Appendix A

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.

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.

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)

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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

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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

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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

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Licensee:	Amanda Parks, MA (P450)
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)
Field Director	Sean Graziano, BA (R1354)
Field Technicians	Michelle Graham, PhD
	Jake Mills, BA
	Ethan Fisher
	Matthew Graham
	Myah Henderson
	Keiara Jones Tyrell
	Andrew Liptrop
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"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents TMHC's professional judgment in light of the Limitation and industry standards for the preparation of similar reports;
- may be based on information provided to TMHC which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context; and
- was prepared for the specific purposes described in the Report and the Agreement.

TMHC shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. TMHC accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

TMHC agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but TMHC makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Except (1) as agreed to in writing by TMHC and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

TMHC accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of TMHC to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

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Report prepared by: _____

Casey Lun, MSc

Report Writer

Project managed by: _____

Amanda Parks, MA (P450)

Manager – Environmental Assessments Project Division

Report reviewed by: _____

Matthew Beaudoin, PhD (P324)

Principal/Manager of Archaeological Assessment

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 I 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

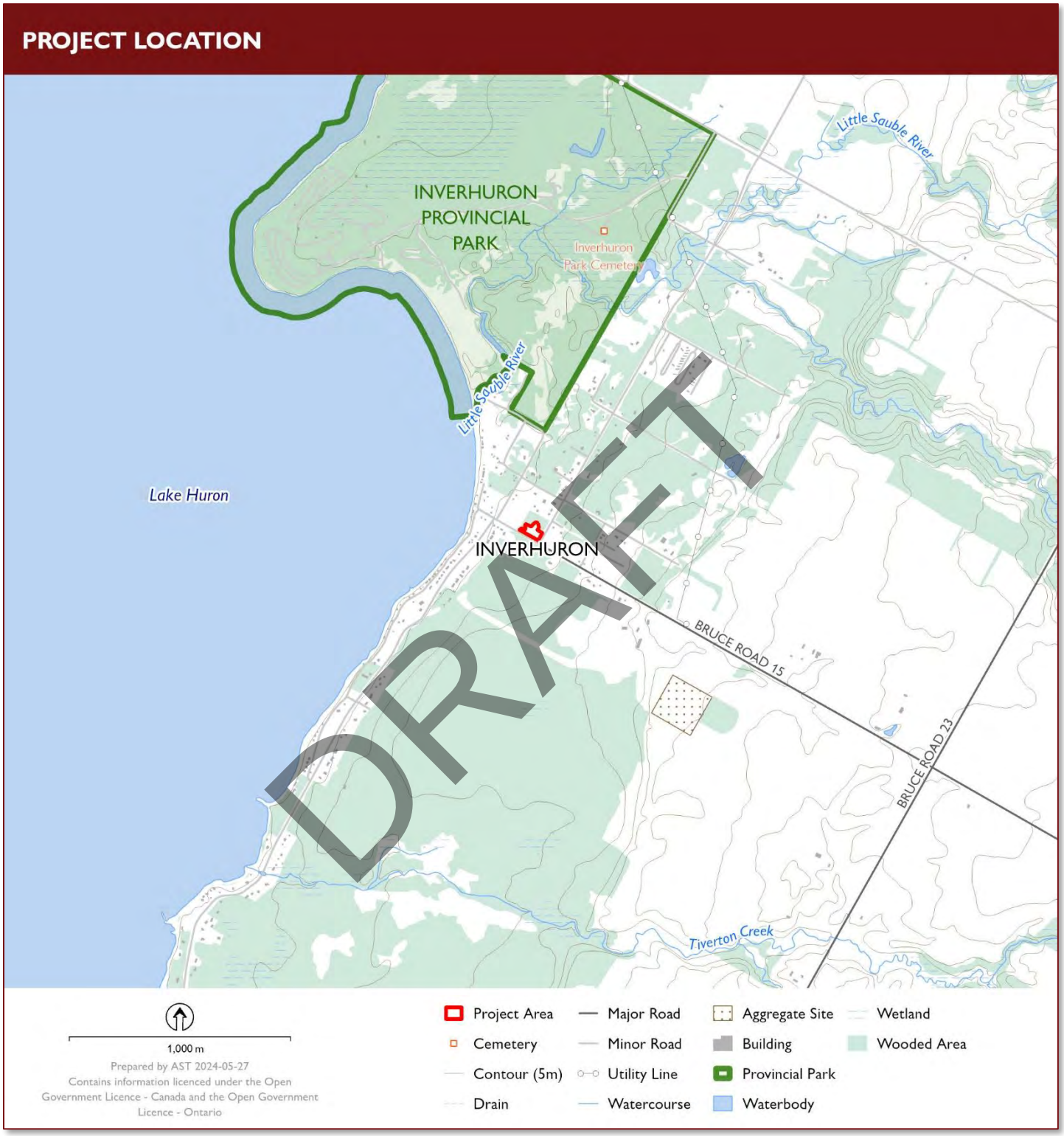
Image 7: Paved Basketball Court

Looking Northwest

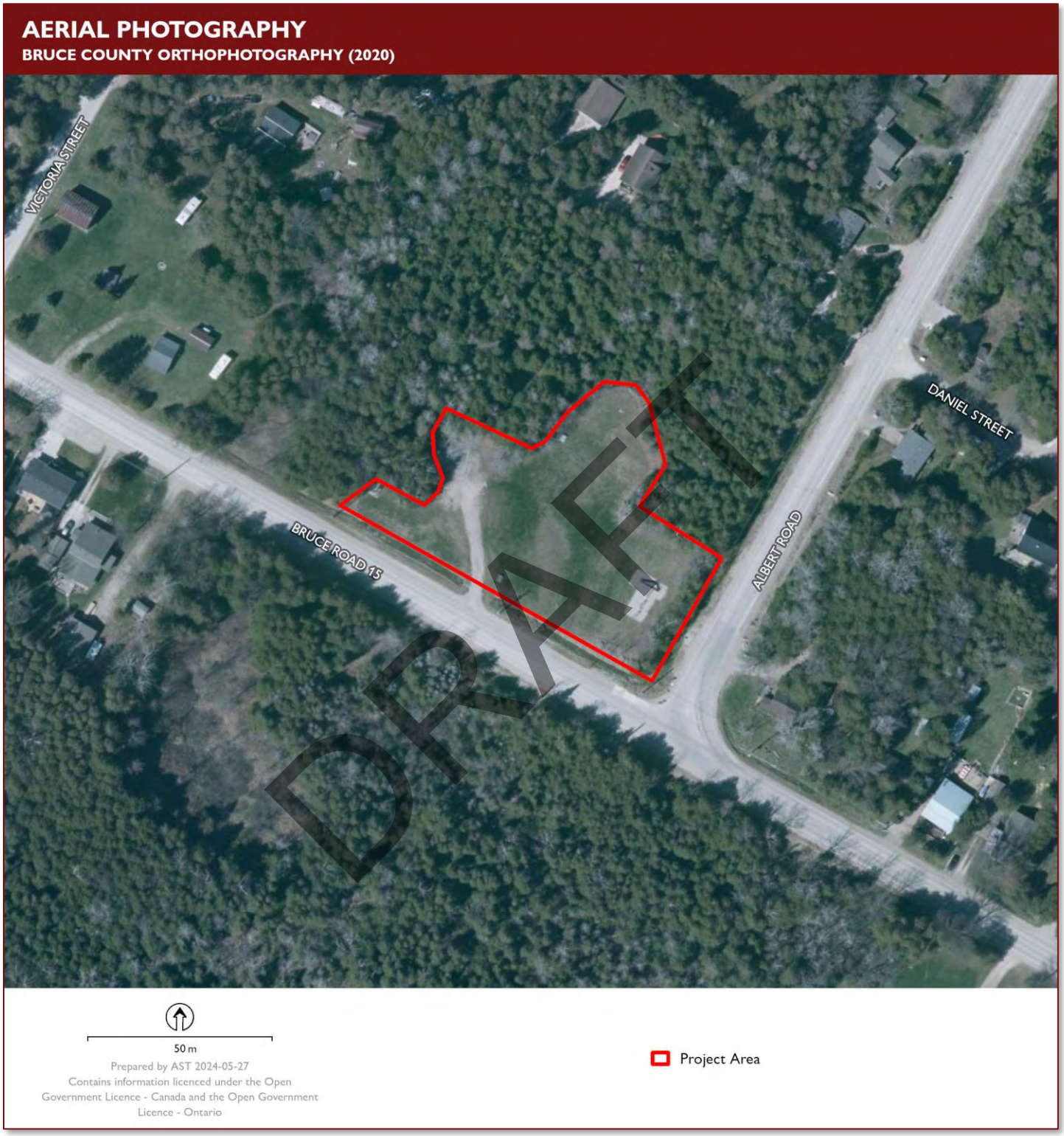
Image 8: Berm Around Playground

Looking Northeast

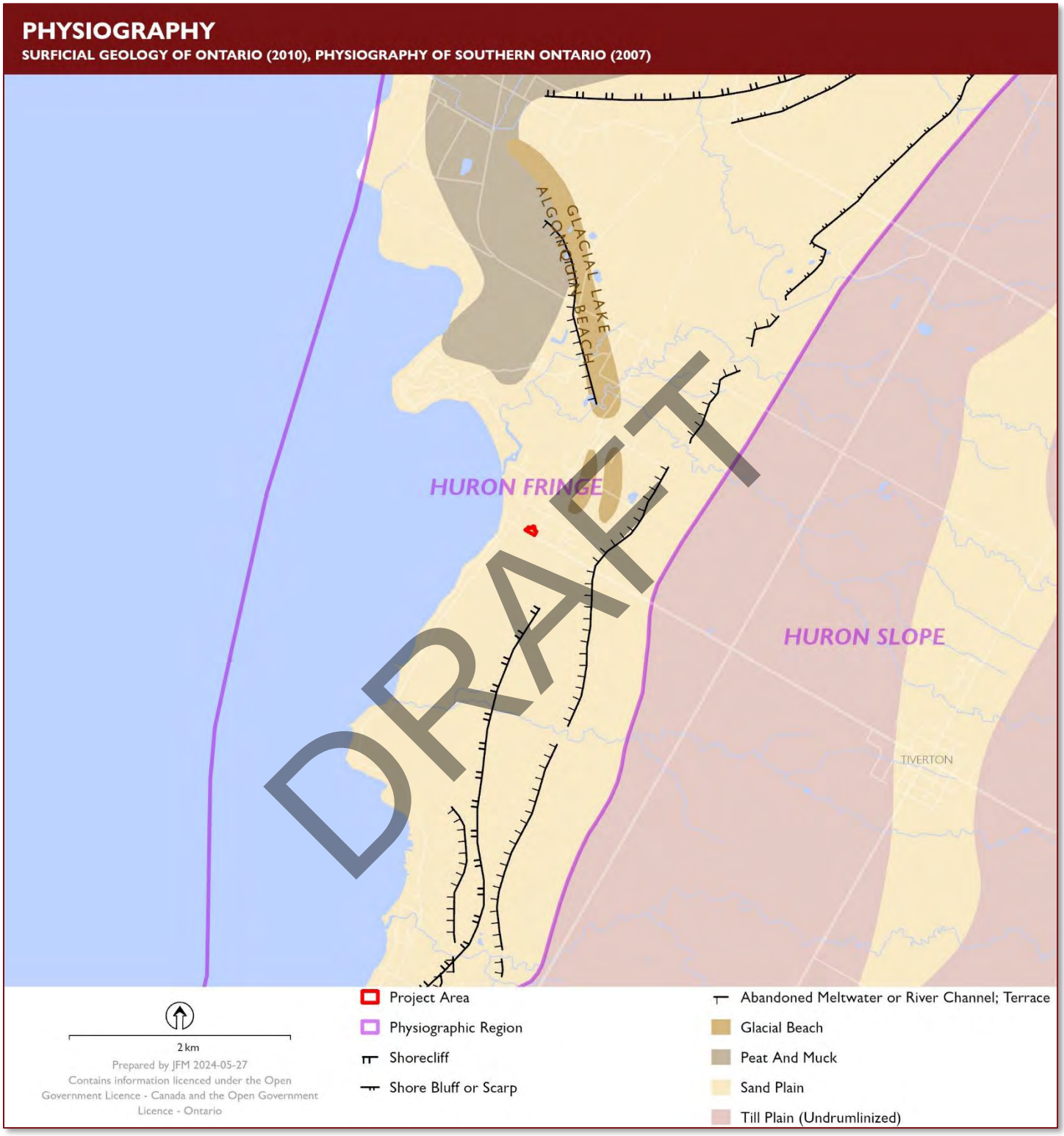
8 MAPS



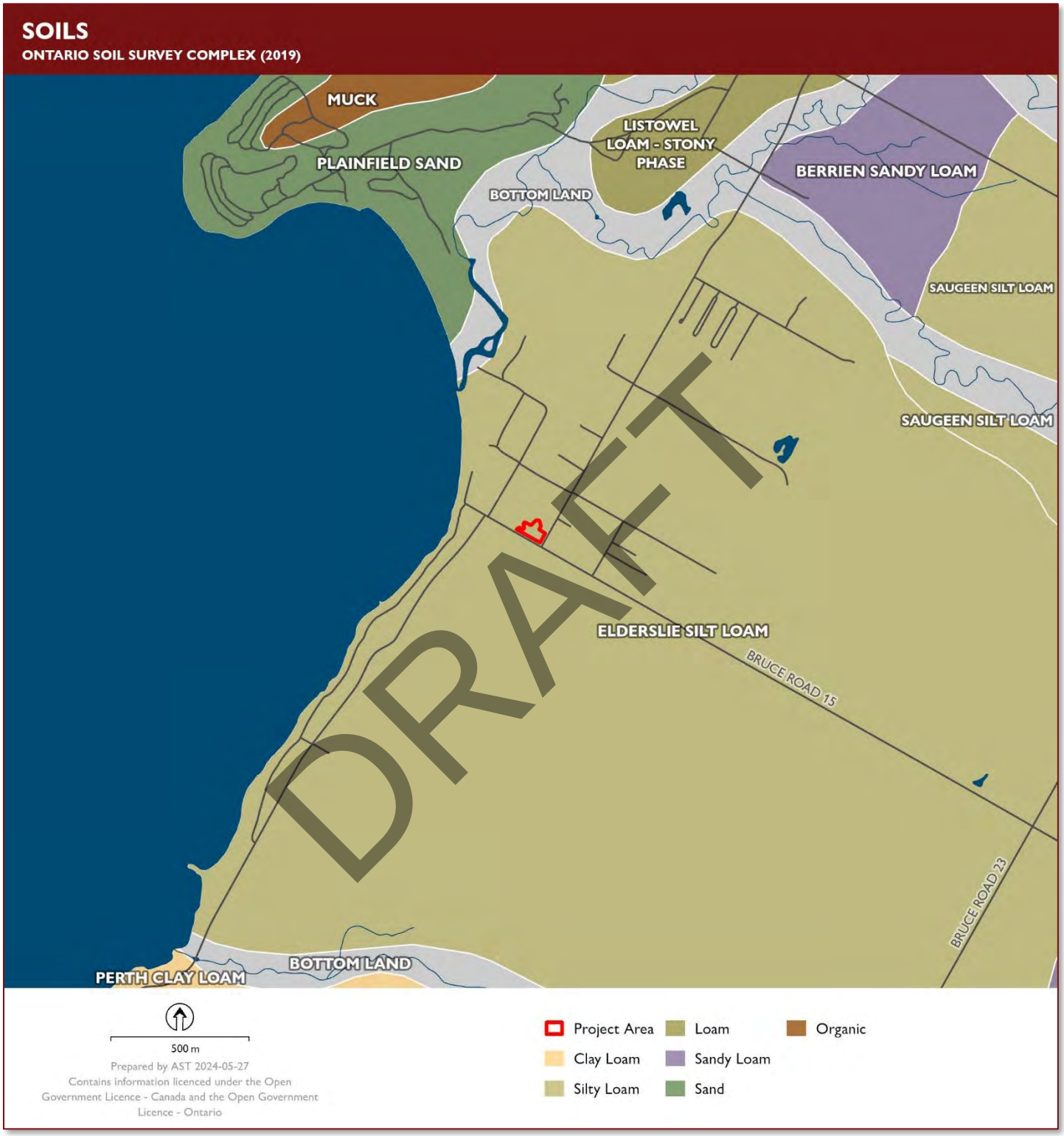
Map 1: Location of the Project Area in Bruce County, ON



Map 2: Aerial Photograph Showing the Location of the Project Area



Map 3: Physiography Within the Vicinity of the Project Area

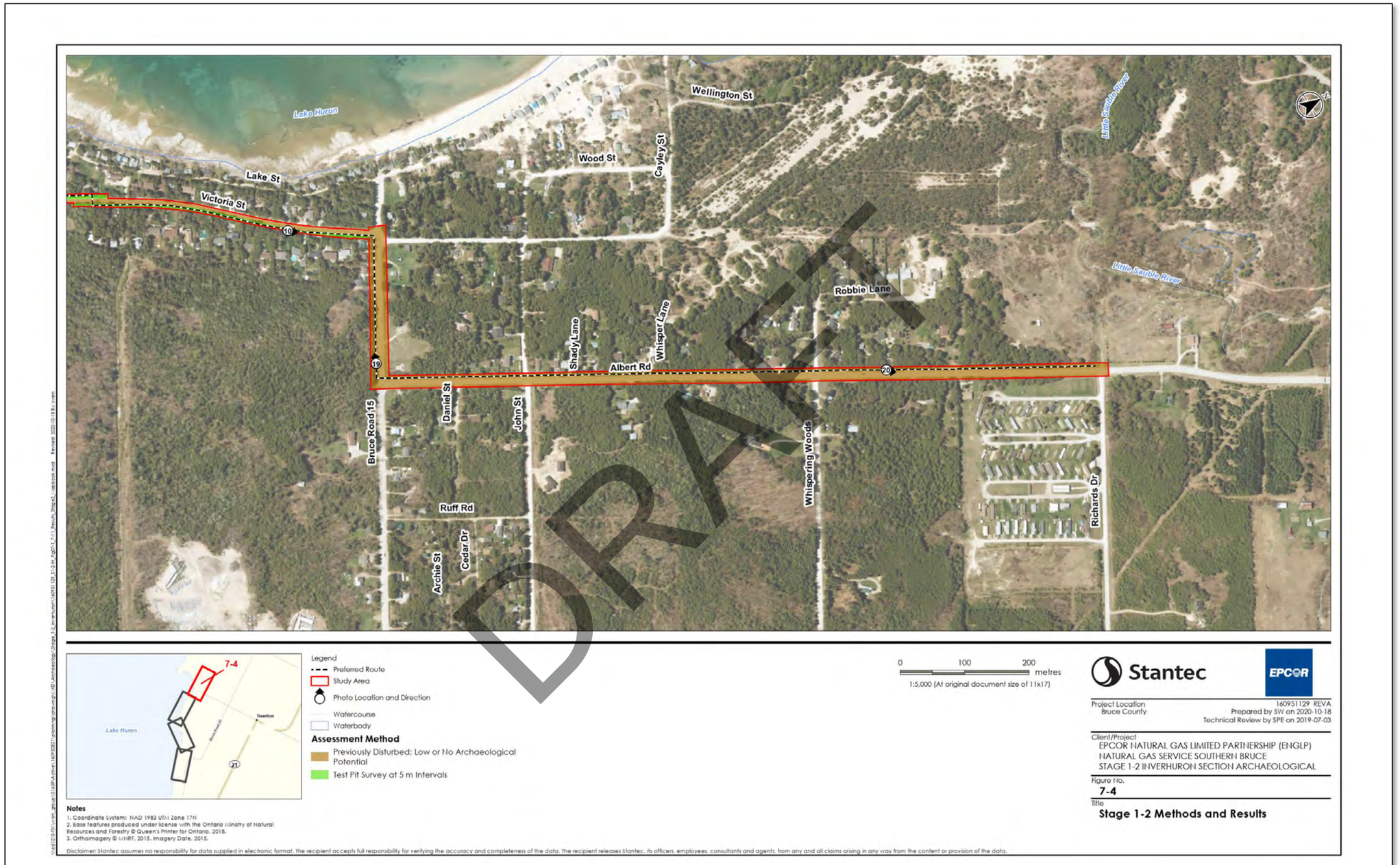


Map 4: Soils Within the Vicinity of the Project Area

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)



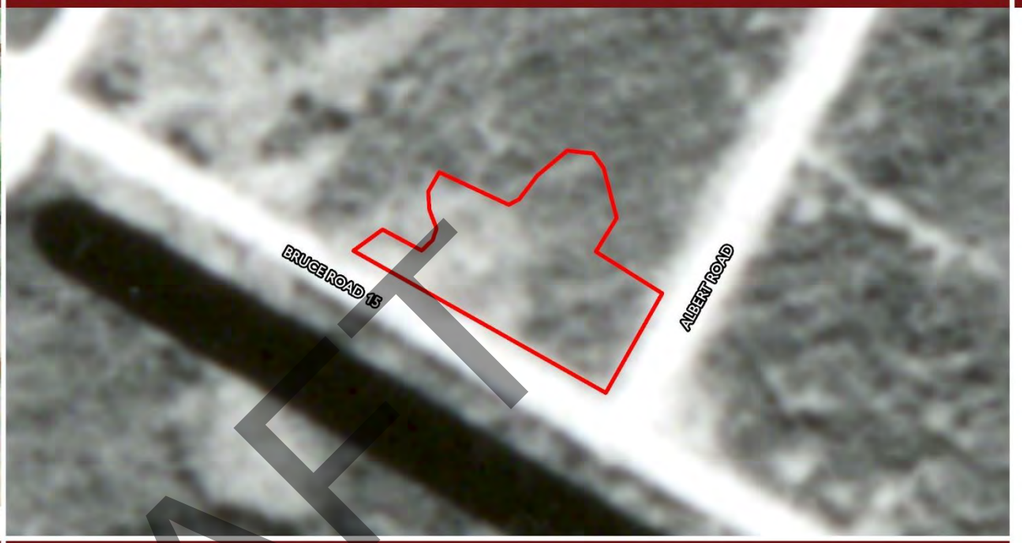
Map 8: Southern Bruce Natural Gas Pipeline (Stantec 2020)

Map 9: Location of the Project Area Shown on the 1855 Plan of the Town Plot of Inverhuron

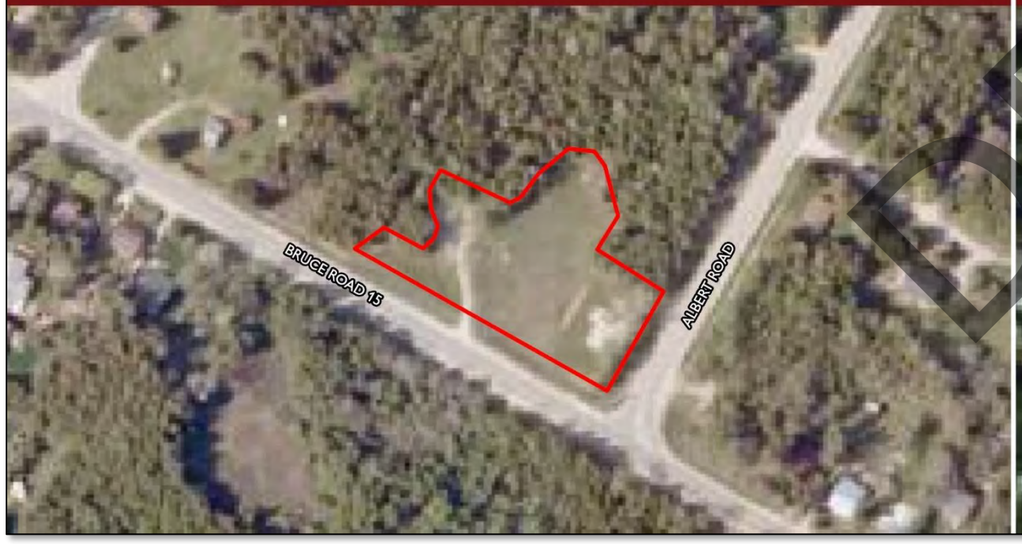
Map 10: Location of the Project Area Shown on the 1880 Map of Bruce County

