, your email refers to the area as "unused," a characterization that does not reflect the lived experience of those who spend time in this park. No community survey, usage data, or formal needs assessment appears to have been conducted to support this belief. Before any public land is repurposed - especially one as central to the social fabric of Inverhuron - it is reasonable to expect a thorough understanding of how the space is currently valued by the people who live here.

Can you confirm:

- Was any public use audit, site visitation analysis, or direct community feedback gathered to determine whether the park is "unused"? Feedback on the park was obtained at the public meeting and open house.
- What is the current zoning designation of this parcel? OS – Open Space
- Would a project of this scope - including a diesel generator - require a zoning amendment, minor variance, or site plan approval process? This project would not require a zoning amendment, as under Section 3.23 of the Municipality of Kincardine Zoning Bylaw a water booster pumping station is a permitted use in all zones. It would not require site plan approval either. If the setbacks as specified in zoning bylaw will not be met, a minor variance could be required.

It is critical that these questions be answered before proceeding with a proposal that will permanently alter a shared, meaningful community space.

6. Public Facilities & Added Incentives

The mention of possible washrooms or facade enhancements is appreciated, but including such features as a potential benefit of the BPS project raises concerns that public amenities are being offered to help justify a decision that lacks community support. This language comes across as promotional, not technical.

In summary, we ask Council and project leads to consider the following before moving forward:

- Share any complete environmental, cost, and engineering assessments that were used to make this decision.
- Provide a formal alternatives comparison document with supporting visuals.
- Confirm whether the current land use and zoning support this type of infrastructure in a public park.

- Clarify whether other more suitable, lower-impact sites were ruled out due to objective limitations or simply preference.

We believe Inverhuron deserves a fully transparent and data-supported explanation, especially when public space is at risk of being altered.

Thank you for your time and consideration. I look forward to your reply and will ensure this correspondence is shared publicly to keep our community informed.

Sincerely,

[redacted]

Inverhuron Resident

From: Lisa Courtney <lcourtney@bmross.net>
Sent: Friday, September 05, 2025 9:24 AM
Subject: Tiverton Water Supply Environmental Assessment Update 24014

Hello,

Thank you again for providing your feedback and comments as part of the environmental assessment looking at options for expanding the supply capacity of the Tiverton Drinking Water System. Following the open house in May, BMROSS reviewed the feedback received and incorporated into the draft project file report. A copy of the draft project file report and our upcoming presentation to Council is available here https://link.edgepilot.com/s/84b115f8/K0JNCECdWUWOKnbbIURtKQ?u=https://pub-kincardine.escribemeetings.com/Meeting.aspx?Id=62262129-13ef-428b-88a3-086ebf50dfb8%26Agenda=Agenda%26lang=English. We will be presenting the draft project file report to Council on September 10. Members of the public are always welcome to attend Council meetings.

We have also assessed the technical and cost impacts of a booster pumping station located in the vicinity of Concession 2 and Albert Road to convey water from Inverhuron to Tiverton. Our technical analysis found:

- Construction of a booster pumping station at Concession 2 and Albert Road will require construction of an additional 2 km of high pressure watermain.

- With the possible extension of the Kincardine Drinking Water System to Bruce Power, there are technical advantages for having the booster pumping station located further north. With greater demand at the north end of the system, the greater the pressure loss along the watermain route will be, which may require additional infrastructure upgrades upstream (i.e. further south) in the lakeshore watermain.

- A potential advantage to the connection between Tiverton and Inverhuron is the water stored in the standpipe in Tiverton would be available to the Lakeshore area if needed. The further north this connection is made, the benefit is reduced due to pressure loss over a longer connecting watermain.

- A site at Concession 2 and Albert Road is at a higher elevation than the Upper Inverhuron Park location. This is considered an advantage.

- The additional cost for the longer watermain is estimated to be an additional 1.4 to 1.5 million dollars. The cost of a booster pumping station at Albert Road and Concession 2 would is estimated to be $6,810,000 compared to $5,410,000 at the Upper Inverhuron Park site.

