Agricultural Impact Assessment
Northline Road, Fenelon Falls, Geographic Township of Verulam
City of Kawartha Lakes
CCS Project No. 2603
May 2015

Prepared for: Invenergy Canada
Prepared by: Clark Consulting Services

1.0 Introduction

Clark Consulting Services (CCS) was retained by Invenergy Canada to prepare an Agricultural Impact Assessment for land intended for a solar PV generating facility and to determine the agricultural impacts of changing the use of part of the subject lands to permit a solar PV installation. Council's Resolution #CR2013-511 requests for municipal support for solar projects located on lands with at least 6 inches of top soil on Canada Land Inventory Class 1-4, 5 and 6 soils, the proponent will be required to provide a report from a qualified Agrologist that the proposal will have minimal impact to agricultural production. This study will review surrounding land uses, review the potential for agricultural conflict, and describe if the change in use will impact the local agricultural community.

1.1 Location

The Property is located in Lot 28 Concession 1, in the geographic Township of Verulam, City of Kawartha Lakes, at Northline Road north of Fenelon Falls. Property size is estimated at 41 hectares (101 ac). The location is illustrated in Figure 2 – Location, created from Google Maps.

Figure 2 illustrates the review area of 1,000 metres around the Northline property.
Figure 1 – Location

Figure 2 - Property and Study Area Limits
1.2 Property Description

The southern portion of the property is dominated by ponds, wet depressed areas and rolling topography. The north eastern portion of the property is planted in beans and hay/pasture. There are two unclassified areas currently being used for buildings on the property and a small gravel pit. A small area in the north western corner of the property is wet and sparsely wooded.

2.0 Agricultural Impact Assessment Information

In preparing the study materials for this assessment CCS has reviewed:

- The Provincial Policy Statement (P.P.S.) 2014
- The City of Kawartha Lakes Official Plan
- The Soil Survey of Victoria County (CANSIS, Agriculture and Agri-food Canada)
- The Agricultural Information Atlas – Ontario Ministry of Natural Resources and Land Information Ontario.
- CCS Agricultural Land Evaluation, May 26, 2015

3.0 Agricultural Capability

3.1 Agricultural Land Evaluation

An agricultural soil capability assessment and soil study, called Agricultural Land Evaluation, was completed by Clark Consulting Services during May 2015. The site visit, including a pedestrian review with shovel test pitting and visual observations of the accessible areas of the property, was completed on May 5, 2015. Study methodology meets the Ontario Power Authority, the Ontario Ministry of Energy and the Ontario Ministry of Agriculture, Food and Rural Affairs requirements for soil studies. These requirements, including qualifications for Land Evaluators, can be found at: http://www.energy.gov.on.ca/en/fit-and-microfit-program/fit-soilstudy/.

The final study, presented in report form, includes a review of current Canada Land Information (CLI) mapping showing the published CLI classifications of the land and a detailed refinement of soil classification based upon the findings of the pedestrian review and shovel test pitting.

A description and review of the various classes and subclasses of soil under the CLI system can be found at http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html and is included in this report as Attachment C.

The report shows that the current published and accepted CLI mapping identifies the soils as Class 6. These soils are described as: “Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible”. A further description in the Agriculture and Agri-food website says that Class 6 soils “Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible. The soils provide some sustained grazing for farm animals, but the limitations are so severe that improvement by use of farm machinery is
impractical, or the terrain may be unsuitable for use of farm machinery, or the soils may not respond to improvement, or the grazing season may be very short."

At the time of the soils study site visit a stony field was planted in soy beans and there was a field for pasturing cattle or growing hay.

**Soils**

Agriculture and Agri-Food Canada publishes a series of soil surveys arranged by county within the Province of Ontario. The subject lands are shown on the Victoria County Soils Survey on the Soil Map North Sheet. An excerpt from this map is shown as *Table X - Soil Map*.

