

**FINAL REVISED**

**Stage 2 Archaeological Resource Assessment  
(Property Assessment)**

**St. Columban Wind Project  
Municipality of Huron East, Huron County, Ontario**

**FIT-F1PW818 and FIT-F9YXBYJ**

Prepared for:

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April 2011 (Revised June 2011)



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## Stage 2 Archaeological Resource Assessment (Property Assessment)

### St. Columban Wind Project Municipality of Huron East, Huron County, Ontario

#### EXECUTIVE SUMMARY

Archaeological Services Inc. (ASI) was contracted by St. Columban Energy LP, Calgary, Alberta, to conduct a Stage 2 Archaeological Assessment (property assessment) for the St. Columban Wind Project, Municipality of Huron East, Huron County, Ontario. The Stage 2 Archaeological Assessment is conducted as part of Ontario Regulation 359/09 within the Renewable Energy Approvals process under Part V.O.1 of the *Environmental Protection Act*. The project comprises 15 wind turbine locations and associated facilities in the former Township of McKillop (Layout 22, revised November 15, 2010). A Stage 1 archaeological assessment report for the project was reviewed and accepted by the Ontario Ministry of Tourism and Culture on August 10, 2009.

The updated Stage 1 background research determined that no archaeological sites have been registered within two kilometres of the study area. A review of the general physiography and local nineteenth century land use concluded that much of the study area has potential for the identification of Aboriginal and Euro-Canadian archaeological sites. Stage 2 assessment was recommended for all project lands where there is potential for sites. Subsequent to the Stage 1 background research report, three additional lots were added to the project area. Site potential on these lands is similar to that previously identified for the original study area.

Stage 2 field work was conducted in November 2010 under acceptable survey and weather conditions. (Supplementary property assessment was conducted in June 2011.) The project area largely comprises agricultural fields assessed by systematic pedestrian survey. All proposed facilities were examined, and no cultural material was identified.

In light of these results, ASI makes the following recommendations in accordance with the MTC's 2011 *Standards and Guidelines for Consultant Archaeologists*:

1. No further archaeological assessment is required of the proposed facilities (Layout 22, as of November 15, 2010); and
2. Should design changes (subsequent to Turbine Layout 22 , November 15, 2010) or temporary work space requirements result in the inclusion of previously unassessed lands where there is potential for sites, these lands should be subjected to Stage 2 property assessment to determine if cultural remains are present.



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## 1.0 INTRODUCTION

Archaeological Services Inc. (ASI) was contracted by St. Columban Energy LP, Calgary, Alberta, to conduct Stage 2 Archaeological Assessment (property assessment) for the St. Columban Wind Project, Municipality of Huron East, Huron County, Ontario (Figure 1). The Stage 2 Archaeological Assessment is conducted as part of Ontario Regulation 359/09 within the Renewable Energy Approvals process under Part V.0.1 of the *Environmental Protection Act*. The project comprises 15 wind turbine locations (Layout 22, revised November 15, 2010) in the southeast portion of the former township of McKillop. A Stage 1 archaeological assessment report for the project was reviewed and accepted by the Ontario Ministry of Tourism and Culture on August 10, 2009.

Authorization to carry out the activities necessary for the completion of the Stage 2 assessment was granted to ASI by St. Columban Energy LP on November 15, 2010.

The objectives of the Stage 2 property assessment are:

- To document all archaeological resource on the property;
- To determine whether the property contains archaeological resources requiring further assessment;
- To recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

## 2.0 UPDATE OF STAGE 1 BACKGROUND RESEARCH

### 2.1 Previous Background Research

The Stage 1 background research and property inspection conducted for the St. Columban Wind Project examined a 24 square kilometre study area (ASI 2009). Little previous assessment had been conducted in the vicinity, and the Ontario Archaeological Sites Database (OASD) indicated that no archaeological sites had previously been reported within two kilometres of the study area. Most of the area is characterized by imperfectly to poorly drained clay loam soils and level terrain. However, in the north end of the study area is a low ridge of gravelly soils which is probably an esker. There is the potential for sites on this location due to the slight elevation and good soil drainage on the ridge. Overall, based on the proximity of streams as well as historic roads and structures, it was determined that there is potential for sites over much of the study area.

During the March 2009 field review of the 10 proposed turbine locations and their associated access roads, it was noted that most of the impacted lands are active agricultural fields. Much of the land is low-lying, and prior to the excavation of drainage ditches and the installation of tiling, the poorly drained soils may have been wet for a good part of the year. A number of historic farmsteads are scattered over the area, although many of the original structures have been replaced.



In accordance with the Ministry of Tourism and Culture (MTC)'s *Standards and Guidelines for Consultant Archaeologists* (2011), a Stage 2 property assessment was recommended in advance of any proposed impact at turbine work sites and along associated permanent access roads.

## 2.2 Additional Study Area

The current project layout (Layout 22) has been expanded from that covered during the Stage 1 assessment. Three nearby lots have been added: Concession 1, Lot 11 and Concession 2, Lot 11, adjacent to the southwest corner of the original study area, and Concession 4 Lot 3, one kilometre to the east (Figure 1).

Background research on the additional lands determined that they were similar to those within the original study area. The soils are imperfectly drained Perth clay loam and poorly drained Brookston clay loam (Ontario Agricultural College 1979). Terrain on the two southwest lots varies from level to undulating, and there are no water sources within 300 m of the proposed facilities. The east lot comprises level lands within 300 m of a drainage ditch stream to the north and a stream within wet woods to the south.