Given these technical and cost considerations, the preferred site remains the Upper Inverhuron Park location. Impacts to the area of the park utilized for the booster pumping station could be mitigated by siting the booster pumping station in the southwest corner, leaving the majority of the existing cleared area (including the ball diamond and playground) undisturbed and available for public use. Landscaping and façade considerations can also be considered as part of the design of the BPS to further blend it into scenery. We have produced a photo-rendering to show the relative scale of the booster pumping station building within the park and it is attached to this email. There may also be an opportunity to include public washrooms in the project, but that decision would ultimately rest with Council.

Thanks again for your contributions. Please let me know if you have any questions.

Thanks and have a nice day,

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

B. M. Ross and Associates Limited

Engineers and Planners

62 North Street

Goderich, ON N7A 2T4

Lisa Courtney

From: [redacted]
Sent: September 12, 2025 11:22 AM
To: Lisa Courtney
Subject: Re: Tiverton Water Supply Environmental Assessment Update 24014

Thank you Lisa. This overview is much appreciated.
[redacted]

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From: Lisa Courtney <lcourtney@bmross.net>
Sent: Friday, September 12, 2025 9:36:00 AM
To: [redacted]
Subject: RE: Tiverton Water Supply Environmental Assessment Update 24014

Good morning[redacted],

My apologies for the delay in getting back to you. Thank for your question. The Kincardine/Lakeshore Water Distribution System currently goes west from Bruce Road 23 at South Cedar Lane, running along Birchwood Ave to Kuehner Street to Upper Lorne Beach Road then to Victoria Street. To get water to Tiverton from Upper Lorne Beach Road, it would require approximately 2.95 kilometers of additional high pressure watermain above & beyond the length of watermain that would be required if connecting from Inverhuron Park. A booster pumping station will be required for any connection along the Lakeshore because of the need to fill the storage standpipe in Tiverton. The Upper Lorne Beach Road/Bruce Road 23 route is also further complicated by a water crossing, that would require directional drilling. This route is considered not feasible due to the costs (in the order of $2.2M additional vs. the shorter route alternative) associated with the longer watermain. The longer route would also induce greater pressure loss vs. the shorter option, thereby requiring a greater initial starting pressure which is not preferred in terms of initial capital and ongoing operator costs, as well as from a safety perspective.

I hope this answers your question and please feel free to let me know if you have any further questions. Thanks and cheers,

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

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lcourtney@bmross.net
https://link.edgepilot.com/s/808a550c/eKm6l0-hR064AsHHw3c86w?u=http://www.bmross.net/

From: [redacted]
Sent: September 8, 2025 12:12 PM
To: Lisa Courtney <lcourtney@bmross.net>
Subject: Re: Tiverton Water Supply Environmental Assessment Update 24014

Good morning.

Thank you for the update. It is appreciated.

But I am a bit confused. There seems to be absolutely no mention of an additional option discussed at the Tiverton Community Centre Public Meeting, one that was enthusiastically supported by many, if not a majority of those in attendance.

Briefly, this option was to extend the high-pressure water main from the intersection of Lorne Beach Road and the B-Line, north along the B-line to Bruce Road 15, and then east along Bruce Road 15 into Tiverton.

The elevation of the intersection at Bruce Road 15 and the B-Line might even negate the need for a booster pumping station, thereby enhancing the cost-effectiveness of this option. More importantly, it would reduce the infringement of said station on the immediate inhabitants of Inverhuron, in both reducing park/greenspace, and the significant noise pollution created during power failures.

It would also provide town water along the B-Line route, an area that seems to be relevant in future housing development.

I believe it was expected by most constituents in attendance that this option would at least be investigated and costed out, so as to be evaluated against the other options.

Instead, it seems to have been ignored.

I would love to understand, as would a number of my colleagues following this issue, why this option was not at all investigated.

I look forward to hearing from you.

[redacted]

From: Lisa Courtney <lcourtney@bmross.net>
Sent: Friday, September 5, 2025 9:24 AM
Subject: Tiverton Water Supply Environmental Assessment Update 24014

Hello,

Thank you again for providing your feedback and comments as part of the environmental assessment looking at options for expanding the supply capacity of the Tiverton Drinking Water System. Following the open house in May, BMROSS reviewed the feedback received and incorporated into the draft project file report. A copy of the draft project file report and our upcoming presentation to Council is available here https://link.edgepilot.com/s/6099e5ad/GN5vlbNNB02VB4t7f4cXDA?u=https://pub-

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

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