



# Highway 407 East: Archaeological Heritage

## Collaborative and Innovative Heritage Impact Assessment for Highway 407 East: **Archaeology**, Built Heritage, Cultural Landscapes



### Highway 407 East

Ontario's publicly owned toll highway

Highway 407 East



PROJECT INFO ▼

PROPERTY

COMMUNITY CONSULTATION ▼

CONTACT US



**Ontario Association for Impact Assessment  
2014 Annual Conference: Collaboration and Innovation in Impact Assessment**

***Session Title: Collaborative and Innovative Heritage Impact Assessment for Highway 407 East: Archaeology, Built Heritage, Cultural Landscapes***

***Session Organizers: Dr. Robert MacDonald & Dr. Joel Konrad, Archaeological Services Inc.***

***Session Participants: Mr. Winston Wong and Dr. Jeff Seibert (Ontario Ministry of Transportation); Ms. Emily Kszan (Heritage Research and Design)***

***Session Abstract:***

The easterly extension of Highway 407 from Brock Road to Highway 35/115 in south-central Ontario, including two ten-kilometre links to Highway 401, represents a potential impact footprint of roughly 33 square kilometres. From the beginning of the environmental assessment process in 2005 through two post-EA assignments, the ASI team of heritage professionals has grappled with the entire range of heritage resources—both above and below ground—spread across 70 kilometres of right-of-way and involving many hundreds of land parcels. This has required innovation in all aspects of the project, from GIS tracking of thousands of archaeological survey units to the salvage of architectural materials. It has also required collaboration with an array of interested parties and stakeholders, including our MTO client, lead and other consulting team participants, municipal officials, representatives from other provincial ministries and agencies, First Nations, and interested members of the general public. With the assistance of some of these collaborators, this session will highlight some of the key areas where collaboration and innovation were crucial to the successful mitigation of impacts to heritage resources along the Highway 407 East corridor.

***Presentation #2: Archaeological Heritage Management***

***Presenter: Robert MacDonald (ASI)***

***Abstract:***

For the last decade, ASI has been involved in the impact assessment of Highway 407 East with respect to archaeological heritage. It is arguably the largest and most complex archaeological assessment and mitigation project ever undertaken in the Province of Ontario. From our perspective, the primary factor responsible for the on-going success of this fundamentally collaborative enterprise has been the high level of professionalism, competence, and collegiality of the people involved, including the MTO project team, officials at the Ministry of Tourism, Culture and Sport, First Nations representatives, the lead consultants and our fellow sub-consultants, our project service providers, and of course the members of our own team. This has fostered a focussed work environment where innovative technological and methodological solutions could be successfully implemented and where challenges could be met with confidence. Examples of successful collaboration and innovation are highlighted in this presentation, including the implementation of GIS-based parcel assessment tracking, harmonization with on-going farming activities, engagement with First Nations, coordination with Species at Risk protocols, accommodation of public interests and concerns, organization of the processing, analysis, and curation of vast quantities of artifacts, and management of administration and work flow capacity and efficiency.

## **SLIDE 1: TITLE**

## **SLIDE 2: OVERVIEW MAP**

Since 2005, Archaeological Services Inc. has been involved in the impact assessment of Highway 407 East with respect to archaeological heritage resources, and since 2010 we have been working as sub-consultants to Parsons, formerly Delcan, in conjunction with LGL completing commitments made by the Ministry of Transportation (MTO) during the Individual Environmental Assessment (IEA) phase of the project.

## **SLIDE 3: ARCHAEOLOGICAL POTENTIAL MAP**

Modeling of archaeological potential, carried out during the initial stages of the IEA, suggested high probability for encountering as-yet undocumented archaeological sites throughout the EA study area. While some sites had been previously registered, both by avocational archaeologists and by professional archaeologists in the course of other impact assessment projects, the majority of the study area had not been systematically surveyed in the past.

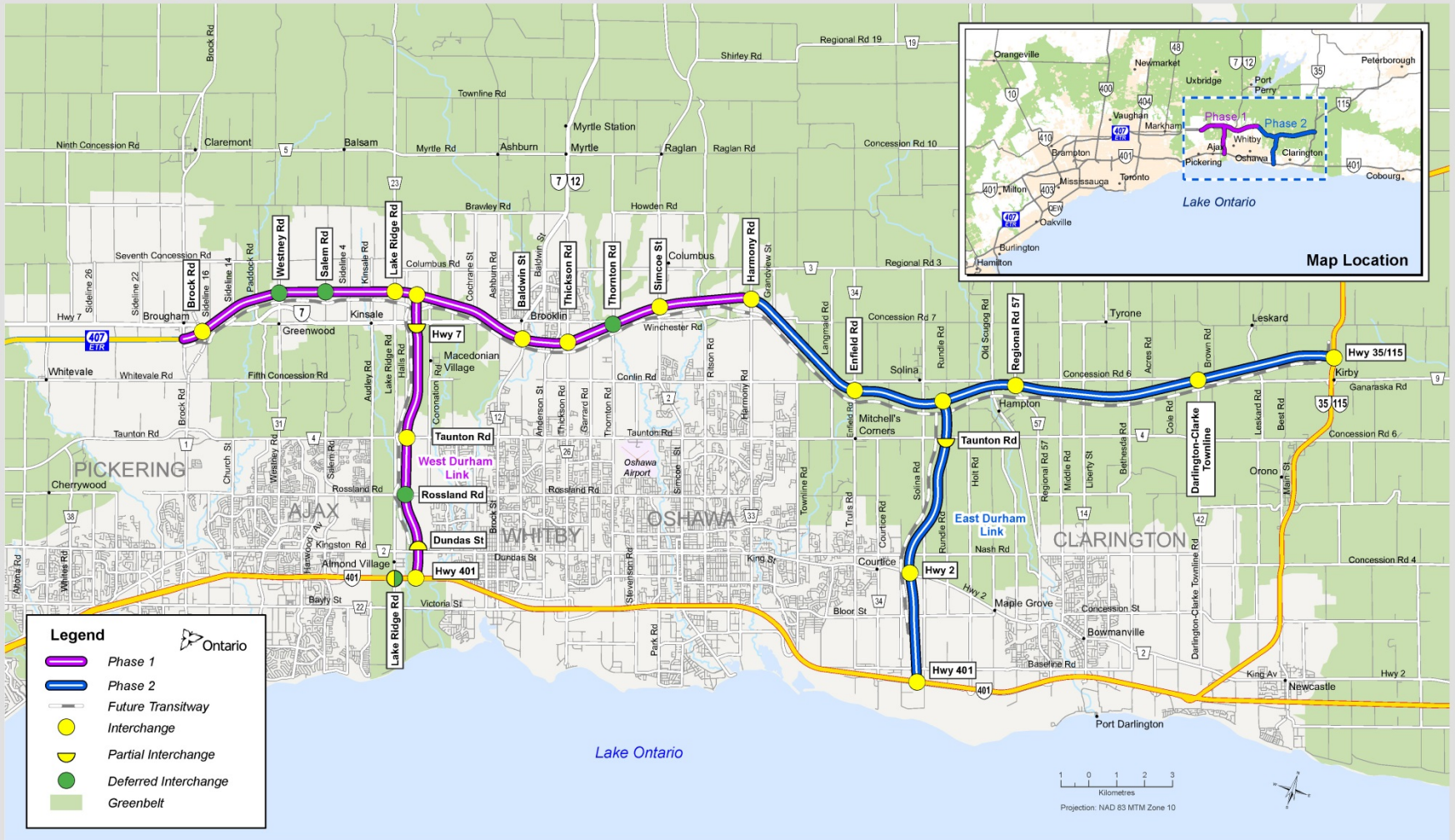
## **SLIDE 4: 407 TPR/ DEB PIHL**

By 2008, a Technically Preferred Route had been adopted and Stage 2 archaeological assessment began. Given the vast scope of the project, the corridor was initially subdivided into a western, central, and eastern mainline as well as eastern and western links to Highway 401. Responsibility for assessments of the western mainline and West Durham Link was awarded to URS Canada. The remainder, as well as responsibility for technical oversight, was awarded to ASI. Thus began one of the many collaborative exercises which have characterized this project.