The soils map shows the subject land as comprised of Dummer loam (DL), which is a gravelly loam till. The soils report describes Dummer loam as well to excessively drained with a moderate to steep topography. The parent materials are very stony loam till. These soils are mainly used for pasture where appropriate. Some lands may be improved by stone removal. Some areas following extensive stone removal have been brought under cultivation to grow a variety of crops. These cultivated areas are generally isolated and scattered providing little likelihood of continual use as cropland.

The CLI mapping shows the property is mapped as Class 6 soils. The May 2015 site assessment found that the actual classification was more varied than indicated due to a variety of conditions including shallow soils over bedrock, persistent wet areas, sandy soil areas, stony soils and varied topography. It appears that pasturing cattle, growing hay and growing a limited crop of beans are reasonable agricultural uses of the workable areas of this land.
4.0 Minimum Distance Separation (MDS)

Minimum Distance Separation (MDS) is a planning tool developed by the Ontario Ministry of Agriculture, Food and Rural Affairs and is used where a non-farm development application may impact neighbouring livestock facilities or where a proposed livestock facility may impact existing non-farm uses. An MDS review is guided by the MDS Implementation Guidelines published by OMAFRA and found at http://www.omafra.gov.on.ca/english/landuse/guide_p4.htm#i2. MDS applies to livestock facilities but does not apply to a variety of farm or livestock uses including pastures, feed storages, field shade shelters, machinery sheds, or temporary nutrient storage facilities.

MDS is applied at the time of planning or development review for a proposed new development. MDS splits new development into two categories called Type A and Type B Developments. Type B development is described as a development with a higher density of human occupancy, habitation or activity.

CCS requested an interpretation of the application of MDS from staff at OMAFRA where a non-rooftop solar PV installation is proposed. Our direction from OMAFRA is that renewable energy projects are typically considered infrastructure and as such do not trigger an MDS I or II setback. CCS has completed a review of barns surrounding the subject lands for the purposes of establishing the level of activity within the local agricultural community. In accordance with Ministry directives an MDS review has not been completed.

5.0 Agricultural Land Use Study

CCS conducted a ground-level agricultural land use survey of the subject land at a distance of 1,000 metres around the subject lands. The purpose of the survey was to identify active and vacant farm land, active livestock operations, vacant or empty livestock barns, cropland utilization, areas of pastureland, local investment in farming including buildings, fencing, woodlot management, and field management.

5.1 Area of Review

In preparing the Land Use review CCS used a 1,000 metre review distance around the subject lands. This review area amounts to approximately 656 hectares or almost 1,621 acres.

The Land Use review was undertaken by CCS on May 5, 2015. The review of the area included locating and observing vacant and active livestock barns and operations, current or seasonal use of farm land, location of non-farm uses including residences and commercial operations, roadways and water bodies.

The analysis of the review revealed the following land uses:

Review Area: 1,000 m distance in all directions around the subject lands
Review area including Subject Lands is approximately 656 hectares in size
Review area includes approximately 41 hectares of Subject Lands
Active Livestock Operations:
Within the 1,000 metre review area we noted five livestock barns. They are shown on the Land Use map as A, B, C, F, H, J, and K. These barns are either active livestock facilities, appear to vacant but capable of housing livestock or vacant and not capable of housing livestock.

Barn A is part of a small farm holding called Lakeside Farms on the west side of Northline road just north of the subject property. This is a bank barn used for an active beef operation.

Barn B is located on the west side of Northline road farther north of the subject property and Barn A. This is a small vacant dairy barn that does not show evidence of livestock.

Barn C is located directly north of the subject lands on the east side of Northline road. It is an older barn accompanied by a new shed that show no evidence of livestock. The surrounding farm area looks to be used for beef cattle. This was evidenced by the fenced pasture behind the barn.

Barn F is located to the north east of the subject lands. It is on the west side of County Road 121. This barn is a bank barn actively being used for approximately 25 beef cattle.

Barn H is located to the south east of the subject lands. It is on the west side of County Road 121. This is an active bank barn that is being used for approximately 20 beef cattle.

