

RE INGERSOLL 1 SOLAR PROJECT

Water Body Records Review Report

September 2, 2011

RECURRENT
ENERGY





RE Ingersoll 1 ULC

Water Body
Records Review Report

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Project Report

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1. Introduction

1.1 Project Description

RE Ingersoll 1 ULC is proposing to develop and operate a 9.5-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 40-hectare (ha) parcel of land, located in the Townships of Zorra and South-west Oxford, in the County of Oxford, approximately 6 km northeast of Ingersoll, Ontario; herein referred to as “RE Ingersoll 1” or the “Project”.

1.2 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. As per Section 4 of the REA Regulation, ground-mounted solar facilities with a nameplate capacity greater than 10 kilowatts (kW) are classified as a Class 3 solar facility and, therefore require an REA.

Section 30 of the REA Regulation requires proponents of Class 3 solar projects to undertake a water body records review to identify “whether the project is

- i. in a water body
- ii. within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity
- iii. within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity
- iv. within 120 m of the average annual high water mark of a permanent or intermittent stream, or
- v. within 120 m of a seepage area.” (O. Reg. 359/09, s. 30, Table).

Subsection 2 of Section 30 of the REA Regulation requires the proponent to prepare a report “setting out a summary of the records searched and the results of the analysis” (O. Reg. 359/09). This Water Body Records Review Report has been prepared to meet these requirements. It has also been prepared in accordance with the Ministry of Environment’s DRAFT Technical Bulletin – Guideline for Preparing Water Assessment and Water Body Reports (dated January 28, 2011).

2. Methodology and Results

The following sections document the records that were reviewed and analyzed and the results from this analysis. The focus of the assessment was identifying whether or not the Project was located within or adjacent to any of the water features listed above in Section 1.2. The sections of this Report are organized as identified in Column 1 of the Table in Section 30 of the REA Regulation.

The results are discussed below in relation to the distances specified between the Project location and water features as defined in Section 30 of the REA Regulation (see Section 1.2).

There are no Planning Boards, Local Roads Boards or Local Services Boards within the jurisdiction of the Project area. Also, the Project location is not located within the Niagara Escarpment Commission Plan Area. Therefore, records from these agencies were not reviewed.

2.1 Ministry of Natural Resources Records

2.1.1 Methodology

The following Ministry of Natural Resources (MNR) on-line records were reviewed:

- Ontario Base Maps and natural feature layers from Land Information Ontario (LIO) (www.geographynetwork.com)
- Natural Heritage Information Centre (NHIC) on-line mapping (<http://nhic.mnr.gov.on.ca/MNR/nhic/queries/nhic.mwf>)

2.1.2 Results

Mapping data obtained from LIO indicates that two small watercourses cross the property on which the Project is located in a general northwest-southeast direction. Both of these watercourses (named Branches A and B of the Gould Drain – see Section 2.3.2) are shown as originating on the property on which the Project is located. The mapping depicts the easternmost watercourse running partially through a wooded area on the Project location, with the remainder being through agricultural lands on the site. The westernmost watercourse on the property is depicted on the mapping as running through an agricultural field. It is not evident from this mapping if the portions of these watercourses through the agricultural fields on the property would be considered as waterbodies based on the definition provided in the REA Regulation, since it is not evident if they are grassed waterways or temporary surface drainage channels that are normally tilled through (either scenario would mean they would not be classified as waterbodies). Another watercourse (Hendry Drain) runs adjacent to the southwest Project location boundary.

All three watercourses run through culverts beneath the rail tracks immediately south of the Project location where they drain into a larger pond farther south. OBM mapping does not show any direct hydrologic connection from this pond to the South Thames River, which is located immediately south and east of the pond, approximately 400 m from the Project location boundary.

No additional water features were identified on the mapping available on the NHIC website.

2.2 Federal Government Records

2.2.1 Methodology

The following federal government websites were reviewed to determine if any records regarding water features on or adjacent to the property were available:

- Fisheries and Oceans Canada (DFO) website ([www. http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/index-eng.htm](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/index-eng.htm))
- DFO Aquatic Species at Risk Mapping (<http://www.conservation-ontario.on.ca/projects/DFO.html>)
- Natural Resource Canada (NRCAN) (http://ess.nrcan.gc.ca/mapcar/index_e.php).