Although the 1881 historic atlas map indicates structures on one of the lots, none are in the vicinity of the proposed facilities (see ASI 2009: Figure 2).

**Table 1: Features Illustrated on Additional Study Area Lands (H. Belden & Co. 1879)**

Concession	Lot	Owner(s)/Residents(s)	Feature(s)
1	11 (east 40 acres) (southeast 10 acres) (west ½ -50 acres)	W. Longworth JM... [blurred] P. Carlin	Homestead – south end of lot Buildings? [2? blurred] – south end of lot --
2	11	P. Carlin	--
4	3	P. Welsh /Canada Co	--

In summary, like the original study area, there is potential for sites on the three additional lots, based on the proximity of streams and historic roads.



### 3.0 STAGE 2 PROPERTY ASSESSMENT

In accordance with the determination of archaeological potential completed as part of the Stage 1 background research and property inspection, ASI was retained to conduct a Stage 2 property assessment of the St. Columban Wind Project area comprising 15 proposed turbine sites and associated crane pads, turn-around areas, and access roads (Layout 22, revised November 15, 2010) (Figure 2).

The Stage 2 field work was conducted in accordance with the *Ontario Heritage Act* (2005) and the MTC's *Standards and Guidelines for Consultant Archaeologists* (2011). Fieldwork was conducted November 17-19, 2010 under the supervision of Deborah Pihl (MTC license R130), ASI. Additional judgmental test pitting to confirm disturbance was conducted on June 2, 2011. The survey conditions were considered acceptable with weather varying from partly cloudy to cloudy, and occasional showers. All survey conditions, methods and results are detailed in Table 2 and Figure 2, and photo-documentation is contained in Section 7.0.

#### 3.1 Methodology

At each of the 15 turbine locations, the Stage 2 property assessment focused on the work spaces required to accommodate the permanent turbine base, permanent crane pad, permanent access road, and temporary turn-around areas. All turbine locations had been surveyed and staked.

The work spaces were defined as follows:

##### Turbine Work Space

At each turbine, a 75 x 49 m work space was required to accommodate the crane pad and the turbine base (see Plate 4). The rectilinear area was usually oriented lengthwise in line with the access road, the turbine base being situated 18 m in from the side nearest the access road terminus. In those turbine locations where the 74 x 49 m work space was not defined by the limits of ploughing, a 50 x 75 m square area was assessed.

##### Temporary Turn-around

To allow trucks to turn, an additional temporary work space was defined on the far side of the turbine work space. This was done for conservative purposes as part of the Stage 2 property assessment as there is a remote possibility that this temporary turn-around will be used. The turn-around work space comprised a 182 m diameter circular turn-around area connected to the turbine work space by a 6 m wide and 88 m long connecting route (see Plate 8). In several turbine locations, the length of the connector was shortened to allow the turn-around circle to fit within the field. If used, the turn around work space may or may not involve soil preparation and the installation of gravel.

##### Access Road

The permanent access road will measure 6 m in width (cf. Plate 11).

##### Underground Circuits

Underground circuits will be installed within the turbine work spaces and access roads and will not require separate assessment.