Barn J is located to the south of the subject lands. It is on the east side of Northline road and does not show evidence of livestock. It is a bank barn in good condition that has the potential to house approximately 20 cattle.

Barn K is located to the south of the subject lands. It is on the east side of Northline road. It is a renovated barn currently being used for storage.

The presence of mostly vacant and some active barns supporting beef cattle show that the area has a history of beef farming and that a few operations still exist dedicated to raising cattle.

Crop or Hay Production
During the site visits it was noted that hay and crop production may be carried out on small areas of land. The Victoria County Soils Survey and Canada Land Inventory classification of soils describe the soils in the review area as Farmington loam, Dummer loam and Muck that carry classifications of Class 6 and Organic soils. The usable land noted during the survey is located in the Dummer loam and this soil is described as a gravelly loam till. Pockets of better or very shallow soil is expected in this area.

The Canada Land Information describes Class 6 soils as "Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible". (Overview Of Classification Methodology for Determining Land Capability For Agriculture, Agriculture and Agri-Food Canada: http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html).

From the land use survey it appeared that areas of the soils shown as Dummer loam have been cleared as pastureland and some of these areas may be used to produce hay. Based on the description of the soils the land would be dry and droughty during the summer months reducing the chance of a second cut of hay.
During our review we noted an area adjacent to the farm at Barn A which may be capable of growing beans or corn or capable of better crops of hay.

**Vacant Land**
The majority of the review area includes water and land supporting cedar, juniper, scrub and rough grasses. This is an indication of rocky and wet soils. These vacant lands make up approximately 115 hectares. There are pockets of land within this area where the land has been cleared for other purposes. There may be areas of managed woodlots within the better areas. However these lands are generally not active or productively farmed.

**Residential**
The shores of Cameron Lake provide an ideal location for permanent and seasonal residences. Within the review area approximately 21 hectares of residential land was noted.

The Land Use review indicates that there is a limited active farming community within the review area. This is generally limited to beef production and opportunities for horse stabling. A limited part of the usable farmland may be used to produce hay from a first cut or perhaps a second cut during summers with enough moisture to keep the land from becoming droughty. An area adjacent to the farm at Barn A appears to have opportunity to grow a reasonable crop hay and may, during acceptable growing seasons, be able to grow a limited acreage of crops such as beans or corn.

![Figure 3 - Land Use Map](image-url)
5.2 **Types of Land Use Observed**

During the site visits CCS noted a variety of uses for land within the 1,000 metre review area. We have generalized the lands uses into Woodland, Residential/Farm Yard (Permanent and Seasonal), Vacant (includes woodlots and wet/dry scrubland), Cropland (used for buildings, storage areas and farm houses), Rough Pasture (seasonal pastureland including wet and bouldery areas), and Water.

<table>
<thead>
<tr>
<th>Types of Land Use</th>
<th>Area in Hectares</th>
<th>Area in Acres</th>
<th>Percentage of Total Land Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodland</td>
<td>145</td>
<td>359</td>
<td>22</td>
</tr>
<tr>
<td>Residential/Farm Yard</td>
<td>42</td>
<td>103</td>
<td>6</td>
</tr>
<tr>
<td>Vacant Land</td>
<td>115</td>
<td>285</td>
<td>18</td>
</tr>
<tr>
<td>Cropland</td>
<td>109</td>
<td>269</td>
<td>17</td>
</tr>
<tr>
<td>Rough Pasture</td>
<td>166</td>
<td>409</td>
<td>25</td>
</tr>
<tr>
<td>Water</td>
<td>35</td>
<td>87</td>
<td>5</td>
</tr>
<tr>
<td>Subject Lands</td>
<td>44</td>
<td>108</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>614</strong></td>
<td><strong>1621</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6.0 **Local Farming Operations**

**Local Constraints to Agriculture**
The lands within the 1,000 metre review area are comprised of Woodlands, vacant lands, wet areas, residential lands and pasture lands with small areas suitable for hay production. According to the CLI mapping and from observations during the site visits lands to the south of the review area appear to have better soils and be more productive hay or cropland.