1946 TOPOGRAPHIC MAP
DEPARTMENT OF NATIONAL DEFENCE

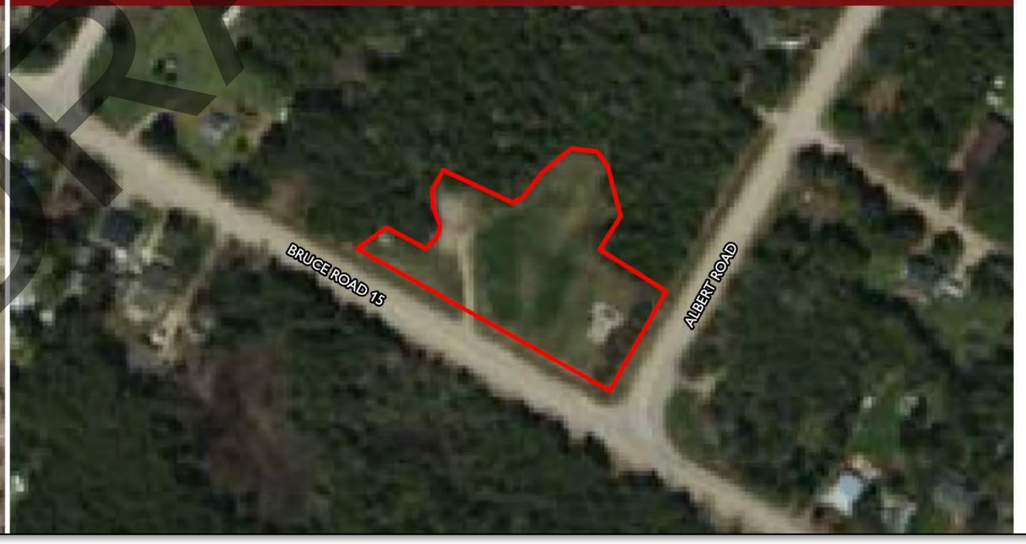
1954 ORTHOPHOTOGRAPHY
DEPARTMENT OF LANDS AND FORESTS



2006 ORTHOPHOTOGRAPHY
BRUCE COUNTY ORTHOPHOTOGRAPHY



2015 ORTHOPHOTOGRAPHY
BRUCE COUNTY ORTHOPHOTOGRAPHY



HISTORIC MAPS

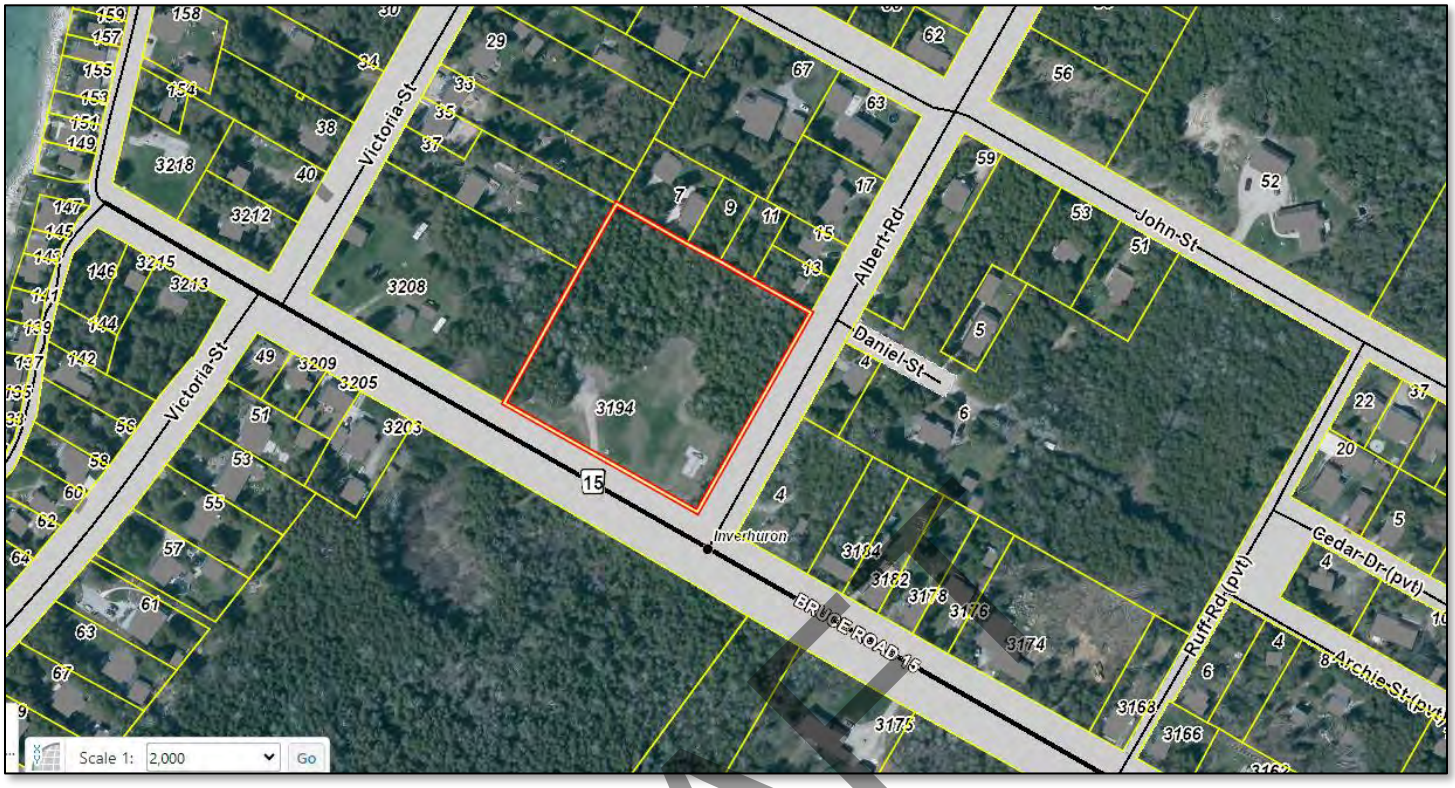
Project Area

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 B

Hydrogeological Report

Ian D. Wilson Associates Ltd.
since 1974

Tel: 519.233.3500
Fax: 519.233.3501

P. O. Box 299
Clinton, Ontario
N0M 1L0

August 6, 2024

Wilson Associates

Consulting Hydrogeologists

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.

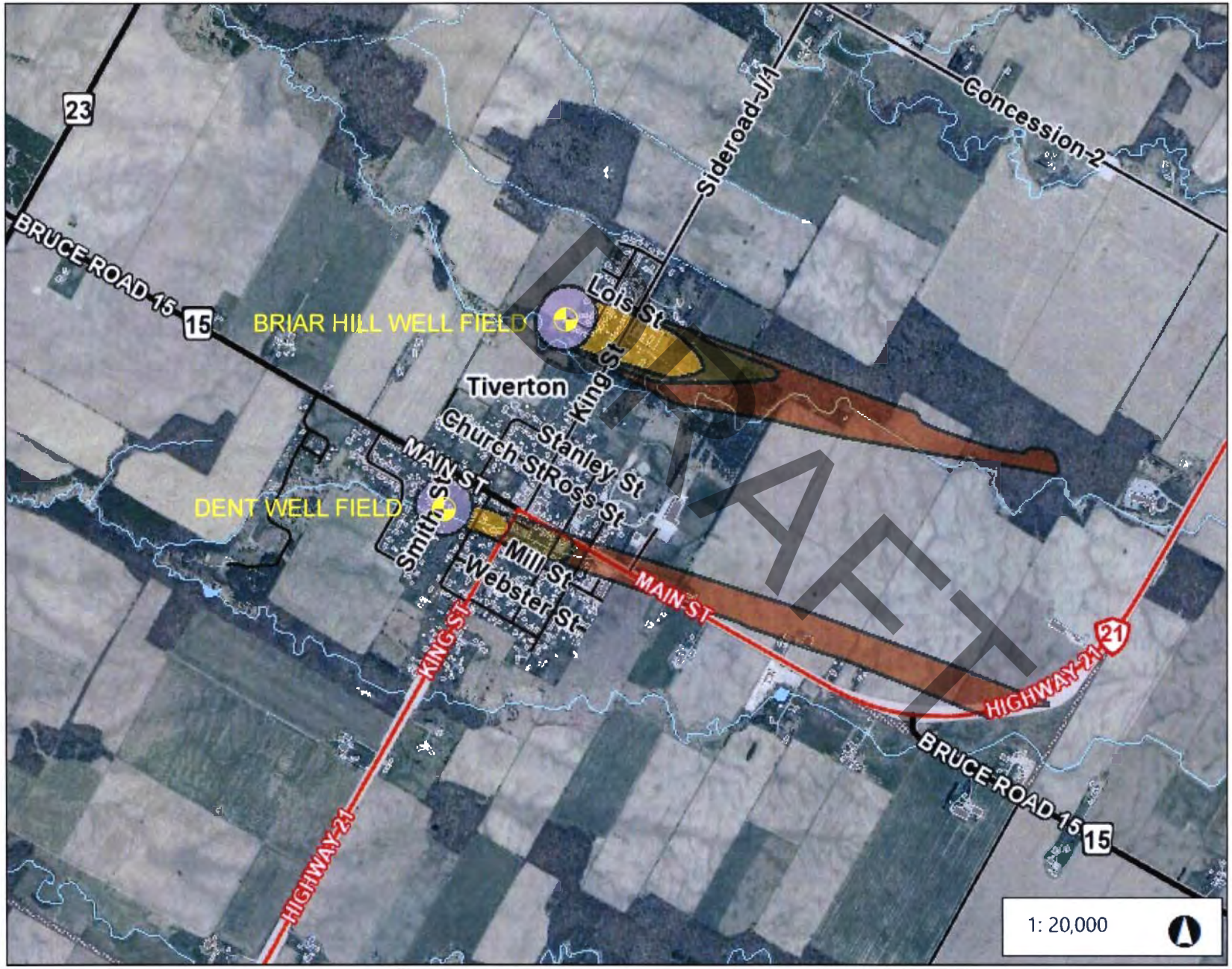
Should there be any questions regarding the above information and analysis, please do not hesitate to contact this office.

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

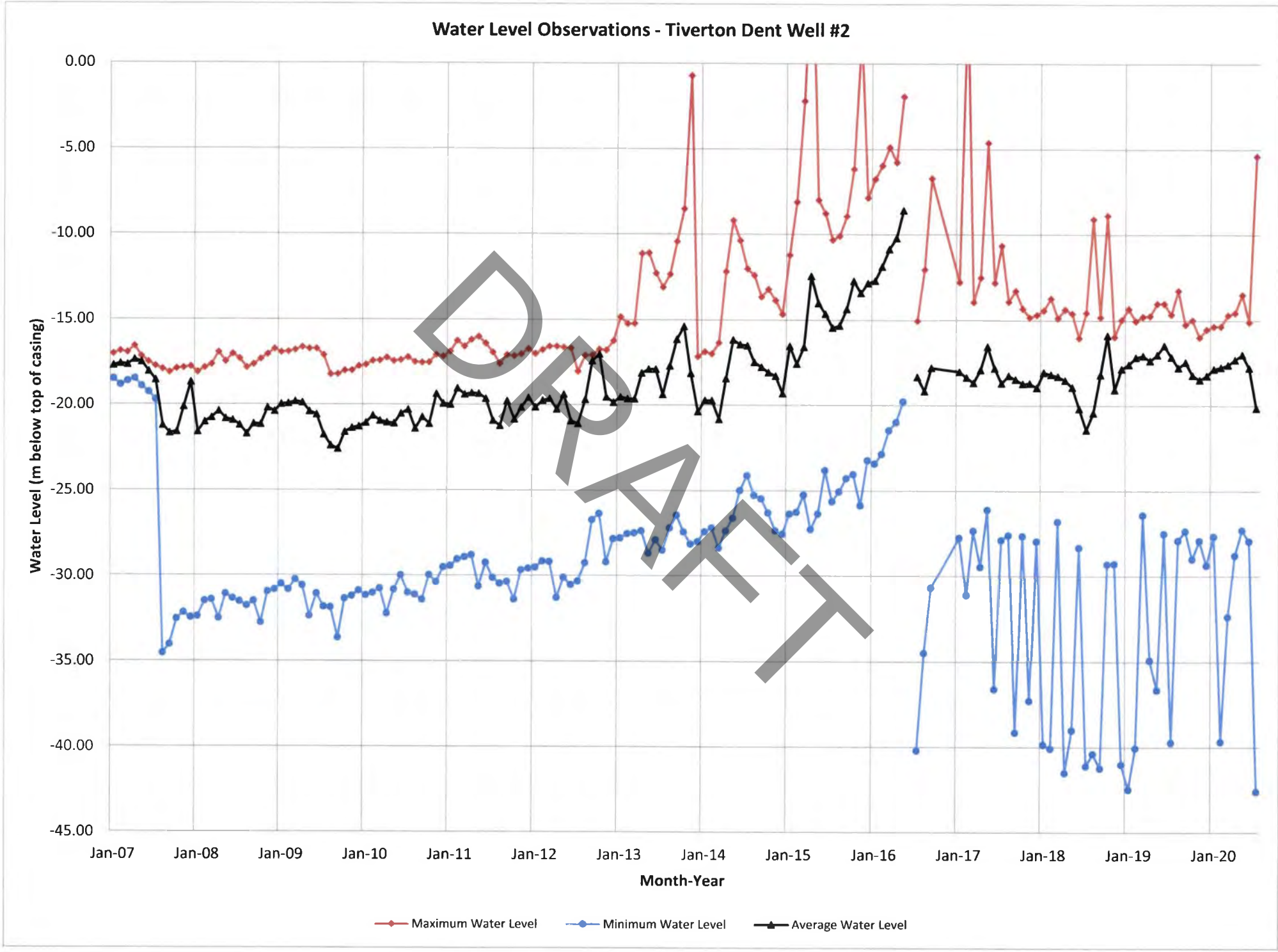
Notes

1.0 0 0.51 1.0 Kilometers

NAD_1983_UTM_Zone_17N

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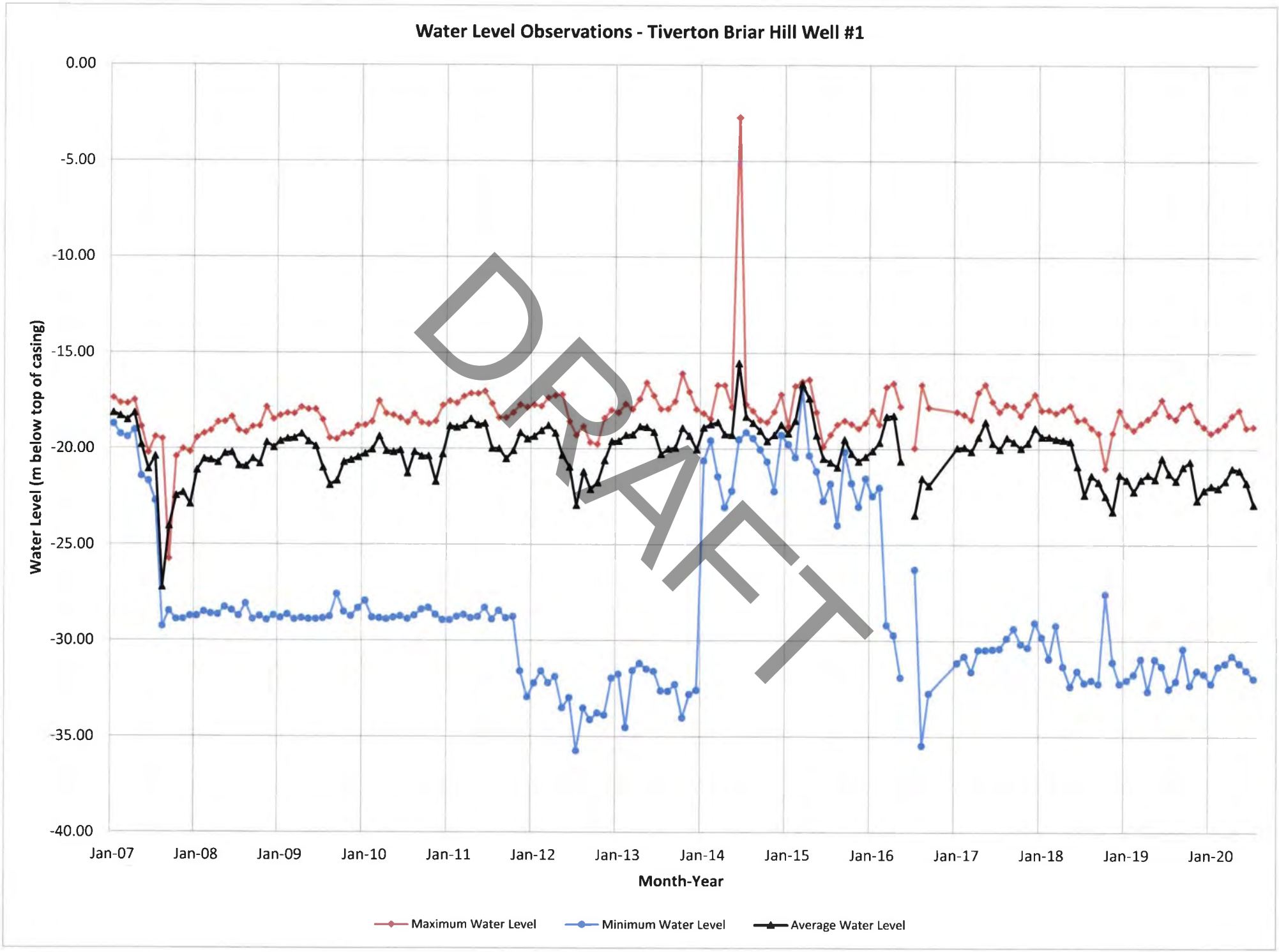
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
-35.00
-40.00
-45.00
Water Level (m below top of casing)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Month-Year
Maximum Water Level
Minimum Water Level
Average Water Level
DRAFT


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
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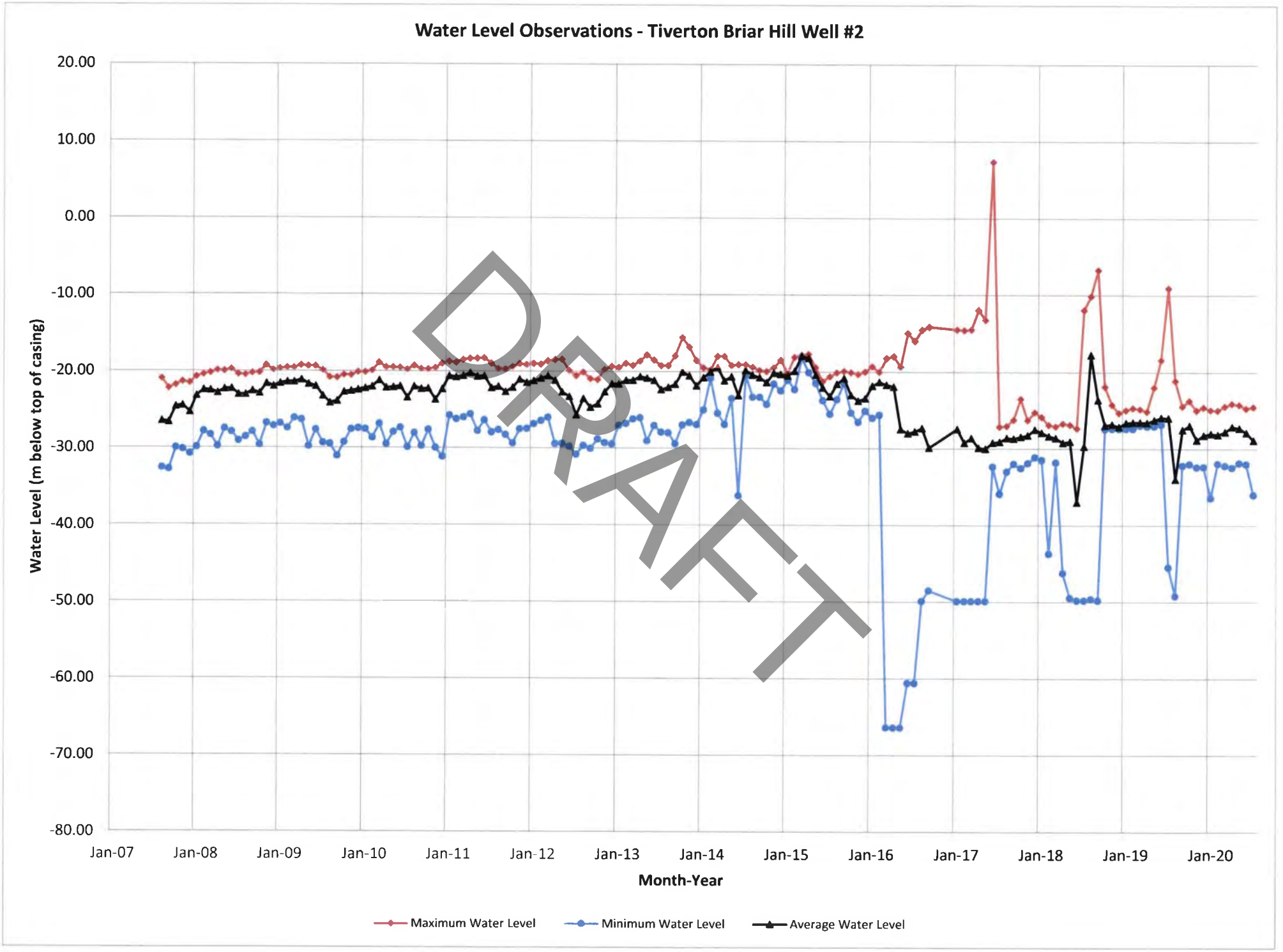

Water Level Observations - Tiverton Briar Hill Well #2
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
Water Level (m below top of casing)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Month-Year
Maximum Water Level
Minimum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

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

41 4/5/E

Dent Well #1

The Ontario Water Resources Commission Act

WATER WELL RECORD

1402695 | 14709

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

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Village of Tiverton	~~Block A~~ Paterson Park Sub-division	~~Plan 210~~

Owner (Surname First)	Address	Date Completed
Dent, ~~Allan~~ A	Tiverton, Ontario	20 05 ~~May~~ 71

21 | 17 | 456365 | 4921590 | 4 | 0732 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth – Feet From	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 | 0060040509 | 0018305 | 0042165111 | 0052109111 | 0105305 | 0126011412

32 | 0157015

DRAFT

41 WATER RECORD

Water Found at – Feet	Kind of Water
0138	☒ Fresh
0156	☒ Fresh

51 CASING & OPEN HOLE RECORD

Inside Diam. Inches	Material	Wall Thickness Inches	Depth – Feet From	To
~~8~~ 08	☒ Steel	.264	0	0132
			132	~~157~~
	☒ Open Hole			0157

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, Lead Packer, etc.)