Table 2: St. Columban Wind Project - Stage 2 Survey Conditions and Results

Turbine	Work Facilities	Figure	Survey Date	Weather	Topography	Water Sources within 300m	Topsoil Texture & Depth	Ground Prep/ Vegetation	Survey Method	Sites	Recommend's	Plate	Comments
1	AR, T & TA	2-1	19-Nov-10	Partly cloudy	Level and low	Drainage ditch, wet woods	Clay loam	Worked	Pedestrian Survey		Clearance	1	
2	AR, T & TA	2-1	19-Nov-10	Partly cloudy	Level and low	None	Clay loam	Worked	Pedestrian Survey		Clearance	2	
3	AR, T & TA	2-2	18-Nov-10	Light rain	Level, turbine on lowland	Small stream	Clay loam	Worked	Pedestrian Survey		Clearance	3	
	TA		18-Nov-10	Light rain	Level and low	Small stream	Clay loam	Worked	Pedestrian Survey		Clearance	4	
4	AR (left)	2-3	18-Nov-10	Light rain	Level	Channelized stream	Clay loam 20-25cm deep topsoil	Grass & trees	Test Pitting		Clearance	5	
	AR & T		18-Nov-10	Light rain	Level	Channelized stream	Clay loam	Worked	Pedestrian Survey		Clearance	6	
	T & TA		18-Nov-10	Light rain	Level	None	Clay loam	Worked	Pedestrian Survey		Clearance	7	
5	AR	2-4	2-Jun-11	Sun	Level	None	Disturbed	Gravel lane and farm yard	Judgmental Test Pitting		Clearance	23, 24	Test pitting of compacted gravel impossible; lane disturbance confirmed by proxy judgmental test pitting at margins (2011).
	AR, T & TA		18-Nov-10 2-Jun-11	Light rain	Gentle slope, turn-around on level lowland	None	Clay loam	Worked	Pedestrian Survey		Clearance	8 25	Single field. North side of barn surveyed in 2011.
6	AR south of creek	2-5	2-Jun11	Sun	House on rise, lower at road and stream	Stream	Disturbed	Gravel lane	Judgmental Test Pitting		Clearance	26-28	Test pitting of compacted gravel impossible; lane disturbance confirmed by proxy judgmental test pitting at margins (2011).
	AR north of creek		18-Nov-10	Cloudy	Gentle decline to stream	Stream	Disturbed, stoney	Former lane location	Pedestrian Survey		Clearance	28	
	AR, T & TA		18-Nov-10	Cloudy	Wide & shallow stream valley, level uplands	Stream	Clay loam, area north of stream is very stoney	Young winter wheat	Pedestrian Survey		Clearance	9	Stony area may be disturbed by previous gravel extraction and by removal and grading of former barn vicinity
7	AR, T & TA	2-6	18-Nov-10	Light rain	Stream in gentle valley	Channelized stream	Clay loam	Worked	Pedestrian Survey		Clearance	10	
8	AR	2-6	18-Nov-10	Light rain	Level, wide stream swale	None	Clay loam	Worked	Pedestrian Survey		Clearance	11	
	AR, T & TA				Level, wide stream swale	Channelized stream	Clay loam	Worked, corn residue	Pedestrian Survey		Clearance	12	
9	AR, T & TA	2-7	2-Jun-11	Cloudy	Level	None	Disturbed	Barn & berms	Visibly disturbed Judgmental Test pitting		Clearance	29-31	Visibly disturbed to north, south and east of barn. Barn to be removed. Judgmental testing of level area west of barn indicated disturbance (2011).
			19-Nov-10	Sun	Level	None	Clay loam	Worked field	Pedestrian Survey		Clearance	13,14	No evidence of atlas structure in project area.
			2-Jun-11	Sun	Level	None	Clay loam	Young corn	Pedestrian Survey		Clearance	13	
10	AR, T & TA	2-7	19-Nov-10	Cloudy	Level	None	Clay loam	Worked	Pedestrian Survey		Clearance	15	
11&12	AR	2-8	17-Nov-10	Cloudy	Very gently undulating	None	Clay loam	Existing lane, worked field adjacent to lane	Pedestrian Survey		Clearance		
11	AR, T & TA		17-Nov-10	Cloudy	Very gently undulating	None	Clay loam	Worked	Pedestrian Survey		Clearance	16	
12	AR, T & TA		17-Nov-10	Partly cloudy	Gently undulating	None	Clay loam	Worked	Pedestrian Survey		Clearance	17	
13	AR	2-8	18-Nov-10	Partly cloudy	Gently undulating	None	Clay loam	Worked	Pedestrian Survey		Clearance	18	
	AR, T & TA		18-Nov-10	Light rain	Very gently undulating	Channelized stream	Clay loam	Young winter wheat	Pedestrian Survey		Clearance	19	
14	AR south from road and through farmyard	2-9	18-Nov-10 2-Jun-11	Light rain Sun	Very gently undulating	Channelized small stream	Clay loam	Gravel farm lane	None		Clearance	32 33,34	Test pitting of compacted lane impossible; lane disturbance confirmed by proxy judgmental test pitting of margins. Also, proxy pedestrian survey of field margins nearest lane: young wheat field to west (2010) and small worked field south of road to east (2011).
	AR north of creek & south of barns		18-Nov-10 2-Jun-11	Light rain	Very gently undulating	Channelized small stream	Clay loam	Deeply rutted and rocky farm lane	Pedestrian Survey		Clearance	36 35	Proxy pedestrian survey of field margins adjacent to lane: young wheat field to west (2010) and worked field to east (2011).
	AR south of creek		18-Nov-10	Light rain	Level	Channelized small stream	Clay loam	Worked	Pedestrian Survey		Clearance	20	
	AR, T & TA		18-Nov-10	Light rain	Very gently undulating	Channelized small stream	Clay loam	Young winter wheat	Pedestrian Survey		Clearance	21	
15	AR, T & TA	2-10	18-Nov-10	Partly cloudy	North slopes gently to ditch, south part level	Ditch, stream in wet woods	Clay loam	Worked	Pedestrian Survey		Clearance	22	

The project lands are largely cultivated fields assessed by pedestrian survey. Survey conditions were adequate in all locations where pedestrian survey was conducted. Some of the fields had previously been ploughed and weathered (Plate 22). Where fields had been planted, some had sufficient ground surface visibility to allow pedestrian survey (Plate 21). Where surface visibility in winter wheat or un-tilled fields did not meet the MTC minimum visibility standard of 80%, the work spaces were staked, worked, and allowed to weather (Plate 4) (MTC 2011: Section 2.1.1 s.5).

The assessed areas were minimally of the prescribed work space dimensions (see above). Some of the work spaces had been staked and ploughed, and for these areas the assessed area was defined by the ploughing. Where not defined by ploughing, the required turbine and turn-around work space dimensions were squared off, and the assessed areas comprised an inverted L-shape (or its mirror image) comprising a 50 x 165 m (turbine and connector) area “topped” off by a 200 m square turnaround area (cf. Figure 2-7: Turbine 10).