2.2.2 Results

The review of the DFO website resulted in several references to aquatic species at risk designated under the federal Species At Risk Act (SARA) being present in the Thames River, which is located approximately 400 m south of the Project location (Cudmore et al., 2004). DFO's Aquatic Species at Risk Mapping noted the presence of several mussel species listed under SARA in the Thames River and some of the tributaries adjacent to the Project location. However, none of the tributaries on or within 300 m of the Project location were noted as having Species at Risk mussels present.

The NRCan mapping review resulted in a general environment map showing the Thames River and tributaries in the general Project area, but did not provide any new information on water features other than those discussed in Section 2.1.2.

2.3 Conservation Authority Records

2.3.1 Methodology

The proposed Project is situated within the jurisdiction of the Upper Thames River Conservation Authority (UTRCA). UTRCA maintains an on-line mapping database (UTRCA, 2006) showing its Regulated Area under O. Reg. 157/06 and O. Reg. 97/04 (Regulation for Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses), herein referred to as the UTRCA Regulation. Regulated Areas mapping for the Project area, included the Regulated Area, Flood Hazard and Erosion hazard boundaries was obtained from UTRCA (2010) and reviewed.

2.3.2 Results

The Regulated Areas map (UTRCA, 2006) indicates that the two tributaries (both named as branches of the Gould Drain by the UTRCA) and their riparian areas on the Project location, as well as the drain southwest of the Project location (called the Hendry Drain by the UTRCA), as previously discussed in Section 2.1.2 are within the UTRCA's Regulated Area, meaning that they are classified as river or stream valleys. The mapping depicts a Flood Hazard associated with each watercourse. The pond to the south of the Project location, the South Thames River and the surrounding area are also located within the UTRCA's regulated area.

2.4 Municipal Records

2.4.1 Methodology

County of Oxford

The Project is located within the upper tier municipality of the County of Oxford. The County maintains an on-line mapping database (<http://maps.county.oxford.on.ca/maps/landplan/viewer.html>) showing the general environmental and infrastructure features of the area, as well as high resolution satellite imagery (Country of Oxford, 2005a).

The County of Oxford also maintains an on-line mapping database of groundwater recharge and discharge zones in the County (<http://maps.county.oxford.on.ca/maps/groundwater/viewer.html>) (County of Oxford, 2005b). This database was reviewed for the presence of seeps (i.e., groundwater discharge areas) on or within 120 m of the Project location.

The County of Oxford Official Plan (Oxford County, 2009) was also examined to find any records that may identify water features on or within 120 m of the Project location.

The County of Oxford has produced a report entitled *The Oxford Natural Heritage Study* (County of Oxford, 2006). Appendix D (Aquatic Resources) of this study was reviewed as part of the records review.

Township of Zorra

A portion of the Project is located within the lower tier municipality of the Township of Zorra. The Township website (http://www.zorra.on.ca/index.php?menu_id=16) was examined to find any records that may identify water features in the Project location and surrounding area.

Township of South-west Oxford

The remaining portion of the Project is located within the lower tier municipality of the Township of South-west Oxford. The Township website (<http://www.swox.org/>) was examined to find any records that may identify water features in the Project location and surrounding area.

2.4.2 Results

County of Oxford

Satellite imagery viewed on the County of Oxford website (2005a) showed the same waterbodies previously discussed in Section 2.1.2. The two branches of the Gould Drain appear to run through vegetated corridors along their length, where they traverse through the Project location. Based on this satellite imagery, it appears as though they would be classified as waterbodies, since they do not appear to be driven through or tilled over by agricultural equipment. Hendry Drain also runs in a vegetated riparian corridor.

In addition, the aerial photography appears to show a waterbody not noted on any of the previously discussed mapping. This waterbody is labeled in Figure 3.1 as "Unnamed Drain". The aerial photography shows a relatively distinct channel near the homestead on the property. Farther upstream, the watercourse appears to run within a vegetated buffer, but the channel is not distinct on aerial photography.