71 PUMPING TEST

Pumping Test Method	Pumping Rate	Duration of Pumping
Pumping	0107 GPM	24 Hours 00 Mins

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

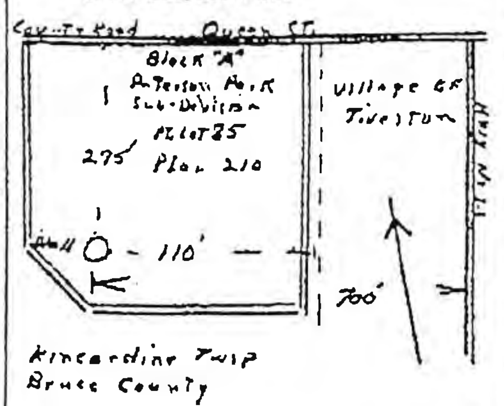
Recommended pump setting: 125 feet

Recommended pumping rate: 0100 GPM ~~100~~

0016 GPM/FT. Specific Capacity

LOCATION OF WELL

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



FINAL STATUS OF WELL

☒ Water Supply

WATER USE 06

☒ Municipal

METHOD OF DRILLING

☒ Cable Tool

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

Signature of Contractor: H. T. Davidson | Submission Date: 22 May 71

OFFICE USE ONLY

Data Source	Contractor	Date Received
1	1737	250571

Remarks: CSS.58 | P71 | W1 | 2

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	
MUNICIPALITY OF KINCARDINE	KINCARDINE ONT.	18 / 9 / 2003 (day / month / year)	

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

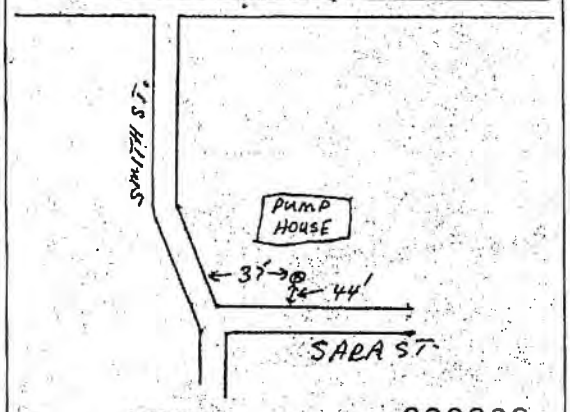
☐ Domestic ☐ Commercial ☐ Not use
☐ Stock ☐ Municipal ☐ Other
☐ Irrigation ☐ Public supply
☐ Industrial ☐ Cooling & air conditioning

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: ALLAN HOPPER	Well Technician's Licence No.: T-2578
Signature of Technician/Contractor	Submission date: 23 / 9 / 2003 (day / mo / yr)

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 | 14709

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

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
McArthur, ~~Herbert L.~~	Box 941, Acton, Ontario.	DAY 05 MO ~~Aug.~~ YR 7.

21 | ZONE 17 | EASTING 406774 | NORTHING ~~4902163~~ | RC 4 | ELEVATION 0750 | RC 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 | 0001 | 0009 | 0006 | 0022 | 0048 | 0107 (handwritten codes)

32 | 0111 | 0124 | 0154 | 0254 | 0267 | 0296 (handwritten codes)

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	156-1 / 305
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.) | DIAMETER INCHES | LENGTH FEET

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~~	~~[illegible]~~	~~Bentonite and [illegible]~~

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
Turbine (1 ☐ PUMP 2 ☐ BAILER)	60 GPM	24 HOURS MINS

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

1 ☒ PUMPING 2 ☐ RECOVERY

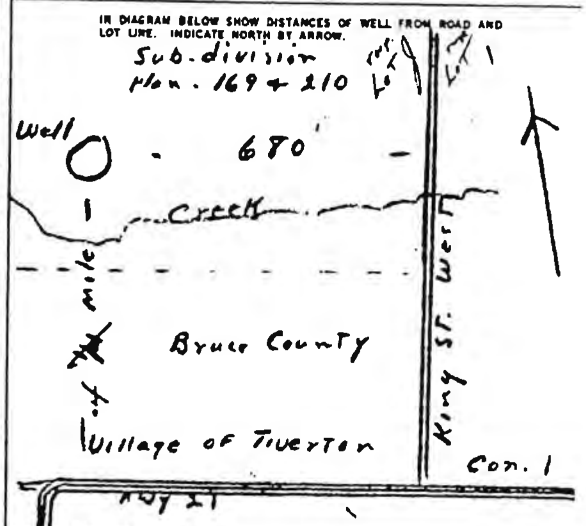
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: 155 FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 155 FEET | RECOMMENDED PUMPING RATE: 60 GPM

— — GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

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

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

DRAFT

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: 1 | Concession: 1
RR#/Street Number/Name | City/Town/Village | Site/Compartment/Block/Tract etc.
GPS Reading | NAD: 83 | 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
0	171ft	12.25in
171ft	305ft	8in
236ft		

Water Record

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

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify
Chlorinated? ☒ Yes ☐ No

Construction Record

Casing

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To Metres
8.65in	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.219	0	171ft
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

Screen

Outside diam	Material	Slot No.
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	

No Casing or Screen

☒ Open hole 171ft 305ft

Test of Well Yield

Pumping test method: pump test

	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	200 GPM	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	
If flowing give rate - (litres/min)	15		15	
If pumping discontinued, give reason.	20		20	
	25		25	
	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

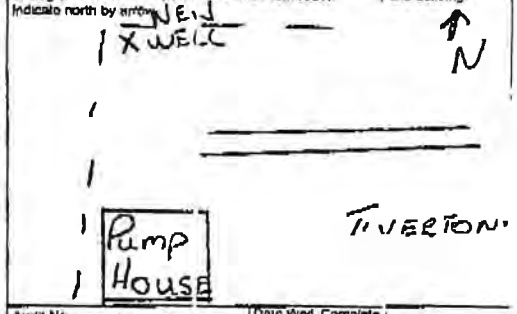
☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

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: X 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 Complete: 2006 MM 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 1 7 Z 4 5 4 6 9 0 E
5 R 4 9 0 3 7 5 0 N
Elev. 5 R 0 7 3 7
Basin 2 2

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

GROUND WATER BRANCH 14 No. 781
AUG 23 1977
ONTARIO WATER RESOURCES COMMISSION

County or ~~District~~ Bruce | Township, ~~Village, Town or City~~ Bruce
Con. I Lot ~~II~~ I | Date completed 21 (day) June (month) 1960 (year)
[redacted] Tiverton

Casing and Screen Record		Pumping Test	
Inside diameter of casing	4"	Static level	60'
Total length of casing	137'	Test-pumping rate	15' G.P.M.
Type of screen	—	Pumping level	70'
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	12 G.P.M.
		with pumping level of	70'

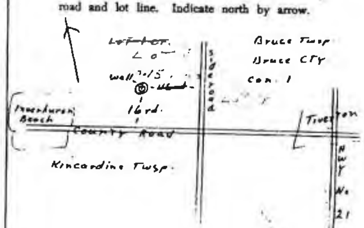
Well Log / **Water Record**

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	0	18			
gravely hardpan	18	36			
soft clay	36	76			
hardpan	76	97			
clay & shales	97	130			
brown rock	130	152	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. Chettleburgh
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 1 7 Z 4 5 6 2 0 0 E
5 R 4 9 0 2 1 0 0 N

The Ontario Water Resources Commission Act

Elev. 5 R 0 7 7 7

WATER WELL RECORD

14 No. 782

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

Casing and Screen Record		Pumping Test	
Inside diameter of casing	4"	Static level	76'
Total length of casing	135	Test-pumping rate	10 G.P.M.
Type of screen	—	Pumping level	78'
Length of screen	—	Duration of test pumping	5 hrs.
Depth to top of screen	-	Water clear or cloudy at end of test	Clear
Diameter of finished hole	4"	Recommended pumping rate	10 G.P.M.
		with pump setting of	90 feet below ground surface

Well Log / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Clay	0	4'		
Sand	4	42'		
Clay	42	48		
Gravel, sand, clay	48	116		
Shale, clay, soft	116	137		
Rock, brown, med. soft	137	161	161	Fresh

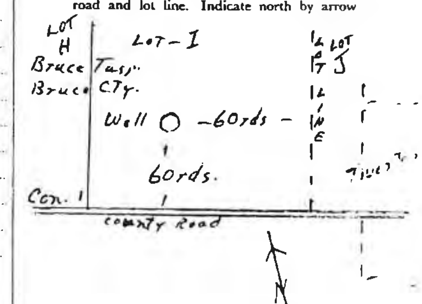
For what purpose(s) is the water to be used? Domestic - Stock
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson
Address Wingham
Licence Number 2069
Name of Driller or Borer E. Thompson
Address Wingham
Date Sept 30
G. L. Davidson
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



CSS 58

DRAFT

4

UTM 17 E 4576775 N
17 R 4902025 N
Elev. 7 R 0804
Basin 22

The Well Drillers Act
Department of Mines, Province of Ontario

RECEIVED 783
FEB 4 1948
GEOLOGICAL BRANCH DEPARTMENT OF MINES

Water Well Record

(Now in Village of Tiverton)

[redacted] ...ntun Ont Con. 1 Lot 2 Pt. Lot Acres 150
[redacted] ...luding 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	46
Depth of pump setting		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? 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
		175

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 rock	179	221

Location of Well

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

175 ft from con 1 Bruce
47 rods from W line

Situation: Is well on upland, in valley, or on hillside?
Drilling Firm G. L. Davidson
Address Wingham
Recorded by Gordon Davidson driller Address Wingham
Date Dec. 31 ... Licence Number

CSS.S8

3

Roadside Picnic Site
UTM 17 E 4588715 E
Con 3 R 4901218 N
Elev. 4 0756 R 0813

The Ontario Water Resources Commission Act

WATER WELL RECORD

GROUND WATER BRANCH
14 No 784
MAY 9 1963
ONTARIO WATER RESOURCES COMMISSION

Basin 22
County ~~or District~~ Bruce
Township, ~~Village, Town or City~~ Bruce
Con. 1 Lot pt 6
Date completed 27 (day) March (month) 1963 (year)
Owner Dept. of Highways (print in block letters)
Address Owen Sound (Dist), Ont.

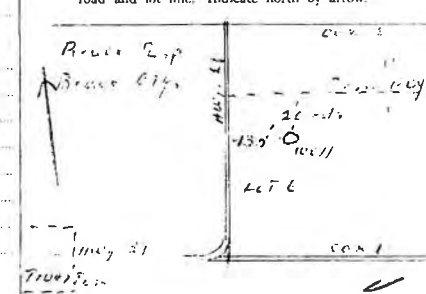
Casing and Screen Record		Pumping Test	
Inside diameter of casing	4"	Static level	45
Total length of casing	199-4	Test-pumping rate	10 G.P.M.
Type of screen	—	Pumping level	50
Length of screen	—	Duration of test pumping	6 hrs
Depth to top of screen	—	Water clear or cloudy at end of test	clear
Diameter 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	Kind of water (fresh, salty, sulphur)
clay, blue	0	52		
quick sand	52	62		
clay, blue	62	76		
sand & clay	76	122		
hardpan	122	154		
sand	154	156		
stoney hardpan	156	196		
Limestone, dark brown hard	196	231	241	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 Josephine ST Wingham, Ont.
Licence Number 951
Name of Driller or Borer E. Thompson
Address Wingham
Date Mar. 29/63
G L Davidson
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 10M-62-1152

OWRC COPY

CSS.S8

UTM |1|7| |4|5|5|5|9|0| E
|5| |4|9|0|4|2|5|0| N
Elev. |9| |0|7|5|2|
Basin |2|2| | | | |

17

14 № 792

ONTARIO

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

[redacted] ~~Village, Town or City~~ Bruce
[redacted] own or City) Tiverton P.O.
Date Completed 28 (day) June (month) 1957 (year) Cost of Well (excluding pump)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	4"	Date	
Length(s) of casing(s)	150'	Static level	56
Type of screen		Pumping level	No draw down
Length of screen		Pumping rate	12 gal. from pump capacity
Distance from top of screen to ground level		Duration of test	
Is well a gravel-wall type?		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

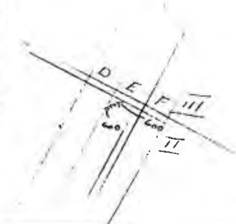
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
150	fresh	
180	"	

Well Log

Overburden and Bedrock Record	From	To
	0 ft.	... ft.
Dug well	0	42
Gravel	42	50
Clay & Boulders	50	87
Clay Gravel	87	112
Grey 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 Raymond Gaddie
Address R.R. 1 Clifford
Name of Driller Webber & Gaddie
Date July 5 - 57
Address R.R. 1 Clifford
Licence Number 358
Raymond Gaddie
Signature of Licensee

Form 3

CSS 58

UTM |1|7| |4|5|7|5|4|0| E
|9| |4|9|0|3|0|2|5| N
Elev. |9| |0|7|5|0|
Basin |2|2| | | | |

ONTARIO

The Well Drillers Act
Department of Mines, Province of Ontario

14 № 793

Water Well Record

[redacted] Con. N Lot A north of line 2 millside no 3 Pt. Lot
RR 3 Acres
(including pump)

Pipe and Casing Record		Pumping Test	
Casing diameter(s)	4	Date	
Length(s) of casing(s)		Developed Capacity	
Length of screen		Duration of Test	
Type of screen		Pumping Rate	4 gal
Type of pump		Drawdown	60 ft
Capacity of pump		Static level of completed well	22 ft
Depth of pump setting		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

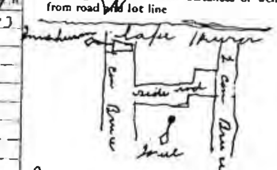
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
		173

Well Log

Drift and Bedrock Record	From	To
sand	0 ft.	99 ft.
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. Dawdon
Address Kingham
Recorded by Fred Sturdy driller
Date Aug 13th 1949
Address Kingham
Licence Number

CSS 58

UTM 17 | 4 5 7 6 0 0 E
17 R | 4 9 0 3 0 8 5 N
Elev. 19 R | 0 7 1 5
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) Address: Tiverton
(day) (month) (year)

Pipe and Casing Record

Casing diameter(s): 4¼"
Length(s): —
Type of screen: —
Length of screen: —

Pumping Test

Static level: ~~6 g.p.m.~~ 18 ft
Pumping rate: 6 g.p.m.
Pumping level: 55 ft
Duration of test: 8 hrs

Well Log / **Water Record**

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

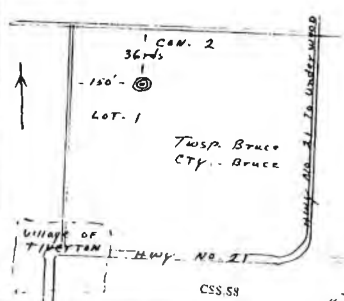
For what purpose(s) is the water to be used? Domestic + Farm Stock
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? Hillside
Drilling firm: G. L. DAVIDSON
Address: Wingham
Name of Driller: F. THOMPSON
Address: WINGHAM
Licence Number: 73

I certify that the foregoing statements of fact are true.

Date: .... 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.S8

UTM 17 | 4 5 8 8 6 0 E
5 R | 4 APL 5 7 5 N
Elev. 5 R | 0 8
Basin 212

14 No. 795

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

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

Casing and Screen Record

Inside diameter of casing: 6.538
Total length of casing: 201'-5"
Type of screen: NIL
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 / **Water Record**

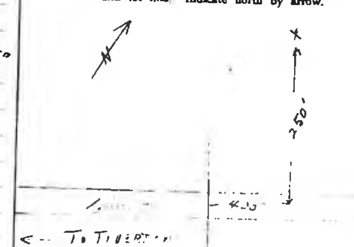
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
CLAY	0	53			
" & GRAVEL	53	64			
HARDPAN	64	198	225'	190	FRESH.
LIMESTONE	198	244½			

1965

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: 85
Name of Driller: A. MUNRO
Address: CLAYTON
Date: 12/5/61
C. Goodberry
(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 3 — CSS.S8

UTM 17 Z 453850 E
9 R 4900900 N
Elev. 9 R 0825

The Ontario Water Resources Commission Act

WATER WELL RECORD

14 № 1662

Basin 22 County or District Bruce Township, Village, Town or City Kincardine
Con. A Lot ~~62~~ 61 Date completed 13 (day) June (month) 1962 (year)
[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	5 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.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Top Soil	0	6"		
Stones	6"	2'		
Clay, stones, Harpan	2'	34'		
gravely hardpan	34	54		
Stoney hardpan	54	84'		
Shale, brown	84	94		
Limestone, brown, soft	94	131'	131	Fresh

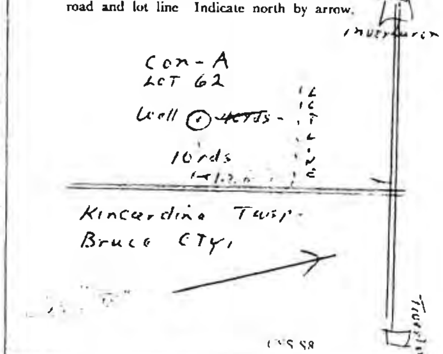
For what purpose(s) is the water to be used? Farm
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson
Address Wingham
Licence Number 560
Name of Driller or Borer G. Showers
Address Wingham
Date June 29/62
G. L. Davidson
(Signature of Licensed Drilling or Boring 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 Z 454550 E
5 R 4902620 N
Elev. 5 R 0725

The Ontario Water Resources Commission Act

WATER WELL RECORD

14 № 1675

Basin 22 County or District Bruce Township, Village, Town or City Kincardine
Con. "A" Lot ~~69~~ 70 Date completed 4 (day) July (month) 1966 (year)
[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.	Depth(s) at which water(s) found	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

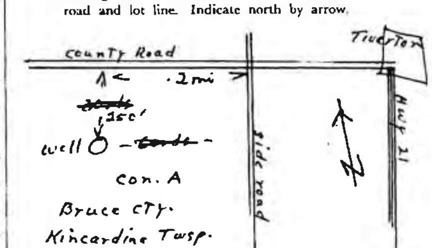
For what purpose(s) is the water to be used? D-Stock
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm Davidson's Well Drilling
Gordon L. Davidson
Address Wingham
Licence Number 2069
Name of Driller or Borer E. Thompson
Address Wingham
Date July 7/66
G. L. Davidson
(Signature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

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 1877
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 (day) (month) (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 53'
Duration of test 6 hrs.

Well Log

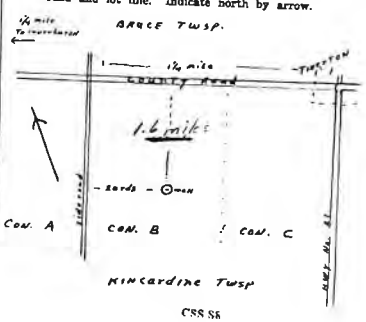
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Dug well	0	16'			
Sand & gravel	16'	22'			
Clay, blue	22	62'			
Stoney clay	62	97'			
Clay & shale	97	118'			
Limestone, hard, brown	118	143'	143'	103'	Fresh

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 93
I certify that the foregoing statements of fact are true.
Date
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

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

WAM

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER BRANCH
14 No 1678
[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
(day) (month) (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	5'			
Brown Clay	5'	18			
Blue Clay	18	46			
Clay & Sand	46	62			
Sand & gravel	62	92			
soft dirty shale	92	112'			
hard Bruce Limestone	112	138'	138'	92'	fresh

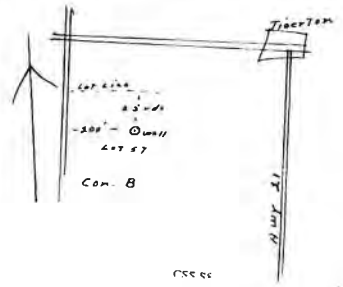
Water Record

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 93
I certify that the foregoing statements of fact are true.
Date
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.

WAM



Form 5

CSS 58

1

17 456045 E
5 4900700 N
Elev. 5 0765
Basin 22

14 № 1680

The Ontario Water Resources Commission Act

WATER WELL RECORD

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 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	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

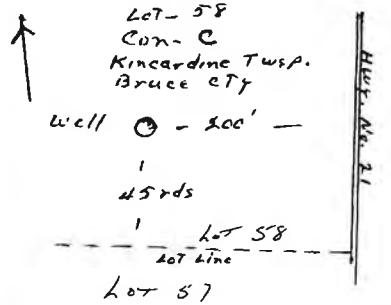
For what purpose(s) is the water to be used? D-S
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G.L. Davidson
Address Wingham
Licence Number 1758
Name of Driller or Borer Doug. Davidson
Address Wingham
Date Sept 15, 1965
G. L. Davidson
(Signature of Licensed Drilling or 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)

17 455450 E
5 4899425 N
Elev. 5 0750

14 № 1700

The Ontario Water Resources Commission Act

WATER WELL RECORD

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

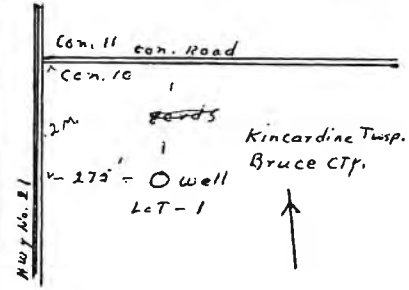
For what purpose(s) is the water to be used? D - S
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson "Davidson Well Drilling"
Address Box 486 Wingham, Ontario.
Licence Number 2466
Name of Driller or Borer Doug Davidson
Address Wingham, Ontario.
Date August 22, 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 z 455900 E
19 R 4900150 N
Elev. con 9 XI R 0750
lot 23
Basin
County or District Bruce
Con. 11 Lot 1

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, ~~Village, Town or City~~ Kincardine
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 / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	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

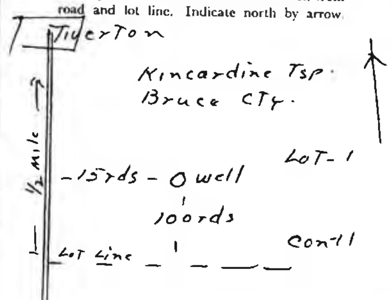
For what purpose(s) is the water to be used? Farm
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson
Address Wingham
Licence Number 951
Name of Driller or Borer E. Thompson
Address Wingham
Date Oct 5, 1963
G L Davidson
(Signature of Licensed Drilling or Boring 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 Sx

UTM 17 z 456050 E
2 3 R 4899600 N
Elev. 5 R 0775
Basin 22
County or District Bruce
Con. ~~11~~ XI Lot Wh 2

14 № 1793 7

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, ~~Village, Town or City~~ Kincardine
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 / **Water Record**

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	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

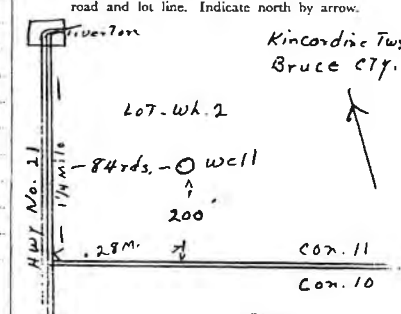
For what purpose(s) is the water to be used? D - S
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm G. L. Davidson "Davidson Well Drilling"
Address Box 486 Wingham, Ont.
Licence Number 2466
Name of Driller or Borer Doug. Davidson
Address Wingham, Ont.
Date Aug. 28/67
G.L.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

UTM 17 E 456500 N 4899359
Elev. 9 R 0775
Basin 22 XI
Lot 3

14 No 1704

GROUND WATER BRANCH
APR 29 1957
ONTARIO WATER RESOURCES COMMISSION

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

[redacted] Bruce ...ship, ~~Village, Town or City~~ Kincardine
[redacted] ...n Village, Town or City)
[redacted] Address R.R.4 Glamis
Date completed 27 (day) March (month) 195[illegible] (year)

Pipe and Casing Record

Casing diameter(s) 4¼
Length(s)
Type of screen
Length of screen

Pumping Test

Static level 41'
Pumping rate 10 g.p.m.
Pumping level 55'
Duration of test 6 hrs.