A 10 m wide corridor was assessed for the 6 m wide access route except where the route coincided with existing farm laneways: sections of the access routes to Turbines 5, 6, and 14. These lanes have been heavily used and compacted, and in recent years much gravel has been added to make them suitable for heavy modern farm machinery and trucks. No improvements will be required for their use as project access routes. Due to the highly compacted nature of these roads, it was not possible to assess them by routine test pitting. However, judgmental test pitting was employed along the margins to confirm that the existing lanes are deeply disturbed; all test pits were backfilled upon completion. On the Turbine 14 route between the barns and creek, the lane is less improved, comprising deep rocky ruts (Plate 36) rather than the thick gravel base seen elsewhere. For much of the Turbine 14 route, it was also possible to conduct pedestrian survey on field margins within 1-5 m of the lanes (Plates 32-33, 35-36), and, by proxy, to determine that no cultural remains are present within the access road ROW.

A few small areas were not pedestrian surveyed. One small section of the Turbine 4 access road comprised a grass-covered laneway between two paddocks (Plate 5); this section was assessed by a single line of test pits excavated at 5 m intervals (Figure 2-3); all soil was screened through 6 mm mesh, and the test pits were backfilled upon completion.

The remaining non-pedestrian surveyed areas were visibly disturbed, and these do not warrant further assessment. At Turbine 9, the access road and turbine work space overlap a modern pig barn and its disturbed margin (see Plates 13, 29-31); the barn will be removed prior to the installation of the turbine.

### **3.2 Results**

Stage 2 assessment was completed for all 15 turbine locations (Figure 2). Field conditions and assessment results are detailed in Table 2, and photo-documentation is contained in Section 7.0. No cultural remains were identified.

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

The St. Columban Wind Project is comprised of 15 turbines and associated facilities (Layout 22, revised



November 15, 2010) in the Municipality of Huron East, Huron County, Ontario. Each turbine will include associated permanent access road, turbine work space including permanent crane pad, and temporary turn-around space.

The Stage 1 background research determined that no archaeological sites have been previously registered within two kilometres of the study area. The review of the general physiography and local nineteenth century land use concluded that much of the study area has potential for the identification of Aboriginal and Euro-Canadian archaeological sites.

The modelled potential was compared to existing conditions observed during property inspection. Road rights-of-way and ditch margins are disturbed. Field review confirmed that, while there is potential for Aboriginal and Euro-Canadian archaeological sites in some areas, much of the area is low and level, with drainage facilitated by ditching and field tiling.

Stage 2 property assessment was conducted in November 2010 and in June 2011. No cultural remains were identified.

In light of these results, ASI makes the following recommendations in accordance with the MTC *Standards and Guidelines for Consultant Archaeologists* (2011):

1. No further archaeological assessment is required of the proposed facilities (Layout 22, revised November 15, 2010) (Figure 2); and
2. Should design changes (subsequent to Layout 22, November 15) or temporary work space requirements result in the inclusion of previously unassessed lands where there is potential for sites, these lands should be subjected to Stage 2 property assessment to determine if cultural remains are present.

Notwithstanding the results and recommendations presented in this study, Archaeological Services Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism Culture should be immediately notified.

ASI advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 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 the archaeological sites within the project are of the development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regard to the 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 alternation 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 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 *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the ministry of Consumer Services.

The documentation related to this archaeological assessment will be curated by Archaeological Services Inc. until such a time that arrangements for their ultimate transfer to Her Majesty the Queen in right of Ontario, or other public institution, can be made to the satisfaction of the project owner(s), the Ontario Ministry of Tourism and Culture, and any other legitimate interest groups.

## 5.0 REFERENCES CITED

ASI (Archaeological Services Inc.)