Mapping of the use of artificial drainage tiling in the local area is found on the Agricultural Information Atlas. This shows that a limited area of land is artificially drained west of the review lands. There are no tile drain areas within the subject lands.

**Type and Intensity of Local Farming Operations**
There were three active farms and one rental farm identified within the review area.

**Past Local Farming Practices**
The older vacant barns in the local farming community point toward beef production as the predominant farming activity.

**Local investment in farming**
A solid farming community still exists in the greater area of Kawartha Lakes evidenced by the livestock sales yard at Woodville and the investment in farm buildings and machinery. Within the review area investment in buildings, equipment and fencing appears to be moderate.

A few barns in the review area are used to house livestock including horses and beef cattle. A number of other barns are older and vacant.
7.0 **Provincial Policy Statement (PPS) 2014**

The Province presented the Provincial Policy Statement in April 2014 as a document to guide development within the Province including rural development. Agriculture policies contained within the PPS are found in Section 2.3. This document provides for the protection of prime agricultural areas. These are areas predominated by prime agricultural lands and may include specialty crop areas. Prime agricultural areas are designated in the CKL Official Plan. Permitted uses in a prime agricultural area generally include agricultural and agriculture-related uses and on-farm diversified uses. These permitted uses should be compatible with, and not hinder, surrounding agricultural operations. The subject property is designated Rural.

8.0 **Conclusions**

Clark Consulting Services was retained by Sun Edison to review a parcel of land in the City of Kawartha Lakes and to prepare an Agricultural Impact Study. The result of a Pre-Consultation meeting was a requirement that a study be conducted to determine if there was an impact to agriculture by the development of a solar project on the subject lands. CCS has completed a site specific soil and agricultural land review and has reviewed the area’s livestock facilities and land use in preparation of this impact study.

The property is currently used for a variety of purposes seasonally. The review undertaken shows that the parcel does not have very productive soils and that the use as pasture for beef cattle may be the best agricultural use of these lands. Approximately 30 acres of the best soils are planted in beans and hay/pastures.

The additional use of a solar PV installation would not remove good quality productive cropland from the local farming community. The property does not show a large investment in agriculture. Hay production and soy bean growing is restricted to the best parts of an the property. These soils are generally shallow and stony may prove to be droughty in dry summer months.

The use of this land would not result in a significant agricultural loss to the local farming community.

Sincerely,

Bob Clark, P. Eng., P. Ag., MCIP, RPP, OLE
Principal Planner
ATTACHMENT “A”
Agricultural Land Evaluation

ATTACHMENT “B”
City of Kawartha Lakes - Council Resolution

ATTACHMENT “C”
Agriculture and Agrifood Canada
Overview Of Classification Methodology for Determining Land Capability For Agriculture

ATTACHMENT “D”
Curriculum Vitae of Robert K. Clark
ATTACHMENT “A”

Agricultural Land Evaluation
ATTACHMENT “B”

City of Kawartha Lakes

City of Kawartha Lakes – Council Resolution CR2013-511:

Council passed a resolution that requests for municipal support for solar projects located on Canada Land Inventory Class 1 through 4, and Class 5 and 6, if there is at least 6 inches of topsoil where it may be productive for agricultural purposes, be rejected. As such, the proponent will be required to provide a report from a qualified Agrologist that the proposal will have minimal impact to agricultural production.
Overview Of Classification Methodology for Determining Land Capability For Agriculture

The CLI agriculture product shows the varying potential of a specific area for agricultural production. It indicates the classes and subclasses according to the Soil Capability Classification of Agriculture, which is based on characteristics of the soil as determined by soil surveys. The mineral soils are grouped into 7 classes and 13 subclasses according to the potential of each soil for the production of field crops. Organic soils are not a part of the classification and are shown as a single separate unit (0).