Well Log / Water Record

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

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 F. Thompson
Address Wingham
Licence Number 23

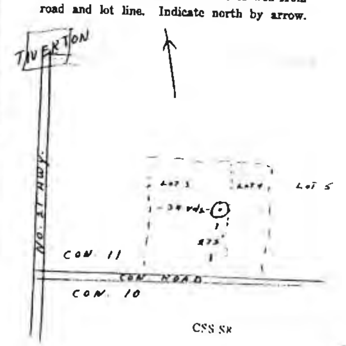
I certify that the foregoing statements of fact are true.

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

Form 5

Location of Well

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



CSS 58

UTM 17 E 456150
15 R 4
Elev. 15 R 0717
Basin 212

RECEIVED
JUN 15 1949
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

14 No 2120

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

[redacted] Village Tiverton, Highway ... Con. 11 Lot ... Pt. Lot 74 Village of Tiverton
[redacted] ...iverton P.O. ... Acres 2.5
[redacted] ...(not including 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 Dec 15
Developed Capacity
Duration of Test
Pumping Rate 9 gal
Drawdown 14 ft
Static level of completed well 55 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

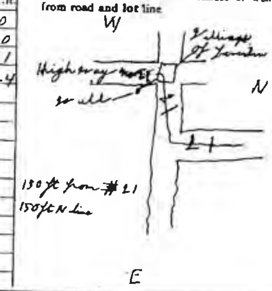
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
		169

Well Log

Drift and Bedrock Record	From	To
Clay	0 ft.	80 ft.
gravel	80	110
Tille	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 58

UTM 17 WAS 4|5|6|6|5|0| E
PERMIT ISSUED BEFORE THIS 4|9|0|1|3|1|5| N
Elev. 0|7|7|9|
Basin |2|1|2|

14 № 2121

The Ontario Water Resources Commission Act

WATER WELL RECORD

County ~~or District~~ Bruce
Con. ~~10~~ Lot ~~...~~
Township, Village, ~~Town or City~~ Village of Tiverton
Date completed 12 (day) April (month) 1963 (year)

[redacted] ress Tiverton, Ont.

Casing and Screen Record

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

Pumping Test

Static level	50
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

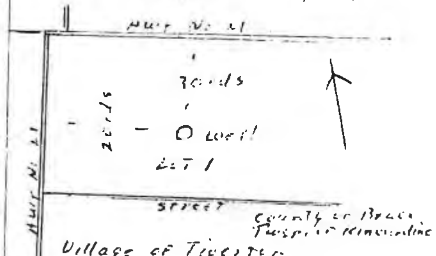
Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Sandy clay	0	4		
clay	4	16		
Sand	16	22		
clay, stoney	22	102		
gravel	102	106		
hardpan	106	142		
Shale, brown, soft	142	168		
Limestone, brown, soft	168	192	192 to 237	
Limestone, brown, hard	192	237		Fresh

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

Location of Well

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



Form 7 15M-60-4138

OWRC COPY

CSS.S8

UTM 17 4|5|6|0|5|0| E
4|8|9|9|3|3|0| N
Con 8 Lot 2
CODED
Elev. 0|7|7|5|
Basin |2|1|2|

402204

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A/4

County ~~or District~~ Bruce
Con. 10 Lot 2
Township, ~~Village, Town or City~~ Kincardine
Date completed 6 (day) Sept. (month) 1968 (year)

[redacted] ress 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	18 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.	Depth(s) at which water(s) found	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

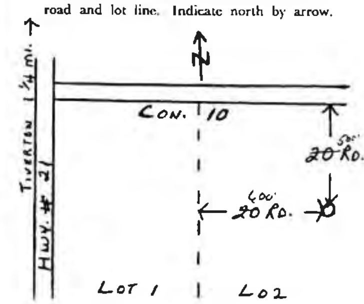
For what purpose(s) is the water to be used? Domestic-stock
Is well on upland, in valley, or on hillside? Upland
Drilling or Boring Firm G. L. Davidson
"Davidson Well Drilling"
Address P. O. Box 486,
Wingham, Ontario.
Licence Number 2801
Name of Driller or Borer Doug. Davidson
Address Wingham
Date September 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.S8

WATER WELL RECORD

The Ontario Water Resources Commission Act

UTM 17 Z 4576810 Con XII Lot 4 CODED
4 R 4910870
Elev. 5 R 0795
Basin 22

41A/5E
1402307 7

County or District: Bruce
Township, Village, Town or City: Kincardine
Con. 12 Lot 4
Date completed: 1 (day) May (month) 1969 (year)

DIVISION OF WATER RESOURCES / ONTARIO WATER RESOURCES COMMISSION

[redacted] 1969 Teeswater, Ontario.

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		
Static level	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

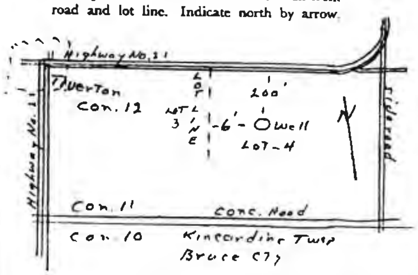
Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	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

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)

Location of Well

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



Form 7
OWRC COPY
CSS 58 SC

WATER WELL RECORD

The Ontario Water Resources Commission Act

41A/4E

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

11 1402557 14012 CON

County or District: Bruce County
Township, Borough, City, Town, Village: Kincardine Township
Con.: ~~XI~~ XI Lot: 006
[redacted] R. R. 1., Tiverton, Ont.
Date completed: 21 July 70
5 9 8 2 3 4 0 | 4 | 4 8 0 0 5 | 3 | 2 2

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General colour	Most common material	Other materials	General description	Depth from	Depth 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

31 0018605 0101305 0120014 0126109 0138112 0167614112
32 0211626

41 WATER RECORD: Water found at 0211, Fresh

51 CASING & OPEN HOLE RECORD: Inside diam. 04; Steel; wall thickness .205; depth 0 – 0168; 168 – 211 open hole; 0211

SCREEN

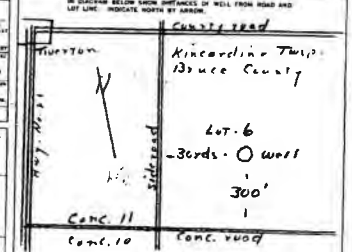
61 PLUGGING & SEALING RECORD

71 PUMPING TEST: Pump; Pumping rate 0016 GPM; Duration 01 hrs 20 mins; Static level 030; Water levels during: 034, 034, 034, 034, 034; Pumping; Clear; Recommended pump type: Shallow; Recommended pump setting 050 feet; Recommended pumping rate 0010 GPM; 0048 GPM/FT specific capacity

FINAL STATUS OF WELL: ☒ Water supply
WATER USE: 12 ☒ 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.



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: 21 July 70

OFFICE USE ONLY: Data source 1; Contractor 1705; Date received 220970; 7

OWRC COPY
CSS 58 P/M

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A5E

1402662 | 14005 EAN | 03

County or District: [redacted] | Township, Borough, City, Town, Village: Bruce Twsp. | Con., Block, Tract, Survey, etc.: Con. 3 | Lot: 002

[redacted] 2, Tiverton | Date completed: 18 11 70

03600 | 4 0780 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet From	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 09AAA4 0174 VAA2 0217015
32

41 WATER RECORD

Water found at – feet	Kind of water
0214	Sulphur

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
04	Steel	.205	0	0175
04	Open hole		175-5	0217

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: 0008 | Duration of pumping: 02 hours 40 mins
Static level: 019 | Water level end of pumping: 039 | Water levels during: 15 minutes 037, 30 minutes 038, 45 minutes 039, 60 minutes 039
If flowing give rate: 150 GPM | Water at end of test: Clear
Recommended pump type: Deep | Recommended pump setting: 050 feet | Recommended pumping rate: 0007 GPM
000.4 GPM/FT. Specific capacity

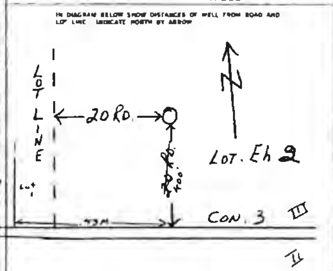
FINAL STATUS OF WELL: Water supply

WATER USE 01: Domestic

METHOD OF DRILLING: Rotary (reverse)

LOCATION OF WELL

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



CONTRACTOR

Name of well contractor: Gordon L. Davidson | Licence number: 1705
Address: Box 486, Wingham, Ont.
Name of driller or borer: Doug. Davidson
Submission date: 19 11 70

OFFICE USE ONLY: 1 | 1705 | 150171 | 10/ 6/71 | P | WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A5E

CODED 1402681

County or District: Bruce County | Township, Borough, City, Town, Village: Bruce Township | Con., Block, Tract, Survey, etc.: Cono. 1 | Lot: G

[redacted] R. R. 2, Tiverton, Ontario. | Date completed: 6 Apr. 71

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		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

UM 17 455065
4R 4902200
v. 5R 0780
sin 22

WATER RECORD

Water found at – feet	Kind of water
174	Fresh

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
4	Steel, Open hole	.205	0	129-2
			129-2	174

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping test method: Bailer | Pumping rate: 18 GPM | Duration of pumping: 1 hours 10 mins
Static level: 75 | Water level end of pumping: 79 | Water levels during: Pumping; 15 minutes 77, 30 minutes 78, 45 minutes 79, 60 minutes 79
If flowing give rate: 170 | Water at end of test: Clear
Recommended pump type: Deep | Recommended pump setting: 90 feet | Recommended pumping rate: 10 GPM

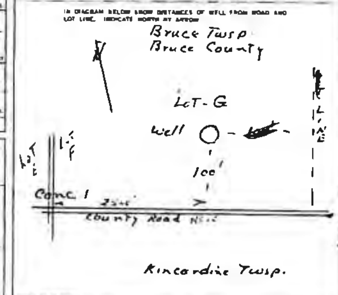
FINAL STATUS OF WELL: Water supply

WATER USE: 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.



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
Submission date: 9 Apr. 71

OFFICE USE ONLY

CONTRACTOR'S COPY OWRC

The Ontario Water Resources Commission Act

WATER WELL RECORD

CODED 1402682

41/5/E

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Bruce Township	Conc. 1	F

[redacted] R. R. 2, Tiverton, Ont. — Date completed: 7 Apr. 71

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General colour	Most common material	Other materials	General description	From	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 17 455 050
4R 4190 2550
v. 5R 0755
sin 22

WATER RECORD

Water found at - feet	Kind of water
162	Fresh

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	From	To
4	Steel	.205	0	92-9
	Open hole		92-9	162

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping test method: Bailer — Pumping rate: 10 GPM — Duration of pumping: 1 hours

Static level: 67 — Water level end of pumping: 72 — Water levels during: 15 minutes 70; 30 minutes 72; 45 minutes 72; 60 minutes 72

Pump intake set at: 160 feet — Water at end of test: Clear

Recommended pump type: Deep — Recommended pump setting: 85 feet — Recommended pumping rate: 9 GPM

FINAL STATUS OF WELL: Water supply

WATER USE: Domestic, Stock

METHOD OF DRILLING: Rotary (conventional)

LOCATION OF WELL

CONTRACTOR: Davidson Well Drilling Ltd. — Licence number 1737

Address: 475 Josephine St., Wingham, Ont.

Name of driller or borer: Doug. Davidson, Wingham

Submission date: 9 Apr. 71

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

The Ontario Water Resources Commission Act

WATER WELL RECORD

41/5/E

11 1402692 74012

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: 16 04 71

4 00300 4 0348 5T 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General colour	Most common material	Other materials	General description	From	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

WATER RECORD

Water found at - feet	Kind of water
0146	Fresh

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	From	To
04	Steel	.205	0	0106
	Open hole		106	0146

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping rate: 0010 GPM — Duration of pumping: 03 hours 00 mins

Static level: 060 — Water level end of pumping: 072 — Water levels during: 072, 072, 072, 072

Pump intake set at: 92 feet — Water at end of test: Clear

Recommended pump setting: 090 feet — Recommended pumping rate: 0010 GPM

000.8 GPM/FT. specific capacity

FINAL STATUS OF WELL: Water supply

WATER USE: 01 Domestic

METHOD OF DRILLING: Cable tool

LOCATION OF WELL

CONTRACTOR: Davidson Well Drilling Ltd. — Licence number 1737

Address: Box 486, Wingham, Ontario

Name of driller or borer: E. Thompson, Wingham

Submission date: 19 Apr. 71

OFFICE USE ONLY: 1737 170571 P W1

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 A/5 E

1402693 — 14012 — 0201 — B

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Kincardine Township	Conc. B	53-54

[redacted] R. 2, Tiverton, Ont. — Date completed: 23 Apr. 71

900150 4 07418 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	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: 0024405 0034305 0056614 0070 0911 0090617 0133 1511

WATER RECORD: Water found at 0133 feet — Fresh

CASING & OPEN HOLE RECORD: Inside diam. 04 inches — Steel — wall thickness .205 — Depth from 0 to 0089 (88-8); 88-8 to 133 open hole; 0133

PLUGGING & SEALING RECORD

PUMPING TEST: Pump — Pumping rate 0008 GPM — Duration of pumping 03 hrs 00 mins — Static level 064 — Water level end of pumping 080 — 15 minutes 072 — 30 minutes 080 — 45 minutes 080 — 60 minutes 080 — Pump intake set at 94 feet — Water at end of test: Clear — Recommended pump type: Deep — Recommended pump setting 090 feet — Recommended pumping rate 0007 GPM — 000.5 GPM/FT. Specific capacity

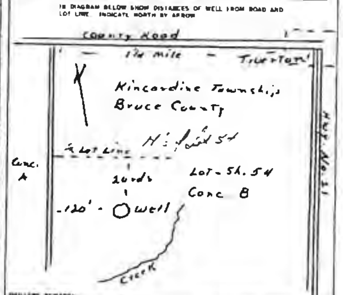
FINAL STATUS OF WELL: Water supply

WATER USE: 12 — Domestic, Stock

METHOD OF DRILLING: Cable tool

LOCATION OF WELL

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



Name of well contractor	Licence number
Davidson Well Drilling	1737
Box 486, Wingham, Ont.	
E. Thompson, Wingham	

Signature of contractor: [signature] — Submission date: 24 Apr. 71

Office use only: 1 — 1737 — 170571 — 7 — P — CSS S — WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 A/5 E

1402695 — 14709

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Village of Tiverton	Paterson Park Sub-division ~~Block A~~	Plan 210

[redacted] iverton, Ontario — Date completed: 20 05 71

901590 4 01735 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	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: 0006 0509 0018305 0042 1651 0052 0911 0105 3505 0126 1451
32: 0157 1415

WATER RECORD: Water found at 0138 feet — Fresh; 0156 feet — Fresh

CASING & OPEN HOLE RECORD: Inside diam. 8 inches — Steel — wall thickness .264 — Depth 0 to 0132; 08 — open hole 132 to 157; 0157

PLUGGING & SEALING RECORD

PUMPING TEST: Turbine — Pumping rate 0107 GPM — Duration of pumping 24 hrs 00 mins — Static level 048 — Water level end of pumping 115 — 15 minutes 099 — 30 minutes 102 — 45 minutes 104 — 60 minutes 105 — Pump intake set at 125 feet — Water at end of test: Clear — Recommended pump type: Deep — Recommended pump setting 125 feet — Recommended pumping rate 0100 (100 G.P.M.) — 001.6 GPM/FT. Specific capacity

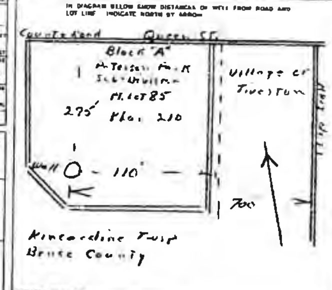
FINAL STATUS OF WELL: Water supply

WATER USE: 06 — Municipal

METHOD OF DRILLING: Cable tool

LOCATION OF WELL

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



Name of well contractor	Licence number
Davidson Well Drilling Ltd.	1737
Box 486, Wingham, Ontario	
Ed. Thompson, Wingham	

Signature of contractor: [signature] — Submission date: 22 May 71

Office use only: 1 — 1737 — 250571 — 7 — P 71 — CSS S8 — WI

OWRC COPY

DRAFT

WATER WELL RECORD

The Ontario Water Resources Commission Act

41 A/5 E

1402748 | 14709

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey, etc.
Bruce County	Village of Tiverton	Plan 169, 210 King St. N.

[redacted] 941, Acton, Ontario. Date completed 05 Aug. 71

21 | 02165 | 4 | 0750 | 15 | 2-2

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	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 | 0001 02 | 0004 0909 | 0009 09 | 0022 3051 | 0048 1413 | 0107 2051

32 | 0111 4050003 | 0124 1413 | 0154 1413 | 0254 15 | 0267 1151 | 0296 1051

41 WATER RECORD

Water found at feet	Kind of water
0228	Fresh
0284	Fresh
0296	Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth From	Depth To
8	Steel	.264	0	156-1
	Open hole		156-1	305

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Turbine. Pumping rate: 80 GPM. Duration of pumping: 24 hours.

Static level: 45 feet. Water level end of pumping: 125 feet. Water levels during: 15 min. 115; 30 min. 117; 45 min. 118; 60 min. 118.

Pump intake set at 155 feet. Water at end of test: Clear.

Recommended pump type: Deep. Recommended pump setting 155 feet. Recommended pumping rate 80 GPM.

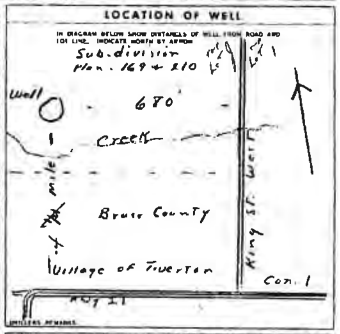
FINAL STATUS OF WELL: Water supply

WATER USE: Other: Sub-division

METHOD OF DRILLING: 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 Ltd. License number: 1737

Address: Box 466, Wingham, Ontario

Name of driller or borer: Doug. Davidson, E. Thompson

Signature of contractor: [signature] Submission date: day 6 mo. Aug. yr. 71

OFFICE USE ONLY: 250871 — P 24 — W1 — CSS.S8

OWRC COPY

WATER WELL RECORD

The Ontario Water Resources Commission Act

+1 A/5 E

1402753 | 74012 | CON

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey, etc.
Bruce	Kincardine	

Owner: Bigelow Mobile Homes. Address: P.O. Box 190, Tiverton, Ontario. Date completed 26 07 71

RECEIVED OWRC AUG 27 1971 GENERAL MANAGER'S OFFICE

21 | 4 55750 | 4 9 01650 | 0 6 7 55 | 15 | 2-2

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth 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 | 0008 0051 0900 | 0097 2051 3 | 0145 2050 91 7 | 0205 1 15

41 WATER RECORD

Water found at feet	Kind of water
0147	Fresh
0183	Fresh
0197	Fresh
0201	Fresh
0203	Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth From	Depth To
06	Steel	.250	0+1	0153
06	Open hole		153	0205

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Pump. Pumping rate: 200 GPM. Duration of pumping: 03 hours 00 mins.

Static level: 045. Water level end of pumping: 203. Water levels during: 045, 045, 045, 045.

Pump intake set at 203 feet. Water at end of test: Clear.

Recommended pump type: Deep. Recommended pump setting 180 feet. Recommended pumping rate 120 GPM.

001.3 GPM/FT. Specific capacity

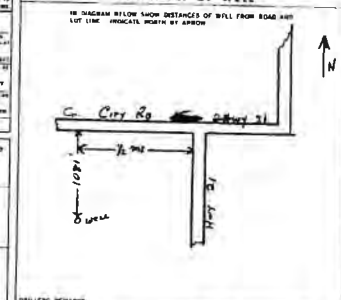
FINAL STATUS OF WELL: Water supply

WATER USE: 07 Public supply

METHOD OF DRILLING: Rotary (air)

LOCATION OF WELL

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



CONTRACTOR

Name of well contractor: F.H. Johnston Drilling Co. Ltd. License number: 3002

Address: Box 1439, Stn. "E", Ottawa, Ontario.

Name of driller or borer: R.W. Renwick

Signature of contractor: [signature] Submission date: day 16 mo. 8 yr. 71

OFFICE USE ONLY: 1 — 3002 — 270871 — CSS.S8

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A/5E

1402772 | 14012 | CON. A

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Kincardine Township	Cono. A	059

[redacted] R. 2, Tiverton, Ontario — Date completed 10 Sept. 71

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: 0023405 | 0058405 | 0088414 | 0139415

41 WATER RECORD

Water found at 0139 feet — Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
04	Steel	.264	0	0090
	Open hole		89-11	0139

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Pump. Pumping rate 0008 GPM. Duration of pumping 01 hrs 00 mins. Static level 053. Water level end of pumping 070. Water levels during pumping: 15 min 061, 30 min 069, 45 min 070, 60 min 070. Pump intake set at 80 feet. Water at end of test: Clear. Recommended pump type: Deep. Recommended pump setting 080 feet. Recommended pumping rate 0008 GPM. 000.5 GPM/FT. Specific capacity.

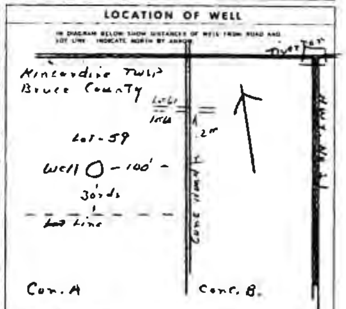
FINAL STATUS OF WELL: Water supply

WATER USE: 12 — Domestic, Stock

METHOD OF DRILLING: Rotary (conventional)

LOCATION OF WELL

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



CONTRACTOR: Davidson Well Drilling Ltd. — Licence number 1737
Box 486, Wingham, Ontario
Name of driller or borer: Doug. Davidson, Wingham
Submission date: 10 Sept. 71

OFFICE USE ONLY: 1 | 1737 | 220971 | 7 | P 51 | WI

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

41A/5E

1402774 | 14012 | CON. B

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Kincardine Township	Cono. B	Lot 55 / 053

[redacted] 5 Oak, Windsor, Ontario. — Date completed 09 Sept. 71

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 02 | 0019605 | 0062 11 | 0075 14 | 0140 15

41 WATER RECORD

Water found at 0140 feet — Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
04	Steel	.205	0	0077
	Open hole		77-0	0140

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

Pumping test method: Pump. Pumping rate 0007 GPM. Duration of pumping 01 hrs 00 mins. Static level 061. Water level end of pumping 066. Water levels during pumping: 15 min 066, 30 min 066, 45 min 066, 60 min 066. Pump intake set at 125 feet. Water at end of test: Clear. Recommended pump type: Deep. Recommended pump setting 070 feet. Recommended pumping rate 0007 GPM. 001.4 GPM/FT. Specific capacity.