This mapping and aerial photograph does not explicitly show any direct hydrological link between the large pond to the south of the Project location and South Thames River. However, aerial photography showed a large quarry type operation to the southwest of the large pond. The pond may receive discharge from the quarry and the pond may passively discharge into the South Thames River.

The County's groundwater features mapping tool (County of Oxford, 2005b) showed that the majority of the Project location is identified as a groundwater recharge zone. A portion of the large pond south of the Project location, as well as a portion of the quarry operation southwest of the property, is identified as groundwater discharge zones (i.e., seeps). The closest boundary of the groundwater discharge zone within the large pond area is approximately 140 m away from the Project location boundary.

The Official Plan Environmental Features Plan map identifies the South Thames River as being a significant valleyland, but the small watercourses on the Project location are not identified on the mapping nor are any other water features not previously discussed (County of Oxford, 2009).

The Natural Heritage Study provided a map of aquatic features within the whole County (County of Oxford, 2006). The map was at a large scale, but did show the water features noted previously. The

two tributaries on the property were identified as “Unknown or Virtual Segments” indicating there is little information available to classify them according to the Watercourse Classification System that was used. The South Thames River is identified as a System 1 watercourse, indicating that it provides habitat for sensitive or significant fish species (County of Oxford, 2006).

Township of Zorra

The Township of Zorra’s website did not include any information regarding water features on or adjacent to the Project location.

Township of South-west Oxford

The Township of South-west Oxford’s website did not include any information regarding water features on or adjacent to the Project location.

3. Summary of Results and Next Steps

3.1 Summary of Results

Table 3.1 summarizes the results of the records review according to the features identified in Section 1.2. A map depicting the identified water features on and in proximity to the site is provided in Figure 3.1.

Table 3.1 Summary of Records Review Determinations

Determination to be Made	Yes/No	Description
Is the Project in a water body?	Yes	An access road water crossing may be required on Branch B of the Gould Drain
Is the Project within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity?	No	No lakes are present on or within 120 m of the Project location.
Is the Project within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity?	No	No lake trout lakes are present on or within 300 m of the Project location.
Is the Project within 120 m of the average annual high water mark of a permanent or intermittent stream?	Yes	Three small streams traverse the Project location and one small stream runs adjacent to the Project location. A pond is located south of the Project location.
Is the Project within 120 m of a seepage area?	No	A groundwater discharge area is located approximately 140 m away from the Project location.

Therefore, depending on the layout of the proposed Project, some components of the Project could potentially be located within 120 m of the average annual high water mark of four permanent or intermittent streams (three of which are on the Project location) and a pond which drains into the South Thames River. In addition, a water crossing of Branch B of the Gould drain will be necessary.

3.2 Next Steps

A site investigation, as required in Section 31 of the REA Regulation will be completed to (i) confirm the features identified during this records review, (ii) identify if any corrections to the information presented herein are required, (iii) determine whether any additional waterbodies exist in the Project area, (iv) confirm the boundaries of any water feature within 120 m of the Project location and (v) determine the distance from the Project location to the water boundary.

4. References

- County of Oxford. 2009. County of Oxford Official Plan. On-line at <http://www.county.oxford.on.ca/site/789/default.aspx>. Accessed February 12, 2010.
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- County of Oxford. 2005b. Interactive Maps – Groundwater Navigator. On-line at <http://maps.county.oxford.on.ca/groundwater/>. Accessed February 12, 2010.
- Cudmore, B., C. A. MacKinnon, and S.E. Madzia. 2004. Aquatic Species at Risk in the Thames River Watershed, Ontario. Can. Man. Rep. Fish. Aquat. Sci. 2707. On-line at <http://www.dfo-mpo.gc.ca/Library/316802.pdf>. Accessed February 16, 2010.
- Upper Thames River Conservation Authority (UTRCA). 2010. Re: 414774 41st Line, Ingersoll, County of Oxford – Recurrent Energy Solar Projects – Ingersoll 1. Correspondence from T. Arnett (UTRCA) to N. Boucher (Hatch Ltd.). March 12, 2010.