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## 6.0 FIGURES

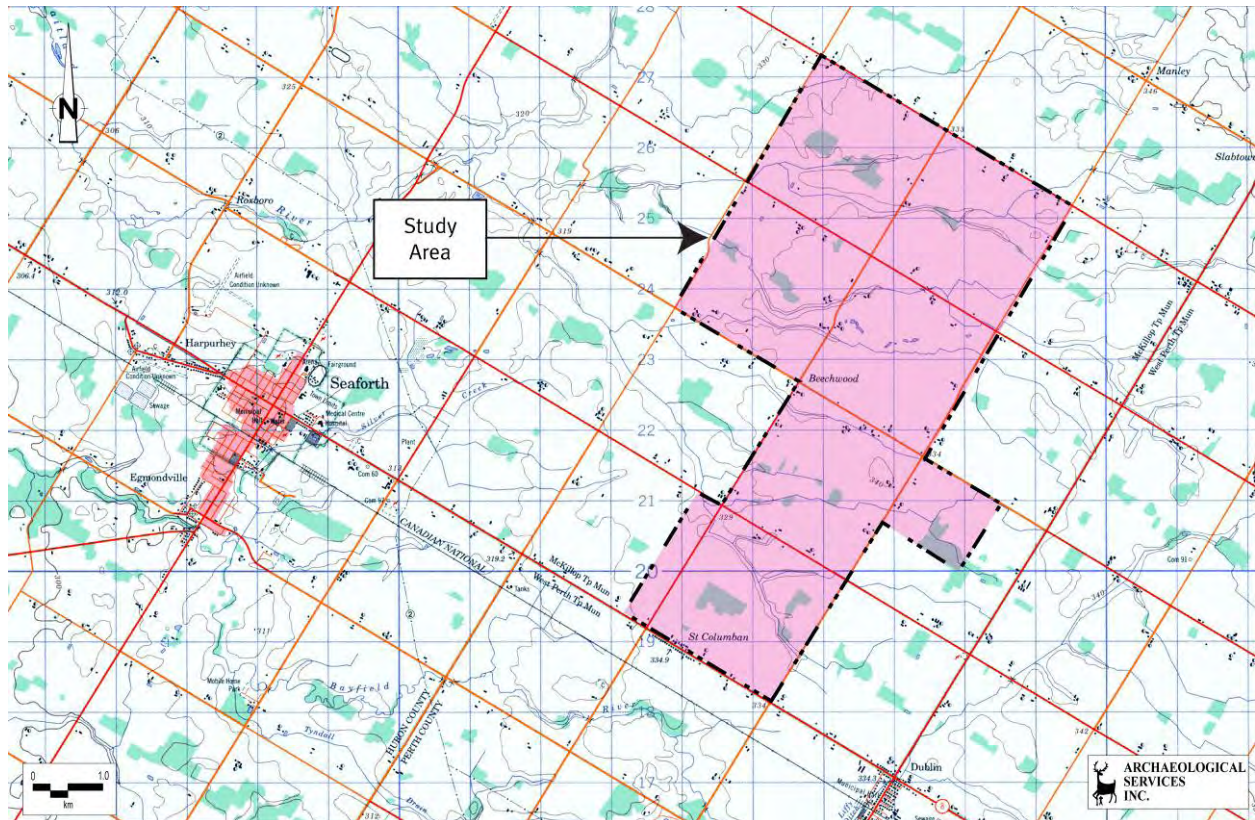


Figure 1: St. Columban Wind Project location (NTS 40P/11, Seaforth)





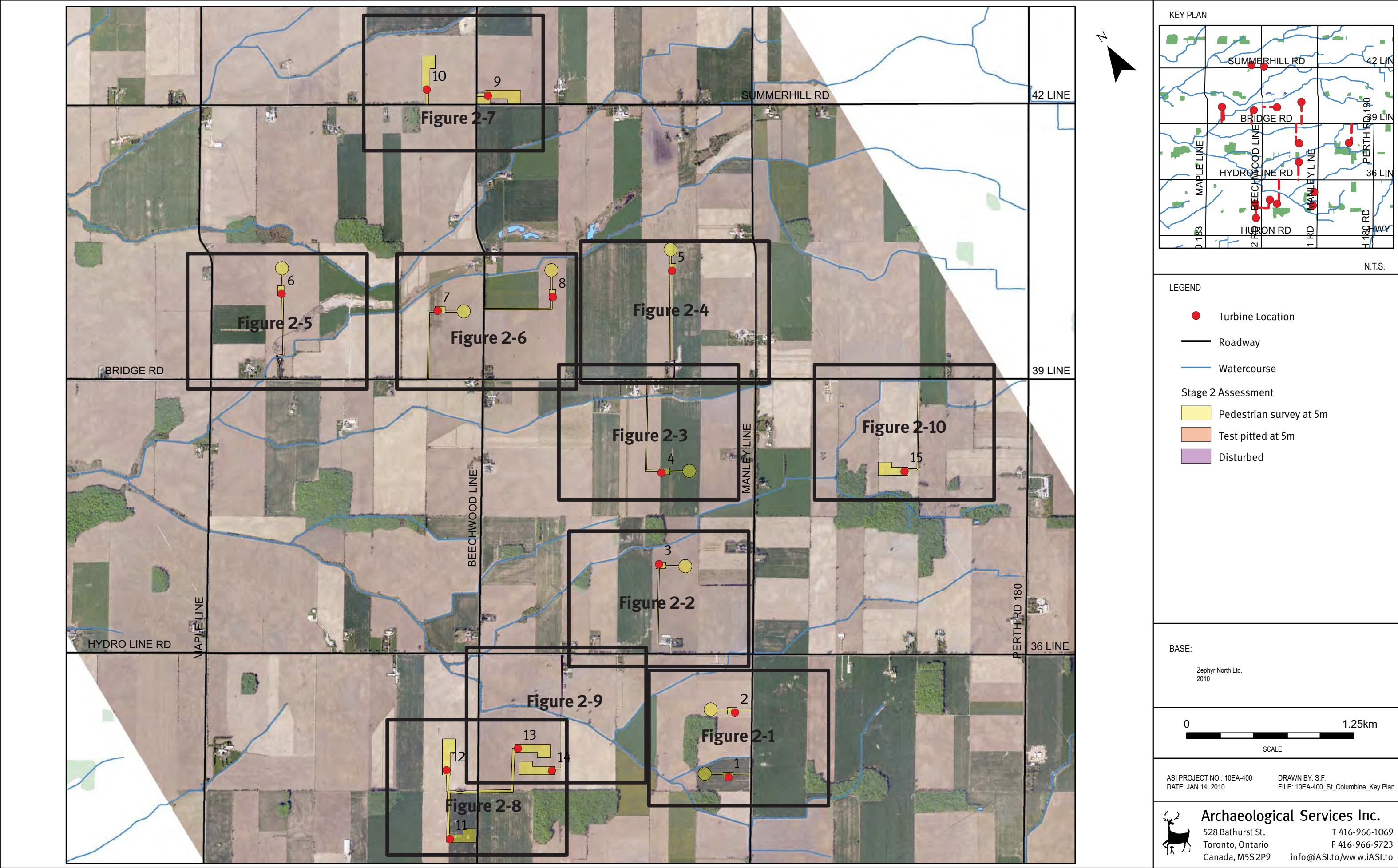


Figure 2-0: St. Columban Wind Project Stage 2 Assessment Results - Key Map









KEY PLAN

N.T.S.