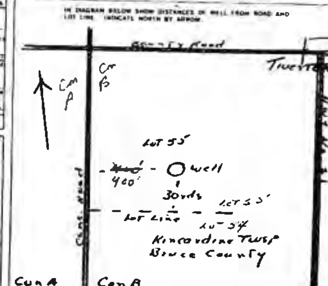
FINAL STATUS OF WELL: Water supply

WATER USE: 12 — Domestic, Stock

METHOD OF DRILLING: Rotary (conventional)

LOCATION OF WELL

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



CONTRACTOR: Davidson Well Drilling Ltd. — Licence number 1737
Box 486, Wingham, Ontario
Name of driller or borer: D. Davidson & F. Thompson
Submission date: 9 Sept. 71

OFFICE USE ONLY: 1 | 1737 | 220971 | 7 | P 71 | WI

OWRC COPY

Form 1

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

ONTARIO

41A/SE

1403153

14709

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	~~Kincardine Township~~ Tiverton	~~Conc. 12~~	~~Ek 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	to
Blue	Clay	Stones	Hard	0	52
Grey	Hardpan	Boulders	Hard	52	102
	Gravel	Stones Boulders	Very Hard	102	107
Grey	Hardpan	Stones	Hard	107	169
White-Brown	Shale		Loose	169	171
Brown	Rock		Hard	171	199

WATER RECORD: Water found at feet 0198, 199

CASING & OPEN HOLE RECORD: 04 — Steel — .205 — 0 – ~~0172~~ 172-3 – 199

PLUGGING & SEALING RECORD

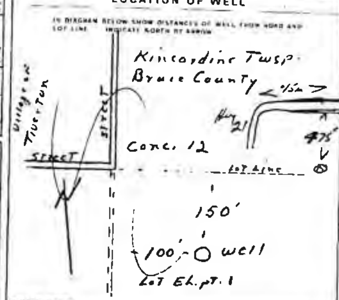
PUMPING TEST: Air — 0015 — 01 — 00; Static level 054; 056; 056; 056; 056; 056; 120; 100; 0013

FINAL STATUS OF WELL: Water supply

WATER USE: 01 Domestic

METHOD OF DRILLING: Rotary (conventional)

LOCATION OF WELL



CONTRACTOR	
Name of well contractor	Davidson Well Drilling Ltd. — 1737
Address	Box 486, Wingham, Ont.
Name of driller or boring	E. Thompson, Wingham
Signature of contractor	per G. Davidson — 7 May 73

OFFICE USE ONLY: 1 — 1737 — 220573 — P — WI — CSS.S8

MINISTRY OF THE ENVIRONMENT COPY

Form 2

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

ONTARIO

41A/SE

1403204

14005 CON 102

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce County	Bruce Township	Conc. 2	001

[redacted] R. 2, Tiverton, Ontario

Date completed: 18 May 73

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet from	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: Water found at feet 0219

CASING & OPEN HOLE RECORD: 04 — Steel — .205 — 0 – 169-11 — 0169 — 169-11 – 219

PLUGGING & SEALING RECORD

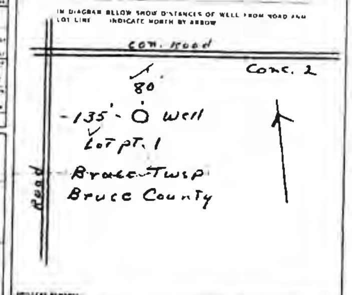
PUMPING TEST: Pump — 0006 — 01 — 00; Static level 046; 065; 052; 058; 065; 065; 120; 0 80; 0006

FINAL STATUS OF WELL: Water supply

WATER USE: 01 Domestic

METHOD OF DRILLING: Rotary (conventional)

LOCATION OF WELL



CONTRACTOR	
Name of well contractor	Davidson Well Drilling Ltd. — 1737
Address	Box 486, Wingham, Ontario.
Name of driller or boring	D. Davidson & E. Thompson
Signature of contractor	per H. L. Davidson — 29 May 73

OFFICE USE ONLY: 1 — 1737 — 090773 — P — WI — CSS.S8

MINISTRY OF THE ENVIRONMENT COPY

DRAFT

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario — 41A/5E

1403309 — 14709

County or District: Bruce County — Township: Bruce Township (Tiverton) — Con.: Conc. 1 — Lot: 68

[redacted] …verton, Ontario — Date completed: 25 Sept. 73

LOG OF OVERBURDEN AND BEDROCK MATERIALS

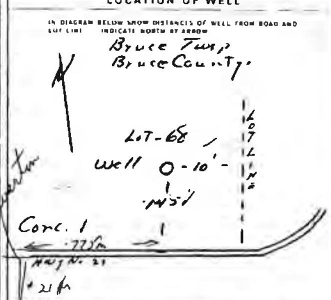
General colour	Most common material	Other materials	General description	Depth from	Depth to
Brown	Clay		Soft	0	14
Blue	Clay		Soft	14	112
Grey	Hardpan	Sand, Stones	Mixed	112	151
	Sand	Gravel	Coarse	151	153
Grey	Hardpan	Stones	Hard	153	189
Dk Brn.	Limestone		Hard	189	223
Dk Brn.	Limestone		Soft	223	225

Water record: 0225 fresh
Casing & open hole record: 04 steel, .205, 0–191-2; 191-2–225
Plugging & sealing record: OWRC P.8

Pumping test: pump, 0015, 01 hr 00 min; static level 032; water levels 035, 035, 035, 035, 035; recommended pump setting 055, 0015; 205

Final status of well: water supply
Water use: 01 domestic
Method of drilling: rotary (conventional)

LOCATION OF WELL



Contractor: Davidson Well Drilling Ltd., 1737
Box 456, Wingham, Ontario
Gary Reavie, Wingham
Date: 29 Sept. 73

Office use only: 1, 1737, 10 01 73, 041073

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario — 41A/5E

1403459 — 14005 — Con. 102

County or District: BRUCE — Township: BRUCE — Con.: II — Lot: 006

[redacted] RR#2 TIVERTON — Date completed: 29 04 74

17 459111 4901422 4 0810 5 221

LOG OF OVERBURDEN AND BEDROCK MATERIALS

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 V-5

Water record: 0185 fresh; 0209 fresh
Casing & open hole record: 04 steel, 205, 0–0125; 04 open hole 0210

Pumping test: 0015, 04 hr 00 min; static 030; water levels 060, 060, 060, 060, 060; recommended pump setting 060, 0015; 60

Final status of well: 1 water supply
Water use: 01 domestic
Method of drilling: 4 rotary (air)

LOCATION OF WELL

Contractor: RAY SPENCER & SON WELL DR. INC 3737
RR#5 MT FOREST

Office use only: 1, 4856, 1705 74, July 31/75

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

(11) 1403908 | 14005 | CON | 01

County or District: [redacted] | Township, Borough, City, Town, Village: Bruce Twp. | Con., Block, Tract, Survey, etc.: Con. 1 | Lot: 001

[redacted]ral Delivery, Tiverton, Ontario. | Date completed: 08 Aug. 75

1403908 17 ... 5 700 5 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) 0003002885 | 0045305885 | 01063051285 | 01672141273 | 0200415885 | 0220415885

(41) WATER RECORD: Water found at feet 0204 — Fresh; 0219 — Fresh

(51) CASING & OPEN HOLE RECORD: Inside diam. 05 — Steel — Wall thickness .188 — Depth 0 to 0169; 05 — Open hole — 169-1 to 0220

(61) PLUGGING & SEALING RECORD

(71) PUMPING TEST: Pump; Pumping rate 0010 GPM; Duration of pumping 01 hours 10 mins; Static level 068; Water level end of pumping 080; Water levels during: 072, 075, 080, 080; 10 gal. per min.; Pump intake set at 220 feet; Clear; Recommended pump type: Deep; Recommended pump setting 100 feet; Recommended pumping rate 0008 GPM

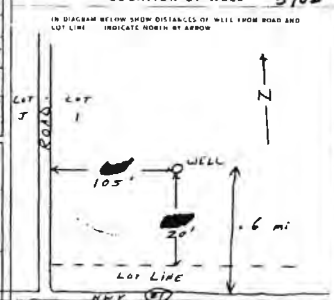
FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 01 (Domestic)

METHOD OF DRILLING: 2 (Rotary (conventional))

LOCATION OF WELL 5702

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



CONTRACTOR: Davidson Well Drilling Limited | Licence number 1737
Address: Box 486, Wingham, Ontario.
Name of driller or borer: R. Jardine
Signature: Douglas F. Davidson | Submission date: 11 Aug. 75

OFFICE USE ONLY: 1 | 1737 | 250975 | Aug 4/76 | 7 | CSS.S8 | P B | WI

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41 A/SE

Ontario

(11) 1404000 | 14012 | CON | A

County or District: Bruce County | Township, Borough, City, Town, Village: Kincardine Township | Con., Block, Tract, Survey, etc.: Concession A | Lot: 068

[redacted]. # 2, Tiverton, Ontario | Date completed: 29 10 75

... 5 725 5 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) 0001602 | 0022605 1273 | 0068605885 | 0086611273 | 0102615 | 0142615885

(41) WATER RECORD: Water found at feet 0140 — Fresh

(51) CASING & OPEN HOLE RECORD: Inside diam. 05 — Steel — Wall thickness .188 — Depth 0 to 0087; Open hole — 87-9 to 0142

(61) PLUGGING & SEALING RECORD

(71) PUMPING TEST: Pump; Pumping rate 0012 GPM; Duration of pumping 01 hours 00 mins; Pumping; Static level 054; Water level end of pumping 058; Water levels during: 057, 058, 058, 058; Pump intake set at 122 feet; Clear; Recommended pump setting 075 feet; Recommended pumping rate 0012 GPM

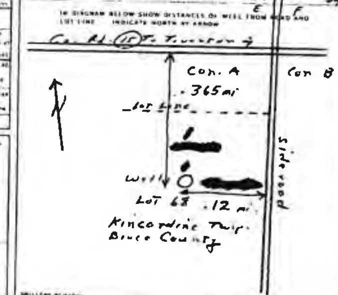
FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 12

METHOD OF DRILLING: 2 (Rotary (conventional))

LOCATION OF WELL Lot 54 02

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



CONTRACTOR: Davidson Well Drilling Limited | Licence number 1737
Address: Box 486, Wingham, Ontario.
Name of driller or borer: Rick Jardine
Signature: [signature] Davidson | Submission date: 3 Nov. 75

OFFICE USE ONLY: 1 | 1737 | 371275 | Aug 4/76 | 7 | CSS.S8 | P B | WI

MINISTRY OF THE ENVIRONMENT COPY

DRAFT

WATER WELL RECORD

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

Ontario — 41 A/5E

1404005 — 14709 — 12

County or District: Bruce [redacted] — Township/Village: TIVERTON — Plan 210, Village of Tiverton

[redacted] Queen St. Kincardine, Ontario. — Date completed: 10 Oct. 75

LOG OF OVERBURDEN AND BEDROCK MATERIALS

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: 0016605 1285 0093305 1285 0191 2141 1273 0226 6 1573 0232 6 1585 0254 6 1573
32: 0289 6 1573 0291 6 1585

WATER RECORD

Water found at feet	Kind of water
0229 / 250	Fresh
0264	#5 Sulphur
0290	#5 Sulphur

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth from	Depth to
06	Steel	.188	0	0194
06	Open hole		194-6	0291

PLUGGING & SEALING RECORD

PUMPING TEST

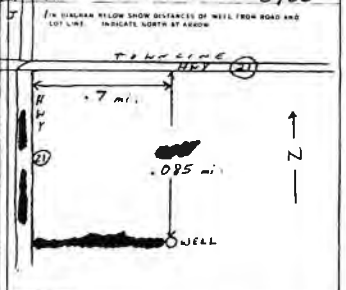
Pumping test method: Pump — Pumping rate: 0033 GPM — Duration of pumping: 01 hrs 15 mins

Static level: 043 — Water level end of pumping: 072 — Water levels during: 15 min 059, 30 min 065, 45 min 070, 60 min 072

Pump intake set at 291 feet — Clear — Recommended pump type: Deep — Recommended pump setting: 150 feet — Recommended pumping rate: 0030 GPM

LOCATION OF WELL

Lot 5700



FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 01 (Domestic)

METHOD OF DRILLING: 2 (Rotary (conventional))

CONTRACTOR: Davidson Well Drilling Limited — Licence number 1737
Box 486, Wingham, Ontario.
Name of driller or boring: G. Reavis
Submission date: 14 Oct. 75

OFFICE USE ONLY: 1 1737 311275 — Aug 4/76 — 7 — P B.A. — W B.A. — CSS S8

MINISTRY OF THE ENVIRONMENT COPY

WATER WELL RECORD

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

Ontario — 41 A/5E

1404185 — 14012 CON B

County or District: Bruce — Township: Kincardine Twp. — Con. 8 — Lot 056

[redacted] R.R. # 2, Tiverton, Ontario. — Date completed: 14 May 76

1007400 5 0735 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

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: 0001 02 0024 4585 0039 1 12885 0064 6141273 0069 6151785 0136 6 1585

WATER RECORD

Water found at feet	Kind of water
0136	Fresh

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth from	Depth to
05	Steel	.188	0	0069
05	Open hole		68-7	0136

PLUGGING & SEALING RECORD

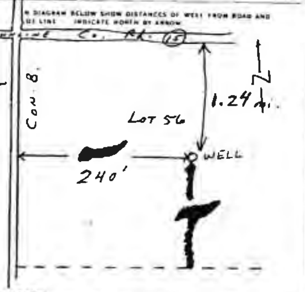
PUMPING TEST

Pumping test method: Air — Pumping rate: 0010 GPM — Duration of pumping: 01 hrs 00 mins

Static level: 052 — Water level end of pumping: 065 — Water levels during: 15 min 058, 30 min 065, 45 min 065, 60 min 065

Pump intake set at 130 feet — Clear — Recommended pump type: Shallow — Recommended pump setting: 085 feet — Recommended pumping rate: 0010 GPM

LOCATION OF WELL



FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 01 (Domestic)

METHOD OF DRILLING: 2 (Rotary (conventional))

CONTRACTOR: Davidson Well Drilling Limited — Licence number 1737
Box 486, Wingham, Ontario.
Name of driller or boring: R. Jardine
Submission date: 17 May 76

OFFICE USE ONLY: 1 1737 150726 — Aug 17/77 — 7 — P B.A. — W B.A.

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1404483 | 14709

County or District: BRUCE | Township, Borough, City, Town, Village: TIVERTON | Con., Block, Tract, Survey, etc.: LOT 62, Part 1, 3R-591

Owner: SOUTH BRUCE DEV. CORP. | Address: P.O. Box 269, Kincardine, Ontario | Date completed: 16 06 77

17 | 457150 | 4901850 | 5 0275 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General Colour	Most Common Material	Other Materials	General Description	Depth – Feet From	To
BLACK	TOPSOIL			0	2
GREY	CLAY	& GRAVEL STONES		2	74
GREY	CLAY	& HARDPAN		74	105
GREY	DRY GRAVEL			105	115
BROWN	LOOSE SHALE			115	130
	SHALE			130	160
	LIMESTONE			160	189
DARK BROWN	ROCK			189	215
BLACK & BROWN	ROCK			215	240
WHITE & BROWN	ROCK			240	255

31: 0002804 | 0074205 1112 | 0105205 14 | 0115201168 | 0130201777 | 0160417

32: 0189415 | 0215646 | 0240817 | 0255124

WATER RECORD: Water found at 0130 feet – Fresh

CASING & OPEN HOLE RECORD: 06 – Steel – .231 – 0 to 0130; 06 – Open hole – 130 to 0255

SCREEN: NIL

PLUGGING & SEALING RECORD

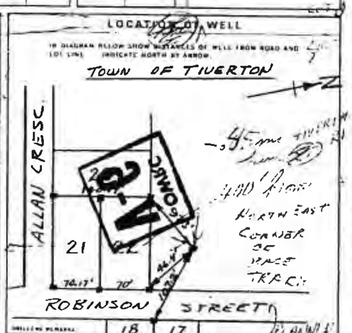
PUMPING TEST: Pump; Pumping rate 0036 GPM; Duration 24 hrs 00 min; Static level 040; Water level end of pumping 125; Water levels during: 15 min 107, 30 min 105, 45 min 107, 60 min 109; Recommended pump setting 150 feet; Clear; Recommended pumping rate 0036 GPM

FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 06 (Municipal)

METHOD OF DRILLING: 1 (Cable tool)

LOCATION OF WELL



Contractor: McLAUGHLIN WATER WELLS, Box 51 BRESLAU Ont. | Licence number: 3518
Name of driller: BRIAN CAREY
Signature: R. McLaughlin | Date: 27-6-77

Office use only: 1 | 3518 | 120777 | APL | CSS.S8 | P | WI

MINISTRY OF THE ENVIRONMENT COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario 41A/4E

1404505 | 14012 | CON 10 | 005

County or District: Bruce | Township: Kincardine Twp. | Con., Block, Tract, Survey, etc.: Con. 10

Owner: [redacted] Sunnyvale Dr., Oakville, Ont. | Date completed: 28 06 77

[redacted] 798750 | 5 | 0805 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General Colour	Most Common Material	Other Materials	General Description	Depth – Feet From	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 02 | 0028 05 | 0113 05 | 0145 05 | 0162 | 0167

32: 0200 15

WATER RECORD: Water found at 0189 feet – Fresh

CASING & OPEN HOLE RECORD: 05 – .188 – 0 to 0169; 05 – 169–0 to 0200

SCREEN

PLUGGING & SEALING RECORD

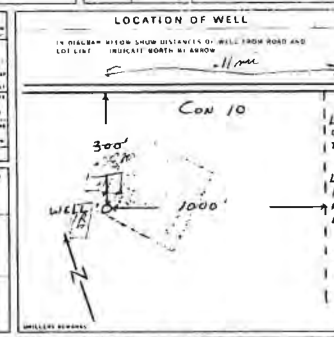
PUMPING TEST: Pumping rate 0020 GPM; Duration 01 hrs 00 min; Static level 038; Water level end of pumping 040; Water levels during: 040, 040, 040, 040; Recommended pump setting 180 feet; Clear; Recommended pumping rate 0020 GPM; 060

FINAL STATUS OF WELL: 1

WATER USE: 12

METHOD OF DRILLING: 2

LOCATION OF WELL



Contractor: Davidson Well Drilling Limited | Licence number: 1737
Address: Box 486, Wingham, Ontario.
Name of driller: R. Jardine
Date: 29 June 77

Office use only: 1 | 1737 | 80877 | 23/8/78 | CSS.S8 | P | WI

MINISTRY OF THE ENVIRONMENT COPY

Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

4INSE

1404788

14005 CON 02

County or District	Township, Borough, City, Town, Village	Con. block tract survey etc.	Lot
BRUCE	BRUCE	2	005

[redacted]

Date completed: 14 03 78

Address: CITY CENTRE ... STATION A MISSISSAUGA ONTARIO

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet From	To
BROWN	FILL			0	2
BROWN	CLAY			2	140
BROWN	CLAY	& HARDPAN & STONES & BOULDERS		140	198
"	Limestone			198	245

31: 0002/601 / 0140605 / 0198605/1412 / 0245615

WATER RECORD

Water found at – feet	Kind of water
0225	Fresh
70	
245	

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
05"	Steel	.244	0	0198
	Open hole		198	0245

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping test method: Pump (AIR); Pumping rate 0015 GPM; Duration of pumping 02 hrs 10 mins

Static level 044; Water level end of pumping 120; Water levels during: 080, 050, 044, 044

Recommended pump type: Deep; Recommended pump setting 120 feet; Recommended pumping rate 0008 GPM

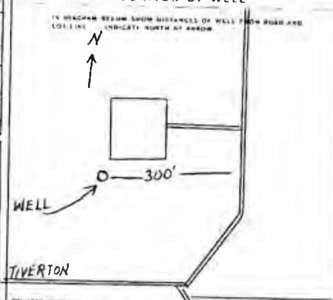
FINAL STATUS OF WELL 1 – Water supply

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: DURHAM DRILLING ENT. – License 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 1 1804 ... CSS SS P WI

MINISTRY OF THE ENVIRONMENT COPY

Ontario

Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

4INSE

1404839

14012 CON B

County or District	Township, Borough, City, Town, Village	Con. block tract survey etc.	Lot
Bruce County	Kincardine Township	Concession B	059 Sh 59

[redacted] James St., Kincardine, Ont.