# Highway 407 East: Archaeological Heritage

## Highway 407 East



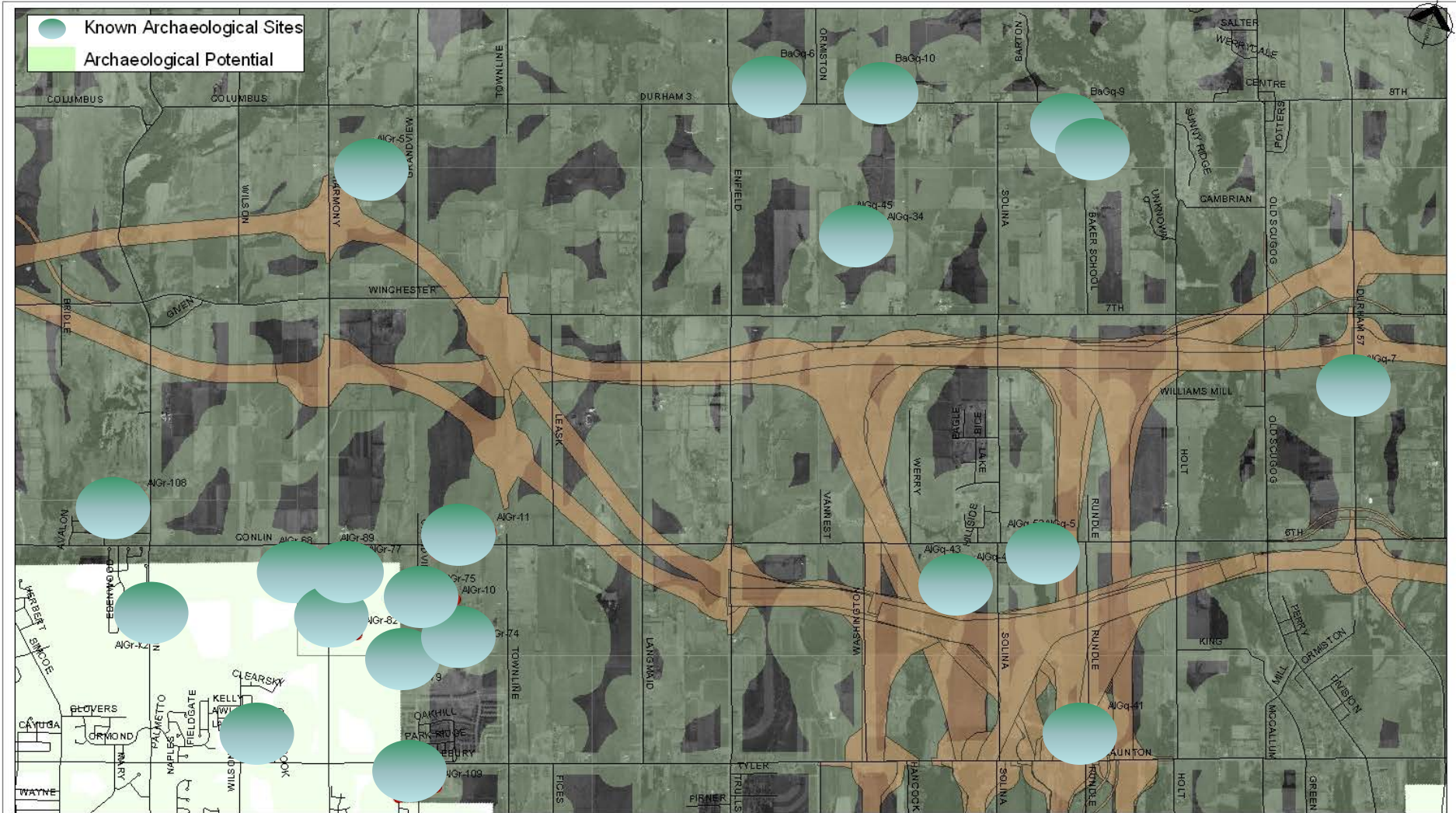
This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Transportation (MTO) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.



Sources: Ministry of Transportation Land Information Ontario

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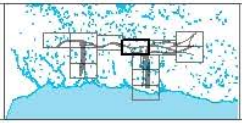
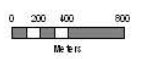
# Highway 407 East: Archaeological Heritage



 Known Archaeological Sites  
 Archaeological Potential



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ONTARIO STREET  
 MAPS, ONTARIO  
 1:50,000  
 DATE: 2006-08-01  
 SOURCE: ONTARIO STREET  
 MAPS, ONTARIO

CLIENT:  


DRAWN BY:  
 CHECKED BY:  
 DESIGNED BY:  
 DATE: 1:33,022  
 DATE: AUG - 07

PROJECT:  
 407 EAST ENVIRONMENTAL ASSESSMENT  
 MAP:  
 FUNCTIONAL DESIGN PLANS  
 Archaeological Constraints Mapping

PROJECT NO.:  
 42-80390A  
 PLATE NO.:  
**M04**



# Highway 407 East: Archaeological Heritage

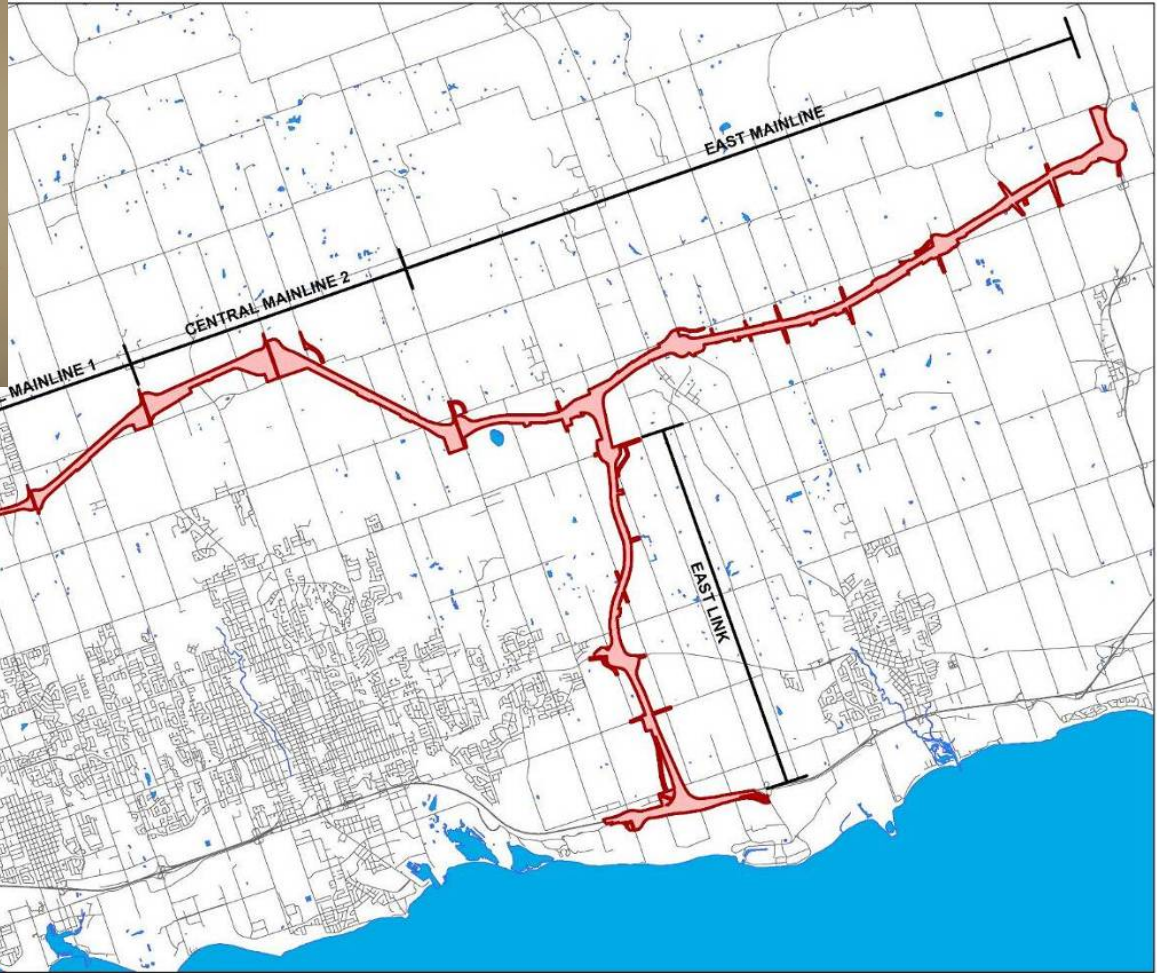





FIG. 1 407 EAST - TECHNICALLY PREFERRED ROUTE

Erin King



 407 Extension Boundary

 Primary Water Sources

 Roads

407 EAST EA	
0 2 4 6	
Kilometers	
DATE: Jun 20, 2008	FILE: 07EA-272_TPR_Fig1

In the interest of efficiency, it was decided that ASI would compile a joint Stage 2 assessment report and that URS would provide the necessary input from their portion of the study area in a mutually agreed upon standardized format. This work was supervised by Deborah Pihl, who has been our Stage 2 Project Manager and principle Stage 2 technical writer since 2005. As the Ministry of Tourism, Culture and Sport would be reviewing the reports, both for purposes of archaeological licensing review and to provide the Ministries of Transportation and Environment with the necessary technical oversight, a preliminary meeting with all involved parties served to lay the groundwork for procedures and expectations. During the EA phase, the volume of work being reported upon, and the need for rapid review by MTO and MTCS, led to the innovation of a monthly reporting process, the products of which were later compiled into an annual report.

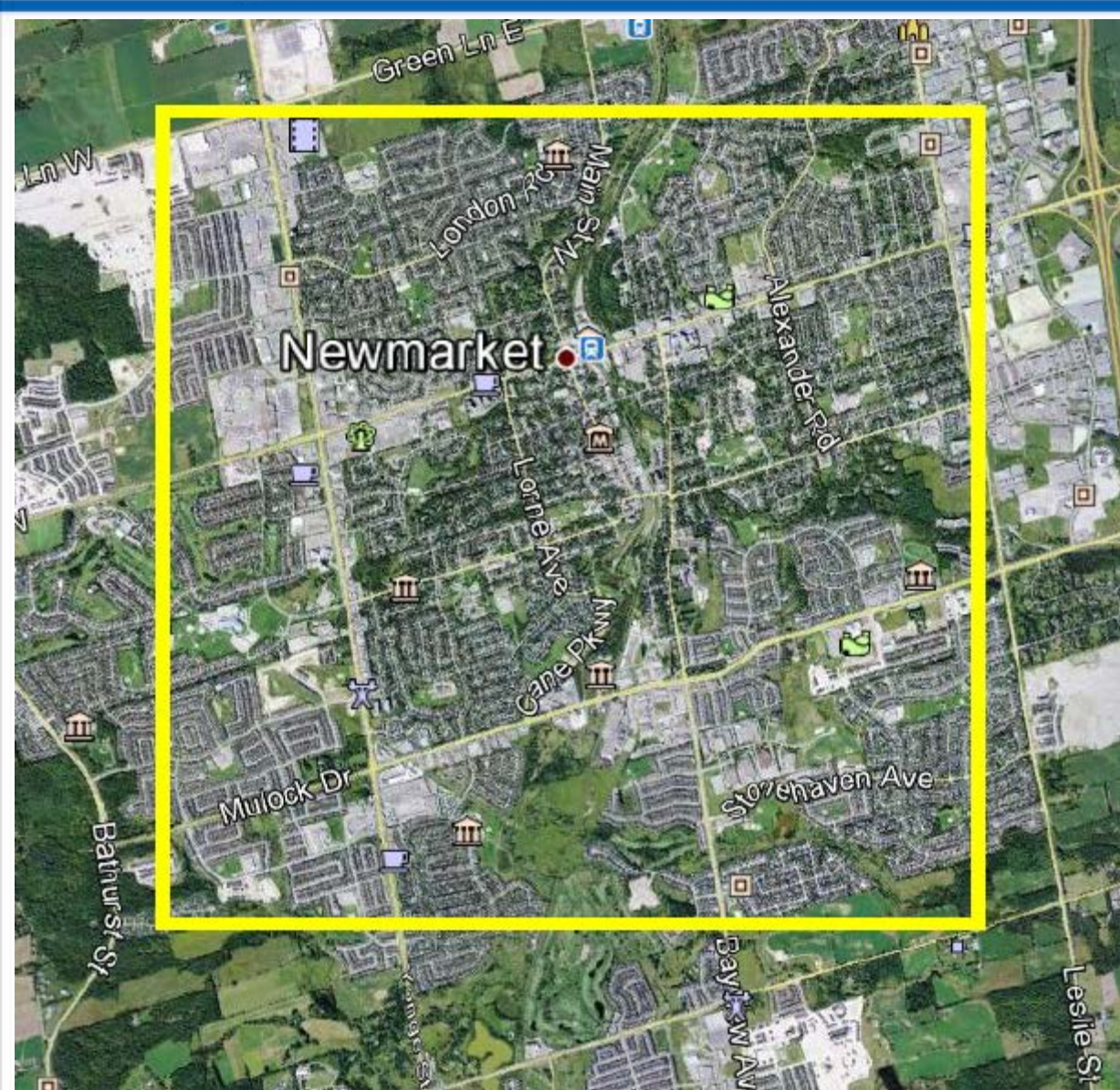
In 2010, after approval of the EA and the transition to the post-EA follow-up phase of the project, ASI assumed responsibility for all MTO-led archaeological work as sub-consultants to Parsons. This work focussed initially on the western portion, designated as Phase One and now under construction, and after 2012 on the eastern portion designated Phase Two. During this interval, and especially after the implementation of new reporting standards and guidelines for consultant archaeologists by MTCS in 2011, single annual Stage 2 reports became the norm.