LEGEND

- Turbine Location
- Watercourse
- Stage 2 Assessment
  - Pedestrian survey at 5m
  - Test pitted at 5m
  - Disturbed
  - Photo Location and number

BASE:

Zephyr North Ltd.  
2010

0 250m

SCALE

ASI PROJECT NO.: 10EA-400  
DATE: JAN 18, 2011

DRAWN BY: S.F.  
FILE: 10EA-400\_St\_Columban

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Figure 2-2: St. Columban Wind Project Stage 2 Assessment Results - Turbine 3



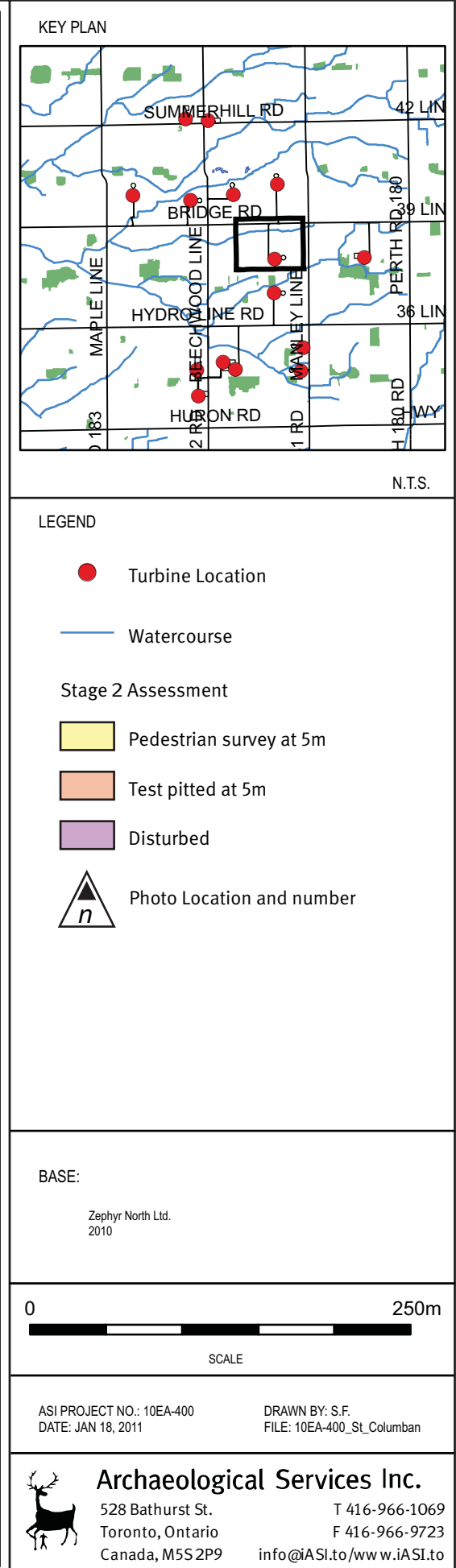
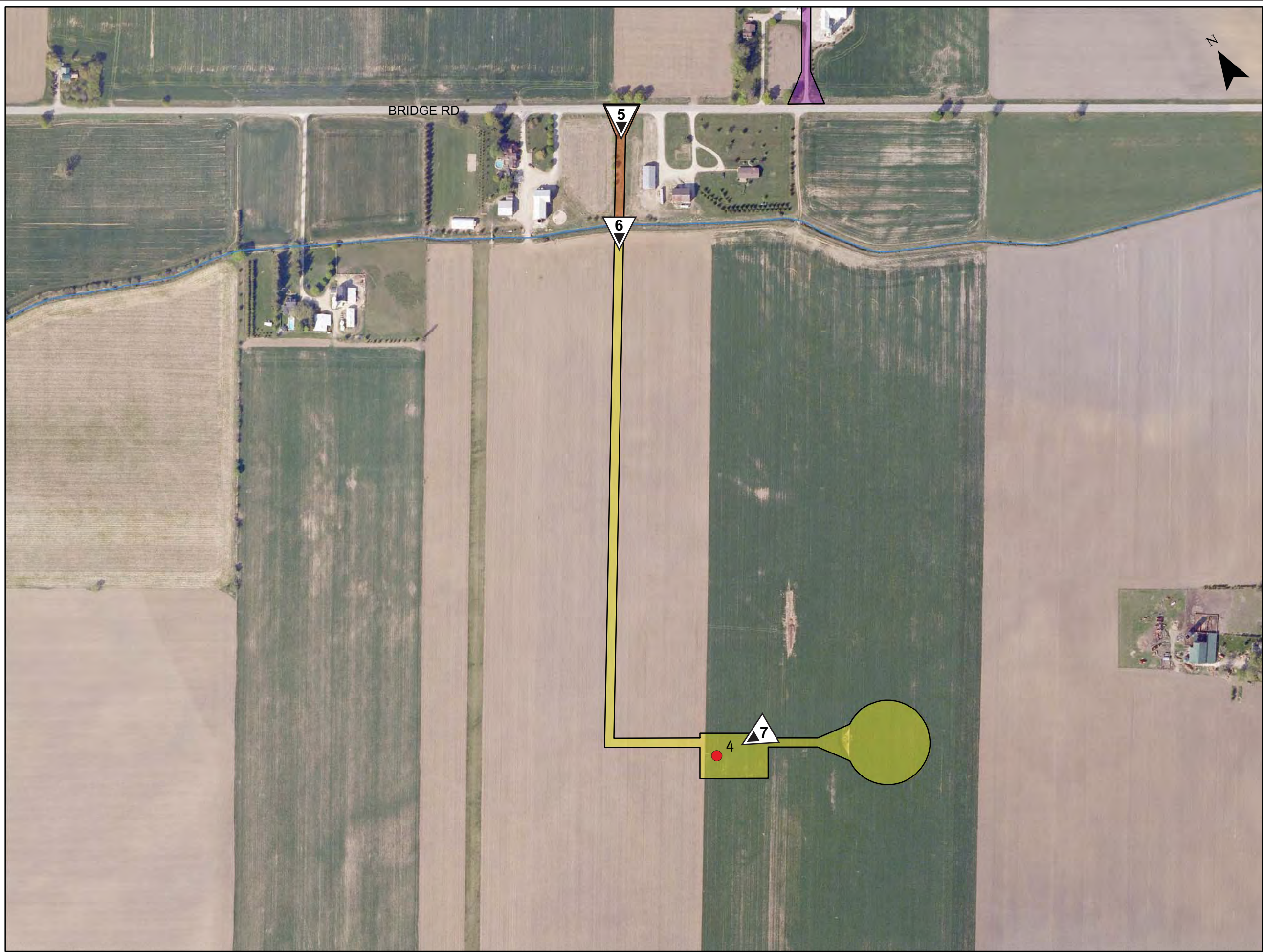