Date completed: 18 05 78

01950 5 0730 5 22

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	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

31: 0017/0573 / 0035305/85 / 0047305/1273 / 0058214/1273

32: 5 15

WATER RECORD

Water found at – feet	Kind of water
131	Fresh

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
05"	Steel	.188	0	0082
	Open hole		82	0141

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping rate 0010 GPM; Duration of pumping 01 hrs 00 mins

Static level 046; Water level end of pumping 053; Water levels during: 051, 053, 053, 053

Recommended pump type: Deep; Recommended pump setting 070 feet; Recommended pumping rate 0010 GPM

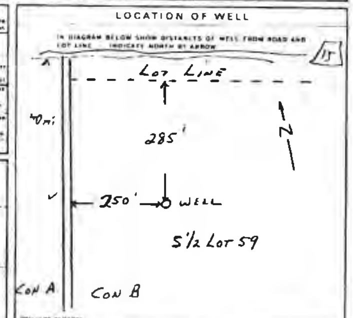
FINAL STATUS OF WELL 1 – Water supply

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 – License number 1737

Address: Box 486, Wingham, Ontario

Name of driller or borer: Doug. Casemore

Submission date: 23 May 78

OFFICE USE ONLY 1 1737 190878 26,979 CSS SS P BM WI BM

MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act 4IA/5E

WATER WELL RECORD

(11) 1404840 14005 CON 03

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey etc.	Lot
Bruce County	Bruce Township	Concession 3	001
[redacted]	[redacted]verton, Ontario.	Date completed	19 May 78 (05)

(21) 703350 5 0790 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth 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) 0006 1101 0073305 1873 0137 2 05 1 5 0145 6 28 0159 305 1 5 0187 2 1 4 12 73
(32) 0193 5 1 56 573 0216 1 5 73

(41) WATER RECORD: Water found at 210 (216); Fresh

(51) CASING & OPEN HOLE RECORD: Inside diam. 05; Steel; .188; Depth 0 – 0190 (189); Open hole 189-8 – 0216

(61) PLUGGING & SEALING RECORD

(71) PUMPING TEST: Pumping test method: air (pump); Pumping rate 0008; Duration of pumping 01 hrs 00 mins; Static level 064; Water level end of pumping 097; Water levels during: 15 min 083, 30 min 091, 45 min 097, 60 min 097; Recommended pump type: Deep; Recommended pump setting 120 feet; Recommended pumping rate 0008; Clear; 180

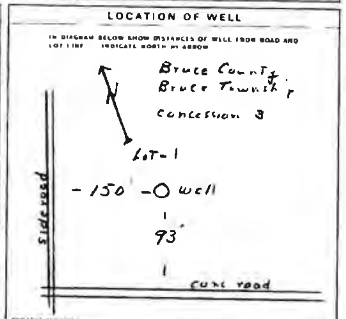
FINAL STATUS OF WELL: 1 (Water supply)

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: 23 May 78

OFFICE USE ONLY: 1 1737 190678; 20979; 7; P RM; W1

MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act 4IA/5E

WATER WELL RECORD

(11) 1404895 14005 CON 02

County or District	Township, Borough, City, Town, Village	Con. Block, Tract, Survey etc.	Lot
Bruce County	Bruce Township	Concession 2	005
[redacted]	R.R. 3, Tiverton, Ont.	Date completed	28 June 78 (06)

(21) 17 459300 4902300 5 0810 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth 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 6 0 5 73 0063 305 1873 0102 6 28 13 05 0160 2 1 4 12 73 0162 6 1 7 73 0216 1 5 73
(32)

(41) WATER RECORD: Water found at 0190 (216); Fresh

(51) CASING & OPEN HOLE RECORD: Inside diam. 05; Steel; .188; Depth 0 – 0164 (163-6); 163-6 – 0216 (216); Open hole

(61) PLUGGING & SEALING RECORD

(71) PUMPING TEST: Pumping test method: Bailer; Pumping rate 0012; Duration of pumping 01 hrs 10 mins; Static level 038; Water level end of pumping 042; Water levels during: 15 min 041, 30 min 042, 45 min 042, 60 min 042; Recovery; 90; Clear; Recommended pump type: Deep; Recommended pump setting 060 feet; Recommended pumping rate 0012

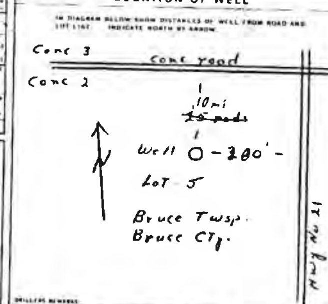
FINAL STATUS OF WELL: 1 (Water supply)

WATER USE: 12 (Domestic, Stock)

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: 29 June 78

OFFICE USE ONLY: 1 1737 180878; 20979; CSS S8; 7; P RM; W1 RM

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Ontario — Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

41 A15E

1405274 14005 CON 03

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey etc.	Lot
[redacted]	Bruce	III	004
	R#2 Tiverton Ont.	Date completed	02 11 78

9 02650 5 10800 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General colour	Most common material	Other materials	General description	Depth from (feet)	Depth to (feet)
Brown	Sand	Clay		0	22
Gray	Hardpan	Clay		22	49
Blue	Clay			49	130
Brown	Gravel	Sand		130	152

31: 0022262805 0049211405 0130305 0150611128

41 WATER RECORD

Water found at feet: 0148 — Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth from	Depth to
05"	Steel	205	0	0145
05"			145	0150

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

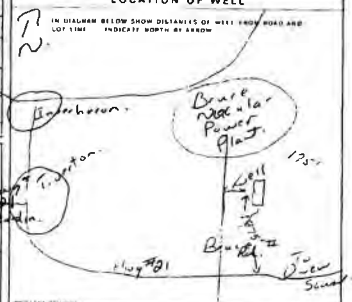
Pumping test method: Air — Pumping rate: 020 GPM — Duration of pumping: 06 hours 15 mins

Static level: 05 — Water level end of pumping: 035 — Water levels during: 035, 035, 035, 035

Pump intake set at: 40 — Recommended pump type: Shallow — Recommended pump setting: 040 feet — Recommended pumping rate: 0005 GPM

LOCATION OF WELL

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



FINAL STATUS OF WELL	1 — Water supply
WATER USE	01 — Domestic
METHOD OF DRILLING	2 — Rotary (conventional)

CONTRACTOR

Name of well contractor: Spencer Well Drilling — Licence number: 1869

Address: Mount Forest Ont.

Name of driller or borer: [illegible] — Licence number: 1465

Signature of contractor: [signature] — Submission date: day 31 mo 12 yr 78

OFFICE USE ONLY

1 — 4869 — 150130

CSS.S8

MINISTRY OF THE ENVIRONMENT COPY

Ontario — Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

41A15E

1406318 14005 CON 03

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey etc.	Lot
Bruce	Bruce Twp.	Con. 3	G
[redacted]	Bell Farm Rd., Barrie, Ontario. L4M 1H1	Date completed	11 Sept. 85

9 05100 5 0750 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS

General colour	Most common material	Other materials	General description	Depth from (feet)	Depth to (feet)
	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

41 WATER RECORD

Water found at feet: 189, 231, 244 — Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth from	Depth to
5	Steel	.188	0	130-5
5	Open hole		130-5	245

SCREEN

61 PLUGGING & SEALING RECORD

71 PUMPING TEST

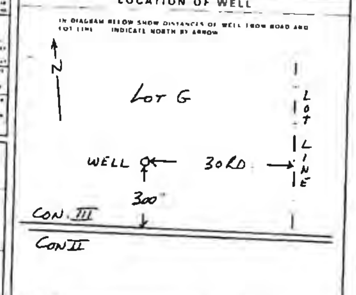
Pumping test method: air — Pumping rate: 4 — Duration of pumping: 2 hours

Static level: 64 — Water level end of pumping: 125 — Water levels during: 93, 116, 121, 125

Pump intake set at: 225 — Water at end of test: Clear — Recommended pump type: Deep — Recommended pump setting: 150 feet — Recommended pumping rate: 4 GPM

LOCATION OF WELL

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



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 486, Wingham, ONtario. NOG 2WO

Name of driller or borer: EE Thompson

Signature of contractor: [signature] — Submission date: day 18 mo Sept. yr 85

OFFICE USE ONLY

23/9/86 — 231285 — WDE

CSS.S8

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: 1408913
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/1031344e-e312-48d5-888c-c1deadd2f77)

Updated: January 10, 2024
Published: March 20, 2014

Ministry of the Environment
Ontario

The Ontario Water Resources Act 41A15E

WATER WELL RECORD

1406591 14005 CON 02

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Bruce	Bruce Twp.	Con. 2	Pt. F

[redacted] .R. 3, Tiverton, Ont. N0G 2T0 — Date completed: 15 Apr. 87.

04105 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 - Feet	Kind of Water
194	Fresh
198	

CASING & OPEN HOLE RECORD

Inside Diam Inches	Material	Wall Thickness Inches	Depth From	Depth To
5	Steel	.188	0	155-4
4	Galvanized	.188	137	158-4
4	Open Hole		158-4	201

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping test method: air; Pumping rate: 8 GPM; Duration of pumping: 1 hours 30 mins

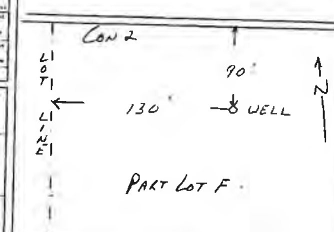
Static Level	Water level end of pumping	15 minutes	30 minutes	45 minutes	60 minutes
86	98	94	96	98	98

If flowing give rate; 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 distances of well from road and lot line. Indicate north by arrow.



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 486, Wingham, Ontario. N0G 2W0

Name of driller or borer: D. Casemore — Licence number: T0154

Submission date: 27 Apr. 87.

OFFICE USE ONLY

JUL 10 1987

10/8/88

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DRAFT

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

11 | 1407761 | 14005 | CON | 103

County or District: Bruce | Township: Bruce Twp. | Con. 3 | Lot 5

[redacted] R.R. 2, Tiverton, Ontario. N0G 2T0 | Date completed: 8 Nov. 90

[redacted] 4902494 | 800

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	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

WATER RECORD

Water found at feet: 183, 186 — Fresh

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth From	Depth To
6	Steel	.188	0	156-9
6	Open hole		156-9	186

PUMPING TEST

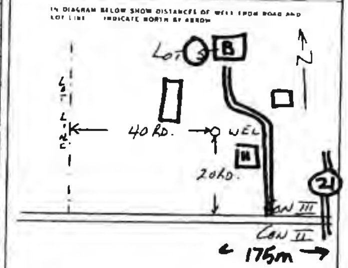
Pumping test method: Air | Pumping rate: 10 GPM | Duration of pumping: 5 hours

Static level: 35 | Water level end of pumping: 37 | Water levels during: 15 min 36, 30 min 37, 45 min 37, 60 min 37

50 feet | Clear | Recommended pump setting: 50 feet | Recommended pumping rate: 10 GPM | Deep

Final status of well: Water supply | Water use: Domestic | Method of construction: Rotary (conventional)

LOCATION OF WELL



68185

Contractor: Davidson Well Drilling Limited | Licence number 1737

Box 486, Wingham, Ontario. N0G 2W0

Well technician: G. Wright | T0166 | 7 Dec. 90

Office use only: 1737 | JAN 16 1991

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FORM NO. 0506 (11/86) FORM 9

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

11 | 1407830 | 14005 | CON | 103

County or District: Bruce | Township: Bruce Twp. | Con. 3 | Lot I(i) — I

ONTARIO HYDRO | 5670 Yonge St. Toronto, Ontario. M2M 3T7 | Date completed: 12 Mar. 91

21 | 17 | 457165 | 4903736 | 775

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	14
Grey	Clay	Sand	Soft	14	148
Brown	Limestone		Med. soft	148	158
Brn.Gry.	Limestone	Shale	Med. hard	158	184

WATER RECORD

Water found at feet: 168, 179, 184 — Fresh

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth From	Depth To
6	Steel	.188	0	159-1
6	Open hole		159-1	184

PUMPING TEST

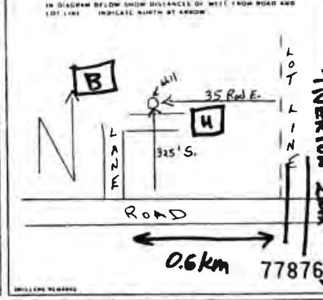
Pumping test method: Air | Pumping rate: 10 GPM | Duration of pumping: 1 hours 30 mins

Static level: 56 | Water level end of pumping: 67 | Water levels during: 15 min 63, 30 min 65, 45 min 67, 60 min 67

120 feet | Clear | Recommended pump setting: 85 feet | Recommended pumping rate: 10 GPM | Deep

Final status of well: Water supply | Water use: Domestic | Method of construction: Rotary (conventional)

LOCATION OF WELL



77876

Contractor: Davidson Well Drilling Limited | Licence number 1737

Box 486, Wingham, Ontario. N0G 2W0

Well technician: D. Casemore | T0154 | 14 Mar. 91

Office use only: 1737 | APR 30 1991

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

1408287 | 14012 | CON | B

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey etc.	Lot
[redacted]	Kincardine Twp.	Con. B	58

[redacted] 119, R.R. 2, Tiverton, ON N0G 2T0 — Date completed: 24 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

WATER RECORD: Water found at 95, 113, 126 — Fresh

CASING & OPEN HOLE RECORD

Inside Diam.	Material	Wall Thickness	From	To
6	Steel	.188	0	90-0
6	Open hole		90-0	138

PLUGGING & SEALING RECORD

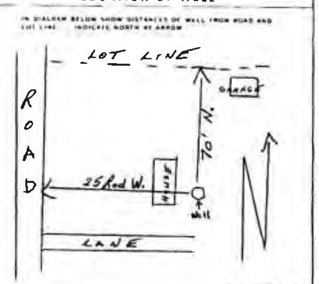
PUMPING TEST: Air; Pumping rate 15 GPM; Duration 1 hr 30 min; Static level 62; Water level end of pumping 75; Water levels during: 62, 69, 73, 75; Pump intake set at 110; Clear; Recommended pumping rate 10 GPM; Recommended pump setting 93; Deep

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: Davidson Well Drilling Limited — Well Contractor's Licence Number 1737; Box 486, Wingham, Ontario. N0G 2W0; Well Technician: D. Casemore, Licence Number T0154; Submission date 29 July 92

OFFICE USE ONLY: 1737 DEC 04 1992

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Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

1408560 | 14005 | CON | 13

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey etc.	Lot
[redacted]	Bruce	Con 13	3

[redacted] Port Elgin — Date completed: 28 4 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, Bl.	Clay	small stones		90	120
Greyish	limestone		hard	120	140
Brown & white	Limestone		hard	140	204

WATER RECORD: Water found at 204 — Fresh

CASING & OPEN HOLE RECORD

Inside Diam.	Material	Wall Thickness	From	To
6¼	Steel	3/16	0	121
	Open hole		121	204

PLUGGING & SEALING RECORD

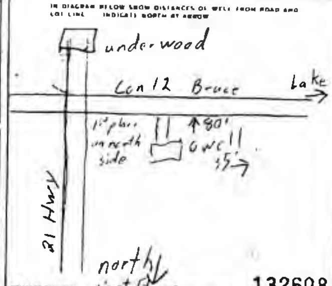
PUMPING TEST: Bailer; Pumping rate 15; Duration 1; Static level 60; Water level end of pumping 60; Water levels during: 60, 60, 60, 60; Pump intake set at 100; Clear; Recommended pumping rate 15; Recommended pump setting 100; Deep

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: AQuadic Well Drilling — Licence Number 6783; 89 albert St. Paisley Ont; Well Technician: Ivan Mawhinney, Licence Number T-2331; Submission date 27 5 94

OFFICE USE ONLY: 6783 MAY 27 1994

CSS.ES

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Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1408638 | 14012 | CON. | B

[redacted] KINCARDINE | B | 60

BOX 372 TIVERTON | Date completed: 06 10 94

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	2
		Sandy Clay & Stones		2	120
		Limestone Simple		120	142

WATER RECORD

Water found at – feet	Kind of water
135 to 142	Fresh

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth From	Depth To
6		.188	0	122
	Open hole		122	142

SCREEN

PLUGGING & SEALING RECORD

PUMPING TEST

Pumping test method: AIR | Pumping rate: 30 GPM | Duration of pumping: 1 hrs 30 mins

Static level: 72 feet | Water level end of pumping: 100 feet | Water levels during: 72, 72, 72, 72 feet

Pump intake set at: Air 142 feet | Water at end of test: Clear / Cloudy

Recommended pump setting: 120 feet | Recommended pumping rate: 10 GPM

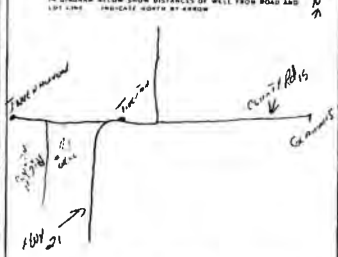
FINAL STATUS OF WELL: Water supply

WATER USE: Domestic

METHOD OF CONSTRUCTION: Rotary (conventional)

LOCATION OF WELL

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



131516

CONTRACTOR

Name of well contractor: Kaufman Investments Ltd. | Licence number: 6634

Address: RR#3 Elmwood Ontario

Name of well technician: Kaufman & Kaufman | Well technician's licence number: T-1922

Submission date: 28 10 94

OFFICE USE ONLY: 6634 | NOV 01 1994

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MINISTRY OF THE ENVIRONMENT COPY

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: 151878
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	504
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

DRAFT

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/8011 [illegible])

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 0
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
	HILL			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: 6636

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 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/3031344e-e3f2-4805-88fc-c1deadfd2777)

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	007
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
GREY	CLAY	GRVL		13 ft	52 ft
GREY	SILT	GRVL		52 ft	89 ft
GREY	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
4 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: 2576

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#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/[illegible])

Updated: January 18, 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: 146332
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		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/[illegible])

Updated: January 10, 2024
Published: March 20, 2014

DRAFT

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

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	[X] Fresh	[ ] Salty	[ ] Sulphur	[ ] Minerals	[ ] Gas

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6	[X] Steel [ ] Galvanized [ ] Concrete [ ] Open hole [ ] Plastic	.188	+1-6	184
6	[ ] Steel [ ] Galvanized [ ] Concrete [X] Open hole [ ] Plastic		184	208

SCREEN: Slot No.: Diameter: inches Length: feet; Material and type: Depth at top of screen: feet

PLUGGING & SEALING RECORD

[ ] Annular space [ ] Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)

PUMPING TEST

Pumping test method: [X] Pump [ ] Bailer; Pumping rate: 10 GPM; Duration of pumping: 2 Hours

Static level	Water level end of pumping	Water levels during: [ ] Pumping [X] Recovery							
		15 minutes		30 minutes		45 minutes		60 minutes	
66 feet	120 feet	81 feet	69 feet			66 feet	66 feet		

If flowing give rate: GPM; Pump intake set at: 145 feet; Water at end of test: [X] Clear [ ] Cloudy

Recommended pump type: [ ] Shallow [X] Deep; Recommended pump setting: 145 feet; Recommended pump rate: 10 GPM

FINAL STATUS OF WELL

[X] Water supply [ ] Observation well [ ] Test hole [ ] Recharge well [ ] Abandoned, insufficient supply [ ] Abandoned, poor quality [ ] Abandoned (Other) [ ] Dewatering [ ] Unfinished [ ] Replacement well

WATER USE

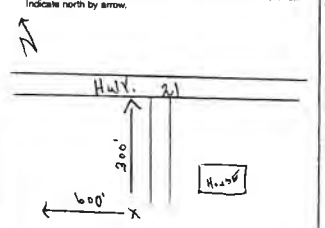
[X] Domestic [ ] Stock [ ] Irrigation [ ] Industrial [ ] Commercial [ ] Municipal [ ] Public supply [ ] Cooling & air conditioning [ ] Not used [ ] Other

METHOD OF CONSTRUCTION

[ ] Cable tool [X] Rotary (conventional) [ ] Rotary (reverse) [X] 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.



209389

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.E. DAVIDSON (per: D.E. Davidson) — Submission date: 21 Sept, 99

MINISTRY USE ONLY: Date received: 1737 OCT 0 8 1999; Date of inspection; Inspector; Remarks: CSS.ES0

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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	[X] Fresh	[ ] Salty	[ ] Sulphur	[ ] Minerals	[ ] Gas
248	[ ] Fresh	[ ] Salty	[ ] Sulphur	[ ] Minerals	[ ] Gas

CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6	[X] Steel [ ] Galvanized [ ] Concrete [ ] Open hole [ ] Plastic	.188	+1-6	171
6	[ ] Steel [ ] Galvanized [ ] Concrete [X] Open hole [ ] Plastic		171	250

SCREEN: Slot No.: Diameter: inches Length: feet; Material and type: Depth at top of screen: feet

PLUGGING & SEALING RECORD

[ ] Annular space [ ] Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)

PUMPING TEST

Pumping test method: [X] Pump [ ] Bailer; Pumping rate: 15 GPM; Duration of pumping: 2 Hours

Static level	Water level end of pumping	Water levels during: [ ] Pumping [X] Recovery							
		15 minutes		30 minutes		45 minutes		60 minutes	
44 feet	60 feet	52 feet	44 feet			44 feet	44 feet		

If flowing give rate: GPM; Pump intake set at: 90 feet; Water at end of test: [X] Clear [ ] Cloudy

Recommended pump type: [ ] Shallow [X] Deep; Recommended pump setting: 90 feet; Recommended pump rate: 15 GPM

FINAL STATUS OF WELL

[X] Water supply [ ] Observation well [ ] Test hole [ ] Recharge well [ ] Abandoned, insufficient supply [ ] Abandoned, poor quality [ ] Abandoned (Other) [ ] Dewatering [ ] Unfinished [ ] Replacement well

WATER USE

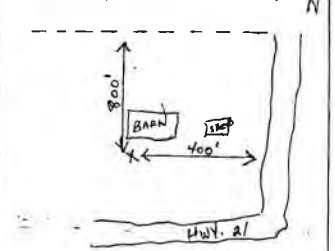
[X] Domestic [ ] Stock [ ] Irrigation [ ] Industrial [ ] Commercial [ ] Municipal [ ] Public supply [ ] Cooling & air conditioning [ ] Not used [ ] Other

METHOD OF CONSTRUCTION

[ ] Cable tool [X] 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.



217905

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.E. DAVIDSON (per: D.E. Davidson) — Submission date: 18 Sept, 00

MINISTRY USE ONLY: Date received: 1737 FEB 0 5 2001; Date of inspection; Inspector; Remarks: CSS.ES1

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Ontario Ministry of the Environment

Well Tag Number: A 011613 — A011613

Well Record

Regulation 903 Ontario Water Resources Act

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

[redacted]

Address of Well Location (County/District/Municipality): Bruce — Township/City/Town/Village: Kincardine — Lot: 58 — Concession: A

RR#/Street Number/Name: Bruce Rd. #23 — City/Town/Village — Site/Compartment/Block/Tract etc.

GPS Reading: NAD 83 — Zone 17 — Easting 453988 — Northing 49 00724 — 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	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: 85' — Kind of Water: [X] Fresh

After test of well yield, water was: [X] Clear and sediment free

Chlorinated: [X] Yes [ ] No

Construction Record

Inside diam	Material	Wall thickness	Depth From	Depth To
Casing				
6"	[X] Steel	.188"	+2'	86'
Screen				
No Casing or Screen: [X] Open hole			86'	146'

Test of Well Yield

Pumping test method: Pump

Pump intake set at: 90

Duration of pumping: 1 hrs

Final water level end of pumping: 65.78

Recommended pump type: [X] Deep

Recommended pump depth: 90

Recommended pump rate: 10gpm

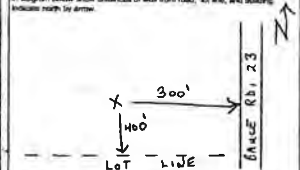
Draw Down Time min	Water Level	Recovery Time min	Water Level
Static Level	59'		
1	63.68	1	64.68
2	64.99	2	63.50
3	64.20	3	63.33
4	64.42	4	63.29
5	64.60	5	63.15
10	64.90	10	62.89
15	65.15	15	62.70
20	65.30	20	62.68
25	65.41	25	62.65
30	65.50	30	62.29
40	65.65	40	61.90
50	65.72	50	61.71
60	65.78	60	61.77

Plugging and Sealing Record — [X] Annular space [ ] Abandonment

Depth From	Depth To	Material and type	Volume Placed
86'	0	Bentonite Grout	

Location of Well

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



Method of Construction: [X] Rotary (conventional)

Water Use: [X] Domestic

Final Status of Well: [X] Water Supply

Audit No. Z 11668 — Date Well Completed: 2004 09 24 — Date Delivered: 2004 09 24

Was the well owner's information package delivered? [X] Yes

Well Contractor/Technician Information

Name of Well Contractor: Davidson Well Drilling Limited — Well Contractor's Licence No. 1737

Business Address: 147 North St. W. Wingham, Ontario N0G 2W0

Name of Well Technician: Loech, Kim — Well Technician's Licence No. 70927

Date Submitted: 2004 09 30

Ministry Use Only: Contractor 1737 — Date Received: JAN 11 2005

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 Tag Number: A 030071 — #A030071

Well Record

Regulation 903 Ontario Water Resources Act

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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.