**SLIDE 5: STAGE 2 FOOTPRINT – NEWMARKET**

The unprecedented scope and complexity of the Stage 2 archaeological assessment presented many other logistical challenges as well. The Project Area, which includes both the highway corridor as well as adjacent lands required for other purposes,



# Highway 407 East: Archaeological Heritage



## 407 Study Area

- >3300 ha
- >33 sq. km.

Stage 2 report for  
2012 ~350 pages



traverses over 6,000 individual land parcels. The footprint of the impact zone is roughly 33 square kilometres, nearly the size of a small city such as Newmarket, Cambridge, or Peterborough.

#### **SLIDE 6: SURVEY UNITS**

For purposes of Stage 2 archaeological assessment, this area had to be subdivided into over 3,000 individual survey units based on physical criteria of the landscape.

#### **SLIDE 7: STAGE 2 PEDESTRIAN SURVEY**

One category was agricultural lands which could be cultivated for purposes of pedestrian survey of ploughed fields.

#### **SLIDE 8: STAGE 2 STP SURVEY**

Another category was woodlots and other non-agricultural land which required survey by manual shovel test-pitting and screening. A third category was land which lacked archaeological integrity due to previous land development activities, such as aggregate pits.

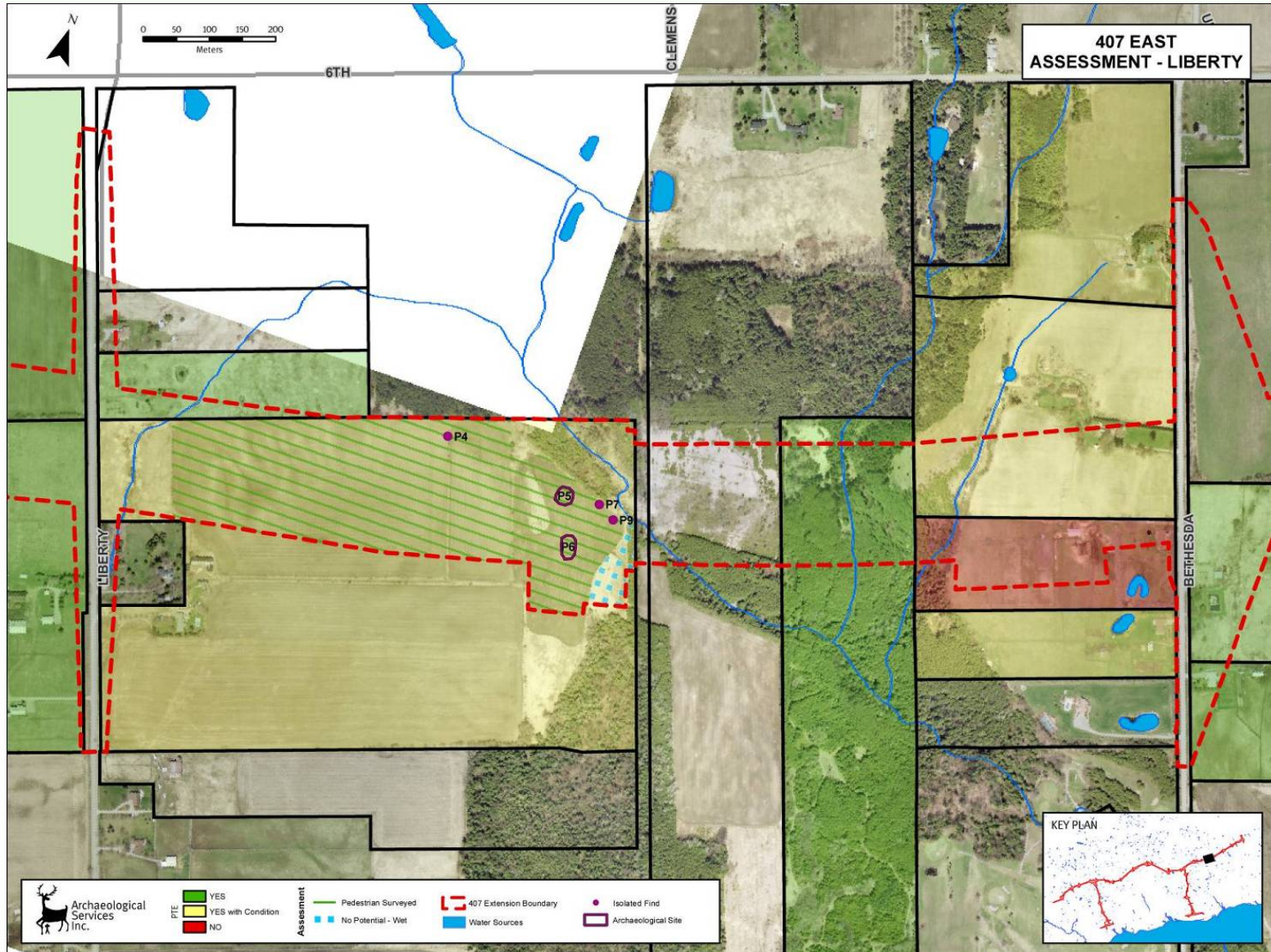
#### **SLIDE 9: GIS**

Not only were we required to identify and track the assessment status of several thousand survey units, and provide MTO with fortnightly updates, but we also had to track permission to enter status for each, schedule and track a survey docket for multiple field crews, coordinate our on-site activities with owners, tenant farmers and our own ploughing contractor, cross reference archaeological and built heritage resources, and map all archaeological resources found.

#### **SLIDE 10: OTHER FIELDWORK ACTIVITIES**

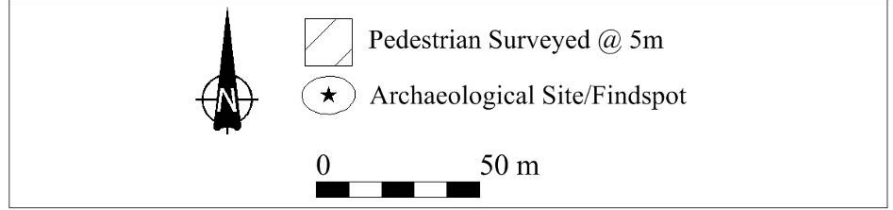
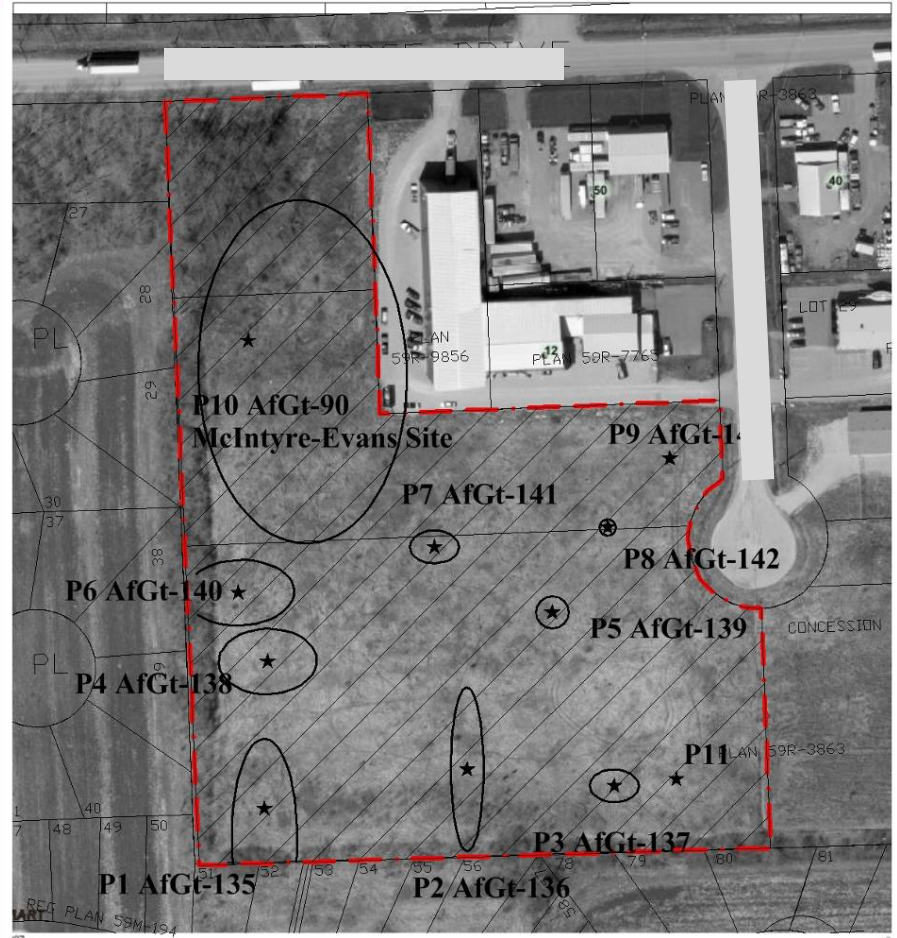