Figure 2-3: St. Columban Wind Project Stage 2 Assessment Results - Turbine 4





KEY PLAN

N.T.S.

LEGEND

- Turbine Location
- Watercourse
- Stage 2 Assessment
  - Pedestrian survey at 5m
  - Test pitted at 5m
  - Disturbed

BASE:

Zephyr North Ltd.  
2010

0 250  
Meters

SCALE

ASI PROJECT NO.: 10EA-400  
DATE: JAN 21, 2011

DRAWN BY: S.F.  
FILE: 10EA-400\_St\_Columban\_t5

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Figure 2-4: St. Columban Wind Project Stage 2 Assessment Results - Turbine 5



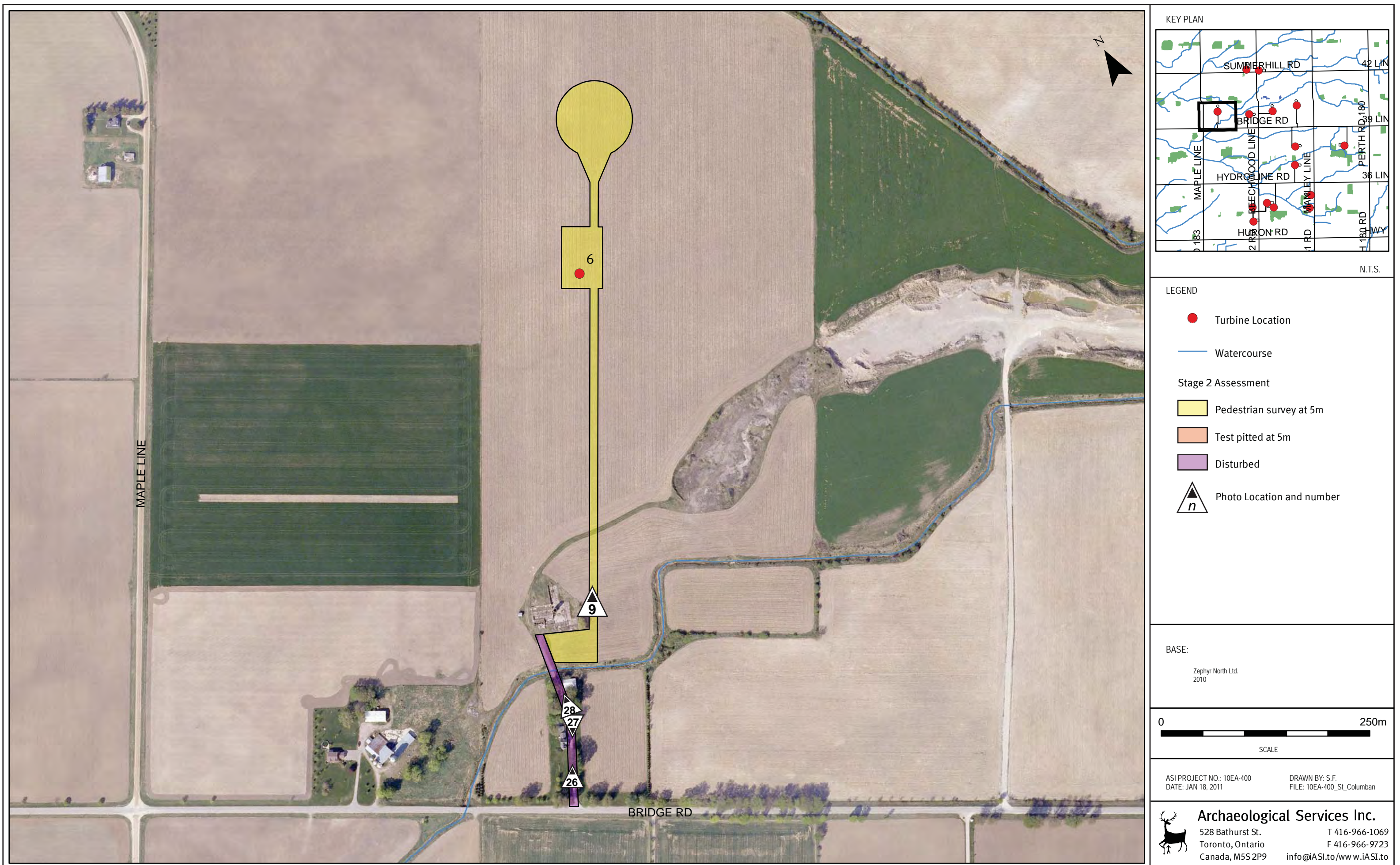


Figure 2-5: St. Columban Wind Project Stage 2 Assessment Results - Turbine 6





Figure 2-6: St. Columban Wind Project Stage 2 Assessment Results - Turbines 7 and 8





Figure 2-7: St. Columban Wind Project Stage 2 Assessment Results - Turbines 9 and 10





Figure 2-8: St. Columban Wind Project Stage 2 Assessment Results - Turbines 1 1, 12, and 13





Figure 2-9: St. Columban Wind Project Stage 2 Assessment Results - Turbine 14







## 7.0 PHOTOGRAPHY



**Plate 1:** View northwest from Manley Line along access road to Turbine 1.



**Plate 2:** View southeast from far end of turn-around toward Turbine 2.



**Plate 3:** View to northeast along access road to Turbine 3, from Hydro Line Road.



**Plate 4:** View to northwest across turn-around toward Turbine 3.



**Plate 5:** View to southwest along access road to Turbine 4. Test-pitted section near Bridge Road.



**Plate 6:** View to southwest along access road to Turbine 4.







**Plate 7:** View to west across Turbine 4 work space.



**Plate 8:** View to northeast across Turbine 5 (stake at right), toward connector to turn-around.



**Plate 9:** View to northeast along access road to Turbine 6.



**Plate 10:** View northeast along access road to Turbine 7 from Bridge Road.



**Plate 11:** View to southeast from Beechwood Line and along access road to Turbine 8.



**Plate 12:** View to northeast across Turbine 8 work space.







**Plate 13:** View to northwest across turn-around toward Turbine 9, at left corner of barn.



**Plate 14:** View to southeast, Turbine 9 stake at far corner of barn (barn to be removed).



**Plate 15:** View to northeast along access road toward Turbine 10.



**Plate 16:** View to east-southeast from Turbine 11 worksite, towards turn-around and Beechwood Line.



**Plate 17:** View to south across Turbine 12 work space.



**Plate 18:** View to southeast from Beechwood Line and along access road toward Turbine 13.







**Plate 19:** View to northeast toward Turbine 13 work space (2010).