Insert Figure 3.1

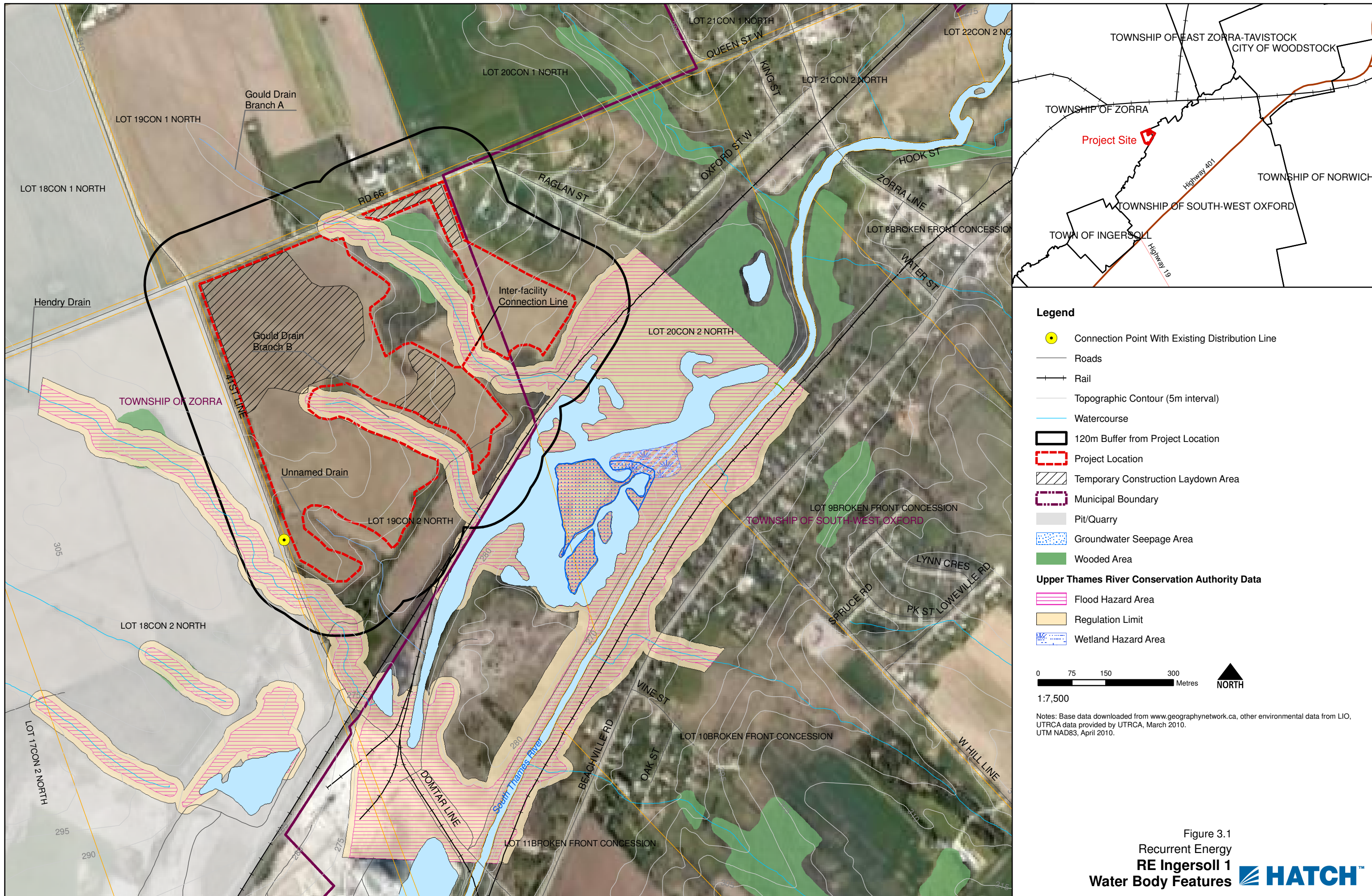


Figure 3.1
 Recurrent Energy
 RE Ingersoll 1
 Water Body Features **HATCH™**