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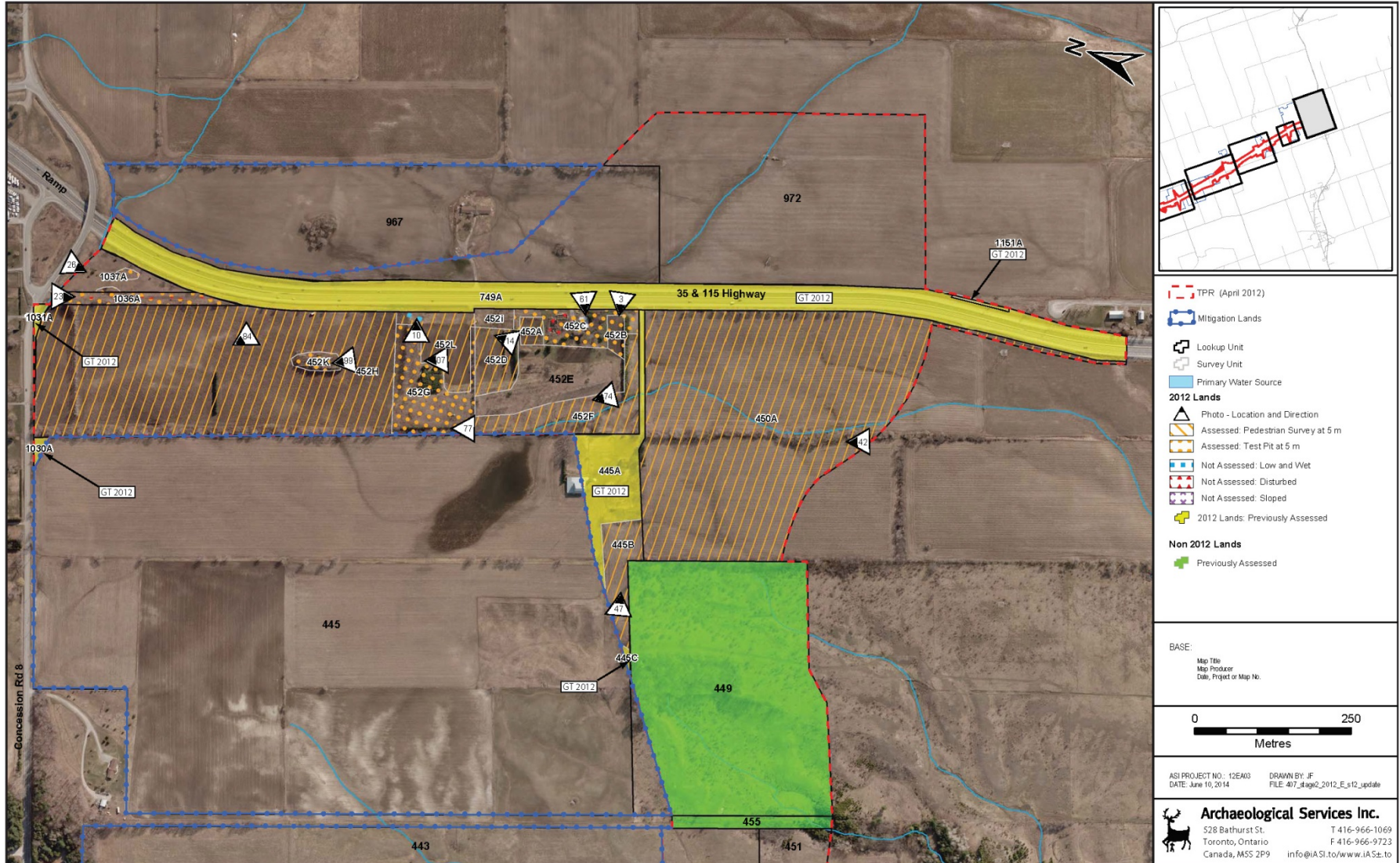


Figure 19: 407 East, Phase Two, 2012 Stage 2 - E30 east (Best) and E31 (Hwy 115/35)



# Highway 407 East: Archaeological Heritage

## Other Fieldwork Activities

Environmental investigations are continuing to provide a better understanding of the sensitivities and significance of environmental features as well as fulfill Environmental Assessment commitments.

It will also provide specific input during the design process.

On-going Fieldwork	
Archaeology	Stream monitoring
Built heritage	Pilot projects for Stormwater management plan
Test pitting and borehole drilling	Well water surveys
Natural sciences (vegetation, fisheries and wildlife)	Waste and contamination
Species at Risk applications	Air quality, noise and vibration



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We also had to coordinate our survey activities with the needs of other consultants and agencies, such as geotechnical consultants wanting to place boreholes, ecological consultants needing us to accommodate species at risk, or Hydro One Networks Inc. needing us to assess new tower sites. Undoubtedly, the tool which allowed all of this to happen quickly and efficiently was the collaborative project geographical information system. Each member of the consultant team maintained their own components on an ESRI ArcGIS platform and shared data with each other and MTO through the umbrella GIS maintained by the prime consultant.

#### **SLIDE 11: GEOMATICS DEPARTMENT**

From the outset, ASI has had a dedicated GIS technician, Jonas Fernandez, assigned to the 407 project, with backup from the other members of our Geomatics Department. He has been responsible for acquiring and maintaining up-dated base information received from MTO through the prime consultant, coordinating the regular sharing of GIS data through the prime consultant with all members of the consultant team, compiling field data in order to up-date and maintaining our own GIS data, regularly exporting data summaries and field maps to ASI project managers,. . .

#### **SLIDE 12: EH14 ORTHO-MAP**

providing detailed and summary mapping for all reports, and submitting up-dates of GIS data to MTO. Much of this is done on a fortnightly cycle synchronized in order to meet our on-going obligation to MTO for regularly up-dated deliverables, including status reports and GIS data.

#### **SLIDE 13: EXCEL STATUS REPORT**



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Figure 16: 407 East, 2012 Phase 2 Results - Site Location of Site East H14 (BaGp-40)

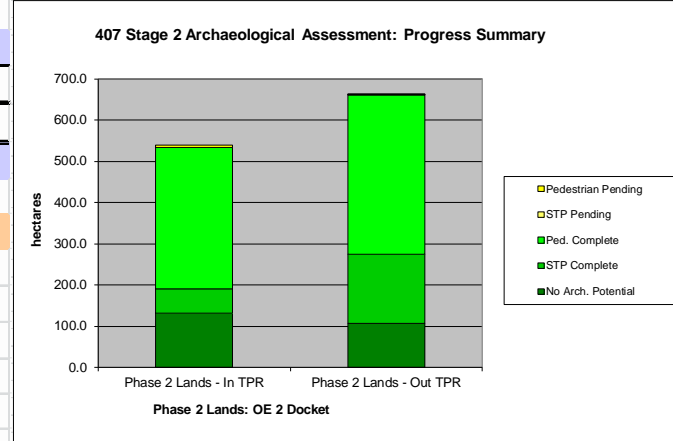
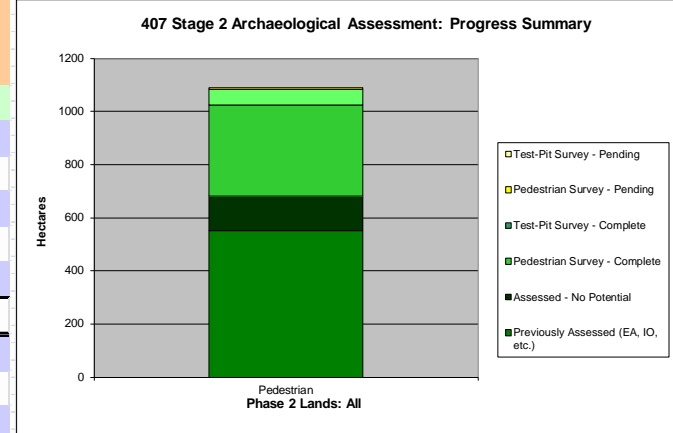


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**407 OE2 - Stage 2 Archaeological Assessment Status** 19-Jun-14

2014 Field Season - WO 9/9B

	Section	Hectares	Estimated Crew Days	Study Area Complete (%)	Study Area Pending (%)
<b>In TPR</b>	Total OE2 Survey Area	1202			
	Pedestrian Survey - Complete	342		28.4%	
	Pedestrian Survey - Pending	6	1		0.5%
	Test-Pit Survey - Complete	60		5.0%	
	Test-Pit Survey - Pending	0	0		0.0%
	Assessed - No Potential	132		11.0%	
		<b>540</b>		<b>44.4%</b>	<b>0.5%</b>
<b>Outside TPR</b>	Pedestrian Survey - Complete	387		32.2%	
	Pedestrian Survey - Pending	1	0		0.1%
	Test-Pit Survey - Complete	166		13.8%	
	Test-Pit Survey - Pending	1	1		0.1%
	Assessed - No Potential	108		8.9%	
		<b>663</b>		<b>54.9%</b>	<b>0.2%</b>
		<b>1202</b>	<b>2</b>	<b>99.3%</b>	<b>0.7%</b>
	Previously Assessed (EA, IO, etc.)	550			
	<b>Total Phase 2 Lands</b>	<b>1752</b>		<b>99.5%</b>	<b>0.5%</b>
	<b>Ploughing - PTA Available</b>				
	Ploughing - PTA Available	8			
	Ploughing - PTA Not Available	0			
	<b>Total Ploughing</b>	<b>8</b>			
	<b>Test-Pit Survey - PTA Available</b>				
	Test-Pit Survey - PTA Available	1			
	Test-Pit Survey - PTA Not Available	0			
		1			



The interoperability of the GIS has also facilitated the routine generation of very detailed status reports from Microsoft Excel, providing ASI, Parsons, MTO, and Infrastructure Ontario project managers with precise snapshots of Stage 2 archaeological assessment progress every two weeks. This has helped to quickly flag issues creating bottlenecks, such as lack of permissions to enter, scheduling conflicts with on-going farming, delays in contract ploughing and weathering of agricultural fields, and seasonal weather and field condition constraints.