Well Owner's Information and Location of Well Information

Name: MUNICIPAL ADMIN CENTER OF KINCARDINE — Mailing Address: RR#5 1475 CON 5

Township/City/Town/Village: KINCARDINE — Province: Ontario — Postal Code: N2Z 2X6

Address of Well Location: BRUCE — Township: SAUGEEN SHORES — Lot: 8 J — Concession: 1

GPS Reading: NAD 83 — Zone 17 — Easting 456783 — Northing 4902424 — Unit Make/Model: MAGELEN — Mode of Operation: UTM — [X] 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	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		
0	171ft	12.25in
171ft	305ft	8in

Water Record

Water found at	Kind of Water
236ft	[X] Fresh
272ft	[X] Fresh
282ft	[X] Fresh

After test of well yield, water was: [X] Clear and sediment free

Chlorinated: [X] Yes [ ] No

Construction Record

Inside diam	Material	Wall thickness	Depth From	Depth To
Casing				
8.65in	[X] Steel	.219	0	171ft
No Casing or Screen: [X] Open hole			171ft	305ft

Test of Well Yield

Pumping test method: pump test to be done later

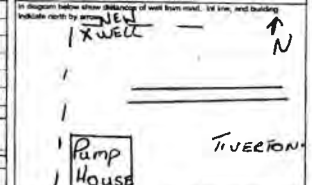
Pumping rate: 200 GPM

Plugging and Sealing Record — [X] Annular space [ ] Abandonment

Depth From	Depth To	Material and type	Volume Placed
0	171ft	BENSEAL BENTONITE SLURRY	

Location of Well

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



Method of Construction: [X] Rotary (conventional)

Water Use: [X] Municipal

Final Status of Well: [X] Water Supply

Audit No. Z 48442 — Date Well Completed: 2006 5 2

Well Contractor/Technician Information

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

Business Address: 251 ELDON ST GODERICH ONT

Name of Well Technician: KEITH LANG — Well Technician's Licence No. 7446

Ministry Use Only: Contractor 7154 — Date Received: JUN 23 2006

Contractor's Copy [ ] Ministry's Copy [ ] Well Owner's Copy [ ] — Cette formule est disponible en français

DRAFT

Ontario — Ministry of the Environment — Well Record

Regulation 903 Ontario Water Resources Act

Well Tag No: A 045568 — A045568

page ___ of ___

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- 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.

Well Owner's Information and Location of Well Information | Ministry Use Only: MUN | CON | LOT

[redacted]

Bruce | Kincardine | 12

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

GPS Reading: NAD 83 | Zone 17 | Easting 456603 | Northing 4901235 | Unit Make/Model: Magellan | Mode of Operation: X Undifferentiated

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth (Metres) From	To
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 (Metres)	To	Diameter (Centimetres)
0	61.6	24

Construction Record

Inside diam (centimetres)	Material	Wall thickness (centimetres)	Depth From (Metres)	To
15.87	X Steel (Casing)	.47	0	51.2
	X Open hole (No Casing or Screen)		51.2	61.6

Water Record

Water found at Metres: 54.9 m — X Fresh; 59.4 m — X Fresh

After test of well yield, water was: X Clear and sediment free

Chlorinated: X Yes

Test of Well Yield

Pumping test method: Pump
Pump intake set at (metres): 30.5
Pumping rate (litres/min): 30.3
Duration of pumping: 2 hrs + 0 min
Final water level end of pumping: 19.1 metres
Recommended pump type: Shallow X Deep
Recommended pump depth: 45.1 metres
Recommended pump rate (litres/min): 30.3

Draw Down Time (min)	Water Level (Metres)	Recovery Time (min)	Water Level (Metres)
1	17.7	1	19.2
2	17.9	2	19.2
3	18	3	19.2
4	18.2	4	19.2
5	18.5	5	19.2
10	19	10	19.2
15	19.2	15	19.2
20	19.2	20	19
25	19.2	25	18.5
30	19.2	30	18.3
40	19.2	40	18
50	19.2	50	17.9
60	19.2	60	17.7

Plugging and Sealing Record — X Annular space

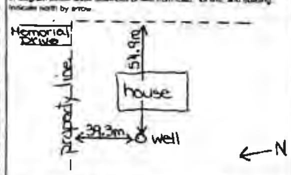
Depth From	To	Material and type	Volume Placed (cubic metres)
0	51.2	bentonite slurry	1.19

Method of Construction: X Rotary (conventional)

Water Use: X Domestic

Final Status of Well: X Water Supply

Location of Well



Audit No: Z 51079 | Date Well Completed: 2006/10/23 | Was the well owner's information package delivered? X Yes | Date Delivered: 2006/10/23

Well Contractor/Technician Information

Name of Well Contractor: AQUATIC Well Drilling | Well Contractor's Licence No: 7279
Business Address: RR#3 #31 Walkerton, ON
Name of Well Technician: Mawhinney, Mike | Well Technician's Licence No: T3181
Date Submitted: 2006/10/30

Ministry Use Only — Contractor: 7279 | Date Received: NOV 07 2006

Contractor's Copy | Ministry's Copy | X Well Owner's Copy

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Ontario — Ministry of the Environment — Well Record

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A 061744 — A061744

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- 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 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.

Well Owner's Information and Location of Well Information

First Name: TEESWATER | Last Name: CONCRETE | Mailing Address: P.O. BOX 24
County/District/Municipality: BRUCE | Township/City/Town/Village: TEESWATER | Province: Ontario | Postal Code: N0G 2S0 | Telephone Number: 519-392-6777
Address of Well Location: BRUCE | Township: KINCARDINE | Lot: 4 | Concession: 12
RR#/Street Number/Name: HWY. 21
GPS Reading: NAD 83 | Zone 17 | Easting 1457515 | Northing 4901145 | Unit Make/Model: Garmin eTREX Venture | Mode of Operation: X Undifferentiated

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth (Ft) From	To
	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)	To	Diameter
0	196'	8 3/4"
196'	290'	6"

Construction Record

Inside diam	Material	Wall thickness	Depth From (Ft)	To
6"	Casing	.188	+2'	196'
	X Open hole		196'	290'

Water Record

Water found at Ft: 210' — X Fresh; 285' — X Fresh

After test of well yield, water was: X Clear and sediment free

Chlorinated: X Yes

Test of Well Yield

Pump intake set at: 150'
Pumping rate: 50 gpm
Duration of pumping: 1 hrs
Final water level end of pumping: 58'6
Recommended pump type: Shallow X Deep
Recommended pump depth: 150'
Recommended pump rate: 50 gpm

Static Level: 58'

Draw Down Time (min)	Water Level	Recovery Time (min)	Water Level
1	58'2	1	58.4
2	58'3	2	58.4
3	58'4	3	58.2
4	58'4	4	58.2
5	58'4	5	58.2
10	58'5	10	58.1
15	58'5	15	58'
20	58'5	20	58'

Plugging and Sealing Record (Ft.) — X Annular space

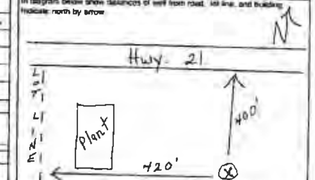
Depth From	To	Material and type	Volume Placed
196'	0	Bentonite Grout	6 bgs.

Method of Construction: X Rotary (conventional)

Water Use: X Industrial

Final Status of Well: X Water Supply

Location of Well



Audit No: Z 72759 | Date Well Completed: 2007/07/27 | Was the well owner's information package delivered? X Yes | Date Delivered: 2007/09/21

Well Contractor/Technician Information

Name of Well Contractor: DAVIDSON WELL DRILLING LIMITED | Well Contractor's Licence No: 1737
Business Address: 147 North St. W. WINGHAM, ON N0G 2W0
Name of Well Technician: LOSCH KIM | Well Technician's Licence No: T2003
Date Submitted: 2007/09/30

Ministry Use Only — Date Received: DEC 10 2007

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Ontario

Well Tag No. A 078121

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: Metric / Imperial

Page ___ of ___

Well Owner's Information

[redacted]

RR 3 | Kincardine | 36 | C

Bruce | Tiverton | Ontario | N0G 2T0

NAD: 17 455586 4900035

Overburden and Bedrock Materials/Abandonment Sealing Record

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

0 130 bentonite slurry .93

Method of Construction

X

Well Use

X

Construction Record - Casing

0 | 15.67 steel .47 | 0 130

Status of Well

X

Construction Record - Screen

Water Details

140

Hole Diameter

0 140 24

Well Contractor and Well Technician Information

AQUATIC Well Drilling | 7279

RR 3 | Walkerton

ON | N0G 2V0

5193926470 Mawhinney Mike

3181 | 20090630

Ministry's Copy

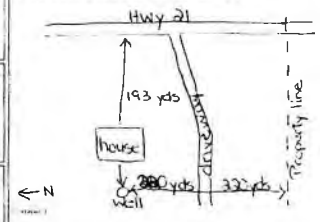
Results of Well Yield Testing

Time	Water Level	Time	Water Level
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

Draw Down: 100 / 15 / 2 / 33

Recovery: 100 / 15 / 15

Map of Well Location



20090626

20090626

Ministry Use Only

Audit No. Z 88056

JUN 02 2009

Ontario

Ministry of the Environment

Well Tag No. A 078131

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: Metric / Imperial

Page ___ of ___

Well Owner's Information

[redacted]

119 Main St | Bruce | 65 | 1

Bruce | Ontario | N0G 2T0

NAD: 17 455198 4900446

Overburden and Bedrock Materials/Abandonment Sealing Record

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

0 188 bentonite slurry 1.53

Method of Construction

X

Well Use

X

Construction Record - Casing

0 | 6.57 steel .41 | 0 188

Status of Well

X

Construction Record - Screen

Water Details

300

Hole Diameter

0 300 24

Well Contractor and Well Technician Information

AQUATIC Well Drilling | 7279

RR 3 | Walkerton

ON | N0G 2V0

5193936410 Mawhinney Mike

3181 | 20091130

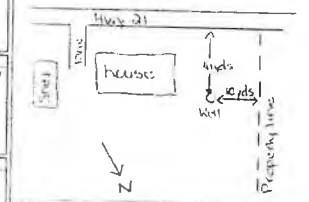
Results of Well Yield Testing

Time	Water Level	Time	Water Level
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	62	30	54
40	63	40	54
50	63	50	54
60	62	60	54

Draw Down: 100 / 15 / 54

Recovery: 100 / 15 / 15

Map of Well Location



20091130

Ministry Use Only

Audit No. Z 88060

DEC 17 2009

Ontario — Ministry of the Environment and Climate Change

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below): Tag#: A218836

Page 1 of 1

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#86 Side Rd 3/1	Bruce Twp	1	2

County/District/Municipality: Bruce County | City/Town/Village: | Province: Ontario | Postal Code:

UTM Coordinates Zone, Easting, Northing: NAD 83 17 457642 4903286 | Municipal Plan and Sublot Number: | Other:

Overburden and Bedrock Materials/Abandonment Sealing Record

General Colour	Most Common Material	Other Materials	General Description	Depth From (ft)	Depth To (ft)
	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 From (ft)	To	Type of Sealant Used (Material and Type)	Volume Placed
0	20	Grout	

Method of Construction: ☑ Other, specify: Air-Rk

Well Use: ☑ Public

Construction Record - Casing

Inside Diameter (in)	Open Hole OR Material	Wall Thickness (in)	Depth From (ft)	To
6"	Steel	.188	+2	158
6"	Open Hole		158	216

Status of Well: ☑ Water Supply ☑ Replacement Well

Construction Record - Screen: (blank)

Water Details

Water found at Depth (ft)	Kind of Water
180	☑ Fresh
210	☑ Untested

Hole Diameter

Depth From (ft)	To	Diameter (in)
0	20	8"
20	216	6"

Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free

Pump intake set at (ft): 200

Pumping rate (GPM): 10

Duration of pumping: 1 hrs

Final water level end of pumping (ft): 52.1

Recommended pump depth (ft): 100ft

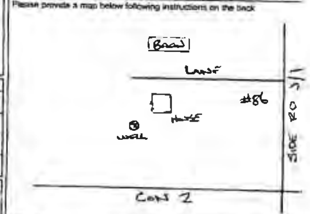
Recommended pump rate (GPM): 10

Well production (GPM): 18-20 Air

Disinfected? ☑ Yes

Draw Down Time (min)	Water Level (ft)	Recovery Time (min)	Water Level (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	34.2
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



Well Contractor and Well Technician Information

Business Name of Well Contractor: Highland Water Wells | Well Contractor's Licence No.: 2 1 5 7 1 6

Business Address: Box 141 Durham | Province: Ont | Postal Code: N0G 1R0

Bus. Telephone No.: 519 369 6363 | Name of Well Technician: Poppleton, Nigel

Well Technician's Licence No.: 2 1 1 3 0 | Date Submitted: 2017 05 13

Date Work Completed: 2017 05 15

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Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No.: Tag#:A258361

Page 1 of 1

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
1537 Concession 2 RR # 3	Bruce	2	pt G

County/District/Municipality: Bruce | City/Town/Village: Tiverton | Province: Ontario | Postal Code: N0G 2T0

UTM Coordinates: NAD 83 Zone 17 Easting 456567 Northing 4904102

Overburden and Bedrock Materials/Abandonment Sealing Record

General Colour	Most Common Material	Other Materials	General Description	Depth From (ft)	Depth To (ft)
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 From (ft)	To	Type of Sealant Used	Volume Placed (ft^3)
0	22	High Solids Bentonite	7.2
22	164	Gel/Sand Slurry	45.8

Method of Construction: ☑ Rotary (Conventional) ☑ Other, specify: Air Rotary

Well Use: ☑ Domestic

Construction Record - Casing

Inside Diameter (in)	Open Hole OR Material	Wall Thickness (in)	Depth From (ft)	To
6"	Steel	.219	+26	164
6"	Open Hole		164	257

Status of Well: ☑ Water Supply

Water Details

Water found at Depth (ft)	Kind of Water
231	☑ Untested
248	☑ Untested

Hole Diameter

Depth From (ft)	To	Diameter (in)
0	164	9"
164	257	6"

Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free

If pumping discontinued, give reason: CLEAR

Pump intake set at (ft): 125

Pumping rate (GPM): 10 GPM

Duration of pumping: 1 hrs + 45 min

Final water level end of pumping (ft): 57 FT.

If flowing give rate: NOT

Recommended pump depth (ft): 100

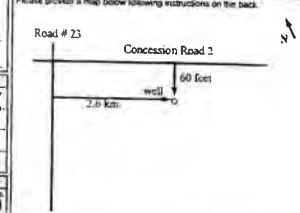
Recommended pump rate (GPM): 15 GPM

Well production (GPM): 45 GPM BY AIR

Disinfected? ☑ Yes

Draw Down Time (min)	Water Level (ft)	Recovery Time (min)	Water Level (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



Comments: Well is approx. 60 feet from Concession Road 2

Well Contractor and Well Technician Information

Business Name of Well Contractor: HAYDEN WATER WELLS CO. INC. | Well Contractor's Licence No.: 7 0 9 0

Business Address: 35339 Sainsbury Line RR # 1 | Municipality: Lucan

Province: Ontario | Postal Code: N0M2J0 | Business E-mail Address: info@haydenwaterwells.com

Bus. Telephone No.: 5192270037 | Name of Well Technician: Hayden, Jay

Well Technician's Licence No.: 1 0 3 1 4 | Date Submitted: 2019 07 30

Well owner's information package delivered: ☑ Yes | Date Package Delivered: 2019 07 08 | Date Work Completed: 2019 07 08

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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 457066, Northing 4819923
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	33
GRY	CLAY			33	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 1/4	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	Depth (m/ft) From	To	Hole Diameter (cm/in)
190	☑ Fresh ☐ Untested ☐ Gas ☐ Other, specify	0	145	9"
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	145	197	6"
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify			

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: mleddwaterwells@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)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	34.0		
1	38.1	1	38.4
2	40.6	2	36.9
3	42.3	3	36.2
4	42.7	4	35.8
5	43.9	5	35.5
10	43.8	10	34.9
15	44.6	15	34.7
20	45.9	20	34.6
25	46.1	25	34.4
30	46.3	30	34.2
40	46.4	40	34.2
50	46.4	50	34.0
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: 2019/08/07
Date Work Completed: 2019/04/08

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MAY 02 2019
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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 17, Easting 457878, Northing 4819103
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
Grey	Limestone			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	Depth (m/ft) From	To	Hole Diameter (cm/in)
225	☐ Fresh ☑ Untested ☐ Gas ☐ Other, specify	0	20	9 5/8
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	20	207	8
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	207	225	6

Well Contractor and Well Technician Information

Business Name of Well Contractor: Stetten Well Drilling
Well Contractor's Licence No.: 7513
Business Address (Street Number/Name): 3962 Bruce Road 4 RR1
Municipality: Bruce
Province: ON
Postal Code: N0H 1W0
Business E-mail Address: cy9191@gmail.com
Bus. Telephone No. (inc. area code): 5193577960
Name of Well Technician (Last Name, First Name): Stetten, Michael
Well Technician's Licence No.: 3812
Signature of Technician and/or Contractor:
Date Submitted: 2020/09/09

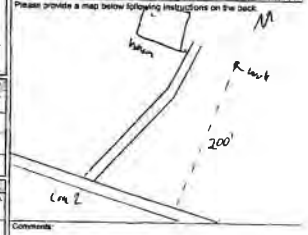
Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free ☐ Other, specify
If pumping discontinued, give reason:
Pump intake set at (m/ft): 80
Pumping rate (l/min / GPM): 8
Duration of pumping: 1 hrs + ____ min
Final water level end of pumping (m/ft): 65
If flowing give rate (l/min / GPM):
Recommended pump depth (m/ft): 80
Recommended pump rate (l/min / GPM): 8
Well production (l/min / GPM): 8
Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	29		65
1	29	1	52
2	30	2	50
3	31	3	48
4	32	4	46
5	33	5	45
10	38	10	40
15	41	15	35
20	43	20	30
25	46	25	29
30	48	30	28
40	49	40	
50	52	50	
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

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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

Organization | Email Address

Current Address

Unit Number | Street Number * | Street Name * | City/Town/Village

[redacted]

Country | Province: Ont. | Postal Code | Telephone Number

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

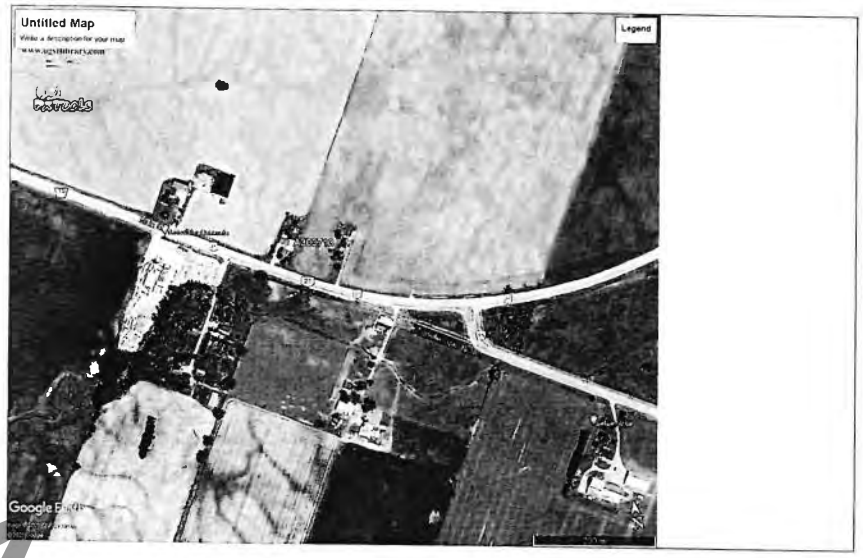
☑ Clear and sand free ☐ Other (specify)

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		Date Submitted (yyyy/mm/dd)
Ron Hopper	Digitally signed by Ron Hopper Date: 2021.09.16 08:52:36 -04'00'	2021/09/16

17. Ministry Use Only

Audit Number
G9OJ LQ7X

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 *
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)	36.3	37.7	37.3	37	36.9	36.3	36.1	35.6	35.4	35.2	35.1	34.7	34.6

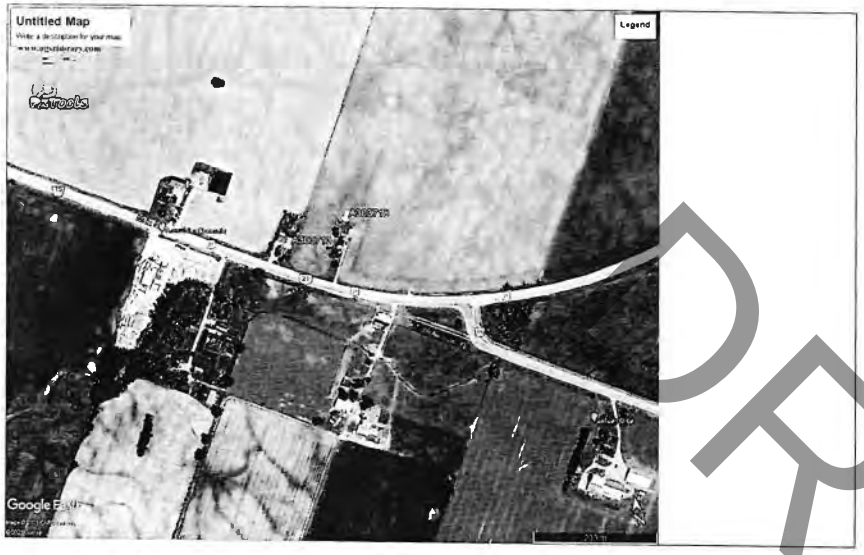
After test of well yield, water was
☑ Clear and sand free ☐ Other (specify)

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

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.

(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

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.

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

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.

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

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.

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.

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.

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,

***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.

Dated at London this 27th day of June, 2018.

Jason Lehouillier

Jason Lehouillier
Director, Section 34.1
Ontario Water Resources Act, R.S.O. 1990

Schedule A

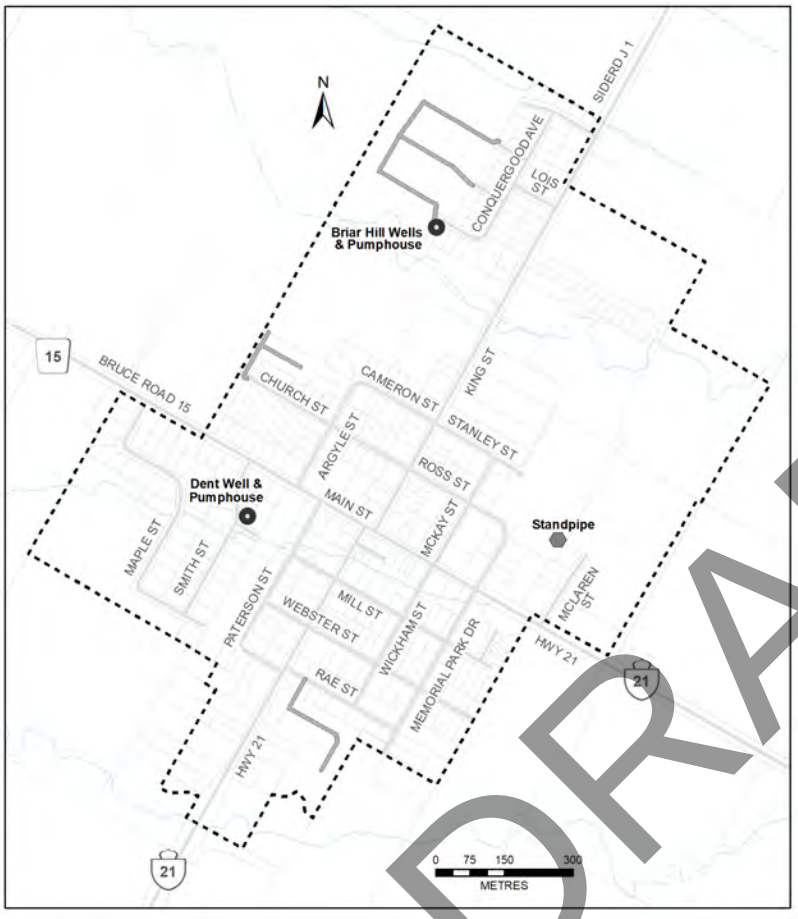
This Schedule "A" forms part of Permit To Take Water 1154-AZELR6, dated June 27, 2018.