These agricultural capability maps can be used at the regional level for making decisions on land improvement and farm consolidation, for developing land-use plans, and for preparing equitable land assessments.

Some of the important factors on which agricultural classification is based are: 1) The soils will be well managed and cropped, under a largely mechanized system. 2) Land requiring improvements, including clearing, that can be made economically by the farmer, is classed according to its limitations or hazards in use after the improvements have been made. Land requiring improvements beyond the means of the farmer is classed according to its present condition. 3) The following are not considered: distances to marker, kind of roads, location, size of farms, type of ownership, cultural patterns, skill or resources of individual operations, and hazard of crop damage by storms. 4) The classification does not include capability of soils for trees, tree fruits, small fruits, ornamental plants, recreation, or wildlife. 5) The classes are based on the intensity, rather than kinds, of their limitations for agriculture. Each class includes many kinds of soil, and many of the soils in any class require unique management and treatment. 6) Land given a capability classification of 6 or 7 will never warrant irrigation since the benefits derived from irrigation would be negligible. For this reason, capability Classes 6 and 7 will always appear in the non-irrigated portion (Classes A to C) of a land unit classification.

You can find out more about the CLI mapping project at geogratis.
Land Capability Class Descriptions for Agriculture

The classes indicate the degree of limitation imposed by the soil in its use for mechanized agriculture. The subclasses indicate the kinds of limitations that individually or in combination with others, are affecting agricultural land use.

Classes

Note: To see a further description of each class, select each class in the following table.

<table>
<thead>
<tr>
<th>Classes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>Soils in this class have no significant limitations in use for crops.</td>
</tr>
<tr>
<td>Class 2</td>
<td>Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices.</td>
</tr>
<tr>
<td>Class 3</td>
<td>Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.</td>
</tr>
<tr>
<td>Class 4</td>
<td>Soils in this class have severe limitations that restrict the range of crops or require special conservation practices.</td>
</tr>
<tr>
<td>Class 5</td>
<td>Soils in this class gave very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are feasible.</td>
</tr>
<tr>
<td>Class 6</td>
<td>Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.</td>
</tr>
<tr>
<td>Class 7</td>
<td>Soils in this class have no capacity for arable culture or permanent pasture.</td>
</tr>
<tr>
<td>Class 0</td>
<td>Organic Soils (not placed in capability classes).</td>
</tr>
</tbody>
</table>
### Subclasses

Note: To see a further description of each subclass, select each class in the following table.

<table>
<thead>
<tr>
<th>Subclasses</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Adverse climate</td>
</tr>
<tr>
<td>D</td>
<td>Undesirable soils structure and/or low permeability</td>
</tr>
<tr>
<td>E</td>
<td>Erosion</td>
</tr>
<tr>
<td>F</td>
<td>Low fertility</td>
</tr>
<tr>
<td>I</td>
<td>Inundation by streams or lakes</td>
</tr>
<tr>
<td>M</td>
<td>Moisture limitations</td>
</tr>
<tr>
<td>N</td>
<td>Salinity</td>
</tr>
<tr>
<td>P</td>
<td>Stoniness</td>
</tr>
<tr>
<td>R</td>
<td>Consolidated Bedrock - this subclass includes soils where the presence of bedrock near the surface restricts their agricultural use. Consolidated bedrock at depths greater than 3 feet from the surface is not considered as a limitation except on irrigated lands where a greater depth of soil is desirable.</td>
</tr>
<tr>
<td>S</td>
<td>Combination of subclasses</td>
</tr>
<tr>
<td>T</td>
<td>Topography</td>
</tr>
<tr>
<td>W</td>
<td>Excess water</td>
</tr>
<tr>
<td>X</td>
<td>This Subclass is comprised of soils having a limitation resulting from the cumulative effect of two or more adverse characteristics</td>
</tr>
</tbody>
</table>
ATTACHMENT “D”

Curriculum Vitae of Robert K. Clark