**Plate 20:** View to southeast along access road to Turbine 14 (2010).



**Plate 21:** View to northeast toward Turbine 14 work space. Level, low and wet (2010).



**Plate 22:** View to southeast across turn-around and towards Turbine 15. Level terrain (2010).



**Plate 23:** View to northeast, access route to Turbine 5 follows disturbed gravel lane. In background, note silos on left and old barn and huge new barn on right (2011).



**Plate 24:** View to southwest, access route to Turbine 5 coincides with disturbed, graveled area between barn and silos. Disturbance confirmed by judgmental test pitting on margins of graveled areas (2011).







**Plate 25:** View to northwest. Access route to Turbine 6 follows north side of shed where visibly disturbed ground was pedestrian surveyed (2011).



**Plate 26:** View to northeast, access route to Turbine 6 will coincide with disturbed gravel lane. Large trees to east and low ground to west of lane (2011).



**Plate 27:** View to southwest, access route to Turbine 6 follows old disturbed gravel lane. Judgmental test pits on lane margin confirmed disturbance (2011).



**Plate 28:** View to north, access route to Turbine 6 follows old gravel lane past outbuildings, and across stream to old barn site. Lane is disturbed (2011).



**Plate 29:** View to southeast along access route to Turbine 9. Visibly disturbed & graded barn margins include a well, earth berms, etc. (2011).



**Plate 30:** View to southeast toward the proposed location of Turbine 9. Where not visibly disturbed, judgmental test pits confirmed disturbance (2011).







**Plate 31:** View to southwest, visibly disturbed mounded soil at east end of barn (2011). Adjacent field was pedestrian surveyed in 2010.



**Plate 32:** View to southwest, pedestrian survey of edge of field closest to disturbed gravel lane (2010).



**Plate 33:** View to southwest, access route to Turbine 14 will follow disturbed gravel lane. Field surface to east of lane was pedestrian surveyed (2011).



**Plate 34:** View to southwest, access route to Turbine 14 coincides with old gravel lane. Lane disturbance confirmed by judgmental test pits at margins (2011).



**Plate 35:** View to southwest, access route to Turbine 14 coincides with grass-edged ruts (at right). Field edge east of lane was pedestrian surveyed in 2011.



**Plate 36:** View to northeast along access route to Turbine 14 on deeply rutted farm lane. Field margin to west of lane was pedestrian surveyed in 2010.