#### **SLIDE 14: STAGE 2 CREW PHOTOS**

One of the most complex aspects of the project has been the scoping and scaling of field crew capacity. Each crew of four to six field technicians is led by a licensed Field Director. With often over thirty people engaged in archaeological fieldwork at any one time, the logistical challenges have been considerable. The assignment of a senior Field Director to the position of Fieldwork Coordinator provided the middle management solution. This person not only made and tracked crew assignments on a daily basis, but also served as a liaison between Field Directors and various key project staff, including Project Managers, the Geomatics Department, and the Laboratory Services Department. Through regular reconnaissance of the project area, they kept tabs on areas ready for survey, field conditions, and the activities of our ploughing contractor. They also provided technical and logistical support to Field Directors, and served as a senior ASI representative on the ground, available to meet with other members of the consultant team, MTO staff, personnel from other agencies, and the general public.

#### **SLIDE 15: STAGE 4 CREW PHOTOS**



# Highway 407 East: Archaeological Heritage





# Highway 407 East: Archaeological Heritage



In addition to Stage 2 archaeological assessment of the vast project area, Stage 3 assessment of known and newly discovered archaeological sites was another major component of the project, as was Stage 4 salvage excavation of many sites. Under the leadership of Stages 3 & 4 Project Manager, Sara Cherubin, the concurrent execution of Stages 2, 3, and 4 work afforded us the opportunity of allocating crews strategically in order to best meet MTO priorities and mitigate various logistical constraints. So, for example, when parcels ready for Stage 2 assessment were in short supply, one or more crews were assigned to archaeological sites where Stage 3 assessment was required. This would give them a base of operations from which they could deploy occasionally as needed to do a Stage 2 assessment of a newly available parcel, often only requiring a few hours of their time. Similarly, for larger shovel test-pit surveys, sometimes requiring many days, crews were often merged in order to expedite the process and help maintain crew morale. This constant ebb and flow of personnel was constantly monitored by the Fieldwork Coordinator in consultation with the project management team.

**SLIDE 16: PHASE 1 MINDMAP**

More than two hundred archaeological sites and find spots have been documented, with over 80 historic Euro-Canadian sites and 25 pre-contact Aboriginal sites recommended for Stage 3 archaeological assessment. Of these, roughly half have subsequently proceeded to Stage 4 salvage excavation on the basis of Stage 3 assessment results, which determined that the site exhibited cultural heritage value or interest.

**SLIDE 17: PHASE 2 MINDMAP**



# Highway 407 East: Archaeological Heritage

## Legend

- Fieldwork Status**
  - Ready to Go
  - Needs Ploughing
  - CSP Completed
  - No Go
  - On Hold
  - In Progress
  - Problem
  - Estimated Crew Days
- Lab Work Status**
  - Processing in Progress
  - Processing Complete
  - Analysis in Progress
  - Analysis Complete
  - Boxes/Bags
- Report Progress**
  - In Progress
  - Completed: in ASI Review
  - Completed: in MTO Review
  - Completed: in MTCS Review
  - Completed: MTCS Accepted
- Other Symbols**
  - EAR Retainer Project
  - PER = Preliminary Excavation Report
- Recommendation**
  - Stage 4
  - No Further Work
- Work Order**
  - EA WO
  - OE1 WO 2/A
  - OE1 WO 2B
  - OE1 WO 2C
  - OE1 WO 2D
  - OE1 WO 2E
  - Project Co/407 EDG
  - see OE2

## 407 OE1 Stages 3 & 4 Archaeology

Status to: 02OCT14

### Stage 3 Archaeological Assessment

#### Completed - Stage 4 Recommended

- CP5 (AIGr-200)
- WLP3 (AIGr-222)
- WP11 Joseph Picard (AIGs-376)
- CH7 Daniel Holliday (AIGr-198)
- CH9 Beall (AIGr-209)
- CH10 DeLong I (AIGr-139)
- CH12 Wilcoxon Tavern (AIGr-210)
- CH13 Thomas Moore (AIGr-208)
- CH14 Elisha Doolittle (AIGr-271)
- WH1 Wing Rogers (AIGs-377)
- WH4 Turkingham (AIGr-193)
- WH5 Noble Stevenson I (AIGs-440)
- WH6 James Young (AIGr-191)
- WH11 Wilson Tenant (AIGr-194)
- WH17 John Campbell (AIGr-188)
- WH22 Robert Winspear (AIGr-220)
- WH24 Thomas Stevenson I (AIGs-387)
- WH34 Stephenson (west) (AIGs-336)
- WH37 William Graham (AIGs-427)
- WH39 Daniel Griffin (AIGr-264)
- WH40 Mrs. Mackie (AIGs-375)
- WH41 David Reed (AIGr-265)
- WH43 Redman Family (AIGr-266)
- WH44 Thomas Redman Cabin (AIGr-267)
- WH45 Robert Spears (AIGr-268)

#### Completed - No Further Work Recommended

- AMA TP1 (AIGr-306)
- AMA TP2 (AIGr-307)
- CP9 (AIGr-196)
- CP18 (AIGr-300)
- WP3 (AIGr-187)
- WP4 (AIGs-373)
- WP5 (AIGs-374)
- WP6 (AIGs-436)
- WP10 (AIGr-204)
- WLP13 (AIGs-430)
- WP21 (AIGs-428)
- WLP1 (AIGr-221)
- WLP13 George McGillivray (AIGs-407)
- CH11 John Miller (AIGr-211)
- WH3 Wm. Graham (AIGs-386)
- WH8 James Wilson (AIGr-192)
- WH13 Isaac Orvis (AIGr-190)
- WH23 Thomas Stevenson II (AIGs-388)
- WH27 (AIGs-429)
- WH28 Noble Stevenson II (AIGs-433)
- WH30 Conkell (AIGs-426)
- WH38 (AIGr-263)
- Almond Village Cemetery

### Stage 3 Site Tallies:

- Euro-Canadian:
  - WO 2 = 13
  - WO 2B = 14
  - WO 2C = 2
  - EA (AECOM) = 3
  - Sub-total = 32
- Aboriginal:
  - WO 2 = 8
  - WO 2B = 2
  - WO 2C = 2
  - WO 2E = 2
  - Sub-total = 14
- Total=44

### Stage 4 Salvage Excavation

#### Fieldwork: 407 EDG (West)

- WH1 Wing Rogers (AIGs-377)
- WH4 Turkingham (AIGr-193)
- WH5 Noble Stevenson I (AIGs-440)
- WH6 James Young (AIGr-191)
- WH11 Wilson Tenant (AIGr-194)
- WH17 John Campbell (AIGr-188)
- WH22 Robert Winspear (AIGr-220)
- WH24 Thomas Stevenson I (AIGs-387)
- WH37 William Graham (AIGs-427)
- WH39 Daniel Griffin (AIGr-264)
- WH40 Mrs. Mackie (AIGs-375)
- WH41 David Reed (AIGr-265)
- WH43 Redman Family (AIGr-266)
- WH44 Thomas Redman Cabin (AIGr-267)
- WH45 Robert Spears (AIGr-268)

#### Fieldwork: 407 EDG (Central)

- CH7 Daniel Holliday (AIGr-198)
- CH9 Beall (AIGr-209)
- CH10 DeLong I (AIGr-139)
- CH12 Wilcoxon Tavern (AIGr-210)
- CH13 Thomas Moore (AIGr-208)
- CH14 Elisha Doolittle (AIGr-271)

#### Lab

- WLP11 Joseph Picard (AIGs-376)

#### Report

- WLP11 Joseph Picard (AIGs-376) 31DEC14
- WH34 Stephenson (AIGs-336)

#### Completed - NFW Recommended

- CP5 (AIGr-200)
- Peter Webb I (AIGs-78)
- WLP3 (AIGr-222) PER
- WH34 Stephenson (AIGs-336) (PER)
- AMA TP8 (AIGr-150)
- AMA TP12 (AIGr-154)





While more than half of the historic Euro-Canadian sites have been assigned to other archaeological consultants for Stage 4 mitigation, MTO has assigned responsibility for all Stage 3 assessment and Stage 4 mitigation of Aboriginal sites to ASI.

**SLIDE 18: WLP3 SITE W/ MANDY MCGONIGLE**

In accordance with MTCS licensing provisions under the 2011 Standards and Guidelines for Consultant Archaeologists, ASI has undertaken a program of engagement with First Nations for all pre-contact Aboriginal sites recommended for archaeological investigation beyond Stage 2. This program has been conducted in concert with MTO's on-going program of First Nations consultation, and has involved participation in a series of meetings and events with representatives of various involved First Nations as well as the engagement of First Nations archaeological liaisons who work as adjunct members of our field crews.

**SLIDE 19: EP22 SITE**

The 407 East archaeological impact assessment has encountered the entire spectrum of archaeological sites in what amounts to a 70 kilometre transect of south-central Ontario. In size they range from isolated arrowheads and spear points lost by Aboriginal hunters . . .

**SLIDE 20: PICARD SITE**

to entire longhouse villages over a hectare in area.