Appendix 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

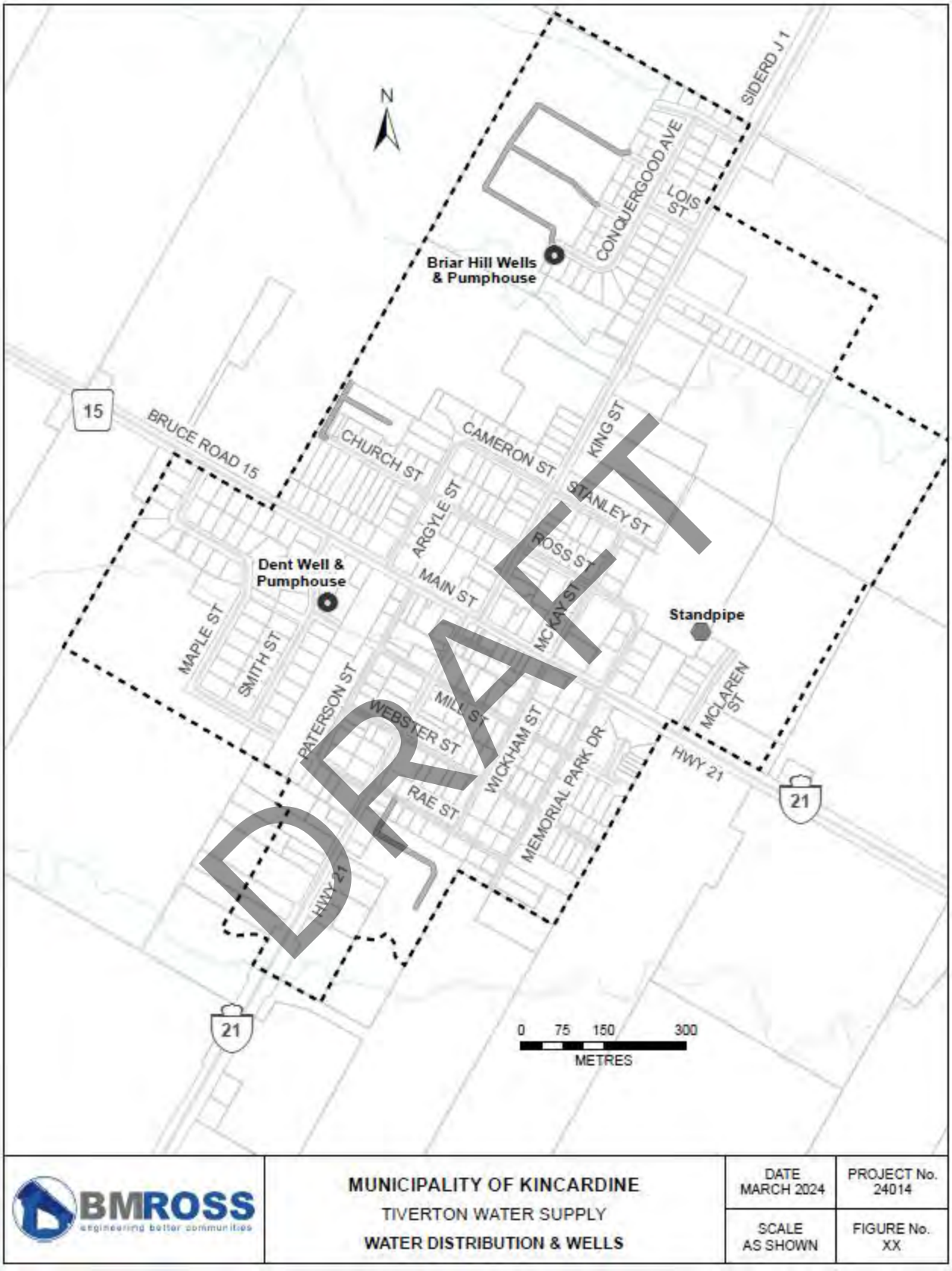
B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa Courtney, MSc., MCIP, RPP
Environmental Planner

LJC:hv
cc. Adam Weishar, Municipality of Kincardine

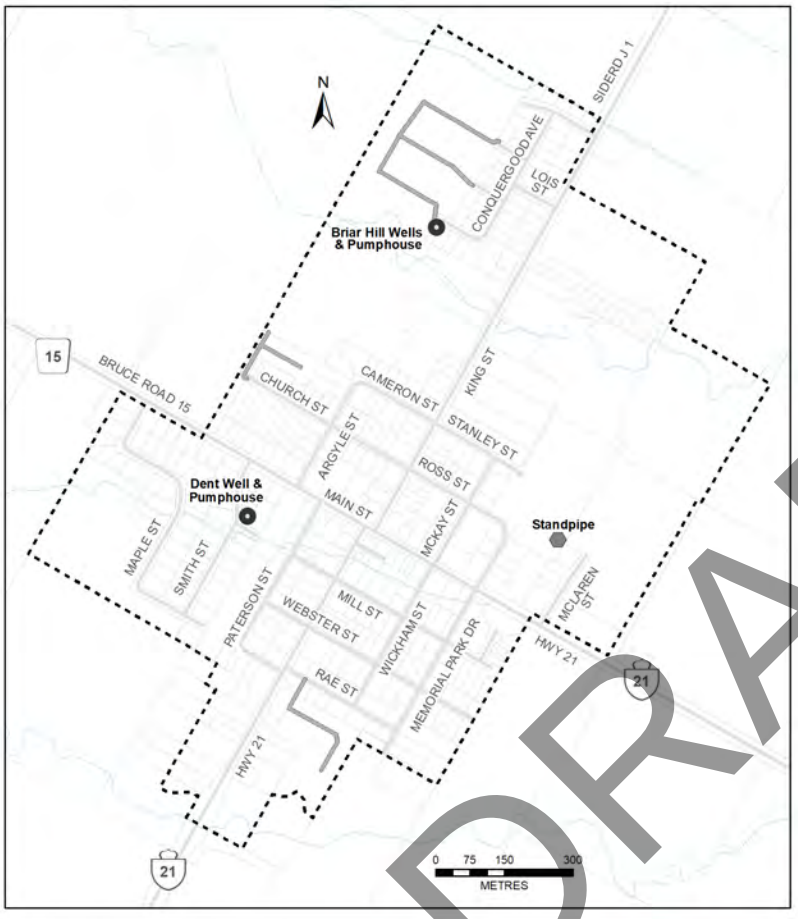
Z:\24014-Kinc-Tiverton_Water_Supply\WP\Agency\24014-2024-05-02-Agency Let.docx

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



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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

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

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)

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

Indigenous Community
(See Attached List)

RE: Municipality of Kincardine
Municipal Class Environmental Assessment for Expansion of the Tiverton Water Supply.

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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

Z:\24014-Kinc-Tiverton_Water_Supply\WP\First Nations\24014-2024-05-02-First Nations Let.docx

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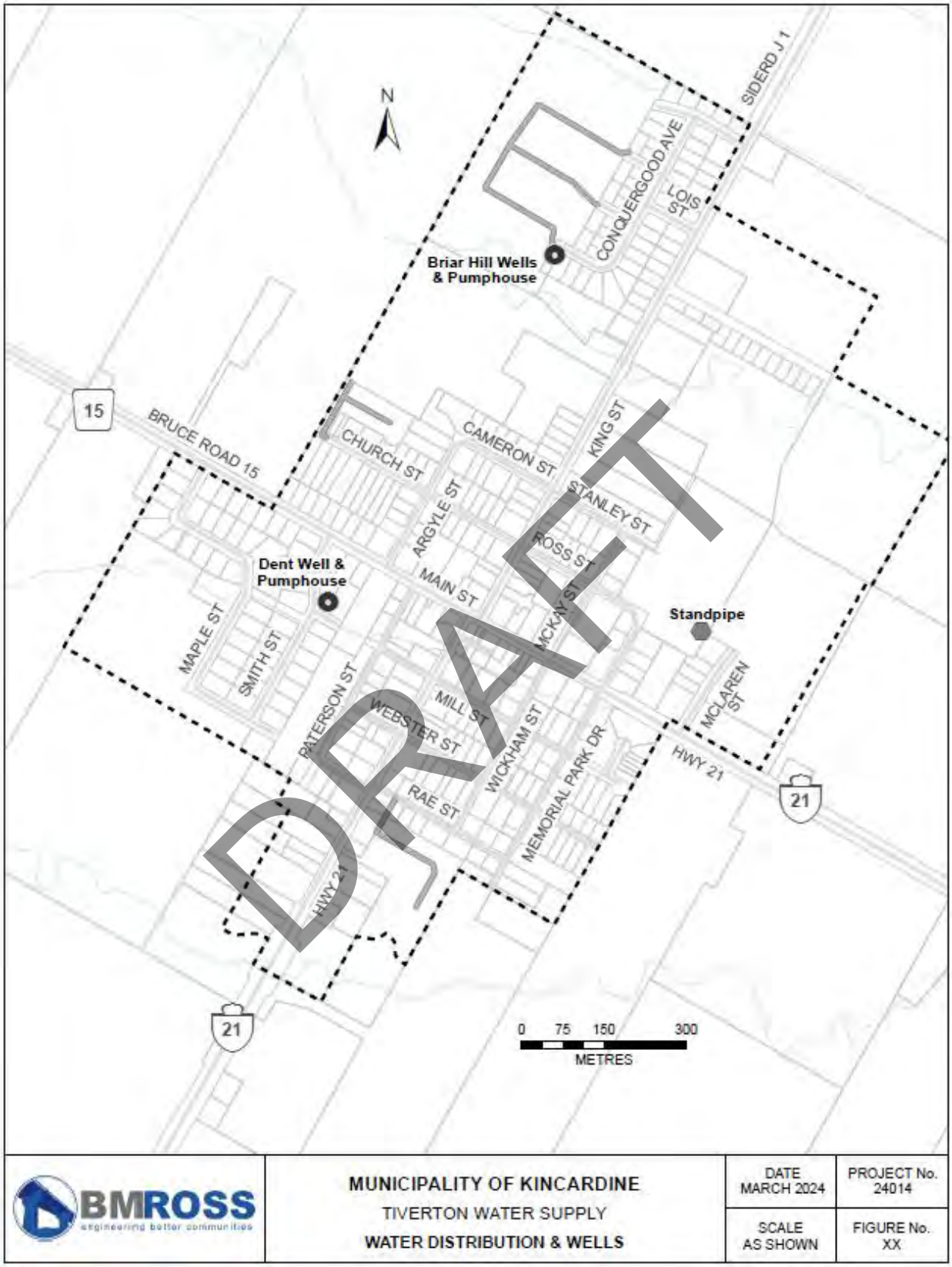
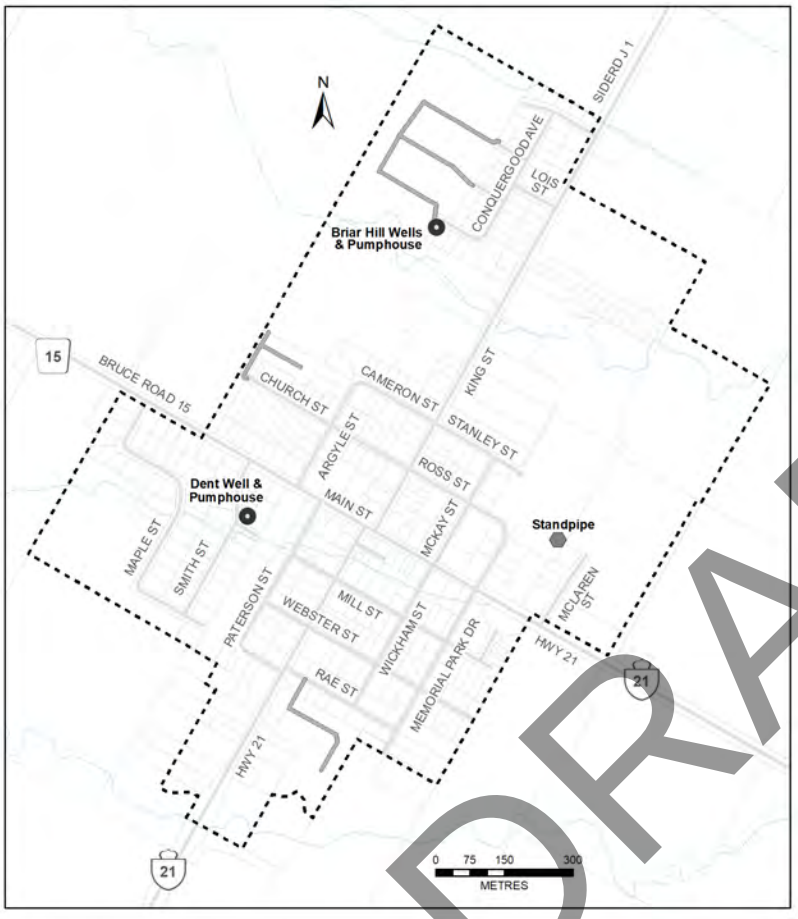


MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

NOTICE OF COMMENCEMENT



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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

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

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

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/

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

Ontario

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

Ontario

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

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

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

TMHC Inc.
1108 Dundas Street, Unit 105
London, ON | N5W 3A7
https://link.edgepilot.com/s/efa27a31/PsdZ4Cdc_UynpB65j69MYA?u=http://www.tmhc.ca/
519-641-7222

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

TMHC Inc.
1108 Dundas Street, Unit 105
London, ON | N5W 3A7
https://link.edgepilot.com/s/efa27a31/PsdZ4Cdc_UynpB65j69MYA?u=http://www.tmhc.ca/
519-641-7222

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

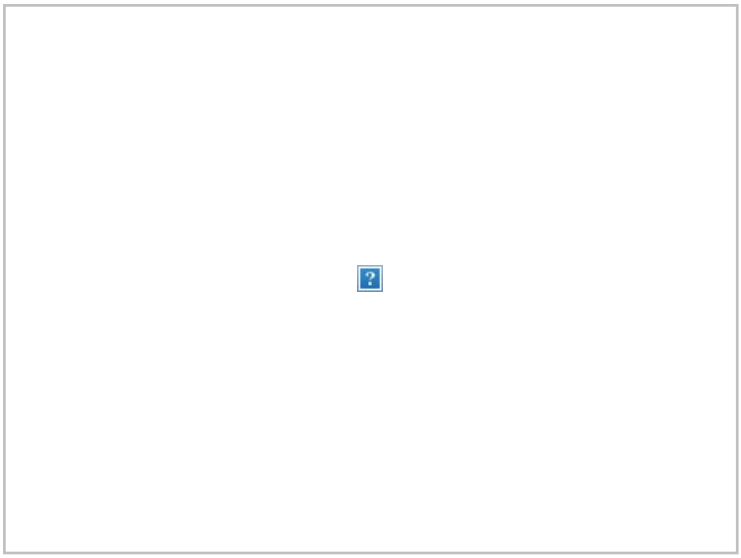
TMHC logo

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/efa27a31/PsdZ4Cdc_UynpB65j69MYA?u=http://www.tmhc.ca/
519-641-7222

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
https://link.edgepilot.com/s/937c2bb1/A38QKK2fgEacMOywFy-y3g?u=http://www.bmross.net/

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

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

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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> 519-641-7222
>
>
>
> ---
>
> **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.**
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> London, ON | N5W 3A7
> https://link.edgepilot.com/s/50560068/NLKcMa5mrUCiUO1de-VmFQ?u=http://www.tmhc.ca/
> 519-641-7222

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
>
> **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

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

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

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/
519-641-7222

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

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

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

<image001.png>

<2024-195 Tiverton Water Supply Stage 1-2 Report_Draft.pdf>

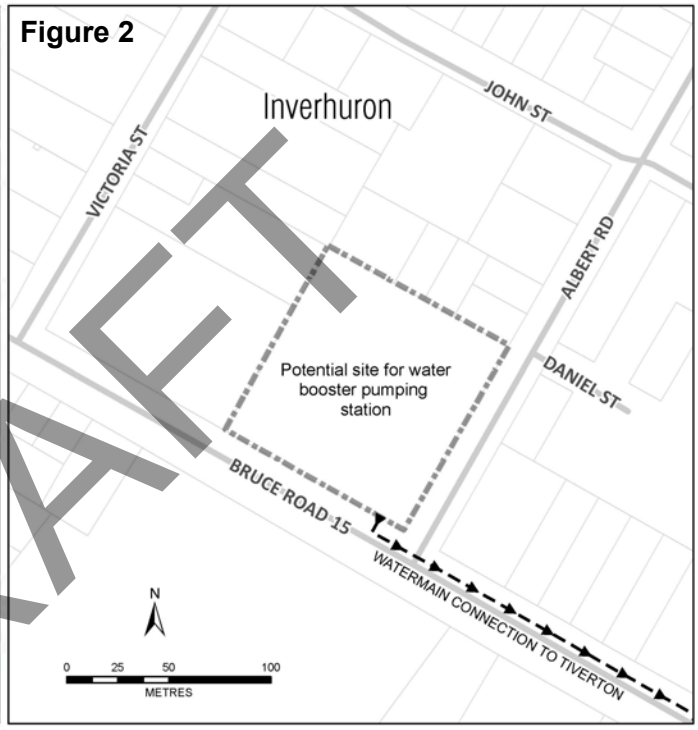
MUNICIPALITY OF KINCARDINE
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR EXPANSION OF THE TIVERTON WATER SUPPLY SYSTEM

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

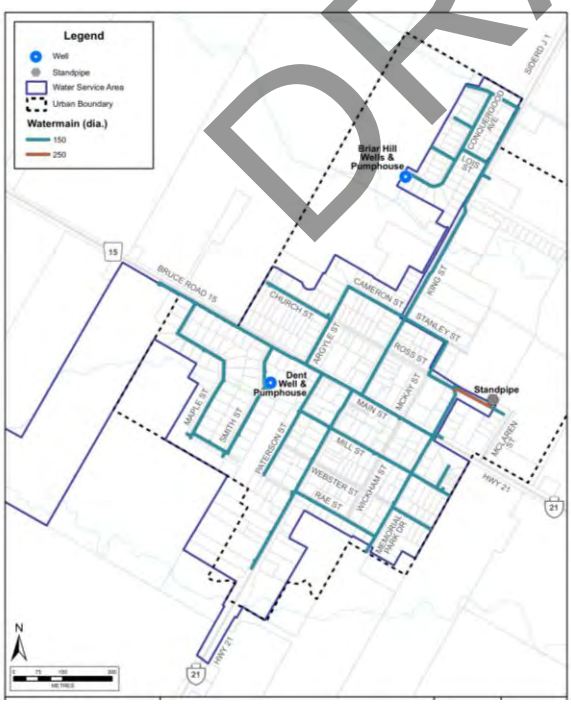
2

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

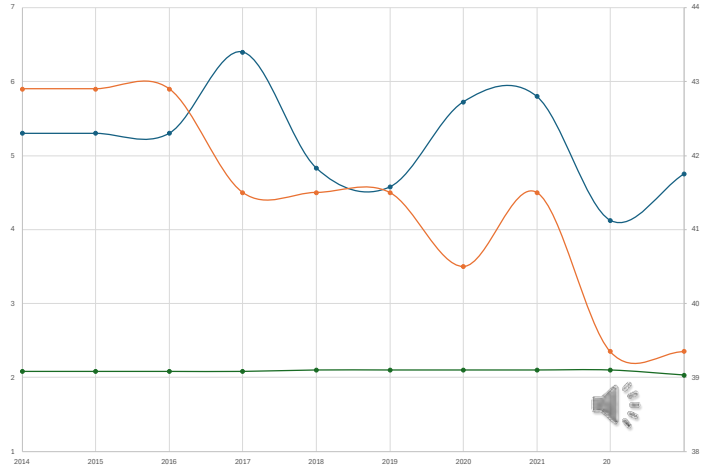
  The system is therefore, overcommitted in terms of water supply.
- Master Plan recommended an EA to look at options to increase water supply capacity.

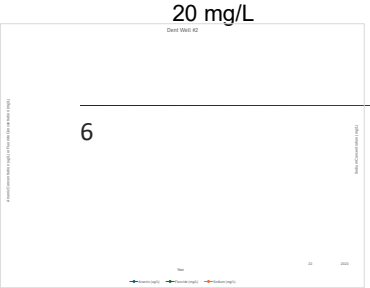
5

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)

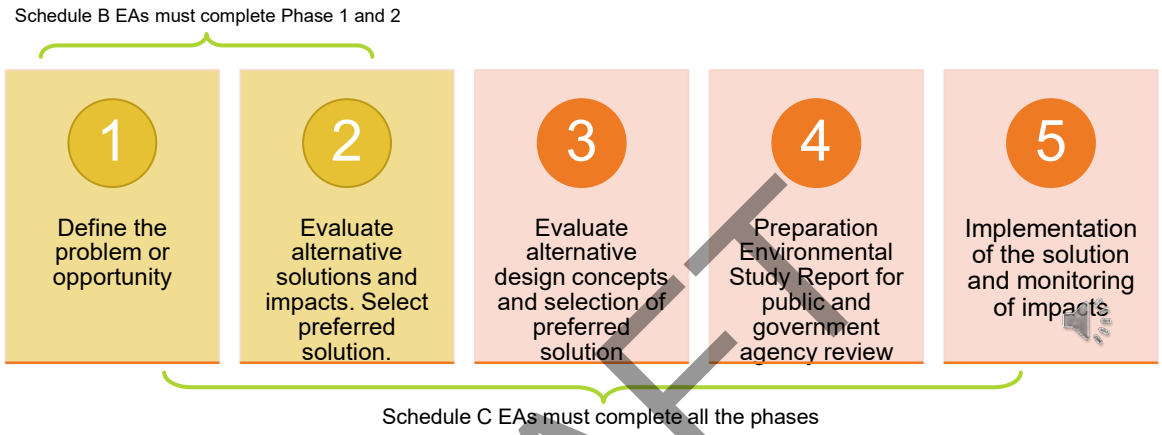
8

- 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

13

Siting new wells

- Recommended at least 350 m distance between existing wells to avoid well inference

13

14

Alternative 1 - Costs

- 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

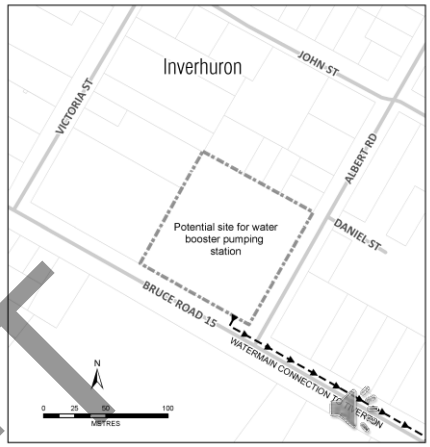
Alternative 2: Construct a connection to the Kincardine DWS at Inverhuron

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



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Alternative 2: Pressure Requirements

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- 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

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Alternatives 3 and 4

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- 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.

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Evaluation of Alternatives

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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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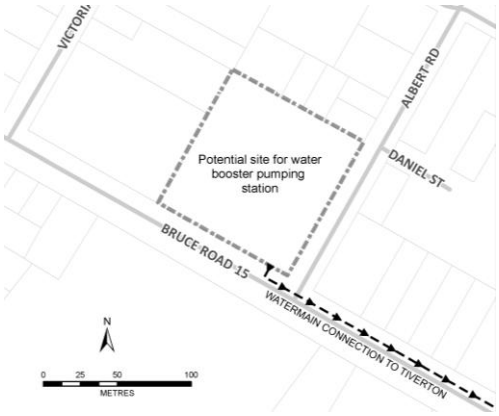

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Site Layout Option 1

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Site Layout Option 2

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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

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- 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]

[redacted]

[redacted]
Calgary T2S 1Z3