**SLIDE 21: EH42 SITE**

In age they range from hunter-gatherer campsites more than 9,000 years old, . . .

**SLIDE 22: MRS. W.G. SITE**



# Highway 407 East: Archaeological Heritage

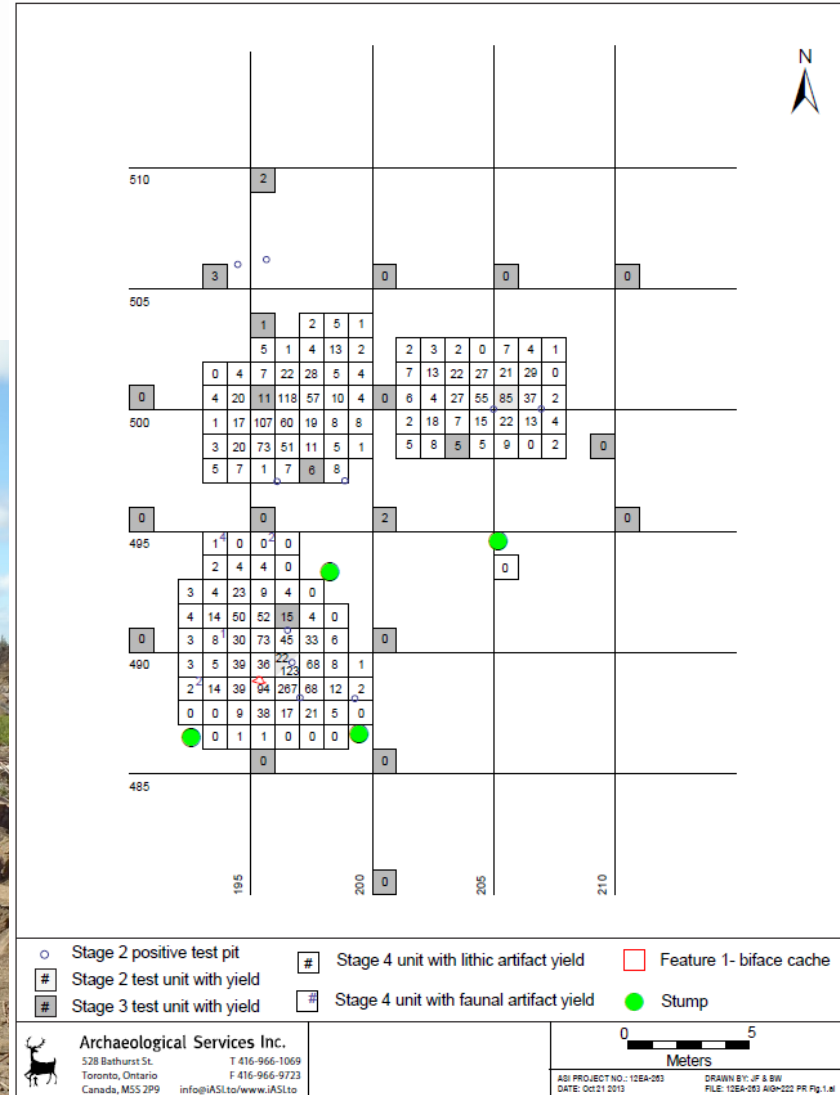
## WLP3 (AIGr-222) – Late Archaic Period – Broadpoint Tradition (Genesee type) site - ca. 4,500 B.P.



Plate 1: A sample of seven bifaces recovered from the cache.



Plate 2: Sample of bifaces recovered from site AIGr-222. Bottom row is from cache.

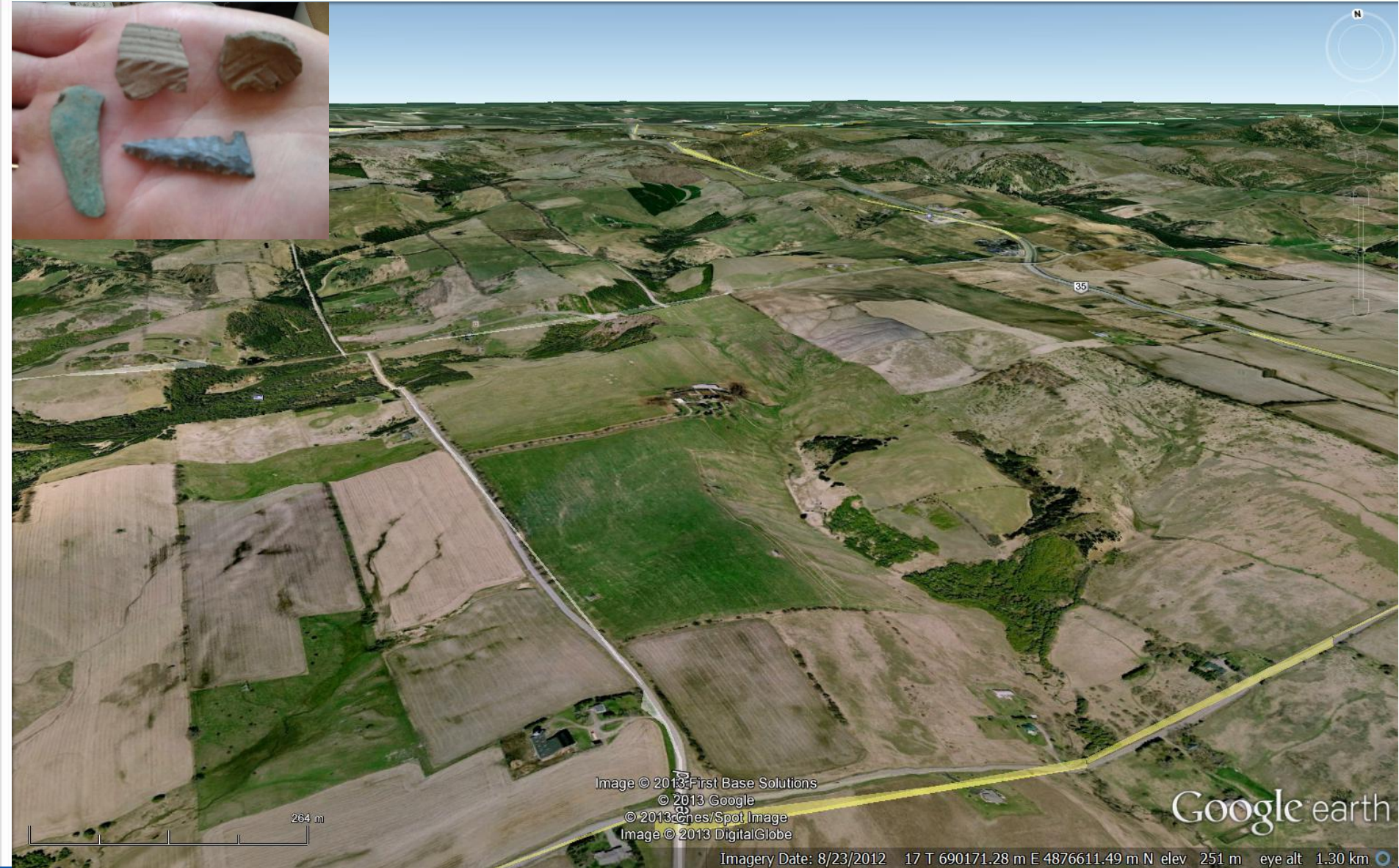


Ms. Mandy McGonigle, Archaeological Liaison  
Hiawatha First Nation

Figure 1: AIGr-222 Stage 4 Mitigation Results

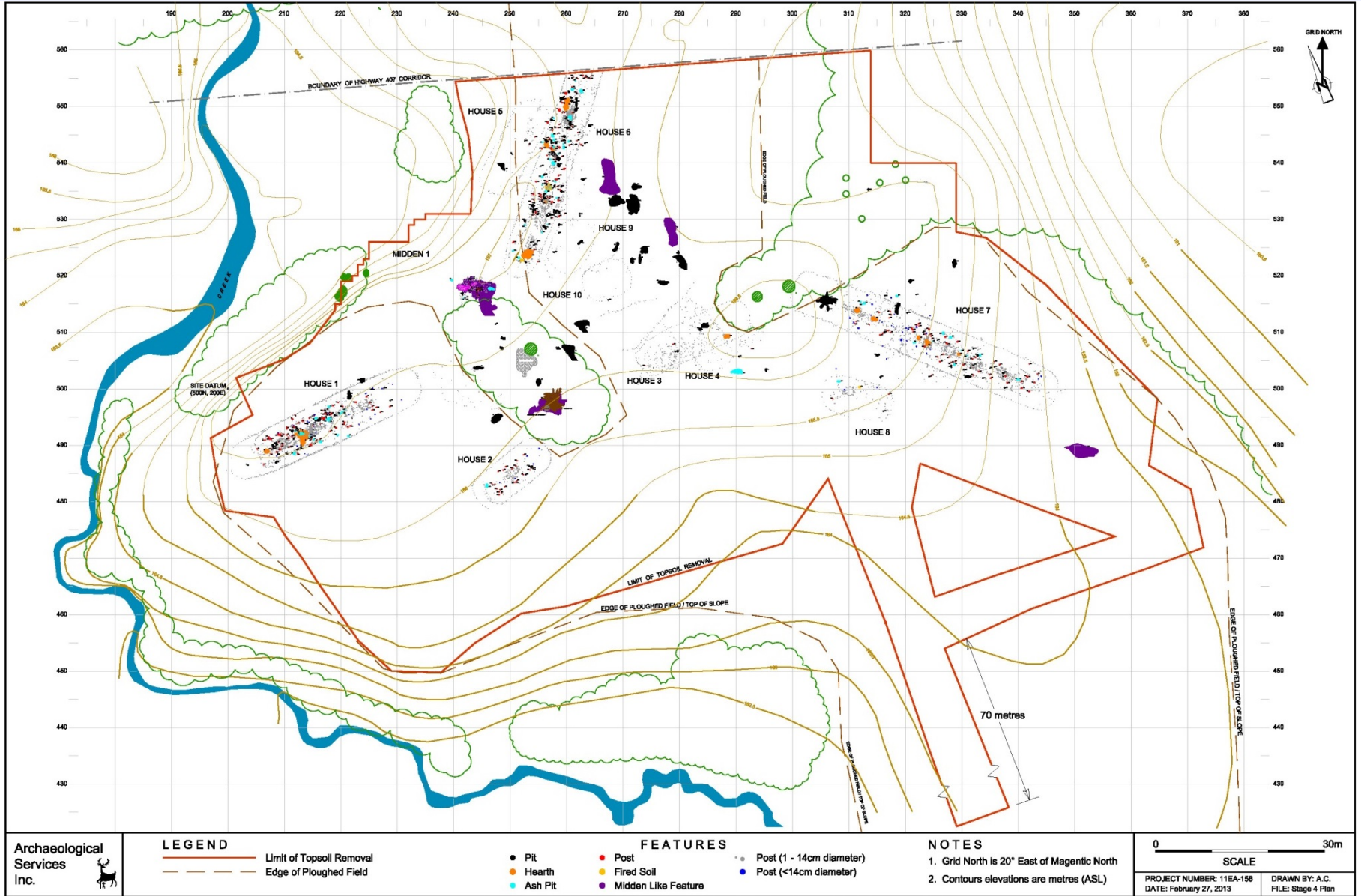


# Highway 407 East: Archaeological Heritage





# Highway 407 East: Archaeological Heritage



Archaeological Services Inc.

**LEGEND**

- Limit of Topsoil Removal
- - - - - Edge of Ploughed Field

**FEATURES**

- Pit
- Hearth
- Ash Pit
- Post
- Fired Soil
- Midden Like Feature
- Post (1 - 14cm diameter)
- Post (<14cm diameter)

**NOTES**

1. Grid North is 20° East of Magnetic North
2. Contours elevations are metres (ASL)

0  30m

**SCALE**

PROJECT NUMBER: 11EA-158  
DATE: February 27, 2013  
DRAWN BY: A.C.  
FILE: Stage 4 Plan

JOSEPH PICARD SITE (AIGs-376) STAGE 4 EXCAVATION PLAN



# Highway 407 East: Archaeological Heritage

**WP42 – Early Archaic Period –  
Corner-notched Tradition (Nettling type) site  
– ca. 9,500 B.P.**

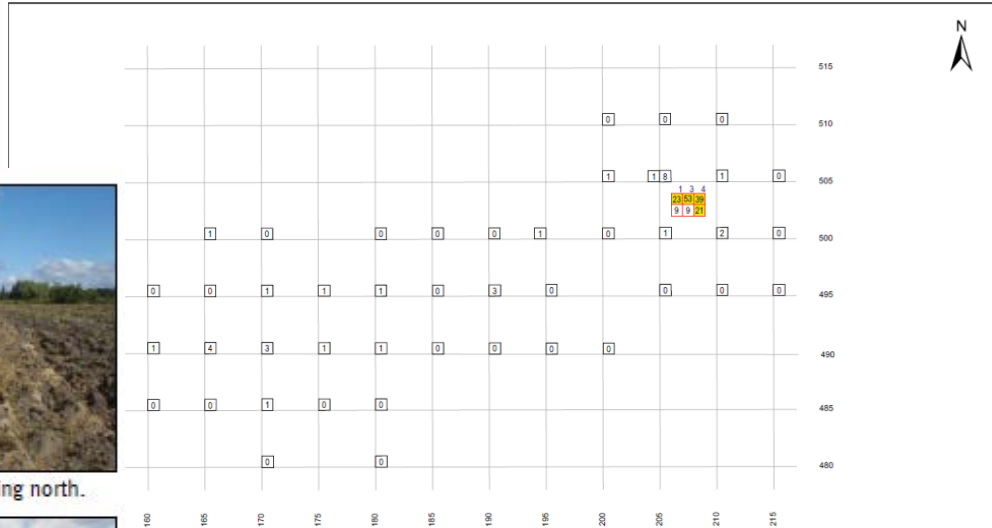


Plate 1: Field conditions during CSP, facing south.



Plate 2: Field conditions during CSP, facing north.



Plate 3: Field conditions in August during excavation of test unit 480-170, facing southeast.



Plate 4: Excavation of test unit 490-200, facing northwest.

services inc.  
 T 416-660-1000  
 F 416-660-9723  
 1333www.sivco.ca

# - faunal yield  
 # Stage 3 Test Unit with lithic artifact yield  
 # Stage 3 Test Unit with potential cultural feature  
 # Test Unit requiring Stage 4 block excavation

0 10 Metres

48-198-027-162, 128-047, 28-049-01, 28-049-02, 28-049-03, 28-049-04, 28-049-05, 28-049-06, 28-049-07, 28-049-08, 28-049-09, 28-049-10, 28-049-11, 28-049-12, 28-049-13, 28-049-14, 28-049-15, 28-049-16, 28-049-17, 28-049-18, 28-049-19, 28-049-20, 28-049-21, 28-049-22, 28-049-23, 28-049-24, 28-049-25, 28-049-26, 28-049-27, 28-049-28, 28-049-29, 28-049-30, 28-049-31, 28-049-32, 28-049-33, 28-049-34, 28-049-35, 28-049-36, 28-049-37, 28-049-38, 28-049-39, 28-049-40, 28-049-41, 28-049-42, 28-049-43, 28-049-44, 28-049-45, 28-049-46, 28-049-47, 28-049-48, 28-049-49, 28-049-50, 28-049-51, 28-049-52, 28-049-53, 28-049-54, 28-049-55, 28-049-56, 28-049-57, 28-049-58, 28-049-59, 28-049-60, 28-049-61, 28-049-62, 28-049-63, 28-049-64, 28-049-65, 28-049-66, 28-049-67, 28-049-68, 28-049-69, 28-049-70, 28-049-71, 28-049-72, 28-049-73, 28-049-74, 28-049-75, 28-049-76, 28-049-77, 28-049-78, 28-049-79, 28-049-80, 28-049-81, 28-049-82, 28-049-83, 28-049-84, 28-049-85, 28-049-86, 28-049-87, 28-049-88, 28-049-89, 28-049-90, 28-049-91, 28-049-92, 28-049-93, 28-049-94, 28-049-95, 28-049-96, 28-049-97, 28-049-98, 28-049-99, 28-049-100

Joining Stage 4 Block Excavation



# Highway 407 East: Archaeological Heritage

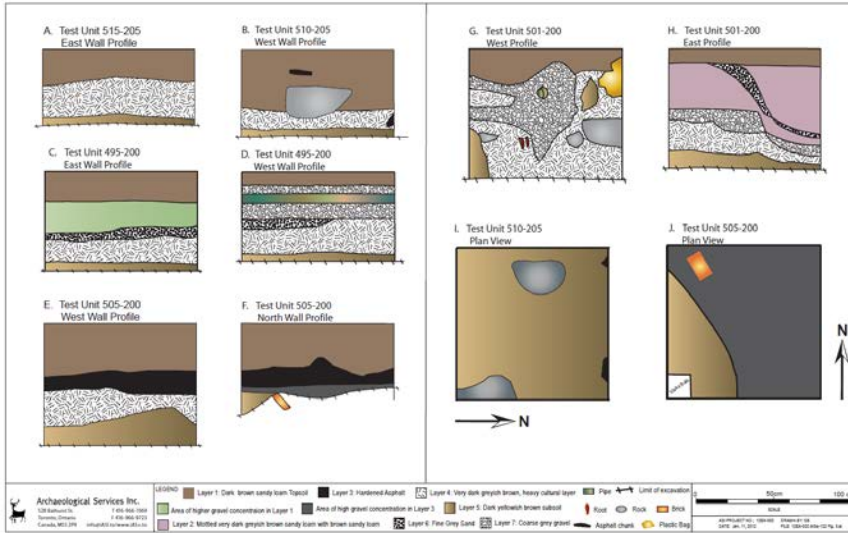
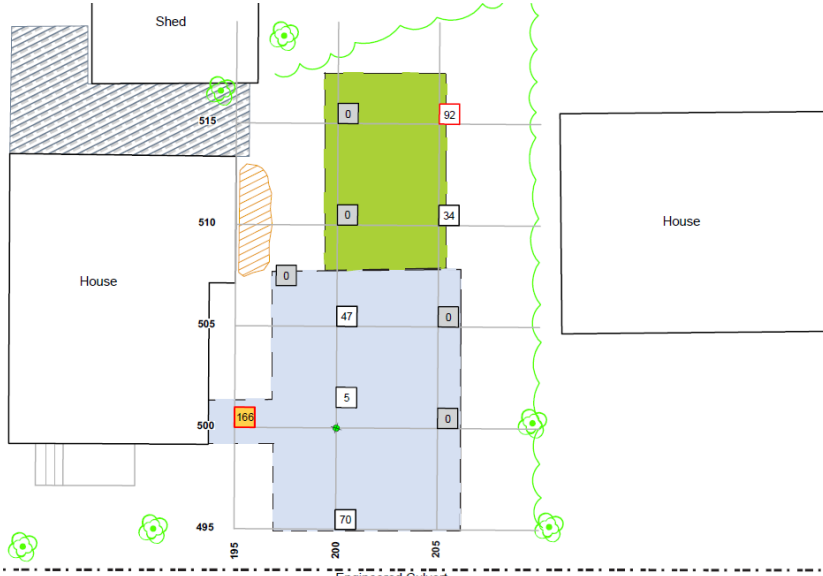


Figure 3: The Mrs. W. G. site (AIGo-122) Selected Test Unit Profiles and Plan Views



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**BASE:**  
 12/47/12 Stage 3 Data AIGo-122  
 workspace\AIGo\_122\_stage3.mxd  
 January 30 2013

**AS/ PROJECT NO: 1EA-151**  
**DATE: January 30 2013**

**DRAWN BY: JF**  
**FILE: AIGo\_122\_stage3\_report\_layer4**

## Mrs. W.G. Site ca. 1830-1860

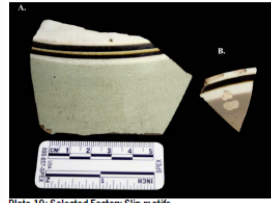


Plate 19: Selected Factory Slip motifs.  
A) Cat. # 145 khaki green body with dark brown bands near carination; B) Cat. # 121 beige body with dark brown band below lip.

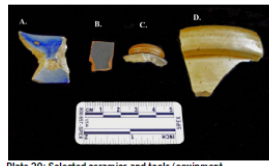


Plate 20: Selected ceramics and tools/equipment.  
A) Cat. # 261 blue flow scroll motif; B) Cat. # 229 jackfield; C) Cat. # 242 stoneware, beige; D) Cat. # 370 stoneware (potentially banded), brown.



Plate 21: Cat. # 382 Ceramic Figure of a cat holding onto a rimmed hollow vessel.

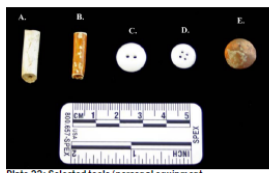


Plate 22: Selected tools/personal equipment.  
A) Cat. # 365 plain pipe stem fragment; B) Cat. # 364 orange glazed mouthpiece pipe stem fragment; C) Cat. # 377 ceramic two hole sew through button; D) Cat. # 367 ceramic four hole sew through button; E) Cat. # 381 terracotta clay marble



Plate 2: Shot of site facing south, shows current modern house.



Plate 3: Site conditions, shows high cedar hedges east and north of site. Facing northeast.



Plate 4: Site conditions, test unit excavation in progress. Facing northeast.



Plate 5: Test Unit 505 200, plan view showing Layer 3 asphalt disturbance.



Plate 6: Test Unit 510-205, plan view showing partial Layer 3 asphalt disturbance of subsoil.

to Euro-Canadian pioneer farmsteads occupied for a few decades during the nineteenth century.

### **SLIDE 23: LAB STAFF**

Even as the fieldwork is being completed, staff in ASI's Laboratory Services Department begin washing and sorting the artifacts prior to handing them off to our team of analysts. These specialists in one or more categories of material culture further sort, catalogue, and describe the artifact assemblage, thereby providing a major contribution to the final site report. Each site may yield an artifact assemblage ranging in size from a small ziplock bag to over one hundred bankers boxes, with most yielding multiple boxes worth.

### **SLIDE 24: MINDMAP/GANTT CHART**

Larger collections can take many months to process and analyse, so careful planning and progress tracking is required to avoid bottlenecks that can spill over into the report writing queue. We have developed systems using MindMapper™ software to organize, Gantt chart, and track individual projects through the fieldwork, laboratory, and report preparation phases. Updates to the mind map are made on a daily basis. Mind map charts, which offer an information-rich, synoptic view of the status of each project, are provided to MTO and the project team as part of the fortnightly update package. On receipt of notification from MTCS that a report has been accepted, MTO is notified and finalized copies are provided. Finally, all artifact collections are transferred to MTO for curation.

### **SLIDE 25: DOORS OPEN WHITBY**



# Highway 407 East: Archaeological Heritage







# Highway 407 East: Archaeological Heritage

- Legend**
- Fieldwork Status**
- Ready to Go
  - Needs Ploughing
  - TPR Staking Required
  - CBP Completed
  - No Go
  - On Hold
  - In Progress
  - Problem
  - Estimated Crew Days
  - PIF
  - Demolition
- Lab Work Status**
- Processing In Progress
  - Processing Complete
  - Analysis In Progress
  - Analysis Complete
  - Bags/Bases
- Report Progress**
- In Progress
  - Completed: in ASI Review
  - Completed: in MTO Review
  - Completed: in MTCS Review
  - Completed: MTCS Accepted
- Other Symbols**
- EA/Retainer Project
  - Scheduled on Gantt Chart
  - PER=Preliminary Excavation Report
  - Phase 2A
  - Phase 2B - EDL
  - Phase 2B - ML
  - Mitigation/TLI
- Recommendation**
- Stage 4
  - No Further Work
- Work Order**
- OE2 WQ 9
  - OE2 WQ 9\* - new sites
  - OE2 WQ 9A
  - OE2 WQ 9B
  - OE2 WQ 9C
  - OE2 WQ 9\* - new sites
  - OE2 WQ 9C
  - OE2 WQ 9E
  - OE2 WQ 9F
  - IO/MTO/PC/other
  - Unassigned

407 OE2 Stages 3 & 4 Archaeology

Status to: 02OCT14



## Stage 3 Archaeological Assessment

### Fieldwork: Euro-Canadian Sites

- EH42 (AIGq-106)
- EH27 (AIGq-157)

### Fieldwork: Aboriginal Sites

- EP22 (BaGp-41)

### Lab

- EP 16 (AIGq-107)
- EP 18 (AIGq-135)
- CH1 Wm. Mitchell (AIGr-182)
- GT51a Valley View (BaGp-37)
- GT54 Highway View (BaGp-38)
- EH16 (AIGq-143)
- EH18 (AIGq-145)
- EH21 (BaGp-42)
- EH22 (BaGp-43)
- EH24 (AIGq-154)
- EH28 (AIGq-158)
- EH29 (BaGp-45)
- EH30 (AIGq-159)
- EH33 (AIGq-161)
- EH36 (BaGp-54)
- EH43 (AIGq-167)

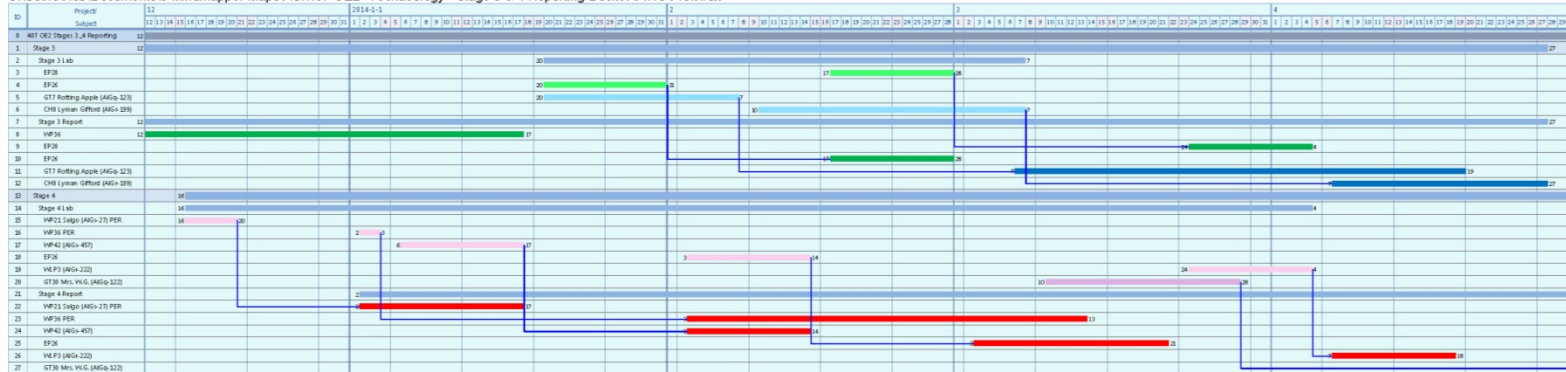
### Report

- CH8 Lyman Gifford (AIGr-199) 16OCT14
- CH6 Servillinger (AIGr-197) 29OCT14
- EH14 (BaGp-40)
- EH41 Lawrence Back Cemetery, Brown Rd
- EP23 (AIGq-151)
- GT21 R. Summers (AIGq-121)
- EH2 James Tilley (AIGq-90)
- buffer w/in TPR only
- EH3 John Elford (AIGq-91)
- EH17 (AIGq-144)
- EH26 (AIGq-156)
- EH37 (AIGq-162)
- EH44 (AIGq-168)
- EH1 Wm. Elford (AIGq-88)

### Completed

- GT7 Rotting Apple (AIGq-123)
- GT29 GTR (AIGq-126)
- GT30 Mrs. W.G. (AIGq-122)
- GT46 Solina Road (AIGq-129)
- GT88 Hear House (AIGq-127)
- EH5/EP8 Frice (AIGq-99)
- EP26 (AIGq-152)
- EP28 (AIGq-153)
- WP36 (AIGs-452)
- WP38 (AIGs-453)
- WP39 (AIGs-454)
- WP42 (AIGs-457)

C:\Users\Rob\Documents\6 Mindmapper Maps\ASIM407 OE2 - Archaeology - Stage 3 & 4 Reporting Docket 04NOV13.twdx



Stage 4 Salvage Excavation



# Highway 407 East: Archaeological Heritage



An important component of the business of archaeological impact assessment and mitigation is sharing the results of our efforts with interested citizens and stakeholders, and public outreach is one of the core values of our company. Beyond participation in the public consultation process that is a routine part of an infrastructure project such as Highway 407 East, we maintain an active engagement with local communities eager to learn about their past as revealed through archaeology. A recent example from earlier this year was Doors Open Whitby, where members of our staff had an opportunity to share our work with interested visitors.

**SLIDE 26: AERIAL VIEW OF 407 CONSTRUCTION**

At the scale of an individual property or archaeological site, the impact assessment and mitigation being carried out for Highway 407 East is essentially no different from any other such project triggered under the Planning Act or the Environmental Assessment Act in Ontario. It is when this work is scaled up, both in time and space, to the scope of this project that two things happen. First, existing small organizational and logistical challenges become large, and second, an entirely new set of challenges appears. Without question, the themes of this conference—innovation and collaboration—have been fundamental to the successful assessment and mitigation of archaeological heritage resources for Highway 407 East.

**SLIDE 27: ACKNOWLEDGEMENTS**

The credit for this goes to all the knowledgeable, dedicated, and highly professional people who make up the project groups at MTO, MTCS, ASI, and the rest of the Parsons team of consultants. We extend our deepest thanks and appreciation to them all.



# Highway 407 East: Archaeological Heritage





# Highway 407 East: Archaeological Heritage